Papua New Guinea:
A 20/20 Vision
# Contents

**Preface**  
xi

**Foreword**  
A vision for Papua New Guinea  
Chris Haiveta  
xiii

**Macroeconomic policy issues**

1. Growth with stability: monetary and fiscal policy in Papua New Guinea  
   Rupa Mulina  
   3

2. Financial sector developments, 1980–96  
   Kanitta Meesook  
   12

3. Structural reform versus stabilisation  
   Tim King  
   34

**Microeconomic policy issues**

4. Investment policy framework in Papua New Guinea  
   Pirouz Hamidian-Rad  
   47

5. Labour absorption in Papua New Guinea  
   Paul McGavin  
   65

6. Commerce and industrial development  
   John Cole  
   98

**Sectoral development issues**

7. Mining and petroleum  
   Robin Moaiina  
   115

8. Agriculture, forestry and fisheries  
   Ila Temu  
   136

9. Human resource dilemma: the missing link?  
   Lauatu Tautea  
   176

10. Physical resource development: infrastructure  
    Miria Ume  
    188

**Resource mobilisation and national planning**

11. Foreign aid in resource mobilisation and national planning  
    Murray Proctor  
    205

12. National planning: past experiences and future vision  
    Kila Ai  
    214

13. Resource rents  
    Colin Filer  
    222

14. Restructuring decentralisation: political ad economic issues  
    Desh Gupta and Henry Ivarature  
    261
Tables and figures

Tables

2.1 Papua New Guinea: overall monetary stance and macroeconomic stability 20
2.2 Papua New Guinea: shift between financing of public and private sectors, 1980–95 21
2.3 Papua New Guinea: degree of financial intermediation, 1980–95 21
2.4 Papua New Guinea: efficiency of financial intermediation, 1980–95 24
2.5 Papua New Guinea: capital movements, 1980–95 24
A2.1 Papua New Guinea: financial indicators, 1980–95 30
A2.2 Papua New Guinea: selected economic indicators, 1980–95 31
A2.3 Papua New Guinea: monetary survey, 1980–95 32
A2.4 Papua New Guinea financial intermediation: regional comparison 33
5.1 Papua New Guinea indices of formal market sector wage employment, by selected industries, 1978–95 69
5.2 Papua New Guinea citizen population, 1966–2010 70
5.3 Papua New Guinea wage employment of citizens by province, 1980 and 1990 71
5.4 Papua New Guinea wage employment by major sector, 1968–95 72
5.5 Papua New Guinea measured wage unemployment, all sectors, by province, 1980 and 1990 74
5.6 Papua New Guinea market work force and labour force participation, all sectors, by province, 1980 and 1990 75
5.7 Papua New Guinea indices of private sector wage employment, selected regions, 1978–95 76
5.8 Papua New Guinea market work force, labour force participation and measured unemployment rate—urban and rural citizen populations by sex, 1980 and 1990 78
5.9 Minimum legal wages for Papua New Guinea since October 1992 80
5.10 Papua New Guinea value-added, employment and per employee product, by sector, 1983 and 1990 81
5.11 Papua New Guinea percentage annual change in employment, 1989–95 83
5.12 Papua New Guinea wage employment for formal market sector, by industry, 1976–95 85
5.14 Papua New Guinea wage employment, 1968–95 89
7.1 World gold mine production, 1991–94 119
7.2 Sectoral contributions to economic activity 123
7.3 Mineral exports by value, 1985–95 124
7.4 Total exports by value, 1985–95 124
7.5 Current and future mineral production estimates 127
7.6 Oil and gas developments and prospects 129
8.1 Citizen occupation, 1971–90 139
8.2 Estimate of sustained yield for the forest resources of Papua New Guinea 151
8.3 Current and potential production of fisheries resources 161
8.4 Tuna catch by vessel type, 1972–92 163
9.1 Educational characteristics of the citizen population employed in monetary activities, 1971–90 181
9.2 Citizen wage labour force by educational attainment, 1980 and 1990 182
9.3 An estimate of labour supply, 1990 184
9.4 Labour force and total population with no schooling, 1980 and 1990 185
13.1 Actual and projected contribution of mineral and timber to domestic export values and non-grant revenues, 1978–99 224
13.2 Distribution of BCL net revenues in 1988 227
14.1 Provincially-raised revenue as a percentage of national government funding, 1982–96 267
14.2 Population size, national government grants to provinces in 1989 under OLPG and in 1995 under OLPGLLG; and internal provincial revenues in 1989 272
14.3 Overall budget constraint, 1993–99 273
14.4 Ratio of appropriation between sectors 274
14.5 Central government funding from national government, 1993–96 276
14.6 Derivation grants 1996 and adjusted to 5 per cent 277
Figures

4.1 The paradox of Papua New Guinea
4.2 Dualistic growth: a mining and oil boom, but non-extractive sectors stagnant
4.3 Investment performance and public consumption, 1984–95
4.4 Comparative social indicators: Papua New Guinea and selected countries, 1965–95
4.5 Central government expenditure on social sectors: Papua New Guinea and selected countries, 1965–95
7.1 Exports by commodity group, 1985–95
7.2 Projected gold production, 1995–2010
7.3 Projected copper production, 1995–2010
8.1 Agriculture, forestry and fishing share of non-mining GDP, 1978–97
8.2 Real GDP growth and real per capita GDP, 1980–95
8.3 Gross domestic product by sector, 1978–97
8.4 Agriculture, forestry and fishing—total, market and non-market sector, 1978–94
8.5 Formal private sector employment index, 1978–95
8.6 Share of export value by major commodity, 1980–97
8.7 Agricultural exports classified by commodity and value, 1980–97
8.8 Proportion of Rural Development Bank lending by sector, 1980–95
8.9 Proportion of lending by commercial banks by sector, 1979–93
8.10 Papua New Guinea’s forest resources
8.11 Forestry and marine exports, by quantity exported, 1980–97
13.1 Stakeholder relations in the ‘development forum’
13.2 Stakeholder relation in another dimension

Symbols used in tables

n.a. not applicable
.. not available
- zero
. insignificant
Contributors

Chris Haiveta
Deputy Prime Minister and Minister for Finance, Papua New Guinea

Rupa Mulina
Managing Director, PNG Banking Corporation, formerly Secretary, Department of Finance, Papua New Guinea

Kanitta Meesook
Advisor, Southeast Asia and Pacific Department, International Monetary Fund

Tim King
Director, Economic Insights Pty Ltd

Pirouz Hamidian-Rad
Senior Economist, East Asia and Pacific Department, World Bank

Paul McGavin
Head, School of Economics and Management, The University of New South Wales at the Australian Defence Force Academy

John Cole
Senior Economist, Office of Pacific Operations, Asian Development Bank

Robin Moaina
Secretary, Department of Mining and Petroleum, Papua New Guinea

Ila Temu
Managing Director, Mineral Resources Development Company Pty Ltd, formerly Research Director, Islands/Australia Program, National Centre for Development Studies

Lauatu Tautea
Lecturer, Economics Department, University of Papua New Guinea

Miria Ume
Secretary, Department of Transport and Works, Papua New Guinea

Murray Proctor
Assistant Director General, Papua New Guinea Branch, Australian Agency for International Development (AusAID)

Kila Ai
Director, National Planning Office, Papua New Guinea

Colin Filer
Senior Research Fellow and Head, Social Studies Division, National Research Institute, Papua New Guinea

Desh Gupta
Senior Lecturer in Economics, University of Canberra

Henry Ivarature
Senior Research Fellow, National Research Institute, Papua New Guinea
Preface

Papua New Guinea came to independence with huge promise—the vast wealth of resources the country has at its disposal is the envy of many other developing economies. But this has often brought with it more problems than benefits. The much-touted 'minerals boom' appears to have dissipated, creating only fringe benefits relative to the value of these resources. This is also true of the forestry and fishing sectors. National disposable income has tripled over the last 20 years, but the standard of living for most Papua New Guineans has changed little, if at all. Employment opportunities lag behind the numbers entering the workforce each year. Government services and infrastructure, especially in rural areas, are in disrepair and Papua New Guinea's early record of a stable macroeconomic environment seems to have been abandoned.

The conference 'Papua New Guinea: A 20/20 Vision' gathered together in Port Moresby policymakers, government officials and the business community and invited them to stop and think about Papua New Guinea’s track record since independence. The results, gathered here in this volume are sometimes surprising, and always optimistic.

I would like to thank the co-organisers of the conference and co-publishers of this volume—the National Research Institute—for their assistance in bringing together the speakers and participants in the conference. The financial support of the Australian Agency for International Development (AusAID) for both the conference and production of this volume is gratefully acknowledged. My warmest thanks go to Vicki Veness for her good humour and dedication to ensuring the smooth running of the conference and, for their attention to detail in producing the final product, I am most grateful to Debra Grogan and Maree Tait.

Ila Temu
April 1997
A vision for Papua New Guinea

The Hon. Chris Haiveta

Given that Papua New Guinea culture and society has endured for many thousands of years I am not particularly taken by the view that just 20 years after independence we are suddenly at some form of critical crossroads.

While we certainly have plenty of policy challenges to work through, I do not accept assertions that we are completely on the wrong policy path or that major deviations from the current path are necessary. We are but a small way along the path of what will be many further years of hard policy slog.

There may not be a lot to be gained in the land of the unexpected by getting too carried away with 20-year visions and plans, both of which appear to be of decreasing relevance to businesses and governments in a rapidly changing and unpredictable world.

While we in government are continually frustrated by negative external perceptions about Papua New Guinea there is no point denying that the negative stereotypes are very widely held abroad. Indeed I can give you four common examples of the negative Papua New Guinea stereotypes.

First, it is claimed that previously stable macroeconomic policies have been abandoned since 1989. Yet on any scale of international comparison of fiscal, monetary and inflation policies and outcomes this statement is quite incorrect for the years 1989–92 and from mid-1994 onwards, with the exception of the adjustment-affected inflation outcome for 1995.

It also conveniently neglects earlier difficult periods of macroeconomic management such as the early 1980s when deficits averaged 5.3 per cent of GDP in the four years 1980–83 and exceeded 6 per cent of GDP in 1981 and 1982.
Second, it is asserted that living standards have remained stable or worsened for most people since independence. While we all would like faster and more consistently-sustained change, the indicators suggest there have been significant advances since independence in average life spans, infant mortality rates and educational enrolment and retention levels.

Third, it is implied that government services and infrastructure have deteriorated in Papua New Guinea. While this statement may be correct in some locations it is by no means universally correct, nor does it recognise major efforts being made under recent reforms.

Fourth, it is speculated that the resources boom has dissipated, with only minor benefits accruing from mining, petroleum, forestry and fishing.

The concept of a transient boom has never been widely accepted in government circles and suggestions of a major impending decline in resource production are equally rejected. Recent administrative and policy reforms to capture significantly increased resource rentals from key mineral, petroleum and forestry resources are also not understood or recognised.

While we complain about presentations which emphasise only the negative about our country, to date we have found the approach of both private and public complaining to be ineffective.

Given considerable colonial neglect, followed by a rapid rush to independence, the 20-year post independence performance record still has very much to commend it.

Nevertheless, it seems inevitable that we can only finally change external perceptions by dramatically improving our performance at home, not only in terms of economic and social indicators, but also in terms of political performance and standards of governance. One presumption of many commentators on Papua New Guinea is that all governments to date in Papua New Guinea have been unable to articulate and stick to a long-term planning vision. There is a related view that short to medium-term economic objectives and strategies have, as a result, been deficient.

There has been no shortage of views on either Papua New Guinea's long-term vision or its shorter to medium term objectives and strategies. All governments since independence have consistently published these at least annually (and often more regularly) in annual Budget and planning documents.

Perhaps at different times we have had the wrong set of visions, objectives and strategies. However, it is not correct to say that we have
had none at all. By international standards we have probably published far more on these areas than most other countries, and that particularly includes our developed neighbours, none of whom take very long-term visions and plans seriously.

A useful starting point might be to review past and existing visions and strategies rather than commencing from the presumption that there are none at all.

It may well be that previous visions have not taken sufficient account of Papua New Guinea’s specific cultural features, though there is controversy as to the extent to which economic policies can be made culturally specific in an increasingly globalised world.

Many aspects of Papua New Guinea’s cultural practices do not sit easily with our oft-stated aim of embracing global-style market development. For example, many people are passionately tied to the maintenance of customary land tenure arrangements, even to the extent of opposing registration of land, a seemingly minor reform given the large extent of unemployment and underemployment of our human resources.

Similarly the longstanding Bougainville confrontation makes no economic sense to any participating group, yet it continues.

Finally, there is only limited emergence to date of a domestic business and managerial class, with cultural priorities frequently limiting the growth of the private sector, which under most visions is supposed to represent the key driving force for growth.

It is also worth observing that the processes of vision and economic policy formulation and presentation have involved far less political involvement in Papua New Guinea than in many other countries, with most previous medium and even short-term plans having been written at the bureaucratic level.

Frequently approaches have implanted standard global models without much consideration of local political and cultural imperatives, including the overwhelming political priority given in policy and planning matters to short-term management of budget expenditures.

Most problems emerge in the implementation of plans. Part of the problem may have been a lack of political ownership of written plans, which have frequently been in conflict with oral plans worked out in the political backrooms based on much shorter time frames.

The resolution of this ongoing tension between the political and the administrative arms of government will be of critical importance to the development of planning and expenditure approaches which are rational and sustainable.
In short, the problem is not mainly one of the capacity to articulate medium to longer-term plans, but rather of developing the systems and discipline to stay on course with longer-term plans when alternative short-term distractions arise.

Let me now turn to briefly discuss some key shorter to medium-term policy issues which fall under my ministerial control and which will have an important bearing on our longer-term economic future.

Because we are confronted by very limited (and in all probability declining) resources, as well as limited skills availabilities, it is important that we prioritise and focus public spending efforts in a manageable number of sectors.

The main areas that this government has identified as priority are agricultural development, infrastructure development, health and education.

Despite continuing problems in raising growth in agricultural production it is still not possible to perceive of any short to medium-term growth options for the economy that are not, at least initially, heavily based in raising agricultural production.

Agricultural growth will be assisted by priorities being given to infrastructure, health and education. Although the latter two are social in nature they also have important economic implications.

The agricultural sector in Papua New Guinea in large part remains backwards in terms of technology and farming practices. While production for the domestic market has seen reasonable recent growth this has not been the case for the export sector with per capita production of some key export commodities declining from peaks of the 1980s.

Community lifestyles, attitudes and values, including continuing important tradeoffs between traditional and market activities remain of fundamental importance to raising agricultural growth.

Agricultural extension efforts over 20 years have been disappointing. It is now government policy to downsize significantly the Port Moresby-based Department of Agriculture and Livestock, which will concentrate mainly on policy-related matters and to decentralise extension activities, mainly through the individual commodity boards and, to a lesser extent, the provinces.

Even with major policy reforms it will still take many years—certainly considerably beyond 2020—before the agricultural revolution, which is necessary if there is to be sustained and significant long-term national growth, is achieved. But as the agricultural sector continues
to transform there is likely to be increasing scope to add value to primary production.

Improving general education levels through improved enrolment and retention ratios will, over time, assist in the growth of both agriculture and value adding to primary produce and manufacturing growth more generally.

Just as was the case 20 years ago, sectoral and microeconomic policies need to be managed within the external constraints of the small open economy. Floating the currency and providing a more flexible wage-setting system has certainly provided more policy instruments that can be brought into play.

However, the path to international competitiveness remains a difficult one, along which Papua New Guinea cannot successfully walk without incurring some pain in one form or another. The pain from the large currency adjustment in 1994 has come from an extended period of high inflation, high domestic interest rates and heavy wage demands from the public sector unions.

While we have now successfully come towards the end of that period of adjustment, with important real gains likely to be preserved, we are not necessarily in a hurry to achieve the next lot of gains in a similar dramatic and at times traumatic fashion.

The wisdom of running a sustainable and balanced set of macroeconomic policies, including fiscal, monetary and wages policies is every bit as compelling today as it was under the hard kina policy. With movement to more flexible wage and exchange policies the application of monetary policy has taken on far more importance.

The successful application of strong monetary policies for almost a two-year period now, has been an important element in stabilising the economy and facilitating a strong rebound in the country’s external circumstances. Monetary policy for the past two years has been managed without political interference, though such a situation is still not guaranteed under the Central Banking Act.

Because of the possibilities of political interference under some future government, serious thought will need to be given, over time, to introducing legislation to increase the independence of the Central Bank of Papua New Guinea along the lines of similar moves taken elsewhere in recent years.

A strong and independent Central Bank is of critical concern for economic management under the set of more flexible policy instruments now available.
Issues relating to fiscal policy will arguably be of paramount policy importance in the coming years.

Papua New Guinea’s recent and imminent revenue situation is dominated by rapid relative declines in Australian budget aid. Whereas at independence budget grant aid represented about 50 per cent of total resources, this ratio had fallen to around 28 per cent by the mid-1980s and in 1996 is around 8 per cent.

By the year 2000 this will fall to zero. Australian project aid continues to have limited substitutability, and thus use, in the budgetary sense, so the declining budget aid continues to present very major challenges for budget adjustment.

Another major factor affecting budget adjustment has been the Bougainville confrontation since 1989. Although volatile on the revenue side Bougainville Copper was providing around 6–8 per cent of budget revenues for much of the 1980s. However, the budgetary implications of closure have been much greater still because of the very high expenditures relating to the security operations. By the end of 1996 we will have spent almost US$0.5 billion on the Bougainville troubles.

These funds would have been adequate to implement universal education, to have finalised the Port Moresby to Lae highway and to have significantly upgraded health services throughout the country. Improving our economic circumstances depends heavily on resolving the Bougainville conflict in one form or another.

Another major impact on resource availability since the early 1980s relates to decisions to borrow heavily to take State equity in all major mining and petroleum ventures since Ok Tedi. These investments have been a two-edged sword. Because the investments have been acquired at prices below market level they have generally been financially advantageous—net worth of all State resource investments is now over US$1 billion.

On the other hand significant funds have been diverted to and locked away in these investments so, in the short term, diminishing resources available for physical and social infrastructure development. Public debt has also risen to higher levels than it otherwise would have, though much of the resources debt is now repaid.

The proposed partial floating of State equity holdings aims to address such imbalances and to free some resources for debt reduction and developmental expenditure. It is critical that the proceeds of the sale are utilised in ways which will add meaningfully to our long-term development potential.
The main implication of our declining resource base is that we must, over time, significantly expand revenue collections unless we lower our expectations as to future levels of government expenditure.

While there may be some scope for increasing our major core taxation rates this scope is not great, especially if we want to remain competitive in this region of the world.

We have been working hard on two fronts to improve collections from natural resource-based taxes. We have endeavoured to strengthen significantly the administrative capacity of the Resource Tax Division of the Internal Revenue Commission. This is now starting to pay dividends. While it is not our intention to make major changes to the mining and petroleum tax regimes we continue to send strong messages to resource companies that they must pay their fair share of taxes legally due.

Since 1993 we have progressively made major reforms to the forestry fiscal regime and have also introduced improved monitoring to the sector through the appointment of SGS (PNG) Pty Ltd.

The government is serious about maintaining a forestry revenue system which gives a reasonable share of the gains to all participants, namely the developers, the landowners and all the people of Papua New Guinea, represented by the State.

Finally, on the revenue side there is a commitment in place that a National Value Added Tax will be implemented by 1998. While this will have revenue offsets relating to concurrent tariff reforms it is expected that the reform will be moderately positive in nature.

For over a decade, management of the expenditure side of the budget has presented major difficulties and significant tension has arisen between the bureaucratic and political levels over expenditure. Difficulties have been driven by the narrow and slow-growing revenue base which has not provided as many resources as successive governments have wanted to spend. Further difficulties have arisen over the increasing centralisation of resources, mainly in Port Moresby, but also in many of the provincial capitals.

The centralised public service has generally been high cost, initially through high levels of expatriate employment and more recently through a largely localised but high-cost public service which cannot easily be downsized without major industrial conflict. The provincial and national public sector reforms are of major importance to longer-term efforts to improve service delivery. However, major policy adjustments will be needed if the public sector and provincial reforms are to bear fruit.
We need to arrive at public sector wage levels which are consistent with our capacities, productivity and ability to pay. Current retrenchment and redeployment packages are more suited to the advanced world rather than to a developing country like Papua New Guinea.

We must achieve organisational, management, accounting and auditing standards in both our national and provincial/local organisations which will provide us with the confidence to truly decentralise resources and responsibilities away from centralised structures which are barely working. A revolution is needed in the way our organisations are structured and managed, broadly along the lines of the New Zealand model.

There needs to be considerable rationalisation in the size and numbers of centrally located departments and agencies such that they become mainly policy focused. This will involve fewer political positions at the centre but with increased roles and status for politicians at the local level service delivery areas.

The priority spending agencies need to be strengthened in terms of resource availabilities and skills so that they can make serious inroads in terms of the provision of priority services. While some strengthening is needed at the centralised policy level most resources need to flow to decentralised locations.

Finally, on public sector restructuring there is scope for considerable further privatisation, not only in terms of whole organisations, but also in the delivery of particular services. For example in provinces where there are shortages of accounting and audit skills these services should be contracted out.

The sorts of problems I have outlined are not abstract ones. They are very real problems we in the Department of Finance are grappling with in the formulation of the 1997 Budget and which the National Planning Office is addressing in their medium to longer-term plan formulation.

It is likely that if we cannot come to grips with the structural problems confronting our Budget over the next few years, then governments will become increasingly tired of using ‘hole plugging’ and emergency approaches to keeping expenditures under control. The management of expenditures by emergency means such as limiting outlays to available cashflow is ultimately a debilitating process which greatly frustrates all concerned.

As the implications of funding unsustainable deficits are very clear for Papua New Guinea, the failure to restructure will inevitably lead to a weakening of resolve, with resultant pressures on the exchange
rate, interest rates, inflation and ultimately if the Central Bank is not assured autonomy, on levels of foreign reserves.

In terms of budget financing we have had reaffirmed in 1993/94 the high risks involved with excessive domestic borrowing. We also know from the experience of the early 1980s that excessive foreign borrowing is also no long-term palliative. This includes borrowing not only from the private sector but also the major multilaterals.

By the end of the decade Papua New Guinea must continue to adjust its affairs to be able to live reasonably with less Australian aid and less foreign borrowing from all sources.

While this further weaning from official sources will continue to be difficult it not only presents problems, but also increased opportunities which come with increasing economic independence.

The weaning from official sources will become easier with the attraction of new foreign private investment. This will in turn depend on successes with broader economic reform and with the improvement of our external image and in part on reforms to our trade and industry policies.

This government has already taken steps to change the nature of our trade and tariff policies. The days of special deals for industries seeking monopoly status and high tariff protection or outright trade bans are over. There will be no more special deals for cement, fish or sugar for example.

Because tariffs form an important part of our revenue base we need to proceed with some caution before we dramatically reduce all our tariffs. It is for this reason that most tariff reform will occur in 1998 to coincide with the introduction of a National Value Added Tax. Nevertheless major tariff reform is definitely on the agenda. This will open our businesses up not only to international competition but also to international opportunities.

Industry policy reforms will provide a more conducive climate to efficient operators while eliminating subsidies and protection from the inefficient, the costs of which are now borne by efficient members of the business community, especially exporters as well as domestic consumers.

While we are following standard globalisation approaches to opening up the economy to facilitate faster private sector growth we need to keep in mind the problems posed by the limited stage of development of our indigenous business class.

This matter warrants serious attention in the development of our long-term social infrastructure if we are to avoid the potential problems
of, on the one hand, underemployment of our resources and on the other, of subjugating our people to being workers forever under the control of foreign capital in their own land.

The dilemma suggests the need for a delicate balance being achieved to ensure there is adequate scope for development of local owners and managers, particularly as educational and social infrastructure opportunities increase.

Let me try and summarise some of my points. We should not be excessively negative about our post-independence performance, just as we should not view the periods just before and after independence with rose-coloured glasses.

While we need to be able to look at our problems critically and objectively we should not become completely overwhelmed by them. If we are going to progress as a country then we need to have confidence in ourselves and our future. As part of this confidence we need to be wary of, even openly offend those from afar who would feign friendship but do little but malign international perceptions of our leadership and nation. At times we can be too polite in the face of rudeness.

All our future economic policies need to take account of our cultural traditions and our capacity for rapid social change. In particular we must place in a reasoned social and cultural context, models of change which rely solely on private sector development.

There is no question that we must improve our international image and that such improvement will only come from getting real runs on the board. It is likely in the medium term that image improvement will come not from any social improvements to domestic standards of living but rather from improvements in macroeconomic management.

Within the context of our rich and diverse cultural setting the general direction of economic policies remains reasonably clear. We have little choice but to adjust our economic policies in line with global trends, just as developing countries all over the world are doing.

We now, thankfully have a lot more flexibility in place with our wages, exchange and monetary policies and we have started to move in the right direction with trade and industry policy.

Much of the adjustment which still remains relates to the Budget and particularly the expenditure side of the budget. These adjustments are inextricably woven in with adjustments to public sector wage and retrenchment policy, public sector reform and to the provincial reforms.
In all of this we must keep in mind the need to manage delicately policies with regard to our non-renewable resources in ways that will get the correct balance between the interests of developers, landowners and, perhaps most importantly, the general populace of Papua New Guinea as represented by the State.
Macroeconomic policy issues
Growth with stability: monetary and fiscal policy in Papua New Guinea

Rupa Mulina

Papua New Guinea stands at the threshold of an era of unsurpassed economic opportunities. In the past decade the mineral sector has finally begun to fulfil its promise as a source of growth and budget revenue as several large projects have come on-stream. Moreover, the commencement of preparatory work for a number of new projects has reduced concerns that the mineral boom would be short-lived. At the same time the agricultural sector, which still accounts for the livelihood of the bulk of the people of this country, finally shows signs of pulling out of the sustained depression associated with the decline in international prices for the major crop exports during the 1980s. The decline in agricultural production has been more than offset by a dramatic rise in forestry output over the past decade as the sector has been opened up to new investment.

These developments—supported by the government’s successful efforts to initiate structural reform and to contain the domestic and external imbalances that emerged in the wake of the Bougainville mine in 1989—have generated heightened expectations for the growth prospects of the Papua New Guinea economy in the next century.

The projected minerals sector-led regrowth not only opens up new vistas of opportunity, it carries with it new risks and challenges. Policy-makers are faced with the prospect of making judgements on a number of critical choices and trade-offs. These include choices on the allocation of resources between sectors, where the need to invest in sectors which are likely to yield high rates of economic returns in the near-term must be balanced against the need to diversify the productive base of the economy and encourage the efficient expansion of those sectors likely to better absorb the rapidly growing labour force.
Policymakers also face difficult intertemporal trade-offs between funding current spending programs designed to improve the living conditions of the present generation and the need to set aside sufficient resources for the long-term investment needed to develop the economic and social infrastructure necessary to support faster economic growth. The government is fully cognisant of the importance of investing the revenues generated by non-renewable natural resources in a manner which will lay the foundations for sustainable broad-based growth in the future. A large part of the equity holdings and revenues from the mineral sector are, in a real sense, held in trust for future generations of Papua New Guineans, whose living standards and economic prospects will be determined by the quality of the investment decisions made today. This is a heavy responsibility.

Financial policies for growth with stability

In formulating our fiscal and monetary policies we need to take account of all the considerations and trade-offs described above, with the aim of achieving the elusive objective of growth with stability. The goal of faster and more broadly-based growth is central to the government’s strategy for raising the incomes, living standards, and access to basic public services of the people. The Government of Papua New Guinea has also always attached the highest priority to maintaining stable macro-economic conditions through prudent financial policies, recognising that such stability is a vital precondition for attracting the vast private capital inflows needed to develop this country. In this context it may be observed that in undertaking macroeconomic adjustment policies to deal with temporary internal and external imbalances stemming from external shocks, it is important that we keep our long-term social and economic development objectives clearly in view.

As for our record of macroeconomic management since independence, it would be fair to say that we have been generally successful in cushioning the Papua New Guinea economy from the effects of several severe external shocks. As a relatively narrowly-based open economy dependent on primary commodity exports, Papua New Guinea has always been particularly vulnerable to changes in international economic conditions.

The economic downturn associated with the unrest in the North Solomons province, beginning in 1989, added a new dimension to the problem of macroeconomic management. Supported by donor assist-
ance, financial policies were undertaken to contain emerging internal and external imbalances. At the same time a wide-ranging program of structural reform was initiated to tackle some of the deep-seated structural impediments to growth, notably with regard to the trade system, labour markets, domestic resource mobilisation, and the budget system and commercial operations of the central government. As a result of these measures the economy successfully weathered the disruptions associated with the closure of the Bougainville mine, and the government’s success in maintaining domestic and foreign confidence was reflected in the uninterrupted development of major minerals sector projects in that period.

In addition to the problem of unexpected shocks, fiscal and monetary policy must be formulated in the context of certain special characteristics of the Papua New Guinea economy which stem from its essentially dual nature. Recent developments in the economy have been dominated by an enclave minerals sector, which accounts for much of private investment and growth but only a small share of employment, while the rest of the economy, which includes a substantial cash-crop sector and a large rural subsistence sector, has registered only modest rates of expansion. As a consequence of the limited—albeit growing—linkages of the minerals sector with the rest of the economy, the indirect benefits of the minerals boom have bypassed large sections of our society.

Moreover, revenues from the minerals sector are projected to be sustained over the medium-term as Lihir, Gobe and other projects enter into production. Policymakers must be prepared to meet the challenge of ensuring that the resultant build-up in external reserves and associated pressures on the exchange rate, combined with changes in the cost-structure of the economy do not prejudice the growth and employment-generation prospects of the non-mineral sector. This problem lies at the heart of the policymakers’ dilemma in Papua New Guinea: how to reconcile the need to generate resources from the minerals sector for long-term investment without allowing these sudden massive resource inflows to swamp the economy and distort the structure of domestic prices, wages and costs.

**Fiscal policy**

Fiscal policy over the past couple of years has been largely successful in reversing the internal and external financial imbalances which emerged in 1992–94. The budget deficit in 1992/93 averaged the equivalent of
5.75 per cent of GDP, well above recent historical norms. In the first half of 1994 the fiscal deficit rose to 11 per cent of GDP in annual terms and despite stringent expenditure controls which resulted in the narrowing of the overall 1994 deficit to 2.2 per cent of GDP in 1994, the impact of this expansionary fiscal policy on the external accounts was severe.

By September 1994 external reserves had fallen to unsustainably low levels. In that month the kina was devalued by 12 per cent and then, in October, as speculative pressures persisted, the kina was floated. These measures were supported by a significant tightening of fiscal and monetary policies. As a result of these policies the external crisis had abated by the end of 1995, and the willingness for the government to take the bold measures needed to restore financial stability led to the recovery of much domestic and external confidence in a relatively short period of time. However the after-effects of the expansionary fiscal policies of 1992–94 and the adjustment policies undertaken to restore macroeconomic stability have lingered: in 1995 GDP in the non-mineral sector contracted by 2.9 per cent, the annual inflation rate was about 16 per cent, as the kina devaluation raised the landed cost of imports (which comprise a large share in the CPI); and domestic and foreign debt service payments significantly increased.

In part due to continuing tight budgetary controls during 1995, the overall deficit for the year was equivalent to 0.5 per cent of GDP. This was lower than the budgeted target of one per cent of GDP and Papua New Guinea’s lowest fiscal deficit. Nevertheless final budget figures did differ from the preliminary estimates, which had indicated a virtual balance. We certainly would have liked a balanced or surplus budget. At least we got closer to achieving this than most countries in the region and than any country in the world in relation to the IMF Program.

Fiscal policy for 1996 revolved around three main themes

- consolidation of the macroeconomic stability restored the previous year
- continued emphasis on the long-term economic reform program commenced in 1995 (in the direction of opening up the economy, restructuring taxation, tariffs and industry policies, improving delivery of public services and enhancing levels of public investment)
- the implementation of the new Organic Law reforms on Provincial and Local Governments, which will involve a transfer of many functions from the Central Government.
The current outlook for 1996 indicates that the budget target of an overall deficit equivalent to 1 per cent of GDP is likely to be achieved. Although revenues are projected to be substantially above estimates due to higher receipts from asset sales and buoyant tax collections reflecting improved arrears collection and higher-than-expected company and personal income tax payments, these will be broadly offset by larger-than-budgeted outlays on a number of items, notably teachers' salaries and operations relating to the restoration of services in the North Solomons.

Another factor in raising the total level of outlays has been an associated rise in domestic debt service cost—a side effect of the 1995 effort to sterilise excess liquidity through the issuance of government securities. However, this burden is expected to moderate over the next year as a large proportion of these securities were short-term Treasury Bills, with the rates of interest falling sharply in recent weeks.

In the near-term fiscal policy will be governed by the need to reduce inflationary pressures and free domestic receipts to support private non-mineral sector activities. The government has taken decisive steps to restrain overall expenditures, which had peaked at the equivalent of 33 per cent of GDP in 1991 and 1992 but is expected to be contained at the equivalent of 27 per cent this year. The government remains firmly committed to restraining budgetary spending.

Furthermore, the trend towards increased reliance on indirect as opposed to direct taxes is to continue. It is important that domestic resource mobilisation is strengthened to offset the phased decline of Australian budget aid.

Efforts at fiscal consolidation will continue to be geared towards the objective of reducing the share of current spending in total budgetary outlays. An important factor will be plans to improve the coordination between agencies involved in budgetary planning and personal management. It should be kept in mind that, barring retrenchments (which carry substantial immediate costs), any ad hoc expenditure reduction falls heavily on the goods and services component of expenditures, the growth of which has been restrained for a sustained period.

Expenditure control and monitoring mechanisms are being strengthened, with recent experiences with budget overruns indicating that despite almost a decade of administrative tightening in this area, more needs to be done. Expenditure also needs to be streamlined and reoriented to support private sector growth, in part through rationalisation and divestment of state enterprises.
Monetary policy

The high inflation experienced in 1995 was essentially a one-off phenomenon associated with higher import costs, and as long as any attendant inflationary expectations could be checked by an appropriately tight stance of fiscal and monetary policy it was perceived that the inflation rate could be brought down fairly quickly. On current indications this view appears to have been justified and the inflation rate is expected to have come down substantially by the end of 1996. This would act as the basis for a concerted effort next year to bring inflation down further to a level in line with that of Papua New Guinea’s major trading partners.

Throughout 1995 the major problem of macroeconomic management was how to cope with the huge overhang of liquidity generated by the unsustainable levels of domestic budgetary financing that had taken place in 1992-94. The average level of the broad money base increased by 15 per cent in 1995, following a 44 per cent increase in 1994. Monetary policy was progressively tightened during 1995 with the minimum liquid asset ratio raised by 6 percentage points to 32 per cent by May 1995—it stood at only 11 per cent in September 1994—and the discount facility suspended until the same month when it was abolished and replaced by a new monetary policy instrument the Kina Auction Facility, which could be used to absorb object liquidity on a weekly basis.

Despite these measures liquidity in the banking system remained at very high levels throughout 1995, with the banks’ weekly free reserves margin averaging 10.6 per cent even in the fourth quarter of 1995. During 1996 the Bank of Papua New Guinea has relied more on open market operations to sterilise liquidity, with the banking system’s excess reserves remaining at high levels in line with the improvement in the balance of payments and higher receipts for agricultural and forestry exports.

Over the medium-term the development of the financial sector is seen as an important element of the government’s strategy of supporting growth and investment in the non-mineral sector and enhancing the mobilisation of domestic savings. The increased range of financial services provided by the banking system and the non-bank financial institutions, together with ongoing programs to strengthen the financial position of the savings and loan societies and plans to introduce a stock exchange, are all expected to contribute to the success of this strategy.

The challenge over the medium-term will be to integrate the currently non-monetised sectors of the economy into the financial
system and that appropriate savings instruments are available to take up at least part of the significant revenues accruing to landowners from mining and forestry.

The challenges ahead

Two sets of issues are likely to play an important part in financial policymaking in the years ahead. The first relates to the implications for fiscal and monetary policy formulation of the liberalisation of the exchange and financial system and the increasing integration of regional and global capital markets. The second relates to technological changes which highlight the need to shift budgetary allocations towards human resource development, a shift which would be facilitated by the success of the ongoing fiscal consolidation efforts of the government.

The first set of issues arises from the policies of trade and exchange liberalisation pursued over the past decade and the increasingly closer links of the Papua New Guinea financial system with international capital markets. These two developments have had the following effects:

- the domestic financial system has become more susceptible to external shocks
- the financial markets perception of the success or failure of macroeconomic management is reflected quickly in the external accounts.

The liberalisation of the exchange system is likely to influence the volatile short-term capital movements on a still relatively small domestic financial market. The globalisation of financial markets will broaden the range and nature of financial instruments available, and provide access to innovative financial techniques and new opportunities —such as the possibility of hedging risk through the use of derivatives. However, these new opportunities also carry new and imperfectly-understood risks, as the recent experience of Barings and Sumitomo have demonstrated. There is a need to build up the expertise to assess these risks properly and ensure that the possibilities opened up by these developments can be exploited. Monitoring capabilities need to be enhanced and the range of policy instruments available to policymakers further enhanced to respond to threats to the stability and long-term growth of the financial system.

One of the most far-reaching ramifications of the easing of exchange controls in recent years was clearly demonstrated in the events of 1994: financial markets will be quick to respond to any real or perceived
shortcomings in macroeconomic management, with sharp changes in external reserves signalling the market's view. Under a floating exchange-rate system the problem of reserve drawdown does not arise, although a depreciation for the currency would tend to provide the same signal as loss in external reserves. In general the increased vulnerability of the external account makes the pursuit of prudent fiscal and monetary policies a necessity in order to maintain a sustainable external position. In effect, the closer linkage of the domestic financial system to global markets has introduced an automatic disciplinary mechanism on domestic policymakers, deterring deviations from prudent fiscal and monetary policies.

A second set of issues relates to current economic and technological trends which are likely to be sustained in the next century. How Papua New Guinea fares in the increasingly globalised financial and product markets of the future will depend on the policy decisions taken today. We have been fortunate in our tremendously rich natural-resource base. Used judiciously, the revenues from the exploitation of these natural resources can be used to build up our infrastructure and human resources so as to enable us to take advantage of the enormous technological changes engendered by the recent changes in the information-systems, micro-processor and communications industries.

The key will be to ensure that we have invested sufficiently to develop our human resources so that we can, over time, move into high-technology, skill-intensive service sectors. Given the revolutionary changes in communications that have taken place in the past few years, our geographical isolation is likely to be much less of an obstacle than in the past. If we remain dependent on resource-extraction and primary industries we are likely to find that the secular trend in the terms of trade is not in our favour.

‘New Growth’ theorists such as Paul Romer argue that the most dramatic increases in productivity and wealth in the future will emerge from investments and research in technology rather than increases in the stock of capital and labour—the emerging economy will be based on ideas rather than objects. It will be ownership and control of valuable intellectual property, and more importantly the capacity to create new intellectual property, that will be the determinants of the wealth of a nation.

These new theories have important implications for the investment strategy of a nation such as ours. To make the transition to the new age of ideas, massive and sustained investments in human capital and
communications infrastructure will be needed. To this end the government is firmly committed to improving access to education, health and other services, recognising that the future prosperity of our citizens in the next century will be determined by our willingness and capacity to invest in human resources, and, in particular, in the education and health of the younger generation of this country.
Like many other developing countries, Papua New Guinea has reacted to the growing complexity of its economy and the need to respond more flexibly to external shocks by initiating financial reform measures, in a broader context of a restructuring of the economy designed to improve its performance—to accelerate growth with price stability and external viability. Consistent with an overall policy shift toward more reliance on market signals to direct resource allocation, an important feature of these measures has been to allow market forces to play a greater role. Considerable progress has been achieved since 1991 when this approach was adopted to strengthen the effectiveness of monetary control. Nevertheless, there remains scope for more concerted efforts to define a strategy for the development of an efficient financial system as a whole.

The experience of recent years underscores the importance of different policy areas that can influence the macroeconomic outcome, especially fiscal discipline, and consistency and transparency in the regulatory framework that enhance market confidence. In respect to the efficiency of the financial system, although the general environment is relatively open and the monetary sector fairly well-developed, the sector has not functioned adequately to help promote economic growth. Furthermore, progress in financial intermediation appears to have been adversely affected by lax macroeconomic policies in the past few years: monetisation and financial deepening have slowed; the private sector has been crowded out by the government’s financing needs; the spread between bank deposit and lending rates has widened; and capital outflows have intensified.

To the extent that macroeconomic stability is a prerequisite for structural transformation toward sustained growth, monetary stance that supports fiscal consolidation is key. In regard to the choice of policy instruments, the flexible exchange rate regime recently adopted
has increased potential control over domestic monetary conditions, but close coordination between monetary and exchange rate policy has also become critical. As direct controls on financial markets are relaxed, interest rates need to play a greater role in transmitting monetary effects to all sectors of the economy. Furthermore, recent initiatives—while significant—have been limited to the development of more effective monetary instruments. In the period ahead, financial deregulation and other measures to improve competition and efficiency of the system need to be examined in a broader context, along with the development of infrastructure and human resource and structural reforms in areas such as the land tenure and wage determination systems, so as to achieve the desired degree of financial deepening and productive lending. At the same time, it is essential for further economic growth that the financial sector remains sound and that prudential regulations that are in place be implemented in a consistent manner.

Institutional framework

Papua New Guinea’s financial system

The financial system consists of the central bank (Bank of Papua New Guinea) and a number of commercial institutions. The six commercial banks dominate the commercial financial sector, accounting for about 80 per cent of its total assets. Each bank is either a subsidiary of, or at one time was owned by, a foreign bank. Consequently, the banks have access to modern technology, technical support and training, and are more sophisticated and efficient than one might expect in a small developing country. Consistent with the term structure of deposits, which are 24 months at the maximum, bank lending is typically short-term, directed to large corporations in urban areas to support export or retail businesses. At end-1995, there were 74 commercial bank branches/sub-branches and 90 additional agencies—the majority of branches and agencies belong to the PNG Banking Corporation, whereas most foreign-owned bank offices are located in urban centres. Total commercial bank assets amounted to K2.3 billion (US$1.7 billion), equivalent to about 36 per cent of GDP.

In addition, the financial system consists of seven finance companies and merchant banks (accounting for about 8 per cent of total assets of the financial system), some of which are affiliated with the commercial banks, with focus on lease and hire purchase financing, and to a lesser degree, commercial lending and real estate; 125 savings and loan societies
of which only about 20—those linked to large institutions of the formal sector—are active; the government-owned Rural Development Bank (3 per cent), a development institution targeted at the rural sector; and insurance companies and pension funds, whose financial assets (5 per cent) are largely invested in government’s inscribed stocks.

The Bank of Papua New Guinea is empowered by legislation to regulate and supervise the operations of commercial banks and other financial institutions in order to ensure observance of appropriate prudential standards. Since 1992, its supervision capabilities have been strengthened through a reorganisation of the Banking Supervision Department. With regard to commercial banks, legal requirements presently consist of a minimum capital ratio (5 per cent), a minimum liquid assets ratio (27 per cent) and the maintenance of positive free capital. In addition, various guidelines for the management of banks’ assets and liabilities are in effect; these include guidelines introduced in 1992 on capital adequacy in line with the Bank for International Settlements’ requirements and definitions; guidelines limiting large exposures to single customers and groups of related customers, related parties or economic sectors, also introduced in 1992; and guidelines on foreign exchange exposures, implemented in 1993. Banks with foreign ownership are also subject to supervision by the parent companies. In general, it appears that these regulations and guidelines are adequate, the bad debt situation of commercial banks has improved, and the banking system is sound overall. A major risk lies in the largest—government-owned PNG Banking Corporation—which has in the past carried a large proportion of non-performing loans without sufficient provisioning.

Framework for implementing monetary policy

According to the Central Banking Act 1973, the goal of monetary policy is to promote monetary stability and a sound financial environment, and to support sustainable medium-term growth of economic activity in the non-mineral private sector (for example, excluding mining and petroleum). Monetary stability is defined to include stable levels of the exchange rate, interest rates and prices and credibility in the international financial markets and institutions.

Consistent with this goal, monetary policy is determined annually by the Board of the Bank of Papua New Guinea and endorsed by the Minister of Finance before it is formally adopted by the central bank. Adopted once a year, the plan is reviewed throughout the period to determine whether any change is warranted. Thus, the policy for 1996
adopted in March entails regular reviews based on developments in exchange rates and interest rates, the level of CPI inflation, the fiscal operations, the external sector, and growth in activity in the non-mineral private sector. Toward this objective, the Bank of Papua New Guinea monitors the key monetary aggregates, including the growth in broad money (M3), reserve money, and domestic credit. Furthermore, the 1996 policy envisages technical improvements in the open market instruments—to strengthen the effectiveness of monetary policy and encourage the deepening of the financial system—and the enhancement of the efficiency of the foreign exchange market.

In the 1980s, the Bank of Papua New Guinea generally followed prudent monetary policies within the above institutional structure; the external position was comfortable and domestic inflation was relatively low. However, monetary stance began in 1991 to accommodate expansionary fiscal policy that culminated in a financial crisis in 1994, after which restrictive monetary policy was restored. To a large degree, the authorities have maintained an open and market-oriented financial system despite the periodic use of credit ceilings in containing monetary expansion. Determination of bank deposit and lending interest rates has in principle been left to the market,

Monetary instruments and operations

The current instruments available to the Bank of Papua New Guinea to influence monetary conditions are treasury bill auctions, the kina auction facility, the minimum liquid asset ratio (MLAR), and the lender of last resort facility.

Until mid-1991 and under the hard-kina policy, the Bank of Papua New Guinea relied to a large degree on direct monetary control, through either a statutory liquidity ratio or the level of overall credit to the non-mineral private sector (excluding lending to priority areas), supplemented at times by bank-specific targets. Since then, there has been a move toward indirect control. A base-money approach was adopted, and open market-type operations through treasury bill auctions have become a principal policy instrument. Following the relaxation of regulations on overseas borrowing by residents in late 1992, which weakened considerably the relationship between the level of credit and
Papua New Guinea: instruments for monetary control

**Treasury bill auctions:** Treasury bills issued by the Government are fully subscribed by the Bank of Papua New Guinea, which holds weekly auctions of these bills based on targeted liquidity conditions; participation is presently dominated by commercial banks; very small, if any, secondary market exists.9

**Kina auctions:** Designed to improve the Bank of Papua New Guinea’s ability to influence market interest rates as well as the system’s liquidity at the margin; operates on both sides of the market but, since its introduction in May 1995, commercial banks have most frequently deposited at, and rarely borrowed from the Bank of Papua New Guinea under this facility; both the interest rate and volume offered at each weekly auction are presently set by the Bank.

**MLAR:** Applied to all kina and foreign currency deposits held by residents and can be satisfied by cash, deposits at the Bank of Papua New Guinea, or government securities of maturities up to three years; increased in steps from 11 to 32 per cent between October 1994 and May 1995, then reduced to 27 per cent in June 1996; there is no reserve requirement.

**Lender of last resort:** A safeguard for commercial banks against unexpected changes in their liquidity positions; rate designed to be prohibitive (36.5 per cent at present).

non-mineral sector activity, targeting credit growth formally gave way to targeting money supply. However, in the context of a pegged exchange rate regime—which continued to act as a price anchor, the money supply was not entirely under the control of the monetary authorities.

The relative effectiveness of the various instruments changed significantly when the pegged exchange rate regime was replaced by a floating system in October 1994, giving the authorities more autonomy in the conduct of monetary policy—with the exchange rate becoming an additional channel for transmitting the effects of monetary policy. In order to tighten financial conditions, the measure was accompanied by a large upward adjustment in the MLAR, which succeeded in absorbing excess liquidity. The restrictive policy has been in effect ever since through the maintenance of high interest rates in the context of open market-type operations combined with the kina auction scheme introduced in May 1995. The latter facility is intended for fine-tuning
liquidity management while the main instrument, namely, the yields on
government securities, is being adjusted; in practice, however, the
authorities fix the kina auction rate instead of allowing it to react quickly
to market conditions. The authorities have indicated their intention to
phase out the use of the MLAR as a monetary policy tool in preference to
open market-type instruments, maintaining it for prudential purposes.

The domestic interbank market is undeveloped. Banks in need of
liquidity often borrow from the discount/kina auction facility even in
times of excess liquidity in the system. Treasury bills are held only by
institutions, and in practice there is virtually no secondary money
market; however, measures have recently been taken to help address
this situation, including the removal of the stamp duty for interbank
financial transactions, more active sales to non-bank investors, and
greater information on auction results. No capital market exists. There
are no subsidised or preferential rediscount facilities.10

Regarding foreign exchange operations, the introduction of a floating
exchange regime in the framework of restrictive financial policy
contributed to easing the 1994 crisis. The subsequent adoption of the
screen-based system has helped smooth the functioning of the foreign
exchange market. The termination of the Bank of Papua New Guinea’s
role in providing foreign exchange cover has also helped support the
market-determined system.

Regional perspective

While its floating exchange system is unique among South Pacific island
countries that are also Fund members, Papua New Guinea shares many
aspects of monetary control instruments and their developments with
its smaller neighbours.11 Like Papua New Guinea, these economies have
shifted toward indirect instruments since the late 1980s, and Western
Samoa is now the only country still with direct controls on credit and
interest rates. Open market-type operations have been introduced in the
other countries except Vanuatu, although in the comparator countries,
central bank securities are the main instrument. These operations are
often supplemented by liquid asset ratio (which are also high in the
Solomon Islands and Western Samoa) or reserve requirements. In all
countries except the Solomon Islands, the banking system faces excess
liquidity. Reflecting this feature, discount windows and lending facilities
for commercial banks are infrequently used, and the development of
an interbank market has been slow.
### Papua New Guinea: recent developments in implementation of monetary policy

<table>
<thead>
<tr>
<th></th>
<th>Treasury bill auctions</th>
<th>Kina auctions</th>
<th>Lender of last resort</th>
<th>MLAR (Principal instrument)</th>
<th>Discount facility</th>
<th>Credit targeting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Up to 1989</strong></td>
<td>Used infrequently</td>
<td>n.a.</td>
<td>Role is to safeguard</td>
<td>Used infrequently</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td><strong>1989: Bougainville crisis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Important supplementary instrument, with bank-specific targets</td>
</tr>
<tr>
<td>1989 to mid-1991</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td><strong>Mid-1991: adoption of base money management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From mid-1991 to late 1994</td>
<td>Principal instrument</td>
<td>n.a.</td>
<td>n.a.</td>
<td>Effectively became</td>
<td>Role limited to bridging, short-term indicator</td>
<td>Not used, except as an</td>
</tr>
<tr>
<td></td>
<td>for monetary control</td>
<td></td>
<td></td>
<td>prudential guideline</td>
<td></td>
<td>liquidity</td>
</tr>
<tr>
<td><strong>Late 1994: financial crisis followed by flotation of kina</strong></td>
<td></td>
<td></td>
<td></td>
<td>Actively used in monetary tightening, not binding recently</td>
<td>Replaced by kina auctions in May 1995</td>
<td>Not used, except as an</td>
</tr>
<tr>
<td>From late 1994 to present</td>
<td>Principal instrument</td>
<td>Introduced May 1995: supplementary instrument</td>
<td>Role is to safeguard</td>
<td></td>
<td></td>
<td>indicator</td>
</tr>
<tr>
<td></td>
<td>for monetary control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Recent financial policies and performance

Recent performance of the financial sector needs to be evaluated in the context of the overall development of the economy, which has in turn been influenced by exogenous factors and policy strategy. Importantly, during the past 15 years, Papua New Guinea experienced periodic surges in the income of the mining sector (and in recent years the forestry sector) associated with the development of new projects, subjecting the economy to the volatile and transient effects of the booming sector (the 'Dutch disease'). The impact of cycles and shocks of export incomes and government revenues was compounded by large swings in the
terms of trade, stemming from fluctuations in the prices of all major commodities, not only mineral products but also coffee, cocoa, copra and palm oil (Appendix table 2.1). Within this setting, an important component of macroeconomic management has been to prevent the transmission of an external shock into a fiscal shock. While the mechanism for the sterilisation of the mineral sector effect exists in the form of the Mineral Revenues Stabilisation Fund (MRSF), it broke down in 1992–94 as drawdowns from this fund helped finance large fiscal deficits. Exacerbated by an accommodating monetary stance overall, these fiscal imbalances led to the emergence of economic instability and a weakening of financial intermediation.

**Macroeconomic performance**

During the 1980s, monetary growth was well contained, net bank financing of the budget was modest, and macroeconomic stability as measured by inflation was reasonable (Table 2.1). Nevertheless, reflecting the absence of instruments for fine-tuning the monetary expansion, broad money growth during boom periods (for example, periods of rising terms of trade) tended to be relatively high with a consequence of rising price pressures. During 1991–93, monetary policy accommodated fiscal expansion, to the extent of transgressing significantly the statutory limits on Bank of Papua New Guinea lending to the government (Appendix table 2.2). Given the fixed exchange rate and the relative openness of the economy, this policy resulted in a sharp deterioration of the balance of payments and a loss of international reserves—rather than in high inflation. The tightening of monetary policy beginning in late 1994 served to halt this loss and, in fact, reserves were boosted by donor support, while the devaluation of the kina led to upward adjustments in the price level and a realignment of the real exchange rate.

In response to stagnant credit to the private sector in the face of a strengthening of the floating kina and further moderation in underlying inflationary pressures, the authorities began to ease monetary policy in June 1996 through lowering the interest rate in the kina auction market, complemented by a significant reduction in the MLAR as a signal to the market of the shift in monetary stance.

The relationship between money stock and base money has fluctuated a great deal since 1980. The money multiplier (defined as the ratio of broad money excluding deposits of commodity stabilisation funds, or M3, to reserve money) increased steadily during the period of relative stability (1980–92), consistent with both a declining ratio of currency to
Table 2.1. Papua New Guinea: overall monetary stance and macro-economic stability (per cent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broad money growth</td>
<td>8.6</td>
<td>5.4</td>
<td>18.5</td>
<td>12.9</td>
<td>17.6</td>
<td>-1.3</td>
<td>13.7</td>
</tr>
<tr>
<td>Domestic bank financing of budget (per cent of GDP)</td>
<td>0.6</td>
<td>2.9</td>
<td>3.4</td>
<td>4.7</td>
<td>4.8</td>
<td>4.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Liquid asset requirement</td>
<td>14</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>26</td>
<td>32</td>
</tr>
<tr>
<td>Inflation</td>
<td>5.9</td>
<td>7.0</td>
<td>7.0</td>
<td>4.3</td>
<td>4.9</td>
<td>2.9</td>
<td>17.3</td>
</tr>
<tr>
<td>Gross reserves (US$ million)</td>
<td>396</td>
<td>414</td>
<td>334</td>
<td>250</td>
<td>153</td>
<td>107</td>
<td>257</td>
</tr>
<tr>
<td>Money multiplier (ratio)</td>
<td>5.3</td>
<td>6.1</td>
<td>7.7</td>
<td>8.5</td>
<td>8.5</td>
<td>7.5</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Sources: See Appendix Tables 1 and 2.

bank deposits (as financial savings expanded) and the gradual lowering of the liquid asset requirement. The increasing trend in the multiplier reversed in 1994–95 as demand for real money balances contracted and bank deposits slowed in response to macroeconomic imbalances, while the liquid asset requirement was raised sharply. The interpretation of monetary developments in the last few years is also complicated by the build-up of government arrears in late 1994 (brought on by the suspension by the Bank of Papua New Guinea of additional financing to the government, with the impact of sharply reducing broad money and increased private sector borrowing from both domestic banks and overseas) and subsequent repayments of these arrears at end-1994 and early 1995 (which only partially reversed the contraction of money demand to the extent that confidence had not been fully restored). Even abstracting from these special factors, short-term fluctuations in real money demand would seem to suggest a need for identifying the behaviour of the multiplier so that the Bank of Papua New Guinea can set the money supply at the level it desires with higher precision.

**Developments of key financial indicators**

As a result of slack monetary policy to accommodate fiscal expansion, there was a substantial shift beginning in 1990 in the pattern of bank financing toward funding the government sector. At end-1995, the share of credit to the government (net of deposits) in total bank credit was about 30 per cent compared with the average of less than 5 per cent in
Table 2.2. Papua New Guinea: shift between financing of public and private sectors, 1980–95 (per cent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio of net credit to government to total credit</td>
<td>4.4</td>
<td>13.1</td>
<td>20.1</td>
<td>25.3</td>
<td>31.0</td>
<td>27.6</td>
<td>29.4</td>
</tr>
<tr>
<td>Real growth in private credit</td>
<td>7.6</td>
<td>-5.1</td>
<td>5.9</td>
<td>0.5</td>
<td>-5.4</td>
<td>10.2</td>
<td>-8.3</td>
</tr>
<tr>
<td>Gross Domestic Investment/GDP</td>
<td>22</td>
<td>24</td>
<td>28</td>
<td>24</td>
<td>19</td>
<td>14</td>
<td>..</td>
</tr>
</tbody>
</table>

Sources: See Appendix Table 1.

the 1980s (Table 2.2). Correspondingly, credit to the private sector declined in real terms between 1990 and 1995 compared with an annual expansion of about 7.5 per cent in the previous decade. Thus, the ultimate effect of monetary policy during the past five years has been to crowd out the private sector at the time when the stated policy was to promote the development of the non-mineral sector. In the environment in which foreign investors' confidence was jolted by lack of fiscal discipline, overall investment appears to have fallen in relation to GDP. The impact on economic growth, however, may not be felt for a few years.

Savings mobilisation in Papua New Guinea is hampered by transport difficulties and the lack of banking facilities in rural areas. The number of bank branches and agencies declined over the past 10

Table 2.3. Papua New Guinea: degree of financial intermediation, 1980–95 (per cent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of bank branches/ agencies</td>
<td>413</td>
<td>357</td>
<td>226</td>
<td>210</td>
<td>187</td>
<td>175</td>
<td>164</td>
</tr>
<tr>
<td>Degree of monetisation</td>
<td>23</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>34</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Narrow money/M3*</td>
<td>39</td>
<td>32</td>
<td>33</td>
<td>31</td>
<td>35</td>
<td>37</td>
<td>36</td>
</tr>
<tr>
<td>Private credit/total bank assets</td>
<td>63</td>
<td>77</td>
<td>72</td>
<td>66</td>
<td>58</td>
<td>61</td>
<td>60</td>
</tr>
<tr>
<td>Private credit/GDP</td>
<td>20</td>
<td>31</td>
<td>30</td>
<td>27</td>
<td>22</td>
<td>23</td>
<td>22</td>
</tr>
</tbody>
</table>

Sources: See Appendix Tables 1 and 3.
years, owing to low transaction volumes, law and order problems and
difficulties stemming from mismanagement of the branches (Table 2.3).
Closure of bank facilities undoubtedly has had a vicious circle effect as
it would lead to a further decline in transactions. Nevertheless, the
degree of financial intermediation as measured by the ratio of broad
money (excluding deposits of commodity stabilisation funds, or M3)
to nominal GDP rose significantly from 21 per cent in 1980 to 35 per
cent by 1990. During this period, the share of narrow money in M3 declined (Appendix table 2.3), indicating increased money demand as
safe assets (in the absence of other forms of financial assets) in relation
to transaction demand. Expansionary financial policy since then,
however, has hampered further deepening of financial development.
Monetisation slowed even as income continued to grow, and even
reversed. An upturn in the share of narrow money to overall money
demand suggests a slowdown in total household savings domestically
and/or reluctance to hold longer-term saving instruments.

The role of commercial banks as a financing source for private invest­
ment followed a similar trend. The share of credit to the private sector
in total bank assets, which grew during the 1980s, declined markedly in
1991–93 as more bank resources were geared to financing government
deficits. As a consequence of this decline, combined with a setback in the
monetisation process, credit to the private sector in relation to GDP,
which rose steadily during the 1980s, fell in the next three years.

From the early 1980s, the share of lending to the trade sector has
decreased, whereas lending to agriculture, forestry and fishing and to
miscellaneous businesses has risen; at end-1995, outstanding credit to
the above three sectors each accounted for about 21–24 per cent of the
total. The share of lending to the manufacturing sector was 7 per cent,
half of which financed processing of food, beverages and tobacco.

The behaviour of interest rates is examined here as an indicator of
the efficiency of financial intermediation (Table 2.4). Bank average
deposit rates (3–6 months) were positive in real terms except in 1980
and 1995, and, to the extent that inflation in those years reflected one­
time adjustments, it might be said that financial repression has not been
prevalent. However, nominal interest rates, both deposit and lending,
have been relatively stable and unresponsive to either inflation or
foreign rates. The rates followed to a large degree movements in the
discount and treasury bill rates (Appendix table 2.2), but the lowering of
lending rates by the commercial banks in 1993–94 was also in response
to directives from the Bank of Papua New Guinea in its effort to narrow
the spread between lending and deposit rates. The spread had fallen
Table 2.4. Papua New Guinea: efficiency of financial intermediation, 1980–95 (per cent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount/kina auction rate</td>
<td>5.9</td>
<td>9.3</td>
<td>9.3</td>
<td>7.1</td>
<td>6.3</td>
<td>6.6</td>
<td>18.0</td>
</tr>
<tr>
<td>Treasury bill interest rate</td>
<td>9.6</td>
<td>11.4</td>
<td>10.3</td>
<td>8.9</td>
<td>6.3</td>
<td>6.9</td>
<td>17.3</td>
</tr>
<tr>
<td>Deposit interest rate (real terms)</td>
<td>2.3</td>
<td>1.6</td>
<td>1.9</td>
<td>3.4</td>
<td>0.1</td>
<td>2.1</td>
<td>-7.2</td>
</tr>
<tr>
<td>Deposit-lending point spread</td>
<td>2.6</td>
<td>6.9</td>
<td>5.1</td>
<td>6.7</td>
<td>6.3</td>
<td>4.1</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Sources: See Appendix Table 1.

in the mid-1980s to very low levels but rose significantly (to almost 7 percentage points) in the early 1990s prior to the Bank of Papua New Guinea administrative action. Although the spread prevailing since then seems high compared with those in more developed countries, it is in line with the level in other countries in the region. The relatively high spread can be explained by undeveloped transportation and communication infrastructures, the high degree of risks involved in business undertakings in Papua New Guinea—exacerbated by the land tenure system that does not allow land to be easily used as loan collateral, and costly administrative expenses stemming from comparatively small loan sizes and short-term deposits.

Tight monetary policy has been maintained since 1994 through high interest rates and (until June 1996) substantial upward adjustments in the MLAR for commercial banks. To the extent that excess reserves prevailed well above the minimum ratio, the requirement in itself has contributed little to deterring lending to the private sector. However, the high interest rate policy has had the effect of raising the entire interest structure, although by a much smaller magnitude than the official guiding rates. Thus, whereas the treasury bill rates jumped by 10 percentage points during the course of 1995, reaching 21 per cent by end 1995, the increase in deposit and loan rates was only about 5 points, with the average loan rate just above 15 per cent. The absence of a retail treasury bill market has permitted the large margin between bank deposit rates for small depositors and treasury bill rates.

Capital flows into Papua New Guinea appear to be primarily influenced by requirements of large, enclave projects and the perceived sustainability of the exchange rate, which in turn is a function of the
appropriateness of financial policies in the context of overall economic climate. In the 1980s, capital inflows appeared to be adequate, consistent with the broadly stable macroeconomic environment—even though yields on the treasury bills in Papua New Guinea were somewhat lower than those in Australia in the face of a steady appreciation of the kina (Table 2.5). Pressures for capital outflows were felt between 1990–94, consistent with the loss of financial control that led to successive devaluations of the currency. These flows were also in line with the decline in monetisation and financial savings during the same period. In AusAID (1995), it was estimated that capital flight had been relatively small (or even negative) in the 1980s but was substantial during 1990–94, suggesting a significant deterioration in investors' perception of Papua New Guinea's creditworthiness. Fiscal consolidation in 1995 was a positive step toward reversing this trend, and the pressures for capital outflows seem to have been halted in 1995.

Regional comparison

Prior to the 1994 financial crisis, Papua New Guinea's degree of financial intermediation was about average compared with other countries in the region, broadly similar to Vanuatu, behind Fiji and Western Samoa, but clearly ahead of Solomon Islands and Tonga (Appendix table 2.4). The weakening of financial development stemming from lax financial policies since then has placed Papua New Guinea farther behind. Papua New Guinea's monetisation ratio in 1995 was among the lowest of the comparator group, and the ratio of narrow to broad money was

| Table 2.5. Papua New Guinea: capital movements, 1980–95 (per cent) |
|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Interest rate differentials, points (TB rate less Australian rate) | -2.0 | -2.8 | 0.4 | 2.6 | 1.3 | 1.2 | 9.7 |
| Nominal effective exchange rate a | 1.2 | -3.6 | 4.4 | 3.3 | 6.4 | 1.9 | -24.0 |
| Real effective exchange rate a | 2.3 | 1.6 | 1.9 | 3.4 | 0.1 | 2.1 | -7.2 |
| Private net flows to import ratio b | 10.7 | -2.8 | 7.6 | 0.9 | 4.8 | -14.1 | 15.4 |

\[ a \text{ (+)=appreciation.} \]
\[ b \text{ 1980s average includes only 1983–89.} \]
Sources: See Appendix tables 1 and 2.
relatively high. In respect to facilitating private activities, credit to the private sector was low in relation to GDP, although comparatively high in relation to total bank assets. The spread between deposit and lending rates in Papua New Guinea, a measure of the costs of financial intermediation, was in line with those in the comparator countries, which face similarly difficult environments.

Prospects for further financial system reform

Monetary control instruments

Much progress has been made to improve the effectiveness of instruments for monetary control. A number of areas could strengthen the process.

- In order to better manage the system's liquidity (money stock), it will be important for the Bank of Papua New Guinea to improve its ability to analyse the performance of the money multiplier (namely, the relationship between reserve money and money stock) and the relationship between monetary aggregates, income, prices and interest rates. These parameters show short-term fluctuations, and are also likely to shift over time as institutional structure continues to change, with implications for the controllability of the broad aggregates. In this effort, it is also necessary that data on real sector activity and price movements be available on a more timely and frequent basis than at present.

- As direct controls are no longer used, interest rates will need to play a more active role in determining resource allocation. At kina auctions, the Bank of Papua New Guinea currently determines both the quantity and price of the kina it is willing to buy or sell. This process has an aberrant consequence in that, at times of excess liquidity, the interest rate on bank deposits offered by the Bank of Papua New Guinea would tend to be higher than what commercial banks are willing to accept; conversely, at times of tight liquidity, the interest rate bank borrowing from the Bank of Papua New Guinea can be lower than what banks are willing to pay. Thus, interest rates determined in this market tend to have a bias toward disequilibrium. An early move to a system whereby the Bank of Papua New Guinea only establishes the quantity—leaving the interest rate to be determined by the auction process—will improve the operations of this market, with repercussions on the interest
rate structure and the more efficient use of financial resources.

- There are at present too few players in the treasury bill market, with no secondary market. Further actions to broaden market participation and deepen market interactions would be desirable, including retail sales to individual customers (such as through commercial bank offices) and making the treasury bills negotiable. This would enhance savings mobilisation and create an atmosphere whereby commercial banks have to become more competitive in offering their own services.

- At a more general level, for the Bank of Papua New Guinea to be able to influence the system’s liquidity, it needs the flexibility to operate on both sides of the market. The present breach of the legal ceilings on Bank holdings of treasury bills may force the central bank to sell the bills more aggressively than the market conditions require, in order to limit the extent of the infraction. For this reason, a vigorous pursuit of the current policy to reduce the level of government domestic debt and financing requirement is needed not only to restore fiscal discipline but also to facilitate monetary management.

- Finally, under a flexible exchange regime, domestic monetary policy has effects on both the interest and exchange rates. The exchange rate flexibility enhances the effectiveness of monetary control and allows greater scope for independent monetary policy. Monetary restraint, for example, will put upward pressures on domestic interest rates and induces capital inflows—resulting in an appreciation of the kina, reinforcing the effects of monetary contraction. This underscores the need to coordinate monetary with exchange rate policy, including taking adequate account of monetary conditions abroad.

**Foreign exchange operations**

The foreign exchange market has worked well since the adoption of the screen-based system. Regarding the foreign exchange regime itself, it is essential that the wage determination process be flexible; this will allow a nominal depreciation, for example, to translate into a real depreciation—thereby permitting market forces to shift relative prices between tradables and non-tradables—and prevent a persistent depreciation.19

Regarding the functioning of the market, the Bank of Papua New Guinea continues to review its operations to assist in its process of maturing. The following are among issues that might be examined
- The interbank market for foreign exchange is relatively thin, with participation of six commercial banks, the sole authorised foreign exchange dealers. In order to enhance competition, it will be necessary that entry into the market is not restricted. In addition, permitting more retail foreign exchange operators will provide better service to the tradable sector and strengthen market efficiency overall. In this effort, concurrent measures to enhance the framework for oversight will be required.

- Given a strengthened foreign reserves position at present, there is room for further liberalisation of capital controls. This will both broaden and deepen the foreign exchange market, as well as permit the exchange rate to become a more effective channel for transmitting the effects of monetary policy. Freer capital movements will also induce capital flows to offset seasonal and other fluctuations in the current account.

Financial intermediation

Macroeconomic instability in recent years has evidently resulted in financial disintermediation. Restoring fiscal discipline and making room for lending to the private sector will be key to a reversal of this situation and the continued development and productive role of the financial sector. In addition, the process could be facilitated by institutional and structural changes in the following areas.

- A wider range of financial instruments needs to be developed over time. In particular, a promotion of long-term saving instruments will help make funds available for long-term lending as well as mobilise domestic savings. This could take the form of longer maturity bank deposits or certificates of deposits, and should be encouraged concurrent with the broadening of the treasury bill primary market and development of the secondary market.

- Further expansion of financial services into the rural areas is necessary, and the current study by the Bank of Papua New Guinea on factors influencing the closure of bank offices will be important in this regard. Policy initiatives in a comprehensive range of areas are required to reduce impediments to banking activities such as transportation and communication difficulties, security problems outside of urban areas, the absence of assets readily available for collateral, and the shortage of qualified labour.
Lessening structural barriers to the provision of financial services and to a generally favourable environment for investors will help reduce high costs of intermediation, in turn lowering the costs to private investment. In addition, better familiarity with accounting, investment analysis, and contractual procedures on the part of borrowers through general education upgrade will cut down administrative costs and riskiness associated with projects.

Management and supervision

The PNG Banking Corporation has been identified to need major capital restructuring and writing off of bad debts. It is essential for the integrity of the entire banking system that the operations of this government-owned bank be based on commercial—not political—considerations, and that the Bank of Papua New Guinea subject it to the same high supervision standards as other banks. For non-bank financial institutions to become more active as intermediaries, including in the treasury bill and foreign exchange markets, the oversight framework will need to be enhanced so that these institutions are also subject to regular and rigorous supervision.

Notes

1 The PNG Banking Corporation, with a market share of about 45 per cent, is fully owned by the government; the remaining banks are privately owned.
2 Agencies collect deposits but do not engage in lending activities.
3 The relevant legislation is the Central Banking Act, the Banks and Financial Institutions Act, and the Savings and Loans Societies Act.
4 At end-1994, specific provisions for known bad debt amounted to about 1 per cent of total credit to the private sector; the proportion has been reduced by about half.
6 The Central Banking Act also limits Bank of Papua New Guinea holdings of treasury bills to 20 per cent of ordinary revenue (by order of Minister of Finance up to 25 per cent for six months) and the amount of Bank net financing provided to the government during any fiscal year to 10 per cent (12.5 per cent) of the revenue. However, from end-1993, these limits have generally been exceeded.
7 In October 1994, the Bank of Papua New Guinea removed the guidelines for commercial banks to keep the spread between deposit and lending rates (on a weighted average basis) to within 5.5 percentage points; however, the Bank continues to monitor the spread with a
view to ensuring that it is not excessive.

Prior to the adoption of the floating system in October 1994, the kina was pegged to a basket of currencies, with occasional adjustments. The currency was devalued by 10 per cent in early 1990, and another 12 per cent in September 1994.

In addition to the treasury bills, the government finances its deficit through issuing long-term bonds—inscribed stocks—to the Bank of Papua New Guinea, which sells them to the market by tap issue; and borrowing directly from the Bank using a temporary advance facility, for which any outstanding amount is converted into treasury bills each half year.

With one exception of Bank of Papua New Guinea onlending of the European Investment Bank's global loan (at a low interest rate) to small and medium-sized businesses through commercial banks.

A related instrument, the exchange settlement account, is used for the purpose of facilitating interbank transactions; since 1992, no interest has been paid on the account.

In Fiji, Solomon Islands, Tonga, Vanuatu and Western Samoa, the exchange rate is pegged to a composite basket of currencies. Monetary control instruments in these five comparator countries are studied in Nagai (1996).

As earlier noted, there is no reserve requirement. The above statement assumes that a portion of the minimum liquid asset ratio is satisfied through deposits at the Bank of Papua New Guinea. A 1993 internal study by IMF staff (using quarterly time series) on the behaviour of the multiplier between 1980–90, adjusted for changes in the MLAR, showed a reasonable degree of stability.

The 1993 IMF study also identified real money demand to be directly related to real GDP (with long-run elasticity of 1.2, broadly in line with estimates for other developing countries in the region), and inversely related to the rate of inflation and a proxy for the degree of financial deepening.

If credit to the commodity stabilisation funds is classified under credit to the government, the recent decline in credit to the private sector would be even more pronounced.

Investment data for Papua New Guinea are only estimated. Table 2.2 includes public sector investment and private investment in the mining sector (which relies little on domestic bank borrowing). The assessment in AusAID (1995) is that given the recent decline in total investment, private non-mining investment has held up well, attributable to the forestry and construction sectors.

This observation contrasts that made in AusAID (1995) based on the ratio of unadjusted broad money to GDP. The exclusion of commodity stabilisation funds is equivalent to consolidating the funds with the government sector in the monetary account.

Although it is likely that the presence of price controls has had distortionary effects on savings behaviour (as well as the price statistics).

In principle, automatic indexation of wages was discontinued in 1992.
### Appendix table 2.1. Papua New Guinea: financial indicators, 1980–95 (per cent, unless otherwise indicated)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External environment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terms of trade change (appreciation +)</td>
<td>-16.7</td>
<td>-23.3</td>
<td>6.9</td>
<td>20.5</td>
<td>9.8</td>
<td>8.9</td>
<td>8.1</td>
<td>3.1</td>
<td>6.4</td>
<td>-19.3</td>
<td>0.2</td>
<td>-0.2</td>
<td>2.9</td>
<td>14.4</td>
<td>15.9</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>General stance of monetary policy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broad money (M3) growth</td>
<td>-6.3</td>
<td>5.2</td>
<td>4.8</td>
<td>19.9</td>
<td>13.1</td>
<td>11.2</td>
<td>15.8</td>
<td>9.1</td>
<td>13.3</td>
<td>7.4</td>
<td>5.4</td>
<td>18.5</td>
<td>12.9</td>
<td>17.6</td>
<td>-1.3</td>
<td>13.7</td>
</tr>
<tr>
<td>Liquid asset requirement</td>
<td>20.0</td>
<td>18.0</td>
<td>16.0</td>
<td>14.0</td>
<td>18.0</td>
<td>12.0</td>
<td>12.0</td>
<td>14.0</td>
<td>12.0</td>
<td>11.0</td>
<td>11.0</td>
<td>11.0</td>
<td>11.0</td>
<td>11.0</td>
<td>26.0</td>
<td>32.0</td>
</tr>
<tr>
<td><strong>Macroeconomic stability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation (average CPI)</td>
<td>12.0</td>
<td>8.1</td>
<td>5.5</td>
<td>7.9</td>
<td>7.4</td>
<td>3.7</td>
<td>5.4</td>
<td>3.4</td>
<td>5.4</td>
<td>4.5</td>
<td>7.0</td>
<td>7.0</td>
<td>4.3</td>
<td>4.9</td>
<td>2.9</td>
<td>17.3</td>
</tr>
<tr>
<td>Gross reserves (US$ million)</td>
<td>438</td>
<td>412</td>
<td>467</td>
<td>447</td>
<td>437</td>
<td>421</td>
<td>405</td>
<td>397</td>
<td>334</td>
<td>250</td>
<td>153</td>
<td>107</td>
<td>257</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(In months of non-mineral imports)</td>
<td>..</td>
<td>..</td>
<td>-7.7</td>
<td>-7.0</td>
<td>-7.8</td>
<td>-6.6</td>
<td>-5.0</td>
<td>-5.3</td>
<td>-4.2</td>
<td>-3.1</td>
<td>-1.9</td>
<td>-1.2</td>
<td>-3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Shift between public and private sector financing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio of net credit to govt to total credit</td>
<td>4.1</td>
<td>10.0</td>
<td>15.2</td>
<td>0.4</td>
<td>-1.4</td>
<td>4.2</td>
<td>6.2</td>
<td>-0.9</td>
<td>6.3</td>
<td>6.9</td>
<td>13.1</td>
<td>20.1</td>
<td>25.3</td>
<td>31.0</td>
<td>27.6</td>
<td>29.4</td>
</tr>
<tr>
<td>Real growth in private credit</td>
<td>19.8</td>
<td>6.4</td>
<td>2.7</td>
<td>10.5</td>
<td>3.8</td>
<td>8.5</td>
<td>12.4</td>
<td>7.0</td>
<td>5.3</td>
<td>8.9</td>
<td>-5.1</td>
<td>5.9</td>
<td>0.5</td>
<td>-5.4</td>
<td>10.2</td>
<td>-8.3</td>
</tr>
<tr>
<td><strong>Degree of financial intermedia-tion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of bank branches and agencies</td>
<td>..</td>
<td>..</td>
<td>497</td>
<td>502</td>
<td>493</td>
<td>485</td>
<td>467</td>
<td>446</td>
<td>418</td>
<td>357</td>
<td>226</td>
<td>20</td>
<td>187</td>
<td>175</td>
<td>164</td>
<td></td>
</tr>
<tr>
<td>Degree of financial deepening*</td>
<td>21</td>
<td>23</td>
<td>23</td>
<td>24</td>
<td>26</td>
<td>27</td>
<td>30</td>
<td>29</td>
<td>30</td>
<td>33</td>
<td>35</td>
<td>35</td>
<td>34</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Private sector credit/nominal GDP</td>
<td>16</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>24</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>31</td>
<td>31</td>
<td>30</td>
<td>27</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td>Private sector credit/total bank assets</td>
<td>56</td>
<td>70</td>
<td>74</td>
<td>69</td>
<td>68</td>
<td>70</td>
<td>74</td>
<td>75</td>
<td>73</td>
<td>78</td>
<td>77</td>
<td>72</td>
<td>66</td>
<td>58</td>
<td>61</td>
<td>60</td>
</tr>
<tr>
<td><strong>Efficiency of financial intermedia-tion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discount/kina auction rate (end period)</td>
<td>7.2</td>
<td>11.6</td>
<td>13.8</td>
<td>10.9</td>
<td>9.3</td>
<td>10.4</td>
<td>12.3</td>
<td>10.4</td>
<td>10.1</td>
<td>10.5</td>
<td>11.4</td>
<td>10.3</td>
<td>8.9</td>
<td>6.3</td>
<td>6.9</td>
<td>17.3</td>
</tr>
<tr>
<td>Treasury bill rate</td>
<td>-4.6</td>
<td>1.8</td>
<td>2.3</td>
<td>1.5</td>
<td>0.6</td>
<td>5.6</td>
<td>5.8</td>
<td>6.0</td>
<td>3.7</td>
<td>3.6</td>
<td>1.6</td>
<td>1.9</td>
<td>3.4</td>
<td>0.1</td>
<td>2.1</td>
<td>-8.5</td>
</tr>
<tr>
<td>Spread between deposit and lending rates</td>
<td>4.3</td>
<td>4.4</td>
<td>4.3</td>
<td>2.0</td>
<td>2.5</td>
<td>2.0</td>
<td>0.8</td>
<td>2.3</td>
<td>3.4</td>
<td>6.4</td>
<td>6.9</td>
<td>5.1</td>
<td>6.7</td>
<td>6.3</td>
<td>4.1</td>
<td>5.9</td>
</tr>
<tr>
<td><strong>Pressures on capital flows</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB rate differential (from Australia)</td>
<td>-3.5</td>
<td>-1.7</td>
<td>-0.8</td>
<td>-0.1</td>
<td>-1.7</td>
<td>-4.9</td>
<td>-3.1</td>
<td>-2.4</td>
<td>-2.0</td>
<td>-6.3</td>
<td>-2.8</td>
<td>0.4</td>
<td>2.6</td>
<td>1.3</td>
<td>1.2</td>
<td>9.7</td>
</tr>
<tr>
<td>Nominal effective exchange rate (app. +)</td>
<td>8.1</td>
<td>5.1</td>
<td>1.5</td>
<td>-3.4</td>
<td>1.8</td>
<td>-0.2</td>
<td>-5.0</td>
<td>2.0</td>
<td>2.3</td>
<td>10.3</td>
<td>-3.6</td>
<td>4.4</td>
<td>3.3</td>
<td>6.4</td>
<td>1.9</td>
<td>24.0</td>
</tr>
<tr>
<td><strong>Overall economic performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real GDP growth rate</td>
<td>1.8</td>
<td>-0.5</td>
<td>0.3</td>
<td>12.5</td>
<td>-1.5</td>
<td>5.1</td>
<td>4.7</td>
<td>2.8</td>
<td>2.9</td>
<td>-1.4</td>
<td>-3.0</td>
<td>9.5</td>
<td>11.8</td>
<td>16.6</td>
<td>5.6</td>
<td>-4.7</td>
</tr>
<tr>
<td>Real non-mineral growth rate</td>
<td>..</td>
<td>..</td>
<td>1.7</td>
<td>-0.2</td>
<td>-3.9</td>
<td>8.8</td>
<td>3.0</td>
<td>4.9</td>
<td>5.7</td>
<td>5.2</td>
<td>3.8</td>
<td>4.2</td>
<td>9.0</td>
<td>-3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment to GDP ratio</td>
<td>25.4</td>
<td>25.9</td>
<td>32.2</td>
<td>29.7</td>
<td>23.9</td>
<td>18.4</td>
<td>21.0</td>
<td>19.3</td>
<td>23.3</td>
<td>26.0</td>
<td>24.4</td>
<td>28.0</td>
<td>23.8</td>
<td>18.8</td>
<td>14.2</td>
<td></td>
</tr>
</tbody>
</table>

*Broad money excluding deposits of commodity stabilisation funds (M3*) in relation to nominal GDP

## Appendix table 2.2. Papua New Guinea: selected economic indicators, 1980–95 (per cent, unless otherwise indicated)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Growth and price performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real GDP growth</td>
<td>1.8</td>
<td>-0.5</td>
<td>0.3</td>
<td>12.5</td>
<td>-1.5</td>
<td>5.1</td>
<td>4.7</td>
<td>2.8</td>
<td>2.9</td>
<td>-1.4</td>
<td>-3.0</td>
<td>9.5</td>
<td>11.8</td>
<td>16.6</td>
<td>5.6</td>
<td>-4.7</td>
</tr>
<tr>
<td>Real non-mineral growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPI inflation (average)</td>
<td>12.0</td>
<td>8.1</td>
<td>5.5</td>
<td>7.9</td>
<td>7.4</td>
<td>3.7</td>
<td>5.4</td>
<td>3.4</td>
<td>5.4</td>
<td>4.5</td>
<td>7.0</td>
<td>7.0</td>
<td>4.3</td>
<td>4.9</td>
<td>2.9</td>
<td>17.3</td>
</tr>
<tr>
<td><strong>Fiscal performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government balance to GDP ratio</td>
<td>-1.8</td>
<td>-5.9</td>
<td>-5.1</td>
<td>-4.4</td>
<td>-0.9</td>
<td>-2.3</td>
<td>-2.6</td>
<td>-1.1</td>
<td>-1.0</td>
<td>-1.2</td>
<td>-3.3</td>
<td>-1.8</td>
<td>-5.6</td>
<td>-5.9</td>
<td>-2.3</td>
<td>0.2</td>
</tr>
<tr>
<td>(of which: Domestic bank financing)</td>
<td>-0.5</td>
<td>1.9</td>
<td>1.1</td>
<td>1.0</td>
<td>1.2</td>
<td>-1.7</td>
<td>0.3</td>
<td>0.6</td>
<td>1.4</td>
<td>1.1</td>
<td>2.9</td>
<td>3.4</td>
<td>4.7</td>
<td>4.8</td>
<td>4.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Domestic debt to GDP ratio</td>
<td>9.5</td>
<td>8.5</td>
<td>8.4</td>
<td>7.7</td>
<td>8.0</td>
<td>8.0</td>
<td>9.1</td>
<td>8.7</td>
<td>9.6</td>
<td>12.1</td>
<td>13.2</td>
<td>15.4</td>
<td>19.9</td>
<td>20.7</td>
<td>25.7</td>
<td>25.6</td>
</tr>
<tr>
<td><strong>Monetary developments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broad money (M3*) growth</td>
<td>-3.2</td>
<td>0.3</td>
<td>2.4</td>
<td>14.5</td>
<td>15.1</td>
<td>9.6</td>
<td>13.3</td>
<td>1.5</td>
<td>4.4</td>
<td>5.3</td>
<td>4.3</td>
<td>17.6</td>
<td>12.5</td>
<td>17.8</td>
<td>-1.3</td>
<td>13.8</td>
</tr>
<tr>
<td>Broad money (M3*) growth</td>
<td>-6.3</td>
<td>5.2</td>
<td>4.8</td>
<td>19.9</td>
<td>13.1</td>
<td>11.2</td>
<td>15.8</td>
<td>9.1</td>
<td>13.3</td>
<td>7.4</td>
<td>5.4</td>
<td>18.5</td>
<td>12.9</td>
<td>17.6</td>
<td>-1.3</td>
<td>13.7</td>
</tr>
<tr>
<td>Private sector credit growth</td>
<td>34.2</td>
<td>15.0</td>
<td>8.4</td>
<td>19.2</td>
<td>11.5</td>
<td>12.5</td>
<td>18.4</td>
<td>10.7</td>
<td>11.0</td>
<td>13.7</td>
<td>1.5</td>
<td>13.3</td>
<td>4.8</td>
<td>-0.8</td>
<td>13.4</td>
<td>7.6</td>
</tr>
<tr>
<td>Deposit rate (3–6 months, average)</td>
<td>6.9</td>
<td>10.0</td>
<td>8.0</td>
<td>9.5</td>
<td>8.1</td>
<td>9.5</td>
<td>11.5</td>
<td>9.6</td>
<td>9.3</td>
<td>8.2</td>
<td>8.7</td>
<td>9.1</td>
<td>7.9</td>
<td>5.0</td>
<td>5.1</td>
<td>7.3</td>
</tr>
<tr>
<td>Lending rate (average)</td>
<td>11.2</td>
<td>14.4</td>
<td>12.3</td>
<td>11.6</td>
<td>10.6</td>
<td>11.5</td>
<td>12.3</td>
<td>11.9</td>
<td>12.7</td>
<td>14.6</td>
<td>15.5</td>
<td>14.2</td>
<td>14.5</td>
<td>11.3</td>
<td>9.2</td>
<td>13.2</td>
</tr>
<tr>
<td>Treasury bill rate</td>
<td>7.2</td>
<td>11.6</td>
<td>13.8</td>
<td>10.9</td>
<td>9.3</td>
<td>10.4</td>
<td>12.3</td>
<td>10.4</td>
<td>10.1</td>
<td>10.5</td>
<td>11.4</td>
<td>10.3</td>
<td>8.9</td>
<td>6.3</td>
<td>6.9</td>
<td>17.3</td>
</tr>
<tr>
<td><strong>External sector developments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current account to GDP ratio</td>
<td>-10.4</td>
<td>-17.8</td>
<td>-17.3</td>
<td>-13.1</td>
<td>-12.6</td>
<td>-7.0</td>
<td>-4.1</td>
<td>-6.0</td>
<td>-8.9</td>
<td>-10.2</td>
<td>-2.9</td>
<td>-4.0</td>
<td>-0.9</td>
<td>10.3</td>
<td>11.3</td>
<td>8.7</td>
</tr>
<tr>
<td>Private net capital inflows</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to import ratio</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>7.4</td>
<td>4.1</td>
<td>11.8</td>
<td>2.9</td>
<td>15.0</td>
<td>12.5</td>
<td>16.8</td>
<td>2.8</td>
<td>7.6</td>
<td>0.9</td>
<td>4.8</td>
<td>-14.1</td>
<td>15.4</td>
</tr>
<tr>
<td>Exchange rate (average US$/kina)</td>
<td>1.5</td>
<td>1.5</td>
<td>1.4</td>
<td>1.2</td>
<td>1.1</td>
<td>1.0</td>
<td>1.1</td>
<td>1.1</td>
<td>1.2</td>
<td>1.1</td>
<td>1.1</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>REER (appreciation +)</td>
<td>7.3</td>
<td>2.4</td>
<td>-1.6</td>
<td>-3.3</td>
<td>0.8</td>
<td>-4.2</td>
<td>-5.4</td>
<td>-1.2</td>
<td>-1.1</td>
<td>3.5</td>
<td>-10.0</td>
<td>2.6</td>
<td>-0.6</td>
<td>1.8</td>
<td>-6.0</td>
<td>-16.8</td>
</tr>
<tr>
<td><strong>Memorandum items</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observance of central bank limits on government financing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total debt to BPNG/revenue*</td>
<td>10.0</td>
<td>5.7</td>
<td>10.3</td>
<td>6.6</td>
<td>2.5</td>
<td>8.4</td>
<td>9.1</td>
<td>12.0</td>
<td>15.0</td>
<td>22.9</td>
<td>30.4</td>
<td>30.4</td>
<td>40.5</td>
<td>27.3</td>
<td>47.7</td>
<td>43.4</td>
</tr>
<tr>
<td>BPNG net financing/revenue*</td>
<td>-0.5</td>
<td>-4.9</td>
<td>4.6</td>
<td>-2.6</td>
<td>-3.1</td>
<td>6.0</td>
<td>1.5</td>
<td>3.9</td>
<td>4.0</td>
<td>9.9</td>
<td>5.2</td>
<td>2.3</td>
<td>13.9</td>
<td>-6.1</td>
<td>23.7</td>
<td>1.5</td>
</tr>
</tbody>
</table>

*Gross debt is used for calculation, as Government deposits at Bank of Papua New Guinea other than for various trust accounts are small. Revenue includes domestic tax and non-tax revenue.

### Appendix table 2.3. Papua New Guinea: monetary survey, 1980–95

In millions of kina; end of period

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net foreign assets</td>
<td>278</td>
<td>225</td>
<td>202</td>
<td>316</td>
<td>347</td>
<td>390</td>
<td>408</td>
<td>397</td>
<td>325</td>
<td>234</td>
<td>229</td>
<td>145</td>
<td>125</td>
<td>163</td>
<td>137</td>
<td>221</td>
</tr>
<tr>
<td>Monetary authority</td>
<td>274</td>
<td>239</td>
<td>216</td>
<td>336</td>
<td>385</td>
<td>431</td>
<td>440</td>
<td>435</td>
<td>391</td>
<td>338</td>
<td>317</td>
<td>250</td>
<td>181</td>
<td>92</td>
<td>72</td>
<td>188</td>
</tr>
<tr>
<td>Net domestic assets</td>
<td>276</td>
<td>330</td>
<td>366</td>
<td>334</td>
<td>401</td>
<td>430</td>
<td>521</td>
<td>547</td>
<td>660</td>
<td>803</td>
<td>853</td>
<td>1,127</td>
<td>1,307</td>
<td>1,524</td>
<td>1,528</td>
<td>1,674</td>
</tr>
<tr>
<td>Domestic credit</td>
<td>319</td>
<td>391</td>
<td>450</td>
<td>456</td>
<td>500</td>
<td>595</td>
<td>719</td>
<td>740</td>
<td>885</td>
<td>1,013</td>
<td>1,102</td>
<td>1,357</td>
<td>1,521</td>
<td>1,634</td>
<td>1,765</td>
<td>1,949</td>
</tr>
<tr>
<td>Government (net)</td>
<td>13</td>
<td>39</td>
<td>68</td>
<td>2</td>
<td>-7</td>
<td>25</td>
<td>44</td>
<td>-7</td>
<td>56</td>
<td>70</td>
<td>145</td>
<td>272</td>
<td>384</td>
<td>506</td>
<td>487</td>
<td>574</td>
</tr>
<tr>
<td>Private sector a</td>
<td>306</td>
<td>352</td>
<td>381</td>
<td>454</td>
<td>507</td>
<td>570</td>
<td>675</td>
<td>747</td>
<td>829</td>
<td>943</td>
<td>957</td>
<td>1,085</td>
<td>1,137</td>
<td>1,128</td>
<td>1,279</td>
<td>1,375</td>
</tr>
<tr>
<td>Broad money (M3)</td>
<td>553</td>
<td>555</td>
<td>568</td>
<td>650</td>
<td>748</td>
<td>820</td>
<td>929</td>
<td>943</td>
<td>985</td>
<td>1,038</td>
<td>1,082</td>
<td>1,272</td>
<td>1,432</td>
<td>1,686</td>
<td>1,665</td>
<td>1,895</td>
</tr>
<tr>
<td>Narrow money</td>
<td>202</td>
<td>194</td>
<td>189</td>
<td>206</td>
<td>249</td>
<td>244</td>
<td>257</td>
<td>281</td>
<td>322</td>
<td>345</td>
<td>417</td>
<td>437</td>
<td>594</td>
<td>614</td>
<td>677</td>
<td></td>
</tr>
<tr>
<td>Quasi-money</td>
<td>352</td>
<td>360</td>
<td>379</td>
<td>444</td>
<td>499</td>
<td>576</td>
<td>672</td>
<td>662</td>
<td>663</td>
<td>693</td>
<td>738</td>
<td>855</td>
<td>994</td>
<td>1092</td>
<td>1050</td>
<td>1218</td>
</tr>
</tbody>
</table>

Memorandum item

| | 99 | 89 | 90 | 138 | 128 | 131 | 126 | 134 | 142 | 152 | 176 | 165 | 169 | 199 | 222 | 258 |
| Reserve money | 99 | 89 | 90 | 138 | 128 | 131 | 126 | 134 | 142 | 152 | 176 | 165 | 169 | 199 | 222 | 258 |
| Broad money (M3*)(excluding deposits of stabilisation funds) | 397 | 418 | 437 | 524 | 593 | 660 | 763 | 833 | 944 | 1,014 | 1,069 | 1,267 | 1,431 | 1,684 | 1,662 | 1,890 |

Annual percentage changes

<table>
<thead>
<tr>
<th></th>
<th>M3</th>
<th>M3*</th>
<th>Reserve money</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3.2</td>
<td>0.3</td>
<td>2.4</td>
<td>14.5</td>
</tr>
<tr>
<td>-6.3</td>
<td>5.2</td>
<td>4.8</td>
<td>19.9</td>
</tr>
<tr>
<td>-57.8</td>
<td>-10.7</td>
<td>1.8</td>
<td>52.6</td>
</tr>
</tbody>
</table>

In per cent

| Money multiplier b | 4.0 | 4.7 | 4.8 | 3.8 | 4.6 | 5.1 | 6.1 | 6.2 | 6.6 | 6.7 | 7.7 | 8.5 | 8.5 | 7.5 | 7.3 |
| Narrow money as per cent of M3* | 50.8 | 46.5 | 43.1 | 39.3 | 42.0 | 37.0 | 33.6 | 33.8 | 34.1 | 34.0 | 32.2 | 32.9 | 30.6 | 35.3 | 37.0 | 35.8 |
| Excess liquid assets ratio | 5.4 | 5.6 | 3.4 | 12.5 | 4.4 | 1.9 | 5.9 | 1.3 | 2.3 | 1.6 | 4.0 | 2.5 | 8.2 | 17.9 | 5.7 | 12.0 |

---

a Including credit to price stabilisation funds
b Ratio of M3* to reserve money

Appendix table 2.4. Papua New Guinea financial intermediation: regional comparison (per cent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of intermediation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of monetisation</td>
<td>35.00</td>
<td>52.00</td>
<td>34.00</td>
<td>28.00</td>
<td>35.00</td>
<td>40.00</td>
</tr>
<tr>
<td>Narrow money (percent of broad money)</td>
<td>32.00</td>
<td>24.00</td>
<td>52.00</td>
<td>34.00</td>
<td>45.00</td>
<td>34.00</td>
</tr>
<tr>
<td>Private sector credit/nominal GDP</td>
<td>30.00</td>
<td>40.00</td>
<td>12.00</td>
<td>27.00</td>
<td>33.00</td>
<td>22.00</td>
</tr>
<tr>
<td>Private sector credit/total bank assets</td>
<td>72.00</td>
<td>60.00</td>
<td>65.00</td>
<td>38.00</td>
<td>57.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Efficiency of intermediation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spread between deposit and lending rates</td>
<td>6.90</td>
<td>8.00</td>
<td>5.00</td>
<td>8.90</td>
<td>6.50</td>
<td></td>
</tr>
</tbody>
</table>

*Broad money in relation to nominal GDP

References


——, *Quarterly Economic Bulletin*, various issues.


Structural reform versus stabilisation

Tim King

Papua New Guinea faces a major challenge in restructuring its economy in a way that will generate significant economic benefits for the bulk of the population over the medium term. Recent history has been dominated by periods of macroeconomic instability. Nevertheless these periods have been relatively short-lived and the economy could still be described as one that has achieved much in terms of securing a stable macroeconomic environment. However while macroeconomic stability, judged in terms of a stable and low inflation rate, a sustainable balance of payments position and a sustainable fiscal deficit, are important prerequisites for economic growth, they provide no guarantee that growth will occur.

In Papua New Guinea it is clearly the case that structural reforms are necessary to improve the productivity of the economy. Issues such as the trade and tax system, public sector performance, the performance of government-owned enterprises, the efficiency and coverage of public sector infrastructure and the effectiveness and coverage of education, training and health services are vital determinants of medium-term growth prospects.

In reviewing Papua New Guinea’s experience with stabilisation and structural reform two features emerge from the recent past. First, the economy has proved fairly easy to stabilise in the face of large shocks. Second, implementing structural reforms has proved to be very difficult. This chapter briefly explores some of the reasons behind this.

Successful stabilisation

Five inter-related features of the PNG economy assist in the stabilisation process

- an economy heavily dependent on imports. Between 1987–95 non-mining imports averaged 30 per cent of non-mining non-petroleum GDP
- a high propensity to consume out of disposable income
- a weak public investment program and a high proportion of
government expenditure is directed at consumption
- ongoing developments in the mining and petroleum sectors.
- Papua New Guinea’s ability to mobilise support rapidly
  from the international donor community.

The first two features create significant automatic stabilisers. Any
income-reducing shock quickly translates into a decline in consumption
and falling imports. This is particularly apparent in the case of a decline
in the terms of trade between agricultural exports and imported goods.
In the absence of a price stabilisation scheme, a fall in agricultural
export prices reduces incomes for growers, who reduce expenditure
levels on consumption goods, many of which are imported.

The consumption bias of government expenditure has been widely
recognised. One consequence of this is that aggregate expenditure levels
can be relatively quickly adjusted. A weak investment program means
that it is both easy to delay investment projects and that a significant
proportion of government expenditure is not committed into the future.

Developments in the resource sector have done much to offset macro-
economic shocks. These projects provide large foreign exchange flows,
producing substantial domestic economic activity in the construction
stage and during production significantly boost government revenue.

Finally the commitment of substantial external funding has played
an important role in providing both a ready source of foreign exchange
and an important boost to confidence.

The challenge of structural reform

Four features of the PNG economy make the implementation of
structural reforms particularly difficult
- the relative ease of achieving rapid stabilisation
- highly decentralised systems of governance
- bureaucracy’s limited technical capabilities and weaknesses
- the absence of an effective internal lobby group in favour of
  reforms.

The fact that the economy can be stabilised relatively easily reduces
the pressure for structural reforms which may take many years to
complete. Governments commonly introduce unpopular adjustment
measures only in a situation of crisis. In Papua New Guinea, short-term
crises are potentially quickly ameliorated, lessening the sustained
pressure for reform.
While structural reforms can gain their impetus from the onset of a crisis, it is always unlikely that a short-lived crisis will on its own provide sufficient impetus to implement fully longer-term structural reforms. In Papua New Guinea there are both political and administrative factors that make it difficult to create and sustain the necessary momentum.

Within traditional Papua New Guinea society decision-making centres around 'big men' who acquire and maintain their status through the ability to distribute gifts and largess. As this ability is clearly contestable, positions of leadership are open to challenge. The importance of the ability to respond positively to requests for assistance is reinforced by the strong sense of mutual obligation and shared responsibility that exists within clan groupings. Naturally some of these informal traditional institutions have impacted on the operation of the Parliamentary democracy. Political coalitions are notoriously fragile in Papua New Guinea and loyalty to one particular political grouping is not commonly based on a shared set of ideals or policies. The absence of strong political parties and the presence of significant commitments of Parliamentarians to constituency issues can make it difficult to develop and sustain support for matters of national importance. It also favours the operation of a system based on the granting of special preferences and concessions to individuals and groups. Reforms that impose significant costs on particular groups of constituents can quickly undermine the position of individual politicians.

Sustained political support is clearly essential to a prolonged program of structural reforms. However, support from influential sections of the bureaucracy is also of considerable importance. This is particularly the case if the media, business and the general public are not significantly involved in the public policy debate. In Papua New Guinea, where 80 per cent of the population live in the subsistence sector, literacy rates are only 52 per cent and there is significant foreign involvement in the formal business sector, it is inevitable that the public policy debate will be limited. The public sector itself is almost always a prime target for structural reforms and measures such as significant retrenchment and wage restraint are unlikely to gain widespread support. A further complication is the apparent low level of morale in the public sector in general. An assessment by the Public Sector Rationalisation Task Force in 1995 concluded that the public service suffered from

- a deterioration in a sense of nationalism
- compartmentalisation and fragmentation of departments
- envy and rivalry between departments at both the provincial and national levels
a politicisation of the public service to the point that advance-
ment was a political decision rather than a professional one,
resulting in an undermining of the responsibility of managers
• a lack of accountability in the financial management of
departments
• legislation which creates overlapping functions for various
departments and agencies (Larmour 1995).
These conditions both underline the need for reform and suggest
some of the difficulties that reform of the public service will involve.
In order to sustain the reforms it is important to ensure that the public
service receives the necessary technical support and that a significant
group within bureaucracy becomes committed to their implementation.
However technical inputs alone are not sufficient. The reforms must
generate their own internal momentum and be supported, developed
and implemented internally.

The BCL mine closure

The features that make the economy easy to stabilise and the difficulties
inherent in the implementation of structural reforms, were well
illustrated following the closure of the BCL mine in 1989.

In its last full year of operation the mine contributed 8 per cent of
GDP, 35 per cent of export receipts and 12 per cent of government
revenue. The closure of the mine was accompanied by a 15 per cent
decline in Papua New Guinea's terms of trade in 1989.

In early 1990 the government announced a package of adjustment
measures centred around a 7.5 per cent cut in government expenditure,
to be achieved partly through a reduction in the public service; a 10
per cent devaluation of the kina; tight monetary policies; and a policy
of wage restraint.

The early announcement of these policies restored confidence in the
economy. The cut in government expenditure had some impact, but the
major factor contributing to the reduction in domestic demand was the
automatic stabilisers that operated in reaction to the loss of production
from the North Solomons and the large decline in the terms of trade.

The measures introduced by the government and the impact of
automatic stabilisers were together successful in reducing private and
public sector demand which restored a sustainable balance of payments
position. The availability of financial resources from the donor
community helped to restore confidence, although with the exception
of the IMF Standby Facility, financial assistance from the donors only
became available after the international reserve position had stabilised (Elek 1991). The devaluation and wage restraint combined to produce a fall in real labour costs of between 3.5 and 4 per cent in 1990 (Elek 1991). The adjustment effort was widely perceived to have been successful.

The experience of the 1989–90 adjustment program demonstrated the feasibility with which the economy could be stabilised in the face of large external shocks. There was a significant degree of automatic adjustment apparent in private sector demand and new developments in the mineral and oil sectors (Porgera and Kutubu) quickly produced an improvement in the overall macroeconomic aggregates.

However, while initial efforts were focused on stabilisation, efforts were subsequently initiated on a broader structural front. In July 1991 the National Executive Council approved a package of public enterprise reform measures and the government stated its commitment to a broad range of structural reforms. These included broadening the tax base through a redirection of indirect taxes toward consumption; improving the management of public investment and operation and maintenance expenditure; reducing administrative expenditure, with a focus on the wage and salary bill; the phasing out of commodity price support schemes; and substantial increases in investment expenditure.

While these measures were encouraging signs of a commitment to a structural reform process, problems in the government’s fiscal position were immediately apparent. The fiscal correction announced after the closure of the BCL mine was short-lived. The program to retrench 3,000 public servants was largely reversed by unplanned recruitment later in the year and expenditure accelerated dramatically in the final quarter of 1990. In the event the actual budget deficit was K100 million, compared to a targeted deficit of K3.5 million announced as a part of the adjustment measures. Overruns in expenditure resulted from both overruns by the police and the armed forces (due to the situation on Bougainville) and as a result of the general perception that the crisis had been averted.

Nevertheless the 1991 Budget included a range of measures that suggested significant progress could be achieved in moving forward with the reform agenda. Some import bans were replaced by tariffs and a schedule was announced to replace all import bans with tariffs by 1994. In addition the phased introduction of a general excise tax on domestic manufacturing was announced as a first step towards the introduction of a broad-based consumption tax. Expenditure on maintenance increased significantly in 1991 and public sector investment appeared to increase.
Despite these encouraging signs momentum was soon lost. The planned manufacturers’ sales tax was never introduced, the announced schedule for the removal of import bans was not followed and new trade restrictions were subsequently introduced. The tax system narrowed significantly and moved more in favour of domestic producers. Maintenance expenditure dropped back from the 1990 levels and little was achieved in the area of civil service reform. Investment expenditure remained substantially below expectations.

The political and economic factors behind this sequence of events were complex. Nevertheless the broad features outlined above played an important role. The combination of automatic stabilisers and the development of new resource projects in Porgera and Kutubu did much to produce a rapid stabilisation of the economy and to give the impression that any impending crisis had been averted. Confidence was boosted by the early commitment of substantial financial assistance by the donor community.

However no real consensus had been achieved as to the importance of the program of structural reforms, despite the rhetoric to the contrary. With no effective internal lobby group supporting the reform process, the return of the status quo in policymaking met with little resistance.

The 1994 currency crisis

Throughout much of the 1970s and 1980s a sustainable overall balance of payments position was achieved in Papua New Guinea. Net foreign exchange earnings paid by the mining sector in taxes and royalties were effectively re-spent by the government with a high leakage into imports. The recycling of earnings from the mining sector through the fiscal accounts resulted in a minimal net impact on the balance of payments. Declines in the non-mining sector terms of trade resulted in a fall in export revenue and hence household income, reducing imports and offsetting the adverse impact of the terms of trade decline on the balance of payments. Improvements in the non-mining sector terms of trade were similarly offset by a rise in imports, such that terms of trade swings were largely absorbed through the automatic stabilisers inherent in the large import content of consumption.

This picture changed dramatically in the early 1990s. Consumption incomes were supported by government borrowing from the domestic banking system. Expenditure on wages and salaries rose by over K100

Domestic demand expanded without any increases in real output or export earnings. The excess of demand was satisfied by imports and as a result the balance of payments recorded a cumulative overall deficit of K271 million over the period 1991–94. The delay in the start up of the Lihir project exacerbated the problem and as reserves declined to critical levels capital flight began.

The balance of payments position was reversed in 1995. Fiscal policy tightened substantially, with real expenditure levels contracting. Commodity prices increased significantly with the result that levies were collected from agricultural commodities and extraordinary financing support was made available from the donor community. As the balance of payments moved into a surplus position, the valuation effects associated with the devaluation of the kina produced a further improvement in the overall balance of payments expressed in kina.

A surplus of K244 million was recorded in the overall balance of payments in 1995, producing an end of year level of foreign exchange reserves of K357 million, sufficient to provide 3.4 months of non-mining import cover. Extraordinary financing of approximately K158 million was drawn to support the government’s structural adjustment program. The growth in general imports was subdued at only 11.7 per cent, in the face of a depreciation of the kina of 7.4 per cent, 12.5 per cent and 10.3 per cent against the Australian dollar, the US dollar and the yen respectively.

Again this experience illustrates the relevance of the factors influencing stabilisation and structural reforms. During the period immediately preceding the crisis the automatic stabilisers in the economy were effectively undermined by large payments for agricultural price support and significant increases in public sector expenditure financed through an increase in borrowing from the domestic banking system.

During the adjustment period there was a rapid reduction in government expenditure which fell in real terms by 14 per cent in 1993–95. The combination of a weak investment program and large consumption expenditures facilitated the dramatic fall in expenditures. Stabilisation was greatly assisted by ongoing developments in the mining and petroleum sectors, with the commencement of construction at Lihir.
and higher than expected production and prices for Kutubu, Porgera and Ok Tedi. The availability of substantial donor resources also played an important role in the rapid recovery of the foreign exchange position of the Bank of Papua New Guinea.

It is still too early to pass judgement on the success of the structural reforms initiated after the floating of the kina in October 1994, although the well-publicised disagreements with the World Bank are symptomatic of the problems involved. It is also the case that the process of reform has been considerably complicated by the parallel reform of the system of provincial and local government.

To highlight the continued problems facing the development of key structural reforms it is worth considering the example of the Mineral Revenues Stabilisation Fund.

**Mineral Revenues Stabilisation Fund**

The issue of the appropriate use of revenue from non-renewable resource developments has been discussed extensively in external reviews of the Papua New Guinea economy (see, for example, AusAID 1995), but as yet there is little evidence of it being seen as an important policy issue within Papua New Guinea.

At present most revenues from mining and petroleum projects accrue to the Mineral Revenues Stabilisation Fund (MRSF), a kina-denominated account held at the Bank of Papua New Guinea. The Fund was originally intended to stabilise flows into consolidated revenue, however this objective has not been achieved.

The Fund has confused the fiscal situation in Papua New Guinea by giving the misleading impression that balances held in the Fund represent government savings. From the point of view of the economy, what matters is the overall fiscal deficit of the government. The positive impact on government savings that can result from a rise in the MRSF balance can easily be cancelled out by government borrowing. In fact it makes no sense for the government to hold money on deposit at the Bank of Papua New Guinea (BPNG) in the form of the MRSF and at the same time borrow at a higher interest rate from the Bank of Papua New Guinea or commercial banks to finance its expenditure. This is exactly what occurred in 1995.

Mining receipts are paid in foreign currency. This foreign currency is changed into kina and credited to the MRSF account. This sterilises the money supply impact of the revenue flows. An impact on the domestic money supply is only realised when the government makes
drawdowns from the Fund. However because the Fund is held in kina balances, there is no sense in which the MRSF is backed by foreign exchange reserves. There is nothing to prevent a situation arising where the Fund has a significant kina balance but the BPNG holds no reserves.

Prior to 1995 the government ran substantial fiscal deficits and the MRSF failed both in its stabilisation and savings role. Suggestions for the reform of the MRSF have sensibly proposed holding the balances as foreign exchange, using financial markets to hedge against price fluctuations and developing simple rules to govern drawdowns. However debate over these issues does not seem to have taken hold in Papua New Guinea.

Developing appropriate and simple rules for drawdowns is not straightforward. Adopting a prudent fiscal policy based on, for example, a balanced budget rule, still begs the questions of how much of the resource revenues should be spent and what types of expenditure should be permitted.

Several reports have pointed to the fact that in recent years Papua New Guinea has effectively been consuming its natural resource assets when it should have been saving or investing these assets to maintain the country’s aggregate wealth. However it needs to be recognised that the purpose of investment is to generate future consumption. The decision over whether to invest or consume the returns from the resource sector depends on the relative value attached to current and future consumption and the returns that can be gained from the investment.

The size of the stock of assets is also relevant. The mineral, gas and petroleum base available to Papua New Guinea is unknown, but there are indications that it could be very substantial. Given the prospective stock of assets, some consumption of the income generated from these assets is probably justified in these circumstances. Pointing to uncertain prospects in the resource sector is not a very forceful argument for reducing expenditure of resource revenues.

A more powerful argument relates to the distortions in economic growth that can be produced by spending ‘too much’ of these revenue flows. Successive governments have pointed to the need to pursue growth in the non-mining private sector and to pursue policies that promote employment growth. However spending money beyond the absorptive capacity of the economy is contrary to these policies. Any expenditure level that contributes more to demand than supply can
potentially damage the objective of generating broad-based growth, by undermining the incentives for domestic production. There is no doubt that it is important to promote the growth of the non-resource sectors, as economic activity and wealth generation that is concentrated in only a small part of the community can cause serious social tensions.

The greatest problem with the recent policy approach to resource revenues is the extent to which growth of the non-mining sector has been hindered and the extent to which the consumption benefits have been captured by the public sector. This suggests that a reform of the MRSF should focus on basing drawdowns on the absorptive capacity of the economy.

There could also be a restriction that drawdowns be limited to investment, with investment projects required to show a rate of return higher than that earned on the foreign assets held by the Fund. However, the latter condition could be difficult to apply meaningfully, given the potential to reduce general budget funds allocated to investment. This would counter the intention of using MRSF drawdowns to increase government investment.

Given that the majority of the returns from the non-renewable resource sector accrue to the government, a key objective could be to keep the size of the government (including all transfers and subsidies) to a reasonable level relative to the non-mining economy. Fiscal responsibility legislation could be used to achieve this objective. For example, legislation could limit the overall fiscal deficit to 1 per cent of non-mining GDP and expenditure to say 20 per cent of non-mining GDP. Such rules could avoid the need to design limits for the drawdown of mineral and petroleum revenues. The government would then have to trade off lower domestic taxes with lower offshore savings of resource revenues.

This is only one simple, illustrative example and it is clear that a significant amount of work would be required both to develop realistic rules and to phase in the application of these rules. However it is equally clear that establishing a binding medium-term framework for fiscal policy encompassing the issue of the expenditure of revenues from non-renewable resources is a major challenge, but one which could make a very important difference to Papua New Guinea’s development prospects.
References


Note

This report draws on AusAID (1996) by the same author.
Microeconomic policy issues
Papua New Guinea has great potential for economic development. Few countries are endowed with similar abundant natural resources. It is located in a geographic area which, from the point of view of economic development, is considered to be the most dynamic region in the world. Despite the sharply rising level of average income and the high level of public spending in the past decade, Papua New Guinea has some of the worst social indicators in the world, and they are now deteriorating (Figure 4.1). Eighty per cent of the population earn less than US$350 per annum.

Papua New Guinea is emerging from a financial crisis which brought government operations in late 1994 to a halt, substantially eroded public confidence in the government and the economy, and encouraged massive capital flight. The crisis was a result of deep-rooted structural problems, a lax fiscal stance in the late 1980s and early 1990s, and an inconsistent and unstable policy environment.

Past policies to promote investment in Papua New Guinea have been restrictive and inward looking, aimed at localisation, import substitution and reservation of economic activities in the non-mining sector for PNG nationals. The results have not been encouraging. Despite rising levels of public expenditures in the early 1990s (both in absolute terms and as a share of GDP) public investment and maintenance outlays as well as non-mining private investment have continued to fall, resulting in a steady depletion of the stock of capital. This has contributed to the falling employment and income in the non-mining sector.

However, in the past couple of years, with the increasing integration of Papua New Guinea in the global economy—membership in the
Asia Pacific Economic Cooperation forum and pending membership in the World Trade Organisation—as well as its efforts to address structural bottlenecks in the economy, the government has taken steps towards promoting a transparent and predictable trade and investment regime not only for the mining sector but also for the non-resource based economy.
These policies have to be maintained and deepened and the institutions responsible for enforcement of policies and promotion of investment nurtured consistently over a long period of time, if Papua New Guinea is to reap the benefits of the reforms and emerge as a competitive investment destination in the Pacific region.

This chapter addresses three key questions
- what are the key ingredients of an appropriate investment policy framework?
- what have been the key characteristics of investment policy in Papua New Guinea?
- what can and should the government do to make Papua New Guinea attractive for foreign and domestic investment?

An appropriate investment policy framework

The objective of investment policy can be described as achievement of sustained economic growth with relative price stability. Stagnation or growth of the economy is a function of a range of factors. Recent empirical work on economic growth in various countries points to the primacy of government choices. Countries that have pursued policies conducive to a broadly free-market economy (particularly trade liberalisation and the maintenance of secure property rights), characterised by smaller government, lower government spending, and the promotion of the development of human capital, have enjoyed higher rates of growth than countries that have pursued inward-oriented, non-market based arrangements.

Investment promotion depends first and foremost on the existence of an effective political leadership and credible government dedicated to economic growth and national welfare. Government’s contribution to a successful investment policy requires intervention in three inter-related areas: macroeconomic stabilisation, development of infrastructure and human resources and, lastly, creation of an efficient administration.

Macroeconomic stability, a precondition of economic dynamism, can only be achieved through government determination and continuation of appropriate policies. This has already been initiated by the government of Papua New Guinea. The improvement of infrastructure and development of human capital depend on the availability of funds and their judicious utilisation. Administrative reform should result in a leaner and more liberal-minded bureaucracy capable of creating the right chemistry between the public and private sectors.
The choice of development strategy does not always work out to be an optimisation of returns on investment. The objective of sustainable growth is often tempered by such other notions as ‘balanced growth’ or ‘social welfare’, however defined. For example, popular pressure demands that the largest possible percentage of the present population share in the benefits of mineral receipts. However, excessive attention to welfare via transfer payments may often result in the too-familiar stifling of work incentives, and in the reduction of industrial competitiveness. Similarly, the concentration of mineral export income in the government’s hands may result in crowding out the private sector in the areas which by their nature are better managed by the latter.

A sudden increase in the prices of minerals and subsequent ‘revenue boom’ may result in hasty allocation of revenues to politically popular activities, ‘prestige’ projects, or projects with inadequate feasibility studies. Such investments often fail the tests of competitive productivity. The democratic regime and particular geographic configuration of Papua New Guinea has led to a large degree of decentralisation of economic management and revenue sharing.

Democratisation and decentralised management are usually accompanied by significant social pressures in favour of income redistribution and rising consumption. The requirements of capital
formation, by contrast, call for certain constraints on consumption and some initial tolerance of growing income gaps among major social groups. Reconciliation of these opposing forces is not easy. Though local governments should have a high degree of autonomy vis-à-vis the central government, they should have a shared sense of purpose. Although local governments need to maintain a degree of autonomy, institutional mechanisms should be found to prevent their capture by special interest groups. Otherwise the state will be unable to act coherently and the unique character of the contribution of decentralisation would be lost. The success of decentralisation requires a strong central administration capable of ensuring compliance with central government objectives of investment promotion and economic growth.

Within this context, an appropriate investment policy framework should focus on creating productive employment and diversification of the production base. It should specifically be recognised that mineral reserves are depletable and the prices of a limited number of renewable resources are subject to sharp fluctuations in the international market.

Transparency and non-discriminatory rules and regulations are key for promoting a healthy environment for investment. Rules and regulations should be applicable to all enterprises without any exception. This calls for

- privatisation, divestiture and liquidation—at national as well as provincial level of public sector activities that compete unfairly with the private sector
- repealing special privileges granted to some enterprises. The discrimination in favour of these enterprises can be terminated on the basis of some arrangements to be mutually agreed by the government and private investor. For instance the government, while remaining firm on its principle, might extend these privileges for a given period (in the form of a 1–2 year time-bound ‘grandfather clause’).

In countries overwhelmingly reliant on resource extraction activities the objective of investment policy should be to expand the export base through product diversification in order to make up for dwindling earnings from minerals and unexpected changes in agricultural commodities prices. Mineral revenue cannot be considered a continuous stream of future income flow, but rather a ‘cashed’ value of a given stock of capital that is transformed from one form (mineral deposit) to another (financial assets). Unless these assets are further transformed through appropriate investment to a sustainable revenue base, economic development cannot be ensured. This situation calls for an appropriate
model of development and adoption of an investment policy based on product diversification.

The availability of foreign exchange is only one requisite for viable domestic capital formation. Other complementary factors, such as raw materials, skilled labour, entrepreneurship, project implementation capacity, and adequate infrastructure are as important and often in short supply. As the economy grows, these shortages will be eliminated,

Figure 4.3. Investment performance and public consumption, 1984–95

Low public investment (per cent of GDP)

Accommodated rising public consumption (million kina)

or reduced. But this process is gradual and effective only in proper sequence. For instance importation of machines and equipment should be undertaken when port and road facilities are in place; and effective university training requires adequate elementary and secondary education.

If investment is too rapid, the benefits may be considerably diminished as a result of inflation, a deteriorating trade balance, incorrect relative price signals for tradable goods production, and shortages leading to waste. A further problem arises when the investment that is undertaken is of poor quality—something that is more likely in an environment of inadequate planning, inflation, and shortage of factors of production. Even where investment is in the traded goods sectors, the future output from present investments may prove hard to market—a particular danger if the size of the domestic market is not large enough to absorb this output.

**Investment policy in Papua New Guinea**

Papua New Guinea's economy has suffered over the years from many weaknesses. The weaknesses in the policy path followed by successive governments of Papua New Guinea, have had serious consequences.

To a large extent, the prevailing image investors have of Papua New Guinea as having a difficult investment climate arose from its weak investment policy environment, high risks, infrastructure bottlenecks, lack of skilled labour and lack of internally consistent incentive systems.

Total investment in Papua New Guinea has fluctuated over time and is relatively low by low to middle-income country standards. While gross domestic investment in Papua New Guinea was comparable to that in sub-Saharan Africa, it has been falling relative to GDP—from a high of 27 per cent of GDP in 1991 to an estimated 24.5 per cent in 1995 (Figure 4.3). Net investment has also declined sharply from a peak of 15 per cent to beyond replacement value (if one takes into account the depletion of the country's natural resource base and the poor productivity of investment).

With a high capital–output ratio (over seven) compared to an average of about three in most developing countries, and a low and declining output–labour ratio, particularly in agriculture where the labour force is growing at 3 per cent per year, it would be difficult to identify attractive proposals in the non-minerals sector. Furthermore, public investment relative to GDP has been declining steadily since the mid-1980s to inadequate levels with a large unmet need for physical
and social infrastructure. This is in spite of increased government spending on public construction projects.

In Papua New Guinea, as in most developing countries, the relationship between private and public investment is functional. For private investment to occur, public investment in infrastructure development and education must pave the way. With respect to private investment in mining however, the functional relationship between the public and private sector is not binding. The sector relies mostly on foreign experts and builds the additional infrastructure it needs for the purpose of exploiting and exporting minerals and oil products. Unfortunately, especially in the non-resource sector, the importance of this functional relationship between public and private sector investment has not been fully appreciated. As a result, adequate and appropriate public investment has not been undertaken ahead of time to attract private sector investment, such as in infrastructure and human resource development. Furthermore, lack of proper maintenance of existing investment has adversely affected the private sector’s ability to expand.

The resource-based sector (primarily mineral) has dominated the sectoral composition of investment. However, investment in this sector is relatively lumpy, and accounts for much of the variability in the size of total investment. The sector has no significant linkages to the rest of the economy. Despite its significant fiscal contribution (about 27 per cent of total government revenue) and foreign exchange earnings (about 70 per cent of export earnings), it is highly capital intensive and unable to generate more than 0.3 per cent of total formal sector employment, and even this has been declining since the closure of the Panguna Copper Mine in 1989.

Moreover, mining activity is highly capital intensive and skill intensive with input requirements vastly different from the country’s domestic factor availabilities. The local economy is not in a position to take advantage of mining activity, except for the provision of unskilled labour and only for a limited time. This has led to a dual economy with isolated centres of capital-intensive, advanced technology without any relation to the surrounding environment.

Nowhere is the failure of past policies as transparent as in the non-resource based sector of the economy. Investment in the main labour absorbing sector of the economy, primarily agriculture, has shown no significant growth relative to GDP over the years. Agriculture, where 85 per cent of the population earn their livelihood, and with the potential for absorbing most of the labour force, has long suffered
from low productivity and high domestic costs. These problems arise from policy rigidities in the labour market, exchange rate and infrastructure bottlenecks. The manufacturing sector (mainly food processing, beverages, tobacco and timber processing for small local markets) has stagnated over the past two decades and its contribution to GDP remains just under 10 per cent, while it has become heavily dependent on government support through tariffs and other protective measures.

Land is one of the major factors of production. In Papua New Guinea, nearly 97 per cent of the land is held under customary ownership arrangements. Entitlements are often undocumented and frequently disputed. Past policy reforms have not devoted the attention needed to address this issue. As a result, administrative problems are experienced in mobilising and transferring land rights. Three per cent of the land belongs to the government and can be used for development purposes. This land is partially utilised under short-term leaseholds (averaging five years) with relatively high rent. The government is trying to ease the problem through the promotion of industrial estates. The weakness of this approach is to concentrate activities in few centres, while the fragmented market of Papua New Guinea requires these activities to be decentralised and spread all over the country.

Gross private investment, both foreign and domestic, in the non-mineral economy has not shown any increase over the years relative to GDP, averaging under 10 per cent of GDP in recent years. A large segment of the economy is considered reserved—open only to domestic investors—although there has been little or no activity in these reserved sectors, since these regulations were implemented almost a decade ago.

Lack of savings has not been generally the cause of the weak performance of the non-resource based investment. The national savings rate has been averaging 18 per cent of GDP over the decade ending 1993. Public savings have been modest in the 1980s but have declined sharply in the 1990s due to expenditure overruns.

Timeliness in policy adjustment, sustainability and consistency are crucial elements for winning investor confidence. The long delay in the adjustment of Papua New Guinea's three main economic policies—exchange rate, wage, and fiscal policies—has undermined both growth and employment. The 'hard kina' policy pursued from 1975 to the early 1990s discouraged local food production, import substitution, and growth of existing and potential exports. The fiscal policy that had been pursued in support of the hard kina policy and resultant high
Figure 4.4. Comparative social indicators: Papua New Guinea and selected countries, 1965–95

Figure 4.5. Central government expenditure on social sectors (education, health, other): Papua New Guinea and selected countries, 1965–95


real wages, left little margin for government expenditure on goods and services, and on public investment.

The wage structure inherited from the pre-independence administration was recognised to be far out of line with the country’s labour productivity and real wages in competing countries. The almost complete linkage of wages to the cost of living index in place until 1992 prevented the government from using exchange rate adjustment as a means of increasing Papua New Guinea’s international competitiveness. Papua New Guinea’s minimum wage legislation runs counter to the requirements for labour market flexibility and competitiveness that characterise an open-market economy. Various surveys indicate that the level of official minimum wage makes PNG workers the most expensive in East Asia while their productivity is far below the regional average. Minimum wage legislation is not an efficient tool for pursuing employment growth.

While Papua New Guinea’s trade policy involved a relatively simple tariff structure, and only modest trade restrictions, it nevertheless suffered from three key defects

- high and variable effective rates of protection for manufacturing,
construction, and distribution services, and negative effective rates of protection for most agricultural commodities

- lack of responsiveness of some trade tax revenues to growth
- increasing recourse to negotiated trade arrangements, involving import restrictions and domestic market guarantees for large, new projects.

The willingness to strike special deals for individual projects imposes costs on the community and allows the use of resources in uncompetitive activities thereby effectively transferring resources from consumers and users to privileged entrepreneurs. Perhaps most damaging are the signals sent to lobbyists and investors that it is profitable to devote financial and other resources to pursue similar deals.

Although difficult to quantify, fear of crime has come to represent a major barrier to the country’s economic growth. It disheartens local entrepreneurs, deters serious foreign investors, frightens off tourists, drives up significantly the cost of doing legitimate business, and diminishes the quality of life, especially in the urban areas. For existing businesses, by damaging productive capital and increasing the private security cost, it has reduced the competitiveness and profitability of domestic investment.

Infrastructure bottlenecks, especially in road infrastructure, continues to represent a major constraint to the development of the non-resource sector. In Papua New Guinea, the road networks have been developed mostly as local hub-and-spoke systems, with hubs connected either by air or more often, via sea ports. Road maintenance has been insufficient and road conditions have deteriorated since the early 1980s. The condition of most roads is poor and new construction has added little to the road network in recent years. More than 85 per cent of main, and most feeder, roads are earth-surfaced. Much-needed bridges are often missing, further localising the small national market. The supply of unreliable and affordable water and electric power has also become a serious bottleneck in recent years and has added substantially to the cost of production. The electric utility’s monopoly on the generation and sale of power, poses legal impediments to private sector efforts to generate for own consumption, also exacerbating the situation.

The supply of an educated and skilled labour force is one of the main factors necessary to improve the investment climate. However, the national literacy rate in Papua New Guinea is only around 45 per cent. Primary enrolment is less than 75 per cent, and for the 13–16 year old population, only one in six persons is enrolled at secondary level.
Enrolment in upper secondary school and higher education has remained virtually stagnant in recent years. The composition of the modern sector labour force reflects these shortfalls in education development. Half of all workers have not completed primary education, and only 5 per cent have completed secondary or higher education. The shortage of educated nationals has led to broad reliance on expatriates to fill managerial and technical positions. At the same time, the number of school leavers without skills and quality education is increasing the ranks of the unemployed.

**Government policy for investment**

Investment policy should adopt a pragmatic approach and consider with objectivity the sociopolitical reality as well as the actual capability and resources of the country. Most developing countries are tempted to imitate more advanced countries in the selection of their investment projects. This has led some countries to equate economic growth with large and visible projects which are usually inappropriate to the needs of the country. The temptation is greater for those countries which are fortunate to possess substantial income derived from extraction of mineral resources. This has led, in some countries, such as Algeria, to investment in large infrastructure and industrial projects (particularly steel mills and petrochemicals) with disappointing outcomes. If the same financial and human resources had been applied to investments with more modest projects, but greater marginal productivity, the concerned countries may have by now achieved the same economic outcomes as the high performing East Asian countries which have also relied on innovation and increased access to world markets.

Although Papua New Guinea has made similar investment choices in the past, the structural reforms which the government has been implementing since late 1994 have contributed to the creation of an enabling environment for private sector led growth through

- price stability by adopting a responsible medium-term fiscal strategy
- improved factor costs by adjusting the real exchange rate and wage rate.

The government has also initiated supporting policies to promote productive investment. It has moved towards a more liberalised trade policy, including lower and more uniform protection, removing quantitative restrictions and bans as well as duty exemptions; a
Effects of minimum wages on employment, investment and welfare

There is considerable evidence from both developed and developing countries that shows the adverse effects of minimum wage legislation on employment. Recent work in Indonesia is illustrative of the issues involved.

Following the introduction of minimum wage legislation in 1989, minimum wages on average tripled in nominal terms and doubled in real terms between 1989–95. Productivity growth, however, was rapid enough to keep pace with the large increases in the minimum wage, at least until 1993. Between 1993–94 minimum wages grew about 10 per cent faster than productivity. The recent sharp increases during the 1990s are estimated to have increased labour costs in Indonesia and reduced wage employment and investment. The 100 per cent increase in minimum wages are estimated to have pushed up average wages by about 10 per cent.

The doubling of minimum wages was estimated to have led to a 2–3 per cent reduction in wage employment. Since minimum wages are more binding for young workers and women, the employment reduction effect is greater for these two groups—estimated at 7 per cent for the former. Moreover, the loss in employment is likely to become greater, the closer the minimum wage approaches the average. This work also indicated that a doubling of the minimum wage has a strong negative impact on investment, which was estimated to have declined by about 5–7 per cent of GDP. This decline in investment would in turn lead to further decreases in employment.

Finally, the minimum wage is not an appropriate instrument for poverty alleviation. It only covers wage employees, and of those, only formal sector employees. The poor in Indonesia, as in Papua New Guinea are, by and large, not wage earners but the self-employed and rural people. Since most of the poor are self-employed, the direct role of labor markets in the welfare of the poor is small. Labour market policies, such as the minimum wage policy, that slow down the rate of wage employment, especially wage employment in the highly productive formal sector, are therefore likely to have an adverse impact on poverty alleviation in Indonesia.

progressive tax regime (including in forestry); promoting competition through expediting the privatisation program; increasing efforts to promote private investment through the Investment Promotion Authority (IPA); and increasing expenditures on infrastructure maintenance. The government has also initiated civil service reforms, public financial management reform (allocation of budgetary expenditure), and legal and regulatory reforms.

In the medium term, Papua New Guinea’s policymakers need to focus on the following key elements of investment policy if the progress made to date under the structural adjustment reforms is to contribute to the resolution of the fundamental problems

- strengthen the return to macroeconomic stability
- deepen the ongoing tax and trade reforms and address other outstanding issues
- ensure that the market determines factor prices and access to adequate credit
- avoid inconsistency and reversal of policies which will undermine investor confidence
- refrain from entering into special deals, taking equity interest or guaranteeing investments, loans, or any financing arrangements for privately funded commercially based investments
- expedite the divestiture program and support the role of IPA as promoting, and not regulating investments
- limit the role of the public sector to what it can best do
- continue the development of the capital market.

On the structural policy front, further reform of the wage policy and the labour market are imperative to lower the cost of labour. Government wage setting and intervention in labour market conditions has caused an imbalance between supply and demand, represented by unemployment. Moreover piece rates, the most common form of incentive payment relating wages to productivity, are prohibited. The urban economy is therefore characterised by widening wage differentials between formal and residual sectors with a declining proportion of the urban labour force employed in the former. To reduce unemployment and the cost of labour, the minimum wage legislation should be repealed, while ensuring that the status of the present industrial work force is not altered.

Such restrictive legislation might, in the most optimistic case, give some protection to those who have a secured job. But it hampers economic growth and is against the best interests of the vast majority
of the unemployed. The labour leaders (and politicians) should be persuaded that they have a stake in promotion of investment and subsequent economic growth. The achievement of this goal, in a market economy, requires recognition of the role of private entrepreneurs and their contribution to job creation and, ultimately, the welfare of the working class. On the other hand, entrepreneurs should realise that workers are assets. The need for greater flexibility in labour legislation does not mean disregard for the well-being of workers, but rather the fact that such legislation should contribute to economic growth and expansion of employment opportunities.

On the institutional front, the apparent lack of long-term financing has led existing enterprises to use short-term credit for medium and long-term investments. This is, however, not the proximate source of credit failure, as in most countries with well-functioning credit markets, such financing arrangements are the norm with short-term credit being rolled over regularly on the basis of low risk. Rather, the underlying problem is an insufficiency of credit relative to the large unmet demand combined with a high risk environment. Thus the government needs to address these underlying problems as part of its broader financial sector strategy and planning. Once the fundamentals are in place, the term structure of credit should adjust to the needs of the market.

Papua New Guinea should invest more in developing its human capital and skilled labour. The advantage of this investment is that it provides relatively high adaptability and flexibility in development strategy. It is an investment with a rate of return that is typically little affected by external decisions and policies. Over the long run, investment in human capital offers the prospect that the state’s initially indispensable role in investment could be replaced by skilled private entrepreneurs who would assess the economy’s comparative advantage. The backbone of the present economic success of some East Asian countries is attributed to the quality of their labour. For instance in Korea, about 10 per cent of the population aged 25 and above has had some post-secondary school education. The disadvantage of human capital investment is that the return on this investment usually occurs over a long period of time, the education infrastructure may take time to construct, and the disciplines typically offered may not correspond to the country’s immediate and long-term technical and professional needs.

Equal and non-discriminatory treatment of all investors is the most important element of an investment policy. Otherwise the field will be dominated by monopoly-seekers and there would be no room for
growth of a healthy and dynamic private sector. In countries blessed with substantial income from natural resources, the temptation is great for the government to get involved in various industrial, agricultural, or service projects. This tendency, if not resisted, diverts financial resources from their optimal use and distorts the rules of the game of a market economy. In such cases, private investors are always interested to have the government as their partner. It allows them to ask for, and eventually obtain, advantages that are not accessible to their competitors. There are presently a number of enterprises in Papua New Guinea where national or provincial governments have equity participation. The government should elaborate a program for divestiture of these assets and divest its interests (at both national and provincial levels) in commercially-oriented enterprises and encourage and promote the private sector. The government cannot be at the same time a neutral arbiter and an interested party. The policy framework should focus on setting up a level playing field and reducing factor costs.

The gradual development of modern agriculture shall require less and less labour. Lack of economic opportunity is partly responsible for migration of an increasing number of people from rural to urban areas. Investment policy should encourage enterprises which, by their nature, are labour intensive. In many activities, particularly manufacturing, there is a range of possibilities of substituting labour for capital. The choice of appropriate technology is determined by technical knowledge and labour legislation. The greater the flexibility allowed in the use of labour, the more entrepreneurs tend to substitute it for capital.

Summary and conclusion

There is no short-cut in economic development. The condition for achieving sustained economic growth is objectivity in the assessment of options, consistency in policy and perseverance in its implementation. It requires an open debate by all organised political and social forces on principal issues and objectives. Securing consensus on investment policy can and should transform it into a non-partisan issue. This will enable it to follow a steady course in spite of the normal vicissitude of political life.

A successful policy reform needs to be simple, realistic and within government's administrative ability to implement. Investment policy in Papua New Guinea has suffered from untimely adjustment, inconsistency and lack of sustainability. As a result the policy environment in Papua New Guinea has failed to win investor confidence, especially in
the non-resource based sector. Therefore, the investment path taken aggravated the economic difficulties instead of contributing to their solution.

The structural reforms undertaken to date have helped to bring about a shift in policy paradigm and in getting the fundamentals right. Good progress has been made in the past couple of years, yet much more remains to be done. The country should take advantage of its present favourable position and set the foundations for sustained and more stable economic development.

Notes

This chapter presents the results of a country analysis undertaken by World Bank staff. Some sources cited in this paper may be informal documents that are not readily available. This paper reflects only the views of the author and should be used and cited accordingly. The findings, interpretations and conclusions are the author’s own. They should not be attributed to the World Bank, its Board of Directors, its management, or any of its member countries.

The author is grateful for helpful comments and inputs from many colleagues at the World Bank. Thanks especially to Cyrus Talati, Ephrem Asebe, Ali Alikhani and Arvind Gupta for their valuable comments and suggestions.

References


—, various issues. World Development Indicators, World Bank, Washington, DC.
The most important resource of any nation is its people and the effective development and use of labour resources is the most crucial issue in national development. The most typical measure of labour absorption is the growth of wage employment—and for Melanesian economies, labour absorption on this measure has been diminishing as a proportion of the population, rather than increasing. For Papua New Guinea, for example, between 1980 and 1990 annual population growth was around 2.3 per cent, while the average annual growth in wage jobs was only about 1 per cent. For Solomon Islands, average annual employment growth of 1.9 per cent occurred between 1986 and 1992 and negative average annual employment growth of 1.2 per cent occurred between 1992 and 1995, while average annual population growth of around 3.3 per cent is projected. The scenario facing Melanesian nations is one of increasing populations and stagnating, or even contracting, growth in wage employment. The Papua New Guinea population is projected as increasing by 2.1 per cent between 1990 and 1995, while wage employment for this period shows negligible growth.

A common single-cause explanation for poor wage employment performance focuses on the poor international price competitiveness of wages in Melanesian nations, especially in comparison with Asian nations. Employment outcomes are, however, influenced by other factors—such as effective control over government budgetary deficits; the level and direction of government spending for the development and maintenance of physical and human infrastructural capital; export commodity prices, and so on. Uncontrolled growth in deficit budgeting and rundown of public infrastructural capital as a result of increased government consumption expenditures can offset the positive effects of improvements in international price competitiveness of wages—and reductions in real wages may not be accompanied by growth in wage employment.
The single most important consideration for growth in wage employment is productivity growth. Growth in labour productivity essentially involves improvements in value-adding outcomes for labour. This is a multi-dimensional concept—lower wages and given product prices may result in improvement in labour productivity; while constant wages and increases in product prices may also result in improvement in labour productivity; and better quality products, that attract higher prices and that allow increases in wages, may also result in improvement in labour productivity. Increasing labour productivity thus involves focusing on improving the relationship between input values and output values as these are attributable to labour resources. Informed discussion of labour market outcomes focuses not just on prices, but on productivity—with productivity understood in value-added terms. For marketed products such as tropical export crops, increases in commodity prices lead to increases in labour value-added and movements in agricultural sector wage employment generally reflect commodity price movements.

The same generalisation is nevertheless true of non-marketed products and deterioration in public service product delivery eventually leads to stagnation and decline in public service employment as the unfavourable relationship between labour input and product value becomes more evident. Where the value-adding is negative, then ‘employment’ becomes a form of consumption—such as occurs where those holding public offices are paid for services that are not delivered or that are poor in quality.

There is a general public dissatisfaction with the performance of public officers, in nations such as Papua New Guinea, Solomon Islands, Vanuatu and Fiji, and unfavourable value-adding relationships are identified across a wide range of public office holders—from politicians to public servants. There however seems to be limited momentum for the effective reform of public institutions in Melanesian nations and the dysfunctionality of much of the public sector continues as a ‘tax’ on performance in other sectors. Growth in wage employment mainly occurs in the private or market sector and for the 10 years to 1995 most growth in wage jobs occurred in the private sector. For example, of the 1.09 per cent growth in Papua New Guinea wage employment over that decade, 72.4 per cent of these wage jobs occurred in the private sector.

While there is scope for increasing the growth of wage jobs in Melanesian economies, examination of these economies reveals that the greatest scope for improved use of labour resources is in the growth of
rural-based self-employment. Taken as a whole, the chief comparative advantage of these economies is in land and labour resources and the chief means for economic and social development is in the development and use of these resources. But this development must be understood differently than has typically been the case. The very title of this chapter implies an understanding of resources use that is mainly influenced by demand. That is, the language implies a ‘demand side’ perspective. My general perspective is one that focuses on interactions of demand and supply influences. But, partly to sharpen a ‘correcting’ perspective, I wish in this chapter to raise the profile of ‘supply side’ perspectives.

From a supply side perspective, the problem of the development and use of labour resources chiefly focuses on the quantity and quality of labour services that are forthcoming. Although the label ‘supply side’ perhaps has a certain newness, the perspective is far from new in the study of Melanesian economies. With the first entry of Melanesian societies into the international economic order during the nineteenth century, the over-riding ‘problem’ was the attraction of local labour resources to plantation employment for the production of tropical crop commodities for the international market. This difficulty led to the early regulation of labour (the ‘indenture system’) by the Australian administration in what is now Papua New Guinea; it was the need to regulate unacceptable labour recruitment practices that led to Solomon Islands being declared a British Protectorate; similar needs were prominent in the formation of a Condominium in the New Hebrides (now, Vanuatu); and the inadequacy of Melanesian supply side responses led to the drawing-in of mainly Indian labour for the development of a tropical commodity export economy under the British in Fiji.

Early economic research of Melanesian economies and societies, drawing on the foundation work of the then new discipline of cultural anthropology, led to the coining of the phrase ‘primitive affluence’ to typify the economic and social order of indigenous Melanesian populations. And these insights from early economic analysis of Melanesian societies need again to be emphasised in understanding the contemporary scene. In using the term ‘primitive affluence’, two things need to be clarified. First, ‘primitive’ is not used in a pejorative sense it is used, rather, to describe an economic and social order that has been insulated from the technological developments occurring in the international economic and social order. Second, the term ‘affluence’ is not used to imply a local society that has abundance of the goods and services
produced and distributed in the international economy; it is used, rather, to describe an economic and social order that meets customary wants with less than full utilisation of local land and labour resources.

Even in the closing years of the twentieth century, a ‘supply side problem’ perspective remains the most illuminating one for understanding economic performance in Melanesian nations. For the raising of economic performance in Melanesian nations chiefly depends on fuller and more effective use of land and labour resources and achieving this importantly focuses on calling forth and enabling the supply-side responses of Melanesian populations.

The international community is now coming to a better understanding that international development assistance (‘aid’) that is unwisely directed may in fact cultivate a ‘cargo cult’ mentality and, in fact, may ‘cause’ consumption expenditures to outrun revenues generated domestically and thereby act as a contributing factor to the generally poor performance of Melanesian economies. What remains under-identified in international analysis of Melanesian economic performance is that the focus for improved economic performance must be rural-based development and that this development is dependent on calling forth and enabling supply-side responses from indigenous populations. In brief, while demand side-issues remain significant and while viable analysis must involve interaction of demand-side and supply-side considerations, the development of a clearer supply-side perspective is crucial to an adequate understanding of and response to the problem of labour absorption in Melanesian economies. Moreover, more broad-based development of formal sector employment outside enclaves such as mining and tourist sector developments depends on rural-based development providing domestic markets for formal sector goods and services—with rural development becoming the leading sector for growth in principally urban formal sector employment (Table 5.1).

**Indicators of resource use and efficiency in Papua New Guinea**

**Census results—1980 and 1990**

Even a brief comparison between 1980 and 1990 national Census data (both excluding North Solomons province) shows some alarming developments in the labour market. The population has increased from 3 million to 3.6 million—a compound annual percentage growth rate of 2.33 (Table 5.2). The citizen population aged 10 years and over has increased from 2.0 million to 2.5 million—a compound average annual
Table 5.1. Papua New Guinea indices of formal market sector wage employment, by selected industries, 1978–95

<table>
<thead>
<tr>
<th>Year (Dec.)</th>
<th>Retail</th>
<th>Wholesale</th>
<th>Manufacturing and building and construction</th>
<th>Transport</th>
<th>Financial and business</th>
<th>Agriculture/Forestry/Fisheries (excl. mining)</th>
<th>Total</th>
<th>Mining</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>89.4</td>
<td>121.2</td>
<td>77.3</td>
<td>75.0</td>
<td>74.5</td>
<td>74.7</td>
<td>76.1</td>
<td>79.1</td>
</tr>
<tr>
<td>1979</td>
<td>92.4</td>
<td>124.3</td>
<td>81.5</td>
<td>76.5</td>
<td>77.3</td>
<td>78.2</td>
<td>78.6</td>
<td>82.1</td>
</tr>
<tr>
<td>1980</td>
<td>101.2</td>
<td>130.4</td>
<td>88.9</td>
<td>84.4</td>
<td>83.8</td>
<td>85.7</td>
<td>85.4</td>
<td>89.5</td>
</tr>
<tr>
<td>1981</td>
<td>103.6</td>
<td>142.5</td>
<td>96.3</td>
<td>84.4</td>
<td>88.3</td>
<td>88.6</td>
<td>84.2</td>
<td>92.1</td>
</tr>
<tr>
<td>1982</td>
<td>90.7</td>
<td>125.2</td>
<td>85.6</td>
<td>80.6</td>
<td>78.7</td>
<td>82.6</td>
<td>77.5</td>
<td>83.1</td>
</tr>
<tr>
<td>1983</td>
<td>88.6</td>
<td>121.4</td>
<td>83.8</td>
<td>76.3</td>
<td>78.1</td>
<td>81.5</td>
<td>75.1</td>
<td>81.0</td>
</tr>
<tr>
<td>1984</td>
<td>89.2</td>
<td>116.9</td>
<td>82.9</td>
<td>73.3</td>
<td>80.5</td>
<td>84.1</td>
<td>78.3</td>
<td>82.3</td>
</tr>
<tr>
<td>1985</td>
<td>88.6</td>
<td>116.4</td>
<td>86.4</td>
<td>82.0</td>
<td>81.4</td>
<td>91.4</td>
<td>80.4</td>
<td>85.0</td>
</tr>
<tr>
<td>1986</td>
<td>88.6</td>
<td>112.3</td>
<td>86.0</td>
<td>82.8</td>
<td>87.0</td>
<td>92.2</td>
<td>84.6</td>
<td>87.1</td>
</tr>
<tr>
<td>1987</td>
<td>94.9</td>
<td>92.7</td>
<td>86.4</td>
<td>75.6</td>
<td>105.7</td>
<td>87.4</td>
<td>84.9</td>
<td>89.1</td>
</tr>
<tr>
<td>1988</td>
<td>98.2</td>
<td>92.6</td>
<td>92.6</td>
<td>76.1</td>
<td>94.4</td>
<td>92.8</td>
<td>91.9</td>
<td>92.4</td>
</tr>
<tr>
<td>1989</td>
<td>101.2</td>
<td>95.7</td>
<td>98.5</td>
<td>106.2</td>
<td>105.6</td>
<td>103.5</td>
<td>95.7</td>
<td>99.3</td>
</tr>
<tr>
<td>1990</td>
<td>87.8</td>
<td>97.3</td>
<td>94.8</td>
<td>106.8</td>
<td>111.5</td>
<td>109.2</td>
<td>89.0</td>
<td>94.6</td>
</tr>
<tr>
<td>1991</td>
<td>86.2</td>
<td>81.4</td>
<td>95.2</td>
<td>81.1</td>
<td>104.4</td>
<td>103.3</td>
<td>89.2</td>
<td>91.1</td>
</tr>
<tr>
<td>1992</td>
<td>85.4</td>
<td>86.2</td>
<td>101.9</td>
<td>76.6</td>
<td>94.1</td>
<td>104.6</td>
<td>97.4</td>
<td>94.0</td>
</tr>
<tr>
<td>1993</td>
<td>83.9</td>
<td>83.9</td>
<td>103.7</td>
<td>73.6</td>
<td>90.7</td>
<td>104.3</td>
<td>95.1</td>
<td>91.4</td>
</tr>
<tr>
<td>1994</td>
<td>88.4</td>
<td>90.6</td>
<td>120.1</td>
<td>78.8</td>
<td>95.2</td>
<td>102.3</td>
<td>101.0</td>
<td>98.1</td>
</tr>
<tr>
<td>1995</td>
<td>90.7</td>
<td>81.9</td>
<td>109.3</td>
<td>67.8</td>
<td>89.1</td>
<td>111.0</td>
<td>90.4</td>
<td>92.5</td>
</tr>
</tbody>
</table>

Notes: These data are Bank of Papua New Guinea revised series; old series, data are reproduced in McGavin (1991a:75f). Data for North Solomons province are not included since 1989.

Table 5.2. Papua New Guinea citizen population, 1966–2010

<table>
<thead>
<tr>
<th>Year</th>
<th>'000 persons</th>
<th>Annual percentage change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>2,150</td>
<td>2.49</td>
</tr>
<tr>
<td>1971</td>
<td>2,435</td>
<td>2.29</td>
</tr>
<tr>
<td>1980</td>
<td>2,978</td>
<td>2.17</td>
</tr>
<tr>
<td>1990</td>
<td>3,582</td>
<td>2.33</td>
</tr>
<tr>
<td>1995p</td>
<td>3,980</td>
<td>2.13</td>
</tr>
<tr>
<td>2000p</td>
<td>4,413</td>
<td>2.09</td>
</tr>
<tr>
<td>2005p</td>
<td>4,874</td>
<td>2.01</td>
</tr>
<tr>
<td>2010p</td>
<td>5,342</td>
<td>1.85</td>
</tr>
</tbody>
</table>

Notes: 1990 observation and subsequent projections exclude North Solomons province. The comparable 1980 figure was 2,853. Data since 1990 are provisional and projections.

growth rate of 2.35 per cent (National Statistical Office 1991c:69; 1993b). On census data, citizen wage employment increased from about 184,000 persons to about 232,000 persons (Table 5.3)—a compound average annual growth rate of 2.34 per cent. These comparisons suggest that growth in wage employment has kept pace with growth in the economically active population. But this confuses the impact of events on Bougainville on overall intercensal job growth. Comparing 1980 Census results including North Solomons province with 1990 Census results excluding North Solomons province shows wage employment of about 200,000 persons in 1980 and about 232,000 persons in 1990—a compound average annual growth rate of 1.49 per cent. This rate is more accurate because, for the most part, jobs lost as a result of conflict at the Panguna mine remain lost in 1990 and largely remain lost in 1996. Taking the data benchmarks used in this chapter (Table 5.4), wage employment increased from about 213,000 in 1980 to about 235,000 in 1990—giving a compound average annual growth rate of about 1 per cent. The tragedy of the Panguna conflict is also noticed in the change for North Solomons province from having the lowest provincial rate of measured wage unemployment to having the highest unemployment rate, albeit an unmeasured one (Table 5.5).

Census results by province

Wage jobs growth has mainly occurred in the National Capital District (NCD); in Enga and Western provinces (respectively affected by Porgera...
Table 5.3. Papua New Guinea wage employment of citizens by province, 1980 and 1990

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National Capital District</td>
<td>34 309</td>
<td>46 387</td>
<td>18.7</td>
<td>20.0</td>
</tr>
<tr>
<td>North Solomons</td>
<td>16 651</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>East New Britain</td>
<td>16 568</td>
<td>20 601</td>
<td>9.0</td>
<td>8.9</td>
</tr>
<tr>
<td>West New Britain</td>
<td>8 976</td>
<td>13 575</td>
<td>4.9</td>
<td>5.8</td>
</tr>
<tr>
<td>New Ireland</td>
<td>6 957</td>
<td>7 685</td>
<td>3.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Manus</td>
<td>2 153</td>
<td>2 270</td>
<td>1.2</td>
<td>1.0</td>
</tr>
<tr>
<td>Morobe</td>
<td>24 867</td>
<td>27 578</td>
<td>13.5</td>
<td>11.9</td>
</tr>
<tr>
<td>Western Highlands</td>
<td>19 742</td>
<td>21 418</td>
<td>10.7</td>
<td>9.2</td>
</tr>
<tr>
<td>Central</td>
<td>8 287</td>
<td>8 599</td>
<td>4.5</td>
<td>3.7</td>
</tr>
<tr>
<td>Oro</td>
<td>4 980</td>
<td>5 807</td>
<td>2.7</td>
<td>2.5</td>
</tr>
<tr>
<td>Mandang</td>
<td>11 173</td>
<td>14 413</td>
<td>6.1</td>
<td>6.2</td>
</tr>
<tr>
<td>Western</td>
<td>3 223</td>
<td>6 389</td>
<td>1.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Gulf</td>
<td>2 572</td>
<td>2 478</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td>Eastern Highlands</td>
<td>10 491</td>
<td>15 693</td>
<td>5.7</td>
<td>6.8</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>4 421</td>
<td>7 870</td>
<td>2.4</td>
<td>3.4</td>
</tr>
<tr>
<td>East Sepik</td>
<td>7 359</td>
<td>7 078</td>
<td>4.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Sandaun</td>
<td>3 472</td>
<td>3 886</td>
<td>1.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Southern Highlands</td>
<td>6 259</td>
<td>7 317</td>
<td>3.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Enga</td>
<td>3 796</td>
<td>8 362</td>
<td>2.1</td>
<td>3.6</td>
</tr>
<tr>
<td>Simbu</td>
<td>4 136</td>
<td>4 756</td>
<td>2.2</td>
<td>2.0</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>200 393</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(excluding NSP)</td>
<td>183 741</td>
<td>232 162</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: The above data include those recorded as on leave or temporarily absent from work. Non-citizens in wage employment at the 1980 Census were 15,414 persons (National Statistical Office 1988:67) and at the 1990 census 8,601 persons (National Statistical Office 1993b).


and Ok Tedi mining developments); in Milne Bay, West New Britain and East New Britain provinces (Milne Bay reflecting mining development on Misima island and palm oil developments and West New Britain reflecting palm oil developments); and in Eastern Highlands province (a growth probably lost with low coffee prices during the early 1990s and possibly recovered with the recent strong recovery in coffee prices). As noted, employment has collapsed in North Solomons province;
### Table 5.4. Papua New Guinea wage employment by major sector, 1968–95 (persons)

<table>
<thead>
<tr>
<th>Year (Dec.)</th>
<th>Public service (a)</th>
<th>Elcom plus PTC (b)</th>
<th>Private or market (excl. mining) (c)</th>
<th>Mining (d)</th>
<th>Wage employment (e)</th>
<th>Wage employment (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>28 093</td>
<td>918</td>
<td>130 878</td>
<td>1 651</td>
<td>161 540</td>
<td>174 648</td>
</tr>
<tr>
<td>1969</td>
<td>32 763</td>
<td>1 411</td>
<td>138 245</td>
<td>2 229</td>
<td>174 648</td>
<td>182 642</td>
</tr>
<tr>
<td>1970</td>
<td>33 804</td>
<td>1 556</td>
<td>144 589</td>
<td>2 693</td>
<td>183 633</td>
<td>178 594</td>
</tr>
<tr>
<td>1971</td>
<td>36 335</td>
<td>1 588</td>
<td>142 245</td>
<td>3 465</td>
<td>176 734</td>
<td>183 633</td>
</tr>
<tr>
<td>1972</td>
<td>37 452</td>
<td>1 716</td>
<td>134 263</td>
<td>5 163</td>
<td>176 008</td>
<td>175 429</td>
</tr>
<tr>
<td>1973</td>
<td>40 516</td>
<td>1 612</td>
<td>130 138</td>
<td>4 468</td>
<td>176 734</td>
<td>174 825</td>
</tr>
<tr>
<td>1974</td>
<td>43 389</td>
<td>1 599</td>
<td>125 838</td>
<td>5 182</td>
<td>185 160</td>
<td>174 825</td>
</tr>
<tr>
<td>1975</td>
<td>46 465</td>
<td>1 760</td>
<td>122 081</td>
<td>5 153</td>
<td>175 429</td>
<td>186 943</td>
</tr>
<tr>
<td>1976</td>
<td>49 759</td>
<td>1 833</td>
<td>118 710</td>
<td>4 523</td>
<td>194 129</td>
<td>174 825</td>
</tr>
<tr>
<td>1977</td>
<td>49 700</td>
<td>1 913</td>
<td>128 893</td>
<td>4 654</td>
<td>185 160</td>
<td>185 160</td>
</tr>
<tr>
<td>1978</td>
<td>49 742</td>
<td>2 288</td>
<td>130 053</td>
<td>4 860</td>
<td>186 943</td>
<td>208 161</td>
</tr>
<tr>
<td>1979</td>
<td>50 936</td>
<td>2 189</td>
<td>136 111</td>
<td>4 893</td>
<td>194 129</td>
<td>199 016</td>
</tr>
<tr>
<td>1980</td>
<td>52 862</td>
<td>2 744</td>
<td>152 351</td>
<td>5 043</td>
<td>213 000</td>
<td>200 431</td>
</tr>
<tr>
<td>1981</td>
<td>54 728</td>
<td>2 659</td>
<td>144 673</td>
<td>6 101</td>
<td>208 161</td>
<td>208 161</td>
</tr>
<tr>
<td>1982</td>
<td>52 858</td>
<td>4 724</td>
<td>132 692</td>
<td>8 742</td>
<td>199 016</td>
<td>211 739</td>
</tr>
<tr>
<td>1983</td>
<td>49 493</td>
<td>4 746</td>
<td>136 696</td>
<td>9 496</td>
<td>200 431</td>
<td>216 702</td>
</tr>
<tr>
<td>1984</td>
<td>51 460</td>
<td>5 001</td>
<td>143 356</td>
<td>6 387</td>
<td>206 204</td>
<td>211 739</td>
</tr>
<tr>
<td>1985</td>
<td>51 682</td>
<td>4 672</td>
<td>149 518</td>
<td>5 867</td>
<td>211 739</td>
<td>223 236</td>
</tr>
<tr>
<td>1986</td>
<td>49 926</td>
<td>5 072</td>
<td>154 664</td>
<td>7 040</td>
<td>216 702</td>
<td>230 431</td>
</tr>
<tr>
<td>1987</td>
<td>50 099</td>
<td>5 363</td>
<td>159 755</td>
<td>8 019</td>
<td>223 236</td>
<td>236 731</td>
</tr>
<tr>
<td>1988</td>
<td>49 076</td>
<td>5 288</td>
<td>166 820</td>
<td>9 247</td>
<td>230 431</td>
<td>236 731</td>
</tr>
<tr>
<td>1989</td>
<td>49 274</td>
<td>5 199</td>
<td>181 091</td>
<td>6 084</td>
<td>243 648</td>
<td>234 906</td>
</tr>
<tr>
<td>1990</td>
<td>50 309</td>
<td>5 143</td>
<td>174 123</td>
<td>5 331</td>
<td>234 906</td>
<td>228 666</td>
</tr>
<tr>
<td>1991</td>
<td>50 823</td>
<td>4 879</td>
<td>167 681</td>
<td>5 283</td>
<td>228 666</td>
<td>231 282</td>
</tr>
<tr>
<td>1993</td>
<td>55 860</td>
<td>4 582</td>
<td>168 233</td>
<td>5 632</td>
<td>234 307</td>
<td>247 520</td>
</tr>
<tr>
<td>1994</td>
<td>56 868</td>
<td>4 534</td>
<td>180 565</td>
<td>5 553</td>
<td>247 520</td>
<td>236 731</td>
</tr>
<tr>
<td>1995</td>
<td>56 250</td>
<td>4 278</td>
<td>170 258</td>
<td>5 945</td>
<td>236 731</td>
<td>236 731</td>
</tr>
</tbody>
</table>

Notes: 1. For details on the preparation of this table, see McGavin (1986:15, 1991a:63 and 1993:82). This table revises and extends data from McGavin (1993:82) by benchmarking 1980–90 movements against 1990 Census results. National Statistical Office (1988:67) gives employment at 1980 as 216, 256 persons. McGavin (1991a:68, n. 3.1) implicitly attributes 3,256 persons to public authorities employment exclusive of Elcom and PTC at 1980. (Thus, 213,000 plus 3,256 gives 216,256 as found in National Statistical Office 1988:67.) In the absence of a convenient 1990 'benchmark' for public authorities employment as provided for 1980 by DFP (1986:44), I have taken the percentage growth in combined Elcom/PTC employment over the period 1980 to 1990 (of 187 percent) and applied this to the previously-adopted benchmark (6,000 times 1.87 = 11,220) and rounded to the nearest thousand, giving 11,000 for public authorities employment. The difference between this benchmark and combined 1990 Elcom/PTC employment (11,000 - 5,143 = 5,857) gives a 1990 figure of 5,857 for public authorities employment other than Elcom/PTC. Deriving a 1990 employment observation that is consistent with procedures adopted for 1980 thus involves taking the 1990
Notes to Table 5.4, continued from page 72

Census figure from National Statistical Office (1994:141) of 232,162 plus 8,601 non-citizen employment (National Statistical Office 1993b), less 5,857 described above, to obtain 234,906 as shown in the table. Note that National Statistical Office (1994:141) adjusted the 1980 figure to remove North Solomons province employment. This procedure has not been followed, as the purpose is to track national employment that reflects the impact and aftermath of events in the North Solomons province.

The method for 're-benchmarking' these data at the 1990 Census is as follows: the estimate of private or market sector employment (excluding mining) as consistent with the 1980 Census data provides a base for application of the BPNG employment index (excluding mining). For the resultant series, the cumulative average annual rate of change in the series was calculated and a trend 1980–90 series is derived. The ratio of the first to the second (trend) series was then calculated. The cumulative annual rate of change in estimated private or market sector employment (excluding mining) as consistent with 1980 and 1990 Census data was calculated and a revised trend 1980–90 series was derived. The ratio between the first and the second of the above-described series was then applied to the last trend series to derive an adjusted series for non-mining market sector employment that is consistent with both BPNG indices and the 1980 and 1990 Census benchmarks. The 1990 Census benchmark estimate is then used with the BPNG index series to derive 1990–95 estimates of employment.

2. The term wage employment is used to distinguish wage-jobs from the productive activity of most of the population in non-cash and cash self-employment. This table revises data for 1988 and subsequent sub-total (excluding mining) from McGavin (1991a:63), following Quarterly Economic Bulletin revisions as at March 1996. These data do not include government day labour at 9,956 persons as found in the 1990 budget and uniformed military personnel estimated in DPM working files as 3,300 for 1990 (McGavin 1991a:67). Data for 1991 for Electricity Commission (Elcom) and Posts and Telegraph Commission (PTC/Telikom) employment were obtained from these authorities. 1991 Public Service estimates are derived by deducting Elcom and PTC employment from the 1991 Public sector employment estimate in DFP (1992). Public Service employment estimates for 1968–1990 from McGavin (1991a) were obtained from DPM working files and are preferred to National Statistical Office (1991a:2) estimates of 49,600 for 1987 (but note that the difference between these sources at 1987 is small). Disaggregation of market sector employment (excluding mining) appears in Table 5.12. Mining 1990 estimate is for June (McGavin 1991a:77f). Employment indices used in revisions from 1986 onward are found in Table 5.1.


Table 5.5. Papua New Guinea measured wage unemployment, all sectors, by province, 1980 and 1990 (per cent)

<table>
<thead>
<tr>
<th>Province</th>
<th>Recorded wage unemployment (per cent of market labour force)(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1980(b)</td>
</tr>
<tr>
<td>National Capital District</td>
<td>8.6</td>
</tr>
<tr>
<td>North Solomons</td>
<td>6.3</td>
</tr>
<tr>
<td>East New Britain</td>
<td>13.4</td>
</tr>
<tr>
<td>West New Britain</td>
<td>8.6</td>
</tr>
<tr>
<td>New Ireland</td>
<td>13.1</td>
</tr>
<tr>
<td>Manus</td>
<td>19.8</td>
</tr>
<tr>
<td>Morobe</td>
<td>12.6</td>
</tr>
<tr>
<td>Western Highlands</td>
<td>17.9</td>
</tr>
<tr>
<td>Central</td>
<td>8.5</td>
</tr>
<tr>
<td>Oro</td>
<td>13.2</td>
</tr>
<tr>
<td>Mandang</td>
<td>15.1</td>
</tr>
<tr>
<td>Western</td>
<td>29.3</td>
</tr>
<tr>
<td>Gulf</td>
<td>18.6</td>
</tr>
<tr>
<td>Eastern Highlands</td>
<td>25.1</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>12.4</td>
</tr>
<tr>
<td>East Sepik</td>
<td>32.3</td>
</tr>
<tr>
<td>Sandaun</td>
<td>21.6</td>
</tr>
<tr>
<td>Southern Highlands</td>
<td>28.2</td>
</tr>
<tr>
<td>Enga</td>
<td>30.8</td>
</tr>
<tr>
<td>Simbu</td>
<td>36.5</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>15.9</td>
</tr>
</tbody>
</table>

\(a\) Population is of citizens aged 10 years and over. The 1990 national total does not include North Solomons Province. Unemployed persons are not engaged in other activities and recorded as actively seeking wage employment and are expressed as a proportion of the market labour force (that is, those in wage employment plus those recorded as actively seeking wage employment).

\(b\) National Statistical Office (1994:146) states that the number of unemployed persons was grossly under-reported in 1980.


employment has declined in East Sepik, Sandaun and Gulf provinces and has generally been stagnant in the remaining provinces (Table 5.3). These data show a marked lack of broad-based jobs growth for the recent intercensal period.

**Wage job participation rates**

These patterns of job growth are highlighted when census data are examined as percentages of the population in wage employment ('market
work-force participation rates). Persons holding wage jobs as a percentage of the citizen population aged 10 years and over decreased from 9.6 per cent in 1980 to 9.2 per cent in 1990 (Table 5.6). Only for Enga, Western Highlands and Eastern Highlands provinces did job growth exceed population growth in the intercensal period (Table 5.6). Job growth in coffee producing areas probably reversed and then recently recovered. The Bank of Papua New Guinea index for Highlands employment includes Enga province (Porgera) and Southern Highlands province (Kutubu) (Table 5.7).

Table 5.6. Papua New Guinea market work force and labour force participation, all sectors, by province, 1980 and 1990 (per cent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National Capital District</td>
<td>44.3</td>
<td>34.2</td>
<td>48.5</td>
<td>52.8</td>
</tr>
<tr>
<td>North Solomons</td>
<td>19.4</td>
<td>..</td>
<td>20.7</td>
<td>..</td>
</tr>
<tr>
<td>East New Britain</td>
<td>18.2</td>
<td>16.1</td>
<td>21.0</td>
<td>21.2</td>
</tr>
<tr>
<td>West New Britain</td>
<td>15.2</td>
<td>15.3</td>
<td>16.4</td>
<td>21.9</td>
</tr>
<tr>
<td>New Ireland</td>
<td>15.0</td>
<td>12.7</td>
<td>17.3</td>
<td>15.8</td>
</tr>
<tr>
<td>Manus</td>
<td>12.0</td>
<td>9.8</td>
<td>15.0</td>
<td>13.8</td>
</tr>
<tr>
<td>Morobe</td>
<td>11.8</td>
<td>10.3</td>
<td>13.5</td>
<td>17.9</td>
</tr>
<tr>
<td>Western Highlands</td>
<td>10.5</td>
<td>8.8</td>
<td>12.7</td>
<td>12.3</td>
</tr>
<tr>
<td>Central</td>
<td>10.3</td>
<td>8.8</td>
<td>11.2</td>
<td>13.5</td>
</tr>
<tr>
<td>Oro</td>
<td>9.6</td>
<td>8.8</td>
<td>11.3</td>
<td>14.6</td>
</tr>
<tr>
<td>Mandang</td>
<td>7.8</td>
<td>8.4</td>
<td>9.2</td>
<td>13.0</td>
</tr>
<tr>
<td>Western</td>
<td>6.1</td>
<td>9.1</td>
<td>8.6</td>
<td>15.7</td>
</tr>
<tr>
<td>Gulf</td>
<td>5.9</td>
<td>5.3</td>
<td>7.3</td>
<td>8.2</td>
</tr>
<tr>
<td>Eastern Highlands</td>
<td>5.4</td>
<td>7.6</td>
<td>7.2</td>
<td>12.2</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>5.0</td>
<td>7.1</td>
<td>5.7</td>
<td>9.7</td>
</tr>
<tr>
<td>East Sepik</td>
<td>4.8</td>
<td>4.0</td>
<td>7.1</td>
<td>8.1</td>
</tr>
<tr>
<td>Sandaun</td>
<td>4.4</td>
<td>4.1</td>
<td>5.6</td>
<td>7.4</td>
</tr>
<tr>
<td>Southern Highlands</td>
<td>3.9</td>
<td>3.3</td>
<td>5.4</td>
<td>6.6</td>
</tr>
<tr>
<td>Enga</td>
<td>3.2</td>
<td>4.8</td>
<td>4.6</td>
<td>9.0</td>
</tr>
<tr>
<td>Simbu</td>
<td>3.1</td>
<td>3.5</td>
<td>4.8</td>
<td>6.7</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>9.6</td>
<td>9.2</td>
<td>11.5</td>
<td>14.5</td>
</tr>
</tbody>
</table>

*Population is of citizens aged 10 years and over. Work force includes those in wage employment; labour force includes those in wage employment plus those actively seeking wage employment. The 1990 national total does not include North Solomons Province.
<table>
<thead>
<tr>
<th>Year (Dec.)</th>
<th>NCD</th>
<th>Highlands</th>
<th>Lae</th>
<th>Madang /Wewak</th>
<th>Islands</th>
<th>North Solomons</th>
<th>Other regions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>79.6</td>
<td>88.1</td>
<td>78.0</td>
<td>100.7</td>
<td>100.9</td>
<td>127.2</td>
<td>44.5</td>
<td>79.1</td>
</tr>
<tr>
<td>1979</td>
<td>83.4</td>
<td>86.6</td>
<td>85.9</td>
<td>98.4</td>
<td>104.7</td>
<td>126.5</td>
<td>46.2</td>
<td>82.1</td>
</tr>
<tr>
<td>1980</td>
<td>89.8</td>
<td>94.3</td>
<td>92.6</td>
<td>112.7</td>
<td>113.4</td>
<td>150.5</td>
<td>50.7</td>
<td>89.5</td>
</tr>
<tr>
<td>1981</td>
<td>97.1</td>
<td>89.2</td>
<td>92.0</td>
<td>113.5</td>
<td>108.3</td>
<td>146.6</td>
<td>60.9</td>
<td>92.1</td>
</tr>
<tr>
<td>1982</td>
<td>94.3</td>
<td>81.8</td>
<td>85.0</td>
<td>97.6</td>
<td>69.5</td>
<td>117.4</td>
<td>65.2</td>
<td>83.1</td>
</tr>
<tr>
<td>1983</td>
<td>96.6</td>
<td>78.9</td>
<td>77.6</td>
<td>91.2</td>
<td>67.1</td>
<td>106.5</td>
<td>64.3</td>
<td>81.0</td>
</tr>
<tr>
<td>1984</td>
<td>93.4</td>
<td>82.9</td>
<td>79.9</td>
<td>95.1</td>
<td>72.0</td>
<td>118.1</td>
<td>65.0</td>
<td>82.3</td>
</tr>
<tr>
<td>1985</td>
<td>97.2</td>
<td>80.1</td>
<td>82.6</td>
<td>92.8</td>
<td>78.4</td>
<td>108.6</td>
<td>70.5</td>
<td>85.0</td>
</tr>
<tr>
<td>1986</td>
<td>93.3</td>
<td>83.5</td>
<td>86.0</td>
<td>93.2</td>
<td>89.5</td>
<td>104.4</td>
<td>74.8</td>
<td>87.1</td>
</tr>
<tr>
<td>1987</td>
<td>92.2</td>
<td>84.2</td>
<td>89.6</td>
<td>90.1</td>
<td>99.0</td>
<td>103.7</td>
<td>77.8</td>
<td>89.1</td>
</tr>
<tr>
<td>1988</td>
<td>94.3</td>
<td>89.2</td>
<td>92.1</td>
<td>94.7</td>
<td>97.1</td>
<td>107.7</td>
<td>85.4</td>
<td>92.4</td>
</tr>
<tr>
<td>1989</td>
<td>103.0</td>
<td>96.0</td>
<td>95.6</td>
<td>98.1</td>
<td>101.1</td>
<td>90.3</td>
<td>99.1</td>
<td>99.3</td>
</tr>
<tr>
<td>1990</td>
<td>101.9</td>
<td>83.4</td>
<td>104.3</td>
<td>107.0</td>
<td>84.8</td>
<td>..</td>
<td>86.7</td>
<td>94.6</td>
</tr>
<tr>
<td>1991</td>
<td>94.9</td>
<td>91.8</td>
<td>98.7</td>
<td>108.5</td>
<td>77.8</td>
<td>..</td>
<td>83.3</td>
<td>91.1</td>
</tr>
<tr>
<td>1992</td>
<td>91.5</td>
<td>114.7</td>
<td>98.9</td>
<td>117.0</td>
<td>76.2</td>
<td>..</td>
<td>81.8</td>
<td>94.0</td>
</tr>
<tr>
<td>1993</td>
<td>88.7</td>
<td>113.1</td>
<td>96.4</td>
<td>109.4</td>
<td>72.3</td>
<td>..</td>
<td>92.4</td>
<td>91.4</td>
</tr>
<tr>
<td>1994</td>
<td>96.8</td>
<td>125.0</td>
<td>107.6</td>
<td>102.1</td>
<td>71.1</td>
<td>..</td>
<td>106.0</td>
<td>98.1</td>
</tr>
<tr>
<td>1995</td>
<td>98.0</td>
<td>124.01</td>
<td>103.2</td>
<td>98.6</td>
<td>61.8</td>
<td>..</td>
<td>88.0</td>
<td>92.5</td>
</tr>
</tbody>
</table>

Rural–urban changes

Poor and uneven growth in wage jobs is more marked when variations in population growth are noticed. The 2.35 per cent overall average compound annual growth in population aged 10 years and over was divided unevenly between rural and urban areas—1.75 per cent for rural areas and 3.7 per cent for urban areas (National Statistical Office 1991c:3). From census results for the provinces, increases in market work force as a proportion of the population are recorded only for Enga, Western Highlands and Eastern Highlands provinces. All other provinces show declines in the proportion of populations having a wage job—with the National Capital District (NCD) showing the largest decline, from 44.3 to 34.2 per cent (Table 5.6).

Widespread poor job growth matters less where populations face viable alternatives in subsistence, cash-cropping and self-employment activities. But poor job growth has been associated with increased proportions of populations seeking wage employment, both nationally and by province. As a result, increases are found in participation rates in the market labour force (persons having wage jobs plus persons actively seeking wage jobs)—national estimates increasing from 11.5 per cent in 1980 to 14.5 per cent in 1990 (Table 5.6).

Measured wage unemployment

Combining poor wage job growth with increases in persons seeking wage jobs makes for large increases in measured wage unemployment—national estimates increasing from 15.9 per cent in 1980 to 36.4 per cent in 1990 (Table 5.5). For provinces such as Enga and Western, where wage job growth has focused on Porgera and Ok Tedi mining developments, there has still been an even higher growth in persons seeking wage jobs—with the result that measured wage unemployment in Western province increased from 29.3 per cent in 1980 to 41.7 per cent in 1990 and in Enga province from 30.8 per cent in 1980 to 46.6 per cent in 1990. Perhaps, however, persons seeking wage employment in largely rural provinces are still close to the alternatives of subsistence production. For urban areas in Papua New Guinea, this is often not the case. And the increase in measured wage unemployment for the NCD from 8.6 per cent in 1980 to 35.3 per cent in 1990 highlights the ‘flash point’ significance of urban wage unemployment (Table 5.5). Whereas in 1980, urban measured wage unemployment was significantly less than rural measured wage unemployment, dramatic changes have occurred between censuses. For both rural and urban
Table 5.8. Papua New Guinea market work force, labour force participation and measured unemployment rate—urban and rural citizen populations by sex, 1980 and 1990 (per cent)

<table>
<thead>
<tr>
<th></th>
<th>Market work force (per cent of population)</th>
<th>Market labour force (per cent of population)</th>
<th>Measured unemployment (per cent of labour force)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Males</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>54.7</td>
<td>44.5</td>
<td>60.1</td>
</tr>
<tr>
<td>Rural</td>
<td>9.6</td>
<td>8.4</td>
<td>11.7</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>13.9</td>
<td>14.5</td>
<td>15.7</td>
</tr>
<tr>
<td>Rural</td>
<td>1.3</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>Persons</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>38.5</td>
<td>31.6</td>
<td>42.5</td>
</tr>
<tr>
<td>Rural</td>
<td>5.6</td>
<td>5.2</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Notes: Market labour force comprises persons in wage jobs (the market work force) and persons searching for wage jobs. The measured unemployment rate is persons searching for wage jobs as a proportions of the market labour force. A better measure is ‘market and subsistence labour force’ (see McGavin 1991a:237) but the conventional measure is used, as it highlights the relative significance of persons in wage employment and/or searching for wage employment. Rural results for 1980 Census involve conflating of ‘rural village’ and ‘rural non-village’ for comparison with the ‘rural’ category of the 1990 Census.


areas, measured wage unemployment has grown rapidly. But the growth has been more rapid for urban areas—so that urban and rural measured wage unemployment are now generally at levels of or greater than one person seeking a wage job for every two persons holding a wage job (Table 5.8).

**Wage regulation changes**

This analysis of census data reinforces the perception stated in the 1992 Minimum Wages Board (MWB) Determination about high rural-urban migration. A key argument in the Opening Statement of the Government of Papua New Guinea Submission to the MWB was ‘...that the
appropriate benchmark for setting minimum wages is the capacity of the weakest sector of the economy to pay, not [the capacity to pay of] the strongest [sectors]' (DFP 1991:24). Although not prominent in explanations found in the Reasons for Determination, it seems that understanding of these critical labour market developments was significant for the determination of a single national adult minimum wage for new job entrants that is set at the previous rural adult minimum wage—thereby collapsing the rural–urban minimum wage differential that contributed to high rural–urban migration (MWB 1992:44) (Table 5.9). The data urge the conclusion of the 1992 Board that ‘There is now the need to change direction in wages policy because the current economic situation calls for this change’ (MWB 1992:32). Nevertheless, this change does not focus on the growth of low-wage jobs, but on productivity improvement (MWB 1992:47–61).

**Productivity trends**

Weak productivity performance has accompanied weak growth in wage employment. Productivity measured as a rate of change in product per person employed over the period 1973–77 to 1985–89 shows almost zero labour productivity growth for the formal economy—a yearly compound average increase of about zero is reported in McGavin (1991a:100). Estimates of total factor productivity (of capital and labour) show recent deterioration in two-factor productivity growth for the formal economy from a yearly compound average increase of 1.5 per cent for 1981–83 to 1984–86 to 0.9 per cent for 1984–86 to 1987–89 (McGavin 1991a:105). These indications of deterioration in productivity performance may not be marked in comparison with many countries and it may be questioned whether the newly industrialised economies of Asia are an appropriate comparison for assessing Papua New Guinea results. But the high rates of labour and multi-factor productivity increases achieved in Asian newly industrialised countries show what gains are possible (World Bank 1992a:138) and recent performance of Indian Ocean and Caribbean economies suggests that improved performance is possible in cultural settings quite different from Asian newly industrialised countries.

Secondary industries show declines in real value-added per person—and declines that exceed declines in real wages per person (Table 5.10; McGavin and Millett 1993:11). Recent estimates show real value-added per employee between 1983 and 1990 declining overall and de-clining for manufacturing, construction and service sectors (while rising for mining and utilities and constant for agriculture) (UNDP/ILO 1992:47).
Table 5.9. Minimum legal wages for Papua New Guinea since October 1992 (kina per week)

<table>
<thead>
<tr>
<th>Category</th>
<th>At decision date&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Most recent&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>National—new employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adult</td>
<td>22.96</td>
<td>22.96</td>
</tr>
<tr>
<td>youth</td>
<td>11.50</td>
<td>11.73</td>
</tr>
<tr>
<td>Rural—existing employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adult</td>
<td>22.96</td>
<td>23.42</td>
</tr>
<tr>
<td>youth</td>
<td>11.50</td>
<td>11.73</td>
</tr>
<tr>
<td>Urban level 1—existing employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General labourer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adult</td>
<td>61.60</td>
<td>62.83</td>
</tr>
<tr>
<td>youth</td>
<td>30.78</td>
<td>31.40</td>
</tr>
<tr>
<td>Class 1</td>
<td>65.37</td>
<td>66.68</td>
</tr>
<tr>
<td>Class 2</td>
<td>69.65</td>
<td>71.04</td>
</tr>
<tr>
<td>Class 3</td>
<td>75.13</td>
<td>76.63</td>
</tr>
<tr>
<td>Class 4</td>
<td>81.71</td>
<td>83.45</td>
</tr>
<tr>
<td>Class 5</td>
<td>88.28</td>
<td>90.05</td>
</tr>
<tr>
<td>Class 6</td>
<td>94.89</td>
<td>96.79</td>
</tr>
<tr>
<td>Urban level 2—existing employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General labourer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adult</td>
<td>51.98</td>
<td>53.02</td>
</tr>
<tr>
<td>youth</td>
<td>25.99</td>
<td>26.51</td>
</tr>
<tr>
<td>Class 1</td>
<td>55.88</td>
<td>57.00</td>
</tr>
<tr>
<td>Class 2</td>
<td>60.30</td>
<td>61.51</td>
</tr>
<tr>
<td>Class 3</td>
<td>65.86</td>
<td>67.18</td>
</tr>
<tr>
<td>Class 4</td>
<td>81.71</td>
<td>83.34</td>
</tr>
<tr>
<td>Class 5</td>
<td>88.28</td>
<td>90.05</td>
</tr>
<tr>
<td>Class 6</td>
<td>94.89</td>
<td>96.79</td>
</tr>
</tbody>
</table>

<sup>a</sup>This column shows the wage minima that applied under the 1989 Determination adjustment formula at August 1992, when the Board formally formed its decision. Dates for adjustment of minima are various (see McGavin 1991a: Table A39 Notes). The rural minima at MWB decision date were announced in March 1992 and backdated to 1 January 1992. Rural standard hours are 44 per week. Since a 1975 Industrial Tribunal ‘common ruling’, urban standard hours have been 42 per week (McGavin 1991a used 44 hours per week for both rural and urban sectors). Youths are persons aged 16–21 years.

<sup>b</sup>The Determination of the Board was formally published in the National Gazette No. G73 dated 15 September 1992. The Gazette does not appear to have been immediately distributed and implementation of the ‘adjustment of 2 per cent for minimum wage earners as part of the transition process...’ (MWB 1992:66) did not occur until early December 1992, backdated to 1 October 1992 (MWB 1992:4). The rates for new employees are applicable from the date of the gazettal (MWB 1992:67). Previous level-1 urban centres include: Alotau, Arawa, Goroka, Kavieng, Kieta, Lae, Madang, Mt Hagen, Popondetta, Port Moresby, Rabaul and Wewak; previous level-2 urban centres include: Bulolo, Bwagaoia, Daru, Kainantu, Kerema, Kimbe, Kundiau, Lorengau, Mendi, Samarai, Vanimo, Wabag and Wau. Class 1 includes persons occupying semi-skilled occupations but without work experience; class 2, semi-skilled occupations undertaken with minimal supervision; class 3, semi-skilled occupations undertaken without supervision; class 4, includes tradesmen without experience; class 5, tradesmen with some experience; class 6, experienced tradesmen.

Table 5.1. Papua New Guinea value-added, employment and per employee product, by sector, 1983 and 1990

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>700.0 782.1</td>
<td>1142.7 1278.8</td>
</tr>
<tr>
<td>Mining</td>
<td>225.1 250.1</td>
<td>9.5 5.3</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>217.3 213.9</td>
<td>16.7 18.2</td>
</tr>
<tr>
<td>Utilities</td>
<td>31.4 35.9</td>
<td>4.7 5.1</td>
</tr>
<tr>
<td>Construction</td>
<td>123.7 111.8</td>
<td>16.4 30.4</td>
</tr>
<tr>
<td>Services</td>
<td>758.5 808.2</td>
<td>179.4 184.9</td>
</tr>
<tr>
<td>Total</td>
<td>2056.0 2210.9</td>
<td>1369.5 1522.9</td>
</tr>
</tbody>
</table>

Notes: Employment data for agriculture and the total economy are from 1980 and 1990 census data and 1983 data are derived by interpolation. Obviously, the agriculture employment data are not for wage employment only (as is the case in Table 5.12). Employment data for mining, manufacturing, construction and utilities are from McGavin (1991a:74–85). Data for services were estimated as a residual.


Capital productivity

World Bank (1988) found for Papua New Guinea that the ratio of increments in capital investment to increments in output (that is, the 'incremental capital output ratio' (ICOR)) to be high. This has been attributed to the lumpiness and long gestation periods of mineral resources investments that have accounted for a sizeable proportion of total investment. In addition, it is suggested that much of the public investment in physical and social infrastructure may be expected to yield low returns at the present state of economic development (UNDP/ILo 1992:41, citing World Bank 1988:39f). Recent estimates show high ICORs against a norm value of about 5 for comparable nations (UNDP/ILo 1992:41,n.6) and show ICORs to be higher for the non-mining sector than for the mining sector (UNDP/ILo 1992:42). This implies a low rate of return on investments, especially on investments in non-mining activities.
Relative wages

For the last decade at least, international comparisons of wages and productivity have been central to policy analyses of poor economic performance in Papua New Guinea as undertaken by scholars and international agencies. These comparisons form the analytical core of the government submissions to the 1992 Board (DFP 1992:60–64). Recent international wage comparisons show average agricultural wages in Asia and in Southeast Asia of 19–20 per cent and 30–65 per cent respectively of Papua New Guinean average agricultural wages. Comparison of non-agricultural wages show yet sharper contrasts of 8–15 per cent and 16–71 per cent, respectively (DFP 1992:62). The 1992 Board noted that these comparisons involve wages as costs and not as incomes (MWB 1992:36, McGavin 1991a:131f). The 1992 Board concluded

There is a common view that minimum urban wages are so much higher relative to productivity [compared with levels in comparable nations and that] ... high wages and the centralised wage system in Papua New Guinea [are] major factors constraining private investment, production and employment growth (MWB 1992:36).

Until recently, declines in rural commodity export prices and deterioration in the terms of trade (McGavin 1993a:103) contributed to increases in the proportion of wages to product value, the ‘product wage’ (McGavin 1991a:131f). The seriousness of these cost pressures has led to widespread recourse to the ‘capacity to pay’ provisions of the 1989 Minimum Wages Board determination (McGavin 1991a:43). Recent changes in export prices suggest that the terms of trade for Papua New Guinea have now stabilised or are even improving (DCI 1994; DFP 1993:166).

GDP performance

These trends are reflected in falling real GDP per capita (UNDP/ILO 1992:38). Reversing these trends and moving Papua New Guinea from membership of the ‘negative growth’ group to membership of the ‘positive growth’ group of nations (UNDP 1994:12) involves the implementation of productivity improvement. This brief survey of indicators of resources use and efficiency underscores the task to be undertaken.

Recent developments

Since 1990, Papua New Guinea has been set back by fiscal mismanagement and employment gains have not been sustained. There has also
been a fall-off in mineral exploration and in mineral resources development until the recent construction activity at the Lihir gold development in New Ireland province. Employment at the Lihir project only gathered pace in the closing months of 1995 and it is the annualised Bank of Papua New Guinea employment indices that are used in constructing Tables 5.4 and 5.12 (while the periodicity of the Employment Federation of Papua New Guinea (EFPNG) employment indices, June and December and the six-monthly reportage mean that changes occurring late in the year are more captured in the EFPNG series (Table 5.11)). On first examination, it seems as though the effects of recent buoyancy of tropical export commodity prices appears not to be reflected in the Bank of Papua New Guinea employment indices. However, agricultural

<table>
<thead>
<tr>
<th>Year (Dec.)</th>
<th>Agriculture</th>
<th>Mining</th>
<th>Construction</th>
<th>Manufacturing</th>
<th>Other</th>
<th>All sectors (excl. mining and agriculture)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>5.7</td>
<td>-20.1</td>
<td>-20.2</td>
<td>7.8</td>
<td>-4.4</td>
<td>-1.7</td>
</tr>
<tr>
<td>1990</td>
<td>-11.3</td>
<td>-32.1</td>
<td>-0.8</td>
<td>-4.8</td>
<td>-6.9</td>
<td>-11.2</td>
</tr>
<tr>
<td>1991</td>
<td>-10.0</td>
<td>13.9</td>
<td>2.3</td>
<td>-3.6</td>
<td>-6.5</td>
<td>-4.8</td>
</tr>
<tr>
<td>1992</td>
<td>0.3</td>
<td>-0.7</td>
<td>-15.8</td>
<td>-5.2</td>
<td>-1.0</td>
<td>-2.0</td>
</tr>
<tr>
<td>1993</td>
<td>-4.9</td>
<td>3.3</td>
<td>-14.0</td>
<td>0.2</td>
<td>-2.7</td>
<td>-3.0</td>
</tr>
<tr>
<td>1994</td>
<td>-1.1</td>
<td>1.0</td>
<td>2.5</td>
<td>3.2</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>1995</td>
<td>7.8</td>
<td>5.8</td>
<td>63.8</td>
<td>-5.0</td>
<td>-0.8</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Notes: Procedures for adjusting reported results for changes in survey response rates have improved in recent years.

Differences between EFPNG and BPNG employment indicators have been a matter of comment and contention in recent years. The most recent observation shows employment moving in different directions. It is possible that this anomaly arises from differences in reporting. For both series now, absence of response in the current period leads to inclusion of previous period data (until the respondent is removed from the sample file). BPNG data between 1994 and 1995 show a decrease of 14 percent in construction employment, while EFPNG data show a massive increase in construction employment. BPNG data by region show a 13 percent decline in Islands employment which does not seem plausible given the present Lihir project construction activity. It is possible that this activity is being undertaken by firms not captured in the BPNG sample (although this is a larger sample than the EFPNG sample). The other marked difference is in agricultural employment (which BPNG shows as declining by 10.5 percent). See the text of this paper for a fuller discussion.

Despite these reservations, BPNG data have been used in the preparation of Tables 5.4 and 5.12, in recognition of their larger sample and longer track record in producing these data. Sources: Employers' Federation of Papua New Guinea, Newsletter 2/1995 and direct communication.
employment is affected by seasons, as well as by commodity prices (that is, there are both volume and price considerations) and a prolongation of wet weather was experienced during 1995 that has influenced the slow upturn in agricultural employment as measured by the Bank’s employment index and the resultant absence of upturn in 1995 annualised agricultural employment as measured by the Bank’s index that was used in the construction of Table 5.12 data (while, as noted here, the different periodicity of the EFPNG series sheds some light on the different growth indications that the EFPNG series suggest).

Overall, the last 5 years have been characterised by losses in wage jobs, with recent gains occurring with the development of the Lihir gold deposit in New Ireland province and Gobe hydrocarbon resources in Southern Highlands and Gulf provinces and with improvements in agricultural employment led by recent increases in tropical export commodity prices. Data from the Department of Personnel Management show no indications of implementation of announced government policies for the reduction of public service employment (PNG 1995:27) and government employment growth resulting from recent uncontrolled growth in government consumption expenditures had not been cut back at mid-1996. This contrasts with the performance of the two largest government enterprises, Elcom and PTC (now Telikom) where expansion of services has been combined with reductions in staffing levels in recent years, implying modest improvements in overall labour productivity in these public authorities (Table 5.4).

The crisis in market sector confidence provoked by government mismanagement and consequent losses in wage employment, have been moderated by the wage deregulation achieved through the 1992 Minimum Wages Board decision (Table 5.9). A Minimum Wages Board has not been convened since 1992 and the government has indicated that a convening of a Board is not intended (PNG 1995:50). Although no wage earnings surveys have been conducted since 1990 (McGavin 1991a:157–74), I have during several fieldwork visits since 1992 found no evidence of payment of wages in Port Moresby below the previously-regulated minima (Table 5.9). During 1994, evidence was found in one urban centre (previously ranked ‘level 2’) of wages at the new national minima—but this centre was one where there was easy movement between urban and village localities. The increasing stress on urban incomes in Port Moresby can be noticed in a visible ‘supply response’—with the expanded use of vacant urban plots and hillsides for the cultivation of staple food crops.
Table 5.12. Papua New Guinea wage employment for formal market sector, by industry, persons, 1976–95

<table>
<thead>
<tr>
<th>Year (Dec.)</th>
<th>Retail</th>
<th>Wholesale</th>
<th>Manufacturing</th>
<th>Building and construction</th>
<th>Transport</th>
<th>Financial and business</th>
<th>Other</th>
<th>Sub-total</th>
<th>Agriculture</th>
<th>Sub-total</th>
<th>Mining</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>19 247</td>
<td>15 415</td>
<td>20 905</td>
<td>12 636</td>
<td>6 966</td>
<td>11 154</td>
<td>86 323</td>
<td>43 730</td>
<td>118 710</td>
<td>4 523</td>
<td>123 233</td>
<td>..</td>
</tr>
<tr>
<td>1977</td>
<td>20 725</td>
<td>16 253</td>
<td>22 042</td>
<td>13 541</td>
<td>7 814</td>
<td>10 704</td>
<td>91 079</td>
<td>45 032</td>
<td>136 111</td>
<td>4 893</td>
<td>141 004</td>
<td>..</td>
</tr>
<tr>
<td>1978</td>
<td>22 053</td>
<td>17 729</td>
<td>25 971</td>
<td>14 667</td>
<td>8 469</td>
<td>15 403</td>
<td>104 292</td>
<td>48 059</td>
<td>152 351</td>
<td>5 043</td>
<td>157 394</td>
<td>..</td>
</tr>
<tr>
<td>1979</td>
<td>21 960</td>
<td>19 205</td>
<td>22 586</td>
<td>12 161</td>
<td>9 324</td>
<td>8 537</td>
<td>93 773</td>
<td>50 900</td>
<td>144 673</td>
<td>6 101</td>
<td>150 774</td>
<td>..</td>
</tr>
<tr>
<td>1980</td>
<td>21 343</td>
<td>17 071</td>
<td>15 000</td>
<td>11 128</td>
<td>9 800</td>
<td>10 850</td>
<td>85 192</td>
<td>47 500</td>
<td>132 692</td>
<td>8 742</td>
<td>141 434</td>
<td>..</td>
</tr>
<tr>
<td>1981</td>
<td>23 649</td>
<td>16 712</td>
<td>16 433</td>
<td>11 290</td>
<td>9 752</td>
<td>7 169</td>
<td>85 005</td>
<td>51 691</td>
<td>136 696</td>
<td>9 496</td>
<td>146 192</td>
<td>..</td>
</tr>
<tr>
<td>1982</td>
<td>6 665</td>
<td>16 622</td>
<td>16 533</td>
<td>14 011</td>
<td>11 429</td>
<td>10 097</td>
<td>14 119</td>
<td>89 476</td>
<td>53 880</td>
<td>143 356</td>
<td>6 387</td>
<td>149 743</td>
</tr>
<tr>
<td>1983</td>
<td>6 620</td>
<td>16 551</td>
<td>17 231</td>
<td>23 722</td>
<td>11 452</td>
<td>9 808</td>
<td>7 872</td>
<td>93 356</td>
<td>162 162</td>
<td>149 518</td>
<td>5 867</td>
<td>155 385</td>
</tr>
<tr>
<td>1984</td>
<td>6 620</td>
<td>15 968</td>
<td>17 151</td>
<td>23 953</td>
<td>12 240</td>
<td>9 894</td>
<td>9 742</td>
<td>95 568</td>
<td>59 096</td>
<td>154 664</td>
<td>7 040</td>
<td>161 704</td>
</tr>
<tr>
<td>1985</td>
<td>6 701</td>
<td>16 181</td>
<td>17 231</td>
<td>21 870</td>
<td>14 871</td>
<td>9 379</td>
<td>16 826</td>
<td>100 449</td>
<td>59 306</td>
<td>159 755</td>
<td>8 019</td>
<td>167 774</td>
</tr>
<tr>
<td>1986</td>
<td>7 338</td>
<td>16 167</td>
<td>18 467</td>
<td>22 015</td>
<td>13 281</td>
<td>9 958</td>
<td>18 398</td>
<td>102 624</td>
<td>64 196</td>
<td>166 820</td>
<td>9 247</td>
<td>176 067</td>
</tr>
<tr>
<td>1987</td>
<td>7 562</td>
<td>16 608</td>
<td>19 643</td>
<td>30 723</td>
<td>14 857</td>
<td>11 106</td>
<td>16 742</td>
<td>114 241</td>
<td>66 850</td>
<td>181 091</td>
<td>8 084</td>
<td>189 175</td>
</tr>
<tr>
<td>1988</td>
<td>6 561</td>
<td>12 414</td>
<td>18 905</td>
<td>30 897</td>
<td>15 287</td>
<td>11 718</td>
<td>15 771</td>
<td>111 953</td>
<td>62 170</td>
<td>174 123</td>
<td>5 331</td>
<td>179 454</td>
</tr>
<tr>
<td>1989</td>
<td>6 441</td>
<td>11 575</td>
<td>18 985</td>
<td>23 462</td>
<td>14 688</td>
<td>11 085</td>
<td>19 135</td>
<td>105 371</td>
<td>62 310</td>
<td>167 681</td>
<td>5 283</td>
<td>172 964</td>
</tr>
<tr>
<td>1992</td>
<td>6 605</td>
<td>12 884</td>
<td>23 951</td>
<td>22 507</td>
<td>13 394</td>
<td>10 978</td>
<td>19 624</td>
<td>109 943</td>
<td>70 622</td>
<td>180 565</td>
<td>5 553</td>
<td>186 118</td>
</tr>
<tr>
<td>1993</td>
<td>6 777</td>
<td>13 069</td>
<td>21 797</td>
<td>19 614</td>
<td>12 536</td>
<td>11 912</td>
<td>21 405</td>
<td>107 110</td>
<td>63 148</td>
<td>170 258</td>
<td>5 945</td>
<td>176 203</td>
</tr>
</tbody>
</table>

Notes: Readers are referred to notes in McGavin (1993a:84).
Supply-side responses

This last observation is consistent with important changes highlighted by data comparisons between the 1980 and 1990 Censuses. While the proportion of the citizen population aged 10 years and over in wage employment did not change between censuses, there was nationally a 14.3 per cent growth in self-employment and a 17.6 per cent growth in the proportion of the population aged 10 years and over engaged in cash-cropping activity (National Statistical Office 1994:136). Among urban populations, this supply side response was more marked, with a 66.7 per cent growth in the proportion of the population aged 10 years and over engaged in self-employment and a 214.3 per cent increase in the proportion engaged in cash cropping activities (National Statistical Office 1994:139). While in rural areas the proportion engaged in self-employment increased between censuses by only 10 per cent, the proportion engaged in cash-cropping increased by 20.6 per cent (National Statistical Office 1994:140). It is notable that these changes, while generally true for both males and females, show the largest increases in population proportion engaged in cash cropping as being males (200 per cent, from a low base, in urban areas and 29.7 per cent in rural areas) (National Statistical Office 1994:139f). This is a highly significant development, indicating a weakening in the gender divide in garden work—previously predominantly a female domain in Papua New Guinea societies.

These census data reveal a significant intercensal shift in response in Papua New Guinea. In the face of weak ‘demand led’ absorption for market labour services, there has occurred a significant ‘supply led’ response and the proportion of citizen population aged 10 years and over for the nation as a whole engaged in market activity other than wage employment has increased by 17 per cent from 25.5 per cent to 29.9 per cent (compared with a static 9.2 per cent in wage employment). (Actually, allowing for the employment loss in North Solomon province, the proportion in wage employment is not static, but declined from 9.6 to 9.2 per cent—see Table 5.6.) In rural areas, these changes have involved a 27.3 per cent increase in agricultural employment and in urban areas a 40.9 per cent increase in non-agricultural employment (National Statistical Office 1994:162).

These data reinforce the need for a different perception of ‘labour absorption’ in Papua New Guinea (and other Pacific nations) and a re-focusing of attention from the growth of wage jobs which does not offer significant prospect of absorbing population growth to the calling-
forth and enabling of supply side responses for the development and use of labour resources.

This change has been accompanied by an important change in terminology. I have in the past had to argue against editors who wished to reduce my apparently cumbersome phrase ‘wage employment’ to ‘employment’, by emphasising that in ordinary English usage (as distinct from usage by labour economists) ‘employment’ means any productive activity and does not necessarily imply activity governed by wage employment relations. National Statistical Office (1994) uses the term ‘employed’ in this generic sense and considers persons engaged in economic activities falling under National Statistical Office categories 01–05 as ‘employed’ (National Statistical Office 1994:148). Unfortunately, category 07, ‘housework’, is not so included—although it may clearly be a value-adding activity. Why household processing of sago or kaukau for domestic consumption should be so vastly distinguished from growing and harvesting of food crops is not clear to me. Such activities are clearly supply side substitutes to cooking rice that is factory processed and are clearly ‘economically active’ engagements. Although progress evidently has been made in the presentation of census data to reflect Papua New Guinea realities, the transition from inappropriate classification groupings derived from different social orders is incomplete. A more complete transition to economic analysis that is appropriate to the indigenous social setting remains desirable.

Even so, such changes as have occurred have given rise to welcome changes in analysis of economic data. For over a decade now, I have been using the apparently cumbersome phrases ‘market work force’ and ‘market labour force’ to describe persons captured by statistics of the formal labour market (rather than the more customary ‘work force’ / ‘labour force’). National Statistical Office (1994:148) identifies persons grouped in National Statistical Office categories 01–06 as the ‘labour force’ and thus identifies a national labour force participation rate for the citizen population aged 10 years and over of 68.2 per cent (76.0 per cent for males, remembering that house-based production for domestic consumption by females falls outside National Statistical Office reckoning) (National Statistical Office 1994:155). Thus—rather than showing declining labour absorption—the 1980–1990 intercensal data show increased absorption of labour resources, with the national citizen labour force participation rate increasing by 7.2 per cent from 63.6 in 1980 to 68.3 per cent in 1990. Increases are reported for every province except Milne Bay (and North Solomons, which is unreported). The largest
increase, of 21.1 per cent, occurred in Gulf province and the highest labour force participation rate, 75.4 per cent, occurred in Southern Highlands province (National Statistical Office 1994:159). These responses are remarkable in the face of widespread collapse in the delivery of government services (especially outside Port Moresby) and in the face of widespread deterioration of social infrastructure. Clearly, the adoption of government strategies that actively promote and facilitate supply side labour market developments have the potential to further increase labour absorption and to enhance its productivity.

**Looking ahead**

At the time of undertaking fieldwork, no recent projections of the population or the labour force for Papua New Guinea were available. The National Statistical Office kindly undertook for this study the estimation of population projections based on the 1990 (Tables 5.2 and 5.13). These show the ‘central’ projections for population growth at a cumulative annual rate of 2.13 per cent to 1995 and at decreasing rates to 1.85 per cent by 2010, when national citizen population is projected at 5.3 million persons. Using the labour force participation definitions described above and taking ages 15–60 years as the economically active population, ‘central’ projections for labour force growth are estimated at a cumulative annual rate of 2.79 to 1995 and at decreasing rates to 2.31 per cent by 2010, when the national citizen labour force is projected at 2.7 million persons. The projected slowing of population increase, combined with the movement of persons under 15 years of

<table>
<thead>
<tr>
<th></th>
<th>'000 persons</th>
<th>Annual percentage change</th>
<th>Percentage of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990p</td>
<td>1 596</td>
<td>..</td>
<td>44.56</td>
</tr>
<tr>
<td>1995p</td>
<td>1 831</td>
<td>2.79</td>
<td>46.01</td>
</tr>
<tr>
<td>2000p</td>
<td>2 113</td>
<td>2.61</td>
<td>47.88</td>
</tr>
<tr>
<td>2005p</td>
<td>2 403</td>
<td>2.61</td>
<td>49.30</td>
</tr>
<tr>
<td>2010p</td>
<td>2 694</td>
<td>2.31</td>
<td>50.43</td>
</tr>
</tbody>
</table>

Notes: Labour force projections are based on population projections from the 1990 Census and use the proportion of the population aged 15–60 years reported as economically active at the 1990 Census (National Statistical 1994:148). Note that the last column shows the proportion of total population (that is, all age groups). The data are provisional.
Sources: National Statistical Office, 1996. Preliminary population and labour force projections, Waigani and computations on these data.
age into the economically active age group indicates some easing of the ‘dependency ratio’ of non-economically active to the economically active population and a projected increase to 1995 of 46 per cent of the population in the labour force and to 50.4 per cent by 2010 (Table 5.13). Against this, however, the indications are of continued decrease in the proportion of the population in wage employment to about 6 per cent at 1995—the lowest since records are available (Table 5.14). The prospect of the formal sector, through expansion of wage employment, making significant contributions to improvements in labour absorption in Papua New Guinea seems slight. With the removal of wage regulation and wages and conditions of employment being more determined by the interaction of demand and supply conditions, the tendency to urban drift may be lessened. But the big policy challenge for the future is for government to pursue policies that facilitate supply side responses in labour absorption in Papua New Guinea.

**Policy changes for improving employment prospects**

The policy changes necessary to improve employment prospects cover the whole range of government policies and it is practicable only to comment on certain of these policies.

**Wage flexibility**

The 1995 Budget states that the government intends to uphold the 1992 deregulation of wages and there are no counter-indications to this sensible policy (PNG 1996:50).

**Promotion of productivity**

The promotion of productivity improvement was central to the 1992 Minimum Wages Board decision and there has been little progress in
the implementation of this crucial aspect of the decision. The processes for enterprise-level responses for productivity improvement are treated in McGavin (1993a, 1994d), but there is little evidence of their being taken up. The focus has instead tended to be on price competitiveness, with inadequate attention to means for improving value-adding so that values for factor units and product units are raised. During the year following the 1992 decision, significant progress was made in laying the groundwork for developing a productivity culture in the public service (McGavin 1995, 1997). With the collapse of fiscal control and the blow-out of government consumption expenditure, the potential of these reforms has been lost. There is little evidence of political momentum to implement the most recently-announced public service reforms.

**Budgetary control and expenditure redirection**

The recovery of widely-based formal sector performance and employment is dependent on demonstration of government budgetary responsibility and the redirection of government spending from consumption to effective service delivery activities. Restoration of service delivery calls for substantial redirection of government spending to the replacement of deteriorated infrastructural capital and for the expansion of infrastructural capital to meet the needs of growing populations. The substantial government revenues from Porgera gold and Kutubu oil developments have been largely wasted, instead of being channelled to the resourcing of physical and human capital infrastructural development as argued in McGavin (1993b, 1994a, 1994b, 1994c). The long-term decline in public sector capital maintenance and formation has been most marked in rural Papua New Guinea and the shift in government outlays to consumption expenditures has been focused on the national capital where increasing proportions of government outlays are directed. There is clearly a need for a major policy shift to focus on rural-based physical and human infrastructural capital development.

**Policies impacting on supply-side responses**

One of the less remarked on measures of urban deterioration in Papua New Guinea is the ageing and non-replacement of trees along urban streets. In the last year, there has been a remarkable turnaround in the urban environment in Port Moresby, with significant redirection of resources into day labour engaged in cleaning-up, maintenance and tree-planting. Against this low-cost job creation, however, the highly
capital-intensive and wasteful construction of the Poreporena Highway looms to broadcast government failures to pursue projects that pass adequate cost-benefit analysis scrutiny. There is still no downtown Port Moresby market for local produce; the traffic lights still do not work at Badili markets; there is still no provision for footpath traffic along key roads in the city; key PMV-station areas remain seriously congested, potholed and unlit and so on.

Specific protection provisions for the supposed creation of urban wage jobs continue to occur, despite contrary public policy statements (for example, PNG 1991:13). The proposition argued in Manning (1993:116) (1994:137) that a rural job can be created for about one-tenth of the capital investment required to create an urban job seems to have gained little currency. When one considers the underutilisation rate of social infrastructure often occurring in rural areas and the over-utilisation of social infrastructure occurring in urban areas in Papua New Guinea and allows for the costs of job creation in terms of both private and social capital, it is likely that the comparison is even more favourable for direction of resources toward creation of rural, rather than urban, wage jobs. The restoration of rural infrastructure in roads and wharves and the restoration of policing services is crucial for the widespread continued development of cash-cropping activities. Further, as argued in Millett (1994), the development of cash-cropping in rural areas slows the rate of rural migration to urban centres that offer few employment opportunities and where social infrastructures are under increasing stress.

**Human resources development**

Much of the problem of urban drift in nations such as Papua New Guinea arises from ‘perception problems’, in that schooling explicitly and implicitly prepares young people for ‘modern urban sector’ living—a preparation that is strongly reinforced by access to modern media. The push for ‘vocational education’ has been a reaction to this. While not a proponent of vocational education, there is a great need for transformation of the culture of schooling in nations such as Papua New Guinea, so that the skills learned are identified as having applications in village settings and so that villages are identified as places that can be transformed by the expansion of productive activity and the adoption of new productive activities that give access to the amenities of modern life. I am convinced that the drift to urban centres of young people who are ill-equipped to contribute to urban-based productive activities is
exacerbated by schooling that fails to cultivate an understanding of how access to market goods and services is achieved and of the possibilities for access to market products through rural productive activities and the possibilities for quality of life improvements in village settings. The possibilities for improved standards of living for the mass of Papua New Guineans for the foreseeable future overwhelmingly depends on increased application of labour resources and improvements of labour skills in rural Papua New Guinea.

This calls not only for substantial increases in resources for education, but also for major curriculum reforms so that schooling generally prepares young people to identify and to implement possibilities for rural-based development. Post-primary schooling is already becoming more elitist in Papua New Guinea (with the market for secondary and post-secondary education apparently flourishing) and means for increasing non-government funding sources for education and for providing user-control in quality delivery in educational services probably provide the best means for addressing the skills shortage that so restrict market sector development in Papua New Guinea (INA 1994). Economic reform of education policies in Papua New Guinea is treated in McGavin (1991b, 1991c, 1992, 1995) and policies for the promotion of workplace skills formation in formal sector employment are argued in McGavin (1990).

**Nucleus estates development**

Although the repudiation at independence of plantation freeholdings of customary land was never rigorously implemented, the general decline of plantation agriculture has reduced the national capacity for labour absorption. In societies where land property rights are not transferable, estate agriculture on long-duration leaseholds allows for inter-provincial movement of labour that increases labour absorption. Palm oil estates in West New Britain are one of the few areas where significant rural relocation of surplus labour occurs. There are, however, substantial areas that were previously under plantation agriculture—such as inactive copra plantation areas in East New Britain and failed 20 hectare blocks planted to coffee in the Eastern Highlands and Western Highlands. Failure in the 20 hectare block projects seems to have arisen from inadequate appreciation by customary landowners of the working requirements for developing and maintaining these blocks and the inexperience and lack of commitment of the management agencies who were supposed to deliver management and agriculture.
expertise to customary landowners. In the Western Highlands province, one of the few remaining large plantation firms has been instrumental in a joint venture with the Western Highlands provincial government and the business arm of Hagen District Local Government Councils in reactivating abandoned 20 hectare blocks for a flourishing fresh vegetable production and marketing that is spearheading a recovery in agricultural production and wage employment in the Waghi Valley. This is proving an effective means for bringing into use underutilised land and labour resources and for providing effective agricultural extension and marketing where these had collapsed.

The combined effects of kina devaluation and high prices for copra and copra oil have led to the reactivation of East New Britain copra estates, to new plantings and to plans to expand the crushing capacity at the Rabaul mill. With the reconstitution of the Copra Marketing Board as an industry association, there is increased potential for increased utilisation of land and labour resources and for the reactivation of copra research, extension and marketing with development of old freehold plantations on a joint-venture basis.

The current success of the palm oil nucleus estate industry in Papua New Guinea is associated with success in surrounding smallholder development and smallholder blocks are reported in 1996 around palm oil estates in Milne Bay, Oro, West New Britain and New Ireland provinces (see supplement in Post-Courier 29 April 1996).

These developments show that nucleus estate firms with long-term local investments and commitments can provide foci for the development of new organisations that successfully combine customary property rights with contemporary business requirements, leading to growth in wage employment and self employment and the provision of research, extension, management and marketing services. Nucleus estate developments directly increase labour absorption through wage employment and act as catalysts for self-employment through associated cash cropping development. Government facilitation that reduces the transaction costs in setting-up such arrangements could contribute to more widespread development of these catalysts for rural development and employment.

Mining development

Prior to the tragic events on Bougainville in 1989, the Panguna mine and extensive plantation development made North Solomons province the most prosperous in Papua New Guinea. Ok Tedi, Porgera and
Kutubu are having similar effects on their surrounding areas. A more enlightened use of unearned incomes accruing from the projects so that these are directed to the construction of alternative systems of production that provide a future after these non-renewable resources are exhausted is argued in McGavin (1993b, 1994a, 1994b, 1994c). Even so, these mineral and hydrocarbon resource developments are acting as significant providers of skills development for indigenous peoples; through provisions such as the 1990 tax offsets are contributing to the maintenance and development of provincial infrastructural capital; through provisions such as the Fly River Development Trust are contributing to development in areas distant from the mining operations; and through local provisioning of food, transport and other services to mining enclaves, are acting as catalysts for transformative supply side responses in the surrounding areas. Thus, although wage jobs directly resulting from mining are small in national terms and in the case of Kutubu may be short-lived, these projects act as catalysts for transformative supply side responses that have significant positive labour absorption impacts. Government policies that increase the direction of surpluses arising from mining activities to the creation of alternative production systems (rather than to the support of ephemeral government consumption activities) have the potential to support broad-based increases in labour absorption and to enhance the quality of national labour resources.

Summing up

The problem of inadequate ‘labour absorption’ in Papua New Guinea is best addressed by policies that focus on calling-forth and enabling widespread supply side responses. Demand-led policies of undisciplined government spending are ultimately counter-productive. Wage deregulation policies need to be combined with policies for productivity improvement. Widespread and effective delivery of public infrastructural services (transport and communications, education and public order and so on) provide the conditions for supply side responses. These particularly need to target the delivery of government services to rural Papua New Guinea, as it is rural-based development that offers the most potential for increased absorption and more effective development and use of national labour resources.
Note

I am grateful to several people for assistance with this project, particularly Mr Arthur Jorari of the National Statistical Office for Papua New Guinea population and labour force projections; Mrs Rose Hare and Mr Joe Narop of the DPM; Mr G Waiut of Elcom; Ms U Samali of Telikom; and Mr Ellison Pidik of the Bank of Papua New Guinea. Mr John Millett, Director of Research, Institute of National Affairs, has challenged me with several important insights that I have developed in this paper.

References


This chapter breaks no new ground. It will, I believe, underline the policy consensus that exists among economists and analysts on PNG industrial development matters. More importantly, it will, I hope, support the government’s resolve to proceed with its Economic Recovery Program, particularly as it affects industrialisation. This chapter reviews the current situation of the commercial and in more detail the industrial sectors. My message is that commercial and industrial development requires the same ingredients for success as private sector development generally. My assessment will be that, given Papua New Guinea’s small and scattered population, its rugged terrain and its low levels of work-force skills, it is unrealistic to expect major industrialisation to take place over the medium term, and that an employment strategy founded primarily on incentives for industrial development is unlikely to succeed. I will sound a note of hope, however, for there are specific opportunities to seize, mostly founded on Papua New Guinea’s excellent resource base. And, more fundamentally, a better outcome is possible with the adoption and implementation of good policies, buttressed by steadfastness and resolution by the government in the face of the inevitable setbacks to success.

The Asian Development Bank and Papua New Guinea

The Asian Development Bank has been a development partner of Papua New Guinea since 1971 when Papua New Guinea joined the Bank’s family of developing member countries. Since then the Bank has provided loans totalling US$570 million for 42 projects, of which the amount disbursed by end of 1995 was US$413 million. The Bank has also made 82 technical assistance grants to Papua New Guinea totalling some US$23 million. Thirty-three of these grants were for project preparation and 49 for advisory purposes.
The Bank’s broad ambition in its Papua New Guinea operations has long been to help create employment and improve productive capacity. To do so, it has, in particular, always sought to foster entrepreneurship especially in agriculture. Interest in fostering business has increased over the years.

The Bank’s strategy for operations in Papua New Guinea is to provide loans and technical assistance for projects which can generate employment and increase productive capacity. Its interests are increasingly rural rather than urban, basic rather than fancy, female rather than male-oriented and capacity-strengthening rather than bureaucracy-enlarging. A review is now under way of how the Bank can best help Papua New Guinea over the medium term. Some narrowing of the focus of operations can be expected, but the broad ambitions are unlikely to change. Commerce and industry have traditionally been of secondary importance in the Bank’s program in Papua New Guinea—agriculture, transportation, water supply and health have commanded most of the Bank’s resources and energies.

**Papua New Guinea’s commerce and industry sector**

Enterprises in the private sector of Papua New Guinea are informal and mostly are located in rural areas. There is a comparatively small formal component of the economy, which is predominantly urban. In terms of size, the private sector in Papua New Guinea comprises micro-enterprises, 100,000–150,000; small enterprises, about 10,000; medium-size enterprises, about 3,000; and large enterprises, 500–1000. In the Papua New Guinea context, we may for practical purposes read ‘commerce’ as ‘business’. While definitions of commerce may vary, we can certainly say that in Papua New Guinea commerce is under-developed and contributes only a small part of GDP for a country of Papua New Guinea’s per capita income.

‘Industry’ may be defined as ‘manufacturing’. Most of the analysis in this chapter relates to industrial development and how the government can best facilitate it. Output is fairly stable; typically manufacturing contributes about 10 per cent of GDP, representing a very low level of industrialisation. The sector’s growth in the 1980s and 1990s has been much lower than in the 1970s. Newcomers in the 1970s took advantage of import-replacement opportunities and these enterprises grew quite rapidly (especially in the food and textile subsectors), but by the 1980s had largely satisfied local demand. With most of the firms not cost-competitive enough to export, there was little room for growth. Also,
because of the rising costs of labour, power, telecommunications and transport, Papua New Guinea made few efficiency gains during the 1980s. Output per worker was about the same in 1990 as it was in 1980 and it is unlikely to have improved since. (Many of Papua New Guinea’s competitors, however, realised significant improvements in output per worker.)

The sector is dominated by capital-intensive firms that are heavily oriented to the local market. Industrial firms rely heavily on imported raw and intermediate goods for their inputs, in spite of the fact that Papua New Guinea is rich in natural resources. Industrial exports are negligible, representing only about 5 per cent of Papua New Guinea’s total exports. About half the output is in three sub-sectors: food, beverages and tobacco. Medium and large-scale firms are predominantly foreign owned and managed, while small firms are mainly nationally owned and operated.

There may be around 450 factories operating in the Papua New Guinea manufacturing sector, down from about 500 in 1980. The sector provides only about 5 per cent of the jobs in the formal economy. The total number of employees is about 22,000 and has changed little over the last decade. Manufacturing companies are heavily concentrated (55 per cent) in Port Moresby and Lae. Over 90 per cent of the labour force is male. In Southeast Asia and the Caribbean it averages 50–70 per cent.

The government’s view of industrial development

Until the early 1980s, taxes on international trade were low by international standards. Then Papua New Guinea began to shift to higher rates of protection through tariffs and import quotas, mainly in the food subsector. The events of 1989 and 1990 caused policymakers to reconsider Papua New Guinea’s development strategy. The shocks included the closing of the Bougainville mine and a sharp deterioration in Papua New Guinea’s terms of trade, as world markets collapsed for agricultural exports. These events, combined with continuing high urban unemployment, caused policymakers to look to non-mining sectors, particularly industry, for solutions. The government was conscious then as now that more than 50,000 people are entering the job market each year but less than 10,000 jobs are being created in the formal economy. One outcome was the Medium-Term Industry and Trade Development Action Plan released in 1990. The Plan outlined strategies, programs and policies needed to encourage growth and employment generation in the industrial sector. It offered prescriptions
for reorientation towards exports. Importantly, it recognised the importance of maintaining a sound macroeconomic enabling environment, keeping the economy open and reducing production costs. In the 1990s, despite some notable backslides, Papua New Guinea has begun to liberalise its trade regime.

The government recognised that a more comprehensive approach to industrial policy would be needed. Its assessment acknowledged that many of the obstacles to industrial growth were actually reflections of economy-wide constraints. It quite rightly saw its primary role in industrialisation as one of supporting and facilitating market-oriented activities. Industrial investments were to be left primarily to the private sector. The Plan acknowledged the limitations of the domestic market and placed emphasis on exports. Overall, the Plan, while ambitious, presented a fairly rational approach to industrial development from the policy perspective. However, back in 1990 further work needed to be done on the analysis of constraints and of ways for overcoming them, especially with regard to reducing production costs. Similarly, further work was required in translating policy objectives into specific programs and in identifying subsectors with the most promise for development. The Asian Development Bank’s 1992 technical assistance study, *Industrial Growth Strategy* (ADB 1991), provided some of the answers and contributed to the paper *Beyond the Minerals Boom* (Papua New Guinea, Department of Trade and Industry 1993).

*Beyond the Minerals Boom* presented particular strategies and programs and identified resource requirements and institutional needs which could bring about economic ‘self-sufficiency’ by the year 2000. The document contains the customary rhetoric, but is refreshingly candid. In opting for diversification of the economy through development of other industries, the then Minister of Trade and Industry wrote ‘this option is most challenging and involves taking bold pioneering efforts to building new industries’. The expanded set of industrial activities will lead to a more dynamic economy that provides greater employment opportunities, higher value-added from resources, higher incomes and increasingly higher standards of living. This option is more difficult. It requires addressing the specific problems facing various sectors of the economy as well as the political determination and action to undertake solutions. Its reward is prosperity for all.

The 1993 policy statement mostly follows the mainstream prescription for industrial development, though with several worrisome references to ‘direct government participation in business’. (As an aside,
it may be noted that the Philippines is explicitly cited as an example of ‘bad government’ with ‘grim future prospects’. Anyone visiting Manila and Port Moresby just three years later would smile to read this.

The targets for industry are described as follows

- the industrial sector to provide at least 80,000 jobs or 20 per cent of formal employment
- the industrial sector to contribute at least 35 per cent of GDP
- manufactured exports to double at least
- a strong Papua New Guinea entrepreneurial sector to come into being
- downstream processing to increase
- infrastructure support facilities to industry to improve
- regional dispersal of industry to increase
- equal opportunity for women in the labour force to be promoted
- investments in industry at least to double.

These are commendable but ambitious targets and beg the question: what is the institutional framework for delivering industrial development?

The institutional framework for industrial development

The Department of Commerce and Industry is responsible for the formulation, coordination and monitoring of industrial development policies and relevant program implementation. It aims to be the catalyst for development and the private sector’s partner by

- assisting with the provision of a conducive economic environment
- promoting international competitiveness
- providing an effective and coordinated infrastructure and service support system
- mobilising and organising people, institutions and resources to achieve the Government’s goals for industrialisation.

Its program initiatives include, among others, the development of the garment, textile, wood and marine-based industries. Generally, the department is responsible for policy formulation while program development and implementation is carried out by statutory authorities within the department. The strategy, according to Beyond the Minerals Boom, was to be a catalyst for development and a partner in progress. Presumably the Department of Commerce and Industry has inherited the same strategy. The document went on to explain that the Department of Trade and Industry was dedicated to developing an enabling
environment, promoting international cost-effectiveness, providing effective coordinated infrastructure and service support and mobilising and organising people, institutions and resources.

Regarding industry sector development, the Department of Commerce and Industry sees its role as promotion of import substitution, downstream processing, export initiatives, as well as basic and labour-intensive activities. Its major initiatives are to

- prepare subsector development plans
- assist industry to improve productivity and efficiency
- provide extension services
- promote appropriate technology for industrial development
- help to identify and develop viable industrial projects through feasibility studies and appropriate financing and technical arrangements
- support development of key projects through technical cooperation agreements and establish a manufacturing company as the Government's vehicle for joint ventures with foreign enterprises.

The Investment Promotion Authority (IPA) was established by an Act of Parliament in 1992 replacing the National Investment and Development Authority. It also took over the functions of the Registrar General's Office. It is an agency of Department of Commerce and Industry. Its primary role is to promote and facilitate investments in Papua New Guinea. The IPA corporate plan outlines its long-term and short-term objectives. Essentially its aim is to increase annual investment, especially in manufacturing. Donor-assisted programs include

- Trade and Investment Promotion Services, a targeted bilateral program, funded by AusAID
- Integrated Investment Promotion Program, supported by UNIDO
- South Pacific Project Facility, which assists the IPA in the work of project identification and appraisal, by providing assistance with the preparation of feasibility studies
- Company Registry and Investment Information Database, assisted by AusAID.

The IPA is tackling its task well, and is efficiently promoting the cause of private sector development in Papua New Guinea. Its corporate plan and associated operating plan are competently prepared with clear delineation of goals and activities. It has developed good links with provincial governments.
The Small Business Development Corporation (SBDC) is responsible for the implementation of the national business development program, which is designed to encourage, promote and support Papua New Guinea entrepreneurs in management and ownership of business. SBDC’s goals are to create a national cost-effective and efficient mechanism for the delivery of development assistance to the small business sector, maximise small enterprise development through development and implementation of policies and programs, and direct support and assistance to small businesses. These are worthy challenges and SBDC has several support schemes in place to meet them. The Start Your Business/Improve Your Business scheme is particularly effective. However, bad debts have long circumscribed the effectiveness of government-financed financial incentive schemes. Care will have to be taken to improve SBDC’s performance in this regard, especially during implementation of the new guarantee facility.

The Industrial Centres Development Corporation (ICDC) was established by Act of Parliament in 1990 to implement the National Industrial Centres Development Program. The aim, very optimistically, is to establish industrial centres in four regions by 2000. The Malahang Industrial Centre (MIC) in Lae is the first such centre and the Islands Industrial Centre at Kokopo is now being developed. MIC has been successfully constructed and associated training programs competently implemented. However, the economic return on the investment has still to be realised because much of the space at MIC is unoccupied. By the end of 1996 MIC is expected to be breaking even as far as its recurrent income and expenditure is concerned. As to Kokopo, a needs-assessment study has been undertaken. Continual appraisal will be necessary to ensure that the government’s outlays on ICDC bring measurable gains to the economy. Particular care must be taken to avoid hidden subsidies. It is better to provide a subsidy in ICDC’s budget than to provide tax breaks or cheap utilities.

The government’s policy and infrastructure framework

To be a worthy contender in the search for foreign investment, a country needs to be able to offer a stable business environment that is transparent and simple in compliance.

By concentrating on the promotion of value-added industries, everyone can win.
These two sentences are not taken from a standard primer on investment, they are from the Prime Minister’s foreword to the 1996 edition of *A Business Guide to Papua New Guinea* (Papua New Guinea 1996). They are deceptively plain words. They actually embrace a multitude of complex considerations including the macroeconomic framework, governance, the tax regime, business regulations, property rights and labour agreements.

In recent years, the government has set up the IPA, SBDC and ICDC. It has liberalised foreign exchange controls, begun replacing import quotas with tariffs and removed most price controls. More fundamentally, though it has yet to deliver, it has made human resource development a priority, recognising the very poor standard of basic education of the workforce and its weak skill levels. The IPA has begun to promote Papua New Guinea as a place for international investment. ICDC has opened the MIC. SBDC has started a range of small business development initiatives. The tax regime has been made more advantageous for business.

The Investment Promotion Authority's *Business Guide* notes that the government is

- broadening the tax base
- strengthening physical infrastructure
- maintaining public assets
- reducing law-and-order problems
- improving health and education standards
- providing an attractive tax regime with low tariffs on business inputs
- replacing quantitative restrictions by tariffs
- removing price controls on domestically traded goods
- applying a market-based, non-interventionist monetary policy
- liberalising exchange control regulations to facilitate capital flows
- deregulating the labour market and allowing wage setting flexibility
- establishing a stock exchange and a securities market
- privatising public corporations, so creating room for private business
- improving investor security.

This is an ambitious but sensible program, much of which is being implemented in the framework of the Economic Recovery Program.
What can Papua New Guinea offer the industrial entrepreneur?

By reference to the IPA’s literature, we can assemble the assets side of a qualitative balance sheet. Here, without qualification, is their list.

- Political stability. The country is politically stable with a well-entrenched democratic system of government and set of institutions.
- Positive attitude to foreign investment. The government recognises the importance of the private sector for development.
- Investment incentives. Generous incentives are available. Impediments to development of new businesses are being removed.
- Joint venture flexibility. The level of foreign ownership in joint ventures is left to mutual agreement between the investor and the local counterpart.
- Preferential market access. Many products originating in Papua New Guinea are allowed duty-free or preferential entry into important markets.
- No language barriers. English is widely spoken and understood.
- Uncrowded business sector. There are many opportunities for profitable investments.
- Resource-driven potential. Large-scale mining and petroleum projects create flow-on in business opportunities.
- Abundant natural renewable resources. Forest and marine resources present downstream manufacturing opportunities.
- Agricultural opportunities. The climate favours agricultural activities and associated manufacturing activities.
- Investment security. The government guarantees the security of foreign investment.
- Macroeconomic policy setting. The government realises the importance of policies specifically aimed at improving the country’s competitiveness.

It is worth looking further at some of these points. Take first investment security. The government is fully aware of the risk perceptions of investors. It has undertaken to minimise risks (including expropriation, repudiation of contracts and discrimination) through the granting of most-favoured-nation treatment to investors. International agreements have been concluded with Germany, Malaysia, Australia and Belgium. Negotiations are being conducted...
with others, including the United States. Papua New Guinea joined the World Bank’s Multilateral Investment Guarantee Agency in 1990 demonstrating commitment to ensuring that, if nationalisation did occur, the investor would be compensated. In addition, the Investment Promotion Act 1992 provides for protection against expropriation, cancellation of contracts and discrimination. But perceptions count and the government still has work to do.

Consider next human resource development. Most factory personnel in Papua New Guinea require further skills training. ADB itself plans to finance a skills development project. The National Training Council (NTC) is the government organisation charged with administering training policy. Part of its brief is to develop and promote high standards of training and to coordinate and distribute information on training. One of the main NTC thrusts is on-the-job upgrading of skills; another is its trade testing and certification scheme. A major, long-term vocational training program is a joint initiative of the Papua New Guinea Council of Manufacturers and the Australian Chamber of Manufacturers. The governments of both countries are supporting this.

Turning now to wages, we may first note the role of the Minimum Wages Board. The wage setting process in Papua New Guinea has changed substantially in recent years. In 1992 the Board abolished the setting of wages by automatic indexation of the minimum wage. It set a legal minimum rate of K23 per week (for unskilled adult workers) and introduced a minimum wage for youths aged 16 to 21 years. Youths were given special attention in order to address unemployment. The National Minimum Wage applies irrespective of location of employment. Typically urban wages are far higher than this.

Next consider the regulatory guidelines. Foreign enterprises wishing to carry on business in Papua New Guinea must be certified by the IPA. There are three categories of business enterprises under the Investment Promotion Act—citizen, national and foreign. A citizen enterprise is one wholly owned by a citizen, a national enterprise is one more than 50 per cent-owned by a citizen and a foreign enterprise is one 50 per cent or more owned or controlled by non-citizens. Foreign investors usually establish a company. Before commencing business, a company has to register under the Companies Act. A foreign company registered in Papua New Guinea but incorporated in a foreign jurisdiction is still subject to the laws of Papua New Guinea. Registration requirements are standard in nearly all jurisdictions; whether this particular regime is onerous I leave others to comment on.
The tax regime appears regrettably complex. The worldwide income of resident companies and the Papua New Guinea-sourced income of non-residents are taxed. Investors have to contend with a dividend withholding tax, a sales tax, a training levy, a natural resources tax, export duties, an income reporting system, a management fee (withholding) tax, a foreign contractor (withholding) tax, land tax, stamp duties and import duties. The virtues of a simple, even if somewhat regressive, tax system for developing countries with limited administrative depth I need not extol.

Tariff reforms will take place over the next three years. Until the introduction of a value-added tax in the near future, reforms emphasise the duty drawback system for exporters. There will be phased reductions in tariffs from 11 per cent to 8 per cent in 1996 and 5 per cent in 1997 for a range of business inputs. The 40 per cent protective rate for viable infant industries is being maintained and there is a move too from non-tariff protection to the 40 per cent rate. Liberalising the border regime is a key commitment under the government’s Structural Adjustment Program.

Next, let us look at incentives. To promote the development of new industries outside of the minerals sector, the government offers investment inducements. Most are in the form of exemptions from company income tax or deferment of income tax liabilities. There is a long list of schemes relating to export income exemption, development cost allowances, pioneer industry exemptions, wage subsidies, initial-year accelerated depreciation, industrial plant depreciation, rural development benefit, Bougainville incentive, Rabaul incentive, primary production investment deduction, staff training deduction, solar heating incentive, interest income incentive, import duty drawback, project start-up assistance, capital equipment import duty relief, etc. While each scheme has some merit, one suspects there are overlaps and contradictions. Rationalisation seems called for.

Finally, mention may be made of a good recent innovation. The industry sector has established a close working relationship with the government. A strong representative body exists in the Papua New Guinea Chamber of Manufacturers and there is regular consultation between its members and government departments and statutory bodies.

Constraints to industrial development

Now we need to catalogue the liabilities side of the qualitative balance sheet. Fundamentally, Papua New Guinea is a high-cost producer with wages far higher than those in competing countries. Because of the high
wages for unskilled labour, industrial development is capital intensive. The local market is small and fragmented with a maximum of 15 per cent of the nation’s population located in any one province. Business operating costs (for example, electricity, wages, factory space, transport) are among the world’s highest. There are difficulties in acquiring registered land and high costs for available real estate. Law-and-order problems deter new investment; crime and the threat of violence add to both direct and indirect costs. Despite the recent devaluation, the strong exchange rate makes local manufacturers uncompetitive. The policy framework, though improving, still constrains wage adjustment. There is a dearth of technical and managerial skills. Heavy dependence on expatriate ownership and management can lead to unfavourable attitudes towards foreign investment. And approval procedures for new investments are still slow and somewhat cumbersome. These liabilities should form a checklist for action for policymakers. In the short term, the objective should be to minimise their impact. In the long term, the objective should be to transform liabilities into assets.

I have already elaborated on some of these constraints. Let me mention two more. There can be little doubt that gaining and retaining access to land is a really fundamental constraint to industrial development. Legitimate land ownership and the right to exploit most natural resources are vested with the people of Papua New Guinea. Ownership is mainly governed by traditional law. About 3 per cent of the land in Papua New Guinea, or about 600,000 hectares, is outside of this system and this is almost entirely owned by the government. Most alienated land is in urban areas. Only 300,000 hectares of alienated land is freehold and 60,000 hectares is used for public purposes. About 200,000 hectares is leased to the private sector. No foreign investor or non-citizen is allowed to own freehold land. Leasehold land for specified purposes available for long-term tenure (usually 99 years).

Financing investment is another problem. Fundraising in Papua New Guinea is limited by the small domestic market. While some finance is available from the banking system, overseas investors are unlikely to secure substantial funds locally. A new operation would normally need to bring funds from overseas to establish a project, in which case the central bank generally requires a debt to equity ratio of 5:1.

Prospects for industrialisation

Papua New Guinea has many assets on which to build. There is a relatively stable macroeconomic framework with some certainty
Papua New Guinea's balance sheet

**Assets**
- Market-oriented government policies
- Mineral and oil deposits which contribute substantial tax revenue
- Rich soil and highly favourable climatic conditions for agricultural activities
- Abundant timber and fishery resources
- Unutilised land available for development but constrained by complex customary land tenure systems
- Nearteness to some of the world's fastest growing economies
- Underutilised labour force

**Liabilities**
- High operating costs (for example, electricity, telephone, factory space, transport)
- Difficulties in acquiring registered land
- Strong exchange rate
- High wage costs
- Dearth of technical and managerial skills
- Small, fragmented domestic market
- Complacency about developing non-resource sectors
- Heavy dependence on expatriate ownership and management
- Law and order problems
- Cumbersome and discretionary approval process for new investments
- Uncoordinated system of incentives

regarding taxes and exchange rates. Government policies are market-oriented, providing a generally flat playing field for the private sector with few state-owned enterprises. Papua New Guinea is rich in natural resources. The land and climate are highly favourable for agriculture. Papua New Guinea is close to some of the world's fastest growing economies. The urban work force is underutilised. Such assets need to be emphasised as a source of competitive advantage.
Although Papua New Guinea has an excellent resource base, medium-term prospects for industrial development must nevertheless be regarded as limited. Despite the efforts to date, little progress is likely to be made until the government manages to more comprehensively address and overcome some of the substantial constraints to performance of the industrial sector alluded to here. The sector accounts for only a small part of overall production and employment. It is dominated by capital-intensive larger enterprises. In my view, it has only limited potential to absorb labour in the current decade. It can and should grow, but it is unlikely ever to become the driving force in the economy.

But there is scope for further industrial development through import substitution, exploitation of market niches and through exports based upon natural resources. In the short term the main potential appears to be in downstream processing and packaging of primary agricultural products. Coffee, cocoa, coconut, oil palm and rubber are all crops which grow well in Papua New Guinea and offer potential for commodity-related manufacturing activity. Perhaps the best such potential, however, lies in the processing of Papua New Guinea’s rich fisheries and forestry resources. The processing of tuna is an obvious example. Another is the manufacture of furniture taking advantage not only of the availability of high-quality hardwood but also of the indigenous skills in carving. The government should continue to strive to develop Papua New Guinea’s industrial base in areas where Papua New Guinea may have a competitive position.

Small-scale manufacturing offers some limited potential for labour absorption. The creation and expansion of small enterprises in the manufacturing sector will require support programs, including better access to micro-credit and small loans from non-bank mutual loan funds and business skills training and planning advice. For existing larger manufacturing enterprises to provide any more jobs they will have to become more cost-competitive. Devaluation may have helped a little but most need to improve productivity substantially before they could compete internationally.

**Improving the outlook for industrial development**

Effective and achievable industrial development may require new policy and institutional approaches. It would require also shifts in attitude both in the government and private manufacturers. Changes are needed in four basic areas
• improvements in basic infrastructure
• strengthening of the enabling policy environment for industrial growth led by the private sector
• reductions in the prices of land, labour, electricity and communications
• strengthening the institutional framework to support industrial development

Manufacturing needs the same framework for success as other private sector activity and these areas are essentially those envisaged under the Structural Adjustment Program.

Lessons for Papua New Guinea

Successful industrialising countries such as Korea and the Asian ‘tigers’, Malaysia and the Dominican Republic are useful models for Papua New Guinea. Adoption of best practices from these countries (adjusted to local conditions) can result in improved manufacturing performance in Papua New Guinea. The key ingredients of their success serve as a useful checklist. Although different regimes and strategies have been applied, a number of policy attributes and institutional approaches are common.

• Initial emphasis was placed on import substitution. When local markets were largely satisfied by local industry, they turned to manufacturing for export. They eventually relied on export-fuelled growth to drive their manufacturing sectors.
• They maintained a competitive real effective exchange rate. They initially entered export markets with competitive wages.
• Much of the initial export focus was on labour-intensive products. As labour rates rose, they shifted to higher technology, more capital-intensive industries.
• Industrial estates and other specialised infrastructure were important incentive measures.
• Foreign direct investment played a key catalytic role.
• In the development of institutions for export promotion there was close coordination between the public and private sectors. These institutions were critical in implementing export policy and administration and in engaging the interest of local manufacturers in export production.
• They provided a virtual free trade environment for exporters.
Export credit guarantee and insurance schemes provided exporters with effective access to pre-shipment and post-shipment export working capital credit at preferential rates and conditions.

Exporters were provided with tax incentives as well as duty-free access to imported inputs.

Support and technical assistance activities, including direct export/investment promotion programs, assistance in quality control, product design, training and other related programs.

Whether this plethora of support to manufacturing would survive rigorous cost-benefit analysis, I will leave to others to assess. The fact is that is what was done.

What can donors do to help?

Donors can first and foremost emphasise the benefits that can flow from consistent public policies and reliable behaviour on the part of government. In some respects the policy regime is less important than the stability and predictability of its implementation. Donors can in particular foster industrial development by providing support to agencies involved in policy development, program implementation and training. There is a need for donor-supported training in a wide range of work-force skills. It can be useful too for donors to provide financial support in limited circumstances, for example, the encouragement of local entrepreneurship, the procurement of technical assistance for policy development, legal drafting, marketing, promotion, and so on.

There is a good case in Papua New Guinea for donor support for the development of the private sector. The job creation challenge is massive. Each year thousands of micro-enterprises need to be created. Many of these have to be encouraged to participate in the formal economy. Likewise small enterprises need to be helped to develop managerial and technical capabilities. Assisting the development of the private sector is creating new challenges for donors. New approaches are needed in the design and implementation of programs.

This means ongoing dialogue on measures to reinforce the big messages: liberalise the economy, improve the efficiency of the public sector and foster private initiative and risk taking. It means project and program intervention to support enterprise development, privatisation, export promotion and financial sector reform. It entails technical assistance to develop business vocational skills, investment promotion
activities and related professional services. And finally it requires institutional strengthening in policy formulation and implementation.

References


Note

The views expressed in the paper are those of the author, are not necessarily held by the Asian Development Bank and should not be attributed to it.
Sectoral development issues
Mining and petroleum

R. B. Moaina

The mining and petroleum industry is currently the most significant contributor to Papua New Guinea's economy. The mining industry has a relatively short history due to the relatively recent geographical exploration of the country. Gold was first discovered on Sudest Island in 1880 and since this time mining has been an integral part of the economy. The early discoveries led to an ongoing exploration and development effort for both mineral and petroleum resources which continues to the present day. Initially, attention was focused on alluvial and high-grade hard rock gold targets on a small scale and the first major investment in mining came with the development of alluvial gold dredging operations at Wau and Bulolo in the 1930s. Apart from a short break during the World War II the dredging operations continued until 1965 when they closed down due to a combination of depressed gold prices and exhaustion of the available resources.

The first major hard rock discovery to be developed was the Panguna copper deposit on Bougainville Island. It was first discovered in 1964 during a worldwide exploration effort targeted at the identification of copper resources. This period saw not only the discovery of Panguna but also the Ok Tedi, Frieda River and Yanderra copper deposits. With the development of the Bougainville copper mine in 1972 Papua New Guinea entered an era of large-scale hard rock metalliferous mining. The development of the Ok Tedi copper mine and the Misima and Porgera gold mines have resulted in a further extension of both the scale and scope of mining operations in Papua New Guinea.

Paralleling the exploration for mineral resources has been the search for oil and gas. This has progressed sporadically since the early 1900s with the majority of exploration focused in the Gulf, Sepik and Western and Southern Highlands provinces. The first oil seeps were discovered at the mouth of the Vailala River in 1911. These exploration efforts
have resulted in the discovery of several oil and gas accumulations culminating in the recent developments of both the Kutubu oil export project and the Hides gas project. The Gobe project is also on the verge of development. Large resources of gas and condensate have also been discovered in a number of fields throughout Gulf, Southern Highlands and Western provinces. These are currently the subject of a review for the possible future development of a Liquefied Natural Gas industry and for export of gas to Australia.

The contribution of the mining and petroleum industry to the economy is significant and multi-faceted. The government receives significant taxation, royalty, duty and dividend revenues from the industry. Mineral and petroleum exports account for the vast majority of total exports and therefore the majority of foreign exchange earnings. Employment is generated both directly by mining companies and also indirectly through service companies. The non-mining private sector also benefits from spin-off business activity. The industry has significantly contributed to infrastructure development in areas of otherwise trackless jungle and the early exploration of many of the remote areas of Papua New Guinea has to a large extent been fuelled by the search for minerals and oil.

In addition to the mineral deposits and petroleum accumulations currently being exploited there are a number of other identified resources which are likely to be developed at some time in the future. The contribution currently made by the mining and petroleum industry to Papua New Guinea’s economy is likely to continue well into the future.

The industry today

The mining and petroleum industry in Papua New Guinea revolves around a small number of large projects. There are three large-scale mines in production—Ok Tedi, Porgera and Misima—as well as one mine with operations suspended at Bougainville and one major mine under development at Lihir. Production rates are large by world standards. Ok Tedi is the eighth largest copper producer in the world and Porgera rates in the top five gold producers in the world. At the time of its closure Bougainville Copper also rated in the top five copper mines in the world. Misima mine is currently the smallest of Papua New Guinea’s major developments and produces 300,000 ounces of gold per year, comparable with Australia’s larger gold producers. In the last year two smaller-scale gold mines also came into production. These are the Tolukuma Mine in Central Province (50,000 ounces per
Table 7.1. World gold mine production, 1991–94 (tonnes)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>601.1</td>
<td>614.1</td>
<td>619.5</td>
<td>583.9</td>
</tr>
<tr>
<td>USA</td>
<td>296.0</td>
<td>329.1</td>
<td>336.0</td>
<td>331.0</td>
</tr>
<tr>
<td>Australia</td>
<td>236.2</td>
<td>243.5</td>
<td>247.2</td>
<td>256.2</td>
</tr>
<tr>
<td>Commonwealth of Independent States</td>
<td>252.0</td>
<td>237.0</td>
<td>175.5</td>
<td>164.7</td>
</tr>
<tr>
<td>Canada</td>
<td>176.5</td>
<td>160.4</td>
<td>150.9</td>
<td>146.1</td>
</tr>
<tr>
<td>China</td>
<td>110.0</td>
<td>118.0</td>
<td>127.0</td>
<td>130.0</td>
</tr>
<tr>
<td>Brazil</td>
<td>78.6</td>
<td>76.5</td>
<td>75.7</td>
<td>75.4</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>-</td>
<td>-</td>
<td>66.6</td>
<td>64.4</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>60.8</td>
<td>71.2</td>
<td>61.8</td>
<td>60.6</td>
</tr>
<tr>
<td>Indonesia</td>
<td>18.4</td>
<td>40.4</td>
<td>46.3</td>
<td>55.3</td>
</tr>
<tr>
<td>All Others</td>
<td>338.4</td>
<td>360.8</td>
<td>402.5</td>
<td>428.4</td>
</tr>
<tr>
<td>Total</td>
<td>2168</td>
<td>2251</td>
<td>2309</td>
<td>2296</td>
</tr>
</tbody>
</table>

Source: Gold Fields Mineral Services Ltd 1995

year) and the Wapolu Mine in Milne Bay Province (34,000 ounces per year).

Gold production from all Papua New Guinea mines averages close to 60 tonnes per year and copper over 200,000 tonnes per year. This places Papua New Guinea as the ninth largest gold producer in the world. If the Bougainville copper mine was still in production gold credits from that operation (15 tonnes per year) would place Papua New Guinea seventh in the world (Table 7.1). Commencement of production from Lihir in 1997 at 21-31 tonnes per year should also push Papua New Guinea into seventh place above Brazil. Combined production from all likely sources in the next 10 years could result in production rates in excess of 90 tonnes per year.

There are two petroleum developments in production—the Kutubu Oil Project and the Hides Gas Project. Oil production averages at 100,000 barrels of oil per day and Hides produces 15 million cubic feet of gas per day.

The mines

Ok Tedi

Ok Tedi mine is a large porphyry copper deposit in a very remote area of the Star Mountains of the Western Province of Papua New Guinea, some 18 kilometres east of the Irian Jaya border. The mine is at an altitude of 2000 metres in an area of high rainfall (between 8.5 and
10.5m per year). Ok Tedi produces approximately 210,000 tonnes of copper and 450,000 ounces of gold per year in concentrate. The value of production in 1995 exceeded K950 million (US$765 million) contributing close to 30 per cent of total Papua New Guinea export earnings.

Mine production rates total around 85,000 tonnes of ore and 110,000 tonnes of waste per day. Grades average 0.7 per cent Cu and 0.6 g/t Au. Reserves at the end of 1994 stood at 459.4 Mt at 0.72 per cent Cu and 0.7 g/t Au.

Porgera

The Porgera gold mine lies in Enga Province in the Highlands of Papua New Guinea. The mine commenced production as an underground mine and has subsequently developed an open pit. Currently ore is derived from both open pit and underground operations. The underground mine is scheduled to cease operations in the second quarter of 1998 with the open pit currently scheduled to complete mining in 2005. Gold production will continue until at least 2007 from low grade stockpiles. The mine has produced over 6 million ounces of gold since commissioning in 1990 with a peak annual production in 1992 of 46.2 tonnes (1.48 million ounces). Production rates for the remainder of the mine's life are expected to be in the range 650,000 to 900,000 ounces per year. Gold production is from a refractory gold ore body where gold is locked away within pyrite grains. The gold recovery circuit includes flotation of sulphide ore minerals followed by pressure oxidation leaching and conventional CIP gold extraction. Ore reserves as at June 1995 were 65.4 Mt grading 4.5 g/t Au.

Misima

Misima mine is located on Misima Island in the Milne Bay Province in eastern Papua New Guinea. The mine is an open pit gold mine producing 330,000 ounces of gold per year. The mine commenced operations in 1989 and has, to date, produced over 2.2 million ounces. The mine works a low grade ore body but is able to maintain low operating costs due to its strategic location adjacent to the coast. Gold and silver production are from a conventional CIP gold plant. Reserves as at December 1994 stood at 35.6 Mt at 1.1 g/t Au and 9.7 g/t Ag.

Lihir

The Lihir mine is currently under construction on Lihir Island in New Ireland Province, 590 kilometres northeast of the Papua New Guinea
mainland. Gold production is scheduled to commence in July 1997 with completion of the mine expected in December 1997. Gold production will initially be from oxide ore but will rapidly change to the refractory sulphide resource requiring whole ore pressure oxidation to liberate the gold. Production rates are expected to average over 600,000 ounces of gold per year for the first 12 years. Total life of the project is expected to be close to forty years. Ore reserves are 104 Mt grading 4.4 g/t with contained gold totalling in excess of 14.6 million ounces.

The Lihir project presents the developers with some unique challenges, with the reserve lying within an active geothermal area and immediately adjacent to the ocean. Rock temperatures in some of the ore exceed 100 degrees Celsius.

**Bougainville Copper Mine**

The Bougainville Copper Project commenced operations in 1972 and was producing at a rate of 166,000 tonnes of copper 450,000 ounces of gold per year when it forced to close in 1989 after an armed rebellion by secessionists wanting independence from Papua New Guinea. This is as yet unresolved. Over its operating life it produced 3 million tonnes of copper and 305 tonnes (9.7 million ounces) of gold in concentrate. Remaining ore reserves stand at 691 Mt at 0.4 per cent Cu and 0.47 g/t Au. Estimated costs of restarting the operation range from US$400–600 million.

**Tolukuma**

The Tolukuma resource was discovered in 1986 by Newmont Exploration and ultimately developed by Dome Resources in 1995 with first gold production in December 1995. The mine lies in the Central Province 100 kilometres north of Port Moresby in the Owen Stanley Mountains. Production is 50,000 to 60,000 ounces of gold per year initially from an open pit operation. Later in the mine life the mine will go underground and the open pit will cease operations.

The mine life is estimated at 5 years although significant potential exists to extend this life by exploration of other known gold occurrences in the vicinity of the mine. Ore reserves stand at 430,000 tonnes at 18.2 g/t Au and 77 g/t Ag (Silver 1994, MACMIN 1994).

**Wapolu**

Wapolu Mine lies on the north coast of Fergusson Island in Milne Bay Province. The resource was discovered in 1985 and finally developed
in 1995 with full production expected in the fourth quarter of 1996. Production is planned to be at a rate of 34,000 ounces per year (Murdoch 1994). Ore reserves stand at 1.6 Mt grading 2.4 g/t Au.

**Mt Sinewit (Wild Dog)**

The Mt Sinewit mine lies in East New Britain Province some 75 km from Rabaul. This is a small-scale open pit mine and is expected to produce 10,000 ounces of gold per year. This mine is currently under development with production expected in the third quarter of 1997.

**Kutubu**

The Kutubu Oil Project was the first large-scale oil development in Papua New Guinea commissioned in 1992. Production rates have been sustained at rates of over 100,000 barrels per day since commissioning. Production flows have begun to attenuate from the field and total production is expected to fall away progressively over its remaining life. The value of exported production in 1995 reached over K827 million.

**Hides Gas**

The Hides Gas Project is a small project specific gas development for a gas fired power station providing electricity to the Porgera Gold Project. Production rates are small at 15 million cubic feet per day, sufficient to fuel a 20 megawatt gas turbine power station.

**Contribution to the national economy**

The mining and petroleum industry in Papua New Guinea has played a pivotal role in the development of the economy, and will continue to do so. Since the 1880s mining and exploration efforts have led to the establishment of basic contact and infrastructure development in many remote areas. With the development of larger-scale operations this contribution to the economy has dramatically increased. Mining and petroleum have today emerged as the primary contributors to GDP and exports. According to the Bank of Papua New Guinea and the National Statistics Office, mineral and petroleum exports accounted for 71.6 per cent of total exports in 1995 and was the single largest contributor to GDP in 1991 (21.2 per cent). These percentages are expected to increase with the commencement of gold production from Lihir, and oil production from the Gobe Oil Project.
Table 7.2. Sectoral contributions to economic activity (per cent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture/forestry</td>
<td>28.4</td>
<td>15.5</td>
<td>30.0</td>
</tr>
<tr>
<td>Mining and Petroleum</td>
<td>71.6</td>
<td>21.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>-</td>
<td>11.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Electricity</td>
<td>-</td>
<td>2.0</td>
<td>0.9</td>
</tr>
<tr>
<td>Construction</td>
<td>-</td>
<td>7.7</td>
<td>13.8</td>
</tr>
<tr>
<td>Wholesale, retail trade</td>
<td>-</td>
<td>12.4</td>
<td>8.5</td>
</tr>
<tr>
<td>Transport</td>
<td>-</td>
<td>8.4</td>
<td>8.5</td>
</tr>
<tr>
<td>Business services</td>
<td>-</td>
<td>0.5</td>
<td>5.1</td>
</tr>
<tr>
<td>Other services</td>
<td>-</td>
<td>20.3</td>
<td>22.9</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>


Exports

Between 1985 and 1995 there has been a doubling in the value of both gold and copper production (Table 7.3). Copper production reached its first peak in 1988 when Ok Tedi and Bougainville were in simultaneous production, only to fall in 1989 with the closure of the Bougainville mine. The high export value in 1995 resulted from a combination of high copper prices and devaluation of the kina. The general upward trend in both gold and copper production is expected for at least the next 10 years as new mines are developed. The commencement of oil exports in 1992 significantly boosted export figures for 1992 to 1995.

The contribution of mineral and petroleum products to total exports has increased from 53 per cent of total exports in 1985 to around 72 per cent in 1995 (Table 7.4, Figure 7.1).

Investment in the mining and petroleum industry

The mining and petroleum industry in Papua New Guinea is highly capital intensive with current investments totalling approximately K5,680 million (including Bougainville). Of this total, the majority (approximately 80 per cent) is foreign capital. The Papua New Guinea Government stake in this capital, through its ownership of shares in mining operations, amounts to some K900 million (at cost), including the total value of investment in the operations including essential infrastructure constructed specifically for the operations. With the
Table 7.3. Mineral exports by value, 1985–95 (million kina f.o.b.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Copper</th>
<th>Gold</th>
<th>Silver</th>
<th>Crude Oil</th>
<th>Total minerals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>164.2</td>
<td>318.8</td>
<td>6.9</td>
<td>..</td>
<td>489.9</td>
</tr>
<tr>
<td>1986</td>
<td>156.0</td>
<td>398.5</td>
<td>6.7</td>
<td>..</td>
<td>561.2</td>
</tr>
<tr>
<td>1987</td>
<td>281.9</td>
<td>422.9</td>
<td>10.1</td>
<td>..</td>
<td>714.9</td>
</tr>
<tr>
<td>1988</td>
<td>446.9</td>
<td>405.1</td>
<td>9.5</td>
<td>..</td>
<td>861.5</td>
</tr>
<tr>
<td>1989</td>
<td>344.9</td>
<td>316.9</td>
<td>14.3</td>
<td>..</td>
<td>676.1</td>
</tr>
<tr>
<td>1990</td>
<td>349.2</td>
<td>393.2</td>
<td>15.1</td>
<td>..</td>
<td>757.5</td>
</tr>
<tr>
<td>1991</td>
<td>323.8</td>
<td>666.9</td>
<td>14.6</td>
<td>..</td>
<td>1005.3</td>
</tr>
<tr>
<td>1992</td>
<td>313.5</td>
<td>745.9</td>
<td>10.7</td>
<td>301.4</td>
<td>1371.5</td>
</tr>
<tr>
<td>1993</td>
<td>256.3</td>
<td>681.6</td>
<td>12.1</td>
<td>817.8</td>
<td>1767.8</td>
</tr>
<tr>
<td>1994</td>
<td>367.4</td>
<td>702.3</td>
<td>10.3</td>
<td>702.7</td>
<td>1782.7</td>
</tr>
<tr>
<td>1995</td>
<td>754.5</td>
<td>840.1</td>
<td>13.1</td>
<td>827.7</td>
<td>2435.4</td>
</tr>
</tbody>
</table>


Completion of the Lihir Mine the total capital investment in the minerals sector is expected to be close to K6,400 million.

In contrast to this high intensity of capital investment, the industry has a low labour intensity. A survey undertaken by the PNG Chamber of Mines and Petroleum in 1992 showed some 10,000 people were directly employed in the mining and petroleum sector in 1992—approximately 3.9 per cent of the total work force in formal employ-

Table 7.4. Total exports by value, 1985–95 (million kina f.o.b.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total minerals</th>
<th>Agriculture</th>
<th>Forest products</th>
<th>Marine products</th>
<th>Other</th>
<th>Total exports</th>
<th>Mineral share (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>489.9</td>
<td>330.2</td>
<td>67.3</td>
<td>12.1</td>
<td>26.7</td>
<td>926.2</td>
<td>52.9</td>
</tr>
<tr>
<td>1986</td>
<td>561.2</td>
<td>331.9</td>
<td>74.7</td>
<td>7.9</td>
<td>25.1</td>
<td>1000.8</td>
<td>56.1</td>
</tr>
<tr>
<td>1987</td>
<td>714.9</td>
<td>268.9</td>
<td>110.9</td>
<td>11.0</td>
<td>17.5</td>
<td>1123.2</td>
<td>63.6</td>
</tr>
<tr>
<td>1988</td>
<td>861.5</td>
<td>255.2</td>
<td>97.5</td>
<td>7.5</td>
<td>34.4</td>
<td>1256.1</td>
<td>68.6</td>
</tr>
<tr>
<td>1989</td>
<td>676.1</td>
<td>270.1</td>
<td>96.2</td>
<td>8.1</td>
<td>61.1</td>
<td>1111.6</td>
<td>60.8</td>
</tr>
<tr>
<td>1990</td>
<td>757.5</td>
<td>204.6</td>
<td>79.6</td>
<td>8.2</td>
<td>72.5</td>
<td>1122.4</td>
<td>67.5</td>
</tr>
<tr>
<td>1991</td>
<td>1005.3</td>
<td>180.9</td>
<td>90.2</td>
<td>10.4</td>
<td>80.0</td>
<td>1390.5</td>
<td>72.3</td>
</tr>
<tr>
<td>1992</td>
<td>1371.5</td>
<td>203.1</td>
<td>148.2</td>
<td>9.3</td>
<td>110.0</td>
<td>1862.6</td>
<td>73.6</td>
</tr>
<tr>
<td>1993</td>
<td>1767.8</td>
<td>270.1</td>
<td>410.4</td>
<td>7.8</td>
<td>71.2</td>
<td>2527.3</td>
<td>69.9</td>
</tr>
<tr>
<td>1994</td>
<td>1782.7</td>
<td>374.6</td>
<td>494.4</td>
<td>10.3</td>
<td>0</td>
<td>2662.0</td>
<td>67.0</td>
</tr>
<tr>
<td>1995</td>
<td>2435.4</td>
<td>498.0</td>
<td>449.7</td>
<td>16.7</td>
<td>0</td>
<td>3399.8</td>
<td>71.6</td>
</tr>
</tbody>
</table>

Figure 7.1. Exports by commodity group, 1985–95


ment. This is nearly double the official 1990 figures which were compiled following the closure of the Bougainville Copper Mine (Table 7.2). This amounts to an investment of close to K450,000 per job created directly in the mining industry (PNG Chamber of Mines 1993).

**Exploration expenditure in the economy**

During the period 1988 to 1990 exploration expenditures reached a peak of K281 million per year, and averaged K225 million per year. Since this time exploration expenditures have progressively fallen due to both the global recession and a loss of investor confidence in the economic and political stability of Papua New Guinea. The drastic decline in mineral exploration expenditures to approximately K36.2 million per year in 1995 and an expected K25 million in 1996 has been a significant loss to the economy. Petroleum exploration continues at a high level, in part fuelled by the recent successes and a clarification of Papua New Guinea’s new gas policy.

Exploration is essential to the future well-being of the economy. Without exploration there can be no new discoveries and the mining and petroleum industry would be a short to medium-term industry. The time period from discovery to production is variable but often quite long. From discovery to the commencement of production at Panguna was 8 years which, for a mine of that scale, is very short. By contrast Ok Tedi was discovered in 1968 and did not reach development
until 1984. Likewise the Frieda River deposit was discovered in 1967 and has still yet to be developed. This long gestation period suggests that the mineral and petroleum projects of the next decade should be in the process of discovery now.

The immediate future

Papua New Guinea is still considered to be under-explored and highly prospective for the discovery of both mineral deposits and petroleum accumulations (McNeil 1994). There are a significant number of deposits which have already been discovered but not yet developed (Table 7.5). These include both large and small-scale deposits which are likely to be exploited in the years to come as infrastructure development and commodity values enhance their economic viability. The following is an outline of some of these potential future developments.

Frieda/Nena copper deposit

The Frieda River copper deposit was discovered in 1967. It was subsequently drilled identifying resources of over 886 million tonnes grading 0.56 per cent copper and 0.31 g/t gold spread over three distinct mineralised zones. Within this total resource is a high grade zone called the Nena deposit which on last published estimates contains a copper resource of 51 million tonnes at 2.2 per cent copper and 0.6 g/t gold (Highlands Gold Ltd 1996). In addition there is a surficial oxidised gold resource at Nena totalling 18 million tonnes at 1.4 g/t gold. The deposit is currently undergoing rigorous metallurgical, infrastructure, environmental and economic studies. Commencement of construction may begin in 1998 or 1999 with initial production unlikely before 2002. Production is expected at a rate of between 160,000 and 220,000 tonnes of copper and 225,000 to 365,000 ounces of gold per year from the combined Nena and Frieda resources over a mine life of up to 30 years. Capital costs are expected to be in the range of US$1.2 to US$1.6 billion.

Ramu Nickel

The Ramu nickel cobalt resource was initially discovered in the early 1960s. At that time it was found to be uneconomic due to technical and metallurgical difficulties and its remote location (Nord Pacific Ltd 1996). Recent metallurgical advances have made the deposit once again potentially viable. A total resource of approximately 162 million tonnes containing 1.4 million tonnes of nickel and 14,000 tonnes of cobalt has
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Rate (million kina/year)</th>
<th>Value (Kina/year)</th>
<th>Start year</th>
<th>Mine life (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porgera Gold (ounces)</td>
<td>900,000</td>
<td>450</td>
<td>1989</td>
<td>18</td>
</tr>
<tr>
<td>Ok Tedi Copper (t)</td>
<td>210,000</td>
<td>460</td>
<td>1984</td>
<td>25</td>
</tr>
<tr>
<td>Gold (ounces)</td>
<td>365,000</td>
<td>180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Misima Gold (ounces)</td>
<td>300,000</td>
<td>150</td>
<td>1988</td>
<td>14</td>
</tr>
<tr>
<td>Tolu kuma Gold (ounces)</td>
<td>50,000</td>
<td>25</td>
<td>1995</td>
<td>5</td>
</tr>
<tr>
<td>Wapolu Gold (ounces)</td>
<td>34,000</td>
<td>17</td>
<td>1996</td>
<td>5</td>
</tr>
<tr>
<td>Alluvial gold Gold (ounces)</td>
<td>60–100,000</td>
<td>35-50</td>
<td>1880</td>
<td>..</td>
</tr>
<tr>
<td>Lihir Gold (ounces)</td>
<td>600,000</td>
<td>300</td>
<td>1997</td>
<td>40</td>
</tr>
<tr>
<td>Hidden Valley</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Watut Gold (ounces)</td>
<td>200,000</td>
<td>100</td>
<td>2000</td>
<td>10–15</td>
</tr>
<tr>
<td>Nena Frieda Copper (t)</td>
<td>160–220,000</td>
<td>350</td>
<td>2002</td>
<td>12</td>
</tr>
<tr>
<td>Gold (ounces)</td>
<td>225–375,000</td>
<td>110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ramu Nickel (t)</td>
<td>33,000</td>
<td>325</td>
<td>2001</td>
<td>10–12</td>
</tr>
<tr>
<td>Cobalt (t)</td>
<td>2,800</td>
<td>65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wafi Copper (t)</td>
<td>100,000</td>
<td>220</td>
<td>2002</td>
<td>20</td>
</tr>
<tr>
<td>Gold (ounces)</td>
<td>200,000</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simberi Gold (ounces)</td>
<td>30,000</td>
<td>15</td>
<td>1997</td>
<td>5</td>
</tr>
<tr>
<td>Woodlark Copper (t)</td>
<td>50,000</td>
<td>25</td>
<td>1998</td>
<td>7</td>
</tr>
<tr>
<td>Zinc (t)</td>
<td>1300</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laloki Gold (ounces)</td>
<td>15,000</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bougainville Copper (t)</td>
<td>160,000</td>
<td>350</td>
<td>2000</td>
<td>12</td>
</tr>
<tr>
<td>Gold (ounces)</td>
<td>350,000</td>
<td>175</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These are estimates only and may not reflect current company policy.

Note: Price assumptions: Gold = K500 /ounces Copper = K2200 /tonne.

Source: Papua New Guinea Department of Mining and Petroleum.

been identified. Recent exploration activities have focused on better defining the higher grade areas of the resource as well as progressing metallurgical and infrastructure studies. Based on recently completed prefeasibility study results this mine could be in production by the year 2001 at estimated production rates of 33,000 tonnes of nickel and 2,800 tonnes of cobalt per year. Capital costs for the project have been estimated at around US$750 million.
Upper Watut Valley gold deposits

The upper Watut valley in the Wau area of Morobe Province contains several gold deposits including Hidden Valley held by CRA Exploration, Hamata, and Kerimenge held by RGC Exploration. These three deposits lie in relatively close proximity. Exploration and feasibility studies to date have concluded that in isolation, each of the three deposits may not be economically viable. There is potential however that the three deposits combined may be large enough and of sufficient grade to support development. It is possible that development of one or all of these resources could occur before the end of the century at a production level of between 100,000 and 200,000 ounces per year.

Wafi Copper / Gold Deposit

The Wafi deposit was initially explored as a gold prospect and later became recognised as a significant copper resource. The deposit is still in the early stages of exploration. The resource is a disseminated porphyry copper style deposit with gold credits being present in both the copper resource and separately within adjacent epithermal vein systems. The total resource and its grade are as yet undefined and production is unlikely before the end of this century. Recent exploration has focused on better identifying the surficial gold resource.

Small to medium-scale future mines

Other mines likely to start production at rates of 50,000 ounces per year or less are the Simberi deposit in the Tabar Islands group adjacent to Lihir held by Nord Pacific Ltd, a gold deposit on Woodlark Island, and the Bilimoia prospect near Kainantu.

In addition to the gold mines is a small-scale copper, zinc and gold mine proposal at Laloki, near Port Moresby. Exploration, metallurgical and economic studies are under way to determine its viability. If feasible this operation could be producing up to 4,000 tonnes of copper, 1,300 tonnes of zinc, 15,000 ounces of gold and 60,000 ounces of silver per year for a period of four to five years.

Small-scale alluvial miners also make a significant contribution to the economy. Current production rates are in excess of 50,000 ounces (1.6 tonnes) per year, valued at over K20 million. The majority of this revenue directly enters the village-level economy and is the main source of cash for many rural communities. In addition to hand-held mining methods are a number of new mechanised alluvial mining systems which are likely to significantly boost production and perhaps double
it over the next decade. Each of these small-scale mechanised operations can produce from 25 to 100 kilograms of gold per year.

**Oil and Gas Prospects**

**Oil prospects**

Future oil and gas projects include the Gobe Project scheduled for production by the end of 1997 at a rate of 50,000 barrels of oil per day utilising the existing Kutubu pipeline and Kumul oil export terminal (Table 7.6).

The recent discovery known as the Moran Field also appears likely to be developed in the near future, although at this stage it is not sufficiently delineated to estimate total reserves or possible production rates. Strong indications of liquid hydrocarbons have also been identified on the Paua structure, adjacent to the Moran discovery.

**LNG**

The potential for gas development is great with total identified resources estimated to total in the order of 15 TCF spread over several distinct fields. This quantity of gas is sufficient to support at least two LNG projects. The remote location of many of the gas fields and their isolation from one another may be factors which could delay development of

**Table 7.6. Oil and gas developments and prospects**

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production rate per year</th>
<th>Value (million kina per year)</th>
<th>Start year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kutubu Oil</td>
<td>40 million barrels</td>
<td>1000</td>
<td>1992</td>
</tr>
<tr>
<td>SE Gobe Oil</td>
<td>18.5 million barrels</td>
<td>490</td>
<td>1997</td>
</tr>
<tr>
<td>Hides Natural Gas</td>
<td>5,500 million standard cubic feet</td>
<td>11</td>
<td>1991</td>
</tr>
<tr>
<td>Moran Oil</td>
<td>..</td>
<td>..</td>
<td>1998</td>
</tr>
<tr>
<td>Kutubu and Pandora Gas to Qld</td>
<td>54.7–73 billion standard cubic feet</td>
<td>180–240</td>
<td>1999?</td>
</tr>
<tr>
<td>Combined Gas LNG</td>
<td>4.5 MM t/yr</td>
<td>815–840</td>
<td>2005?</td>
</tr>
</tbody>
</table>

a These are estimates only and may not reflect current company policy.

Note: Price assumptions: Oil = US$20 per barrel

Source: Papua New Guinea Department of Mining and Petroleum.
these resources. Pre-feasibility studies into the establishment of a single train LNG production facility to produce 4.5 million tonnes of LNG per year are being carried out. Capital costs for such a facility could be in the order of US$5 billion (K6.7 billion).

Gas to Queensland

Another project under consideration at present is a proposal to establish a pipeline to North Queensland to supply gas for electricity generation and for major mineral projects. The project would require a market of 150 to 200 million cubic feet of gas per day to be viable. The proposal is for gas from the Kutubu field to be piped to Queensland with gas from the offshore Pandora Field at a capital cost of around K1.2 billion. Through utilisation of the gas the recovery of oil from the Kutubu project oilfields would also be enhanced.

Undiscovered resources

Papua New Guinea is considered to be geologically highly prospective for new mineral and petroleum discoveries. Its geological setting on the ‘Pacific Ring of Fire’ make it highly favourable for further discoveries of large-scale porphyry copper and epithermal gold deposits (PNG Chamber of Mines and Petroleum 1993). The large area of folded sedimentary strata in the southern part of the country is also highly prospective for further petroleum discoveries. It remains relatively unexplored compared to Australia and holds promise of more discoveries in the future. The major limiting factor to future discoveries remain the difficult logistics of working in remote and rugged country as well as difficulties with land access resulting from the customary land tenure system.

Potential future contributions from mining and petroleum

With production from currently operating mines and expected production from new mines in the medium term, some preliminary estimates of the future value of mineral production can be made.

Gold

Gold production is expected to increase significantly over the next decade with new production coming from the Lihir gold mine and from a number of small to medium-scale mines such as Tolukuma, Wapolu, Woodlark and Simberi. Production from these new mines will
more than offset the expected slight decline in gold production from Porgera over the next five years and the closure of Misima mine around 2002. In addition to these mines, production of gold as a by-product of copper mining from the Nena/Frieda deposit is also expected to contribute to gold exports. A possible production schedule is presented in Figure 7.2.

The Wafi copper gold prospect also has potential for development as a gold resource. The gold zones of the deposit are currently the focus of exploration efforts. There is potential to define a resource in excess of 60Mt at 2g/t Au. Such a resource could sustain production at a rate of 375,000 ounces per year for 10 years.

A large unknown with respect to future gold production levels is whether operations are re-established at the suspended Panguna mine on Bougainville Island. Bougainville Copper Ltd was not only a major copper producer but also exported a large quantity of gold each year in the copper concentrate. The average gold production from Bougainville Copper Ltd over the last five years of operations was close to 15 tonnes per year (Bougainville Copper Ltd 1993).

The small-scale alluvial gold mining sector is also set to make significant contributions to gold production from both hand and mechanised alluvial gold mines around the country. Total gold

---

**Figure 7.2. Projected gold production, 1995–2010 (ounces)**

Source: Papua New Guinea Department of Mining and Petroleum.
production from this sector is expected to increase in excess of 3 tonnes per year by the year 2000.

**Copper**

Copper production is expected to rise over the next three to five years with the commissioning of a new mine at Frieda River in the West Sepik Province (Highlands Gold Ltd 1994). Copper production is currently estimated to commence at a rate of 160,000 to 225,000 tonnes per year. Production from Ok Tedi is expected to continue at current levels through to at least 2010. In the event that the Bougainville mine is recommissioned a significant increase in copper production would occur. Production from the mine is likely to be re-established at a rate of 150,000 to 175,000 tonnes per year. The development of the Wafi copper–gold resource is also possible in the medium term. This is a potentially large resource which could be mined on a scale similar to Ok Tedi, but production is unlikely before the year 2000. Additional copper production is also possible from a small to medium-scale mine at Laloki near Port Moresby. This mine would also produce zinc and some gold and silver (Figure 7.3).

**Nickel and cobalt**

Nickel production from the Marum deposit in the Ramu Valley is potentially a new commodity for Papua New Guinea, diversifying the industry base away from the current strong copper and gold bias. In addition to nickel the Marum deposit has by-product cobalt and chromite which would add to the value of production. Estimates of production rates and mine commencement dates are at this stage very preliminary with first nickel and cobalt production scheduled for 2001 at a rate of 33,000 tonnes and 2,800 tonnes per year respectively.

**Oil and gas**

The Gobe Project is scheduled for production by the end of 1997 at a rate of 50,000 barrels of oil per day. This production rate would be valued in excess of K500 million per year at today’s prices.

Potential LNG developments could contribute significantly to the economy. LNG is currently valued at US$3.40 to US$3.50 per million Btu. This equates to approximately US$140 per tonne of LNG output from a plant. The proposed 4.5 million tonne LNG plant currently under review would therefore contribute to exports in the range of US$612 to US$630 million (K815–840 million) per year.
The value of gas exports to North Queensland in Australia would ultimately depend on the size of the market. Current estimates rate market opportunities in the range of 150–200 million cubic feet of gas per day. This would equate to an export value in the order of K180–240 million per year.

**Implications for government revenue**

As a result of an increase in the number of mining and petroleum developments, government revenues from the sector are also expected to increase over the next decade (Parsons and Vincent 1991). All tax and dividend revenues from the mining industry have in the past been directed to the Mineral Revenues Stabilisation Fund which is a fund administered by the Bank of Papua New Guinea in order to smooth the effects of mining related revenue collection on the economy.

**Non-fiscal benefits to the Papua New Guinea economy**

All mining projects require the establishment of basic infrastructure in the area of the mine development. This is often a cost carried by the mine developer in order to ensure the effective operation of the mine. This is especially so in the remote areas of Papua New Guinea where basic infrastructure is generally non-existent. The infrastructure developments usually last well beyond the life of the mine and provide centres
for economic development into the future. In addition, the provisions of the Special Mining Lease allow mining companies to develop non-mine related infrastructure under a tax credit scheme. This is currently seen as an effective way of delivering infrastructure in remote areas which the government finds difficult to service (PNG Chamber of Mines and Petroleum 1993).

Employment opportunities will also increase significantly with the proposed future mine developments. Direct employment in the mining industry is likely to double over the next decade and employment in mining-related service industries will follow suit.

**Conclusions**

The mining and petroleum sector is currently the driving force behind the Papua New Guinea economy. This high level of economic support is expected to continue in the medium to long term with the expected establishment of several new mineral and petroleum developments over the next five to ten years as outlined above. The direct effect of these new developments on the economy will be significant both in terms of increases in GDP, exports and foreign exchange as well government revenue.

**References**


PNG Chamber of Mines and Petroleum, 1993. Towards a competitive fiscal and policy regime for the mining and petroleum industries in PNG, submission to the Minister of Finance and Planning, Port Moresby.

Agriculture, forestry and fisheries

Ila Temu

Contribution to the economy

The importance of the agriculture, forestry and fisheries sectors cannot be overstated within the context of the overall Papua New Guinea economy. An overwhelming majority of the population depend on these sectors for income, livelihood and well-being. The entire rural population is totally and directly dependent on these sectors. According to the 1990 National Census, 85 per cent of the population reside in rural areas.

The fact that a large proportion of Papua New Guinea’s population is dependent on these sectors means that government policy targeted at the sectors is likely to have significant welfare impacts. The same is also true for policy not directed at these sectors, but the impacts are felt nevertheless. Where the direct and indirect impacts are negative, welfare can be reduced for a significant number of Papua New Guineans. It is crucial that the magnitude of this impact is borne in mind in overall policy development.

Gross domestic product

The Papua New Guinea economy has expanded four-fold since independence, with two distinct growth phases apparent over this period. Nominal GDP increased steadily prior to 1990, with annual growth rates close to zero or negative real per capita (Figure 8.1). More rapid growth in nominal GDP occurs after 1990, with significant positive annual growth rates. The peak annual growth reached during this period was about 17 per cent (Figure 8.2). Expansionary budgets and mining and petroleum developments, such as Porgera, Misima and Kutubu, were the major influencing factors on this trend, although non-mining/petroleum sectors also had a significant impact (Figure 8.1).
While total GDP growth has been impressive, real GDP growth has been less with stagnant growth dominating except for the period 1991–93 (Figure 8.2). Similarly, per capita GDP has increased only marginally over the period prior to 1990. Per capita GDP is now estimated to be

Source: South Pacific Economic and Social Database, National Centre for Development Studies, The Australian National University, Canberra.
about K800. The question remains as to how representative this figure really is, given the skewed income distribution in Papua New Guinea.

The two dominant sectors contributing to GDP are services and agriculture, forestry and fishing (Figure 8.3). There has been a steady decline in the share of agriculture, forestry and fishing up to 1992 but much of it appears to have been regained in the last two years. The price guarantee scheme introduced in 1993 for agriculture and high log prices in the same year were probably the two major factors responsible for this change. Agriculture, forestry and fisheries now account for some 32 per cent of total GDP.

The overall level of commercial activity within each of these sectors also increased rapidly after 1990. This is reflected in the increasing market share of GDP from agriculture, forestry and fisheries (Figure 8.4). Increased cash cropping, logging and commercial fishing has occurred during this period and could well explain this trend. Estimates for the non-market component of GDP from these sectors shows a steady growth since independence. This estimates the value of subsistence production and activities within these sectors.

**Employment**

The contribution of agriculture, forestry and fisheries to overall employment is difficult to measure precisely, although given the dependence
on this sector by the bulk of the rural population the contribution is significant. The best available means to gauge this is the use of occupational data from national censuses (Table 8.1).

The national census results suggest that self-employment accounts for almost 70 per cent of the monetised labour force in Papua New Guinea. If we assume that the majority of those self-employed are in agriculture, forestry and fisheries, then these results suggest that 67 per cent of total employment occurs in these sectors. This is a significant contribution.

Table 8.1. Citizen occupation, 1971–90

<table>
<thead>
<tr>
<th>Year</th>
<th>Wage employed</th>
<th>Unemployed</th>
<th>Self-employed</th>
<th>Monetised labour forces</th>
<th>Proportion of self-employed (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>193,482</td>
<td>8,291</td>
<td>286,533</td>
<td>488,306</td>
<td>59</td>
</tr>
<tr>
<td>1980</td>
<td>193,586</td>
<td>37,774</td>
<td>539,220</td>
<td>770,580</td>
<td>70</td>
</tr>
<tr>
<td>1990</td>
<td>232,294</td>
<td>133,148</td>
<td>747,564</td>
<td>1,113,006</td>
<td>67</td>
</tr>
</tbody>
</table>

These sectors also contribute to formal wage employment. Data compiled by McGavin (1996) suggests that these sectors have provided about 30 per cent of the jobs in the formal wage sector. Applying this proportion to the 1990 census data would increase the share of employment for these sectors to 73 per cent. The index of formal wage employment in these sectors has an increasing trend although it has varied since 1978 (Figure 8.5).

**Exports**

The share of export revenue from the agriculture, forestry and fisheries sectors shows a steady decline from about 49 per cent in 1980 to 28 per cent in 1995 (Figure 8.6). Mining exports have dominated for the most part with petroleum exports having a significant influence after 1992. Mining and petroleum now account for about 70 per cent of the country’s export revenue.

Within agriculture, forestry and fisheries, while agriculture was dominant in the 1980s, its share of export revenue has declined substantially from 36 per cent in 1980 to about 15 per cent in 1995. On the other hand, the share of export value from forestry resources increased from 7 per cent in 1980 to 13 per cent in 1995, almost equalling that of agriculture.
Agriculture

Agricultural resources

The agricultural sector is the single most important sector in the Papua New Guinea economy. The country has been blessed with an abundant land resource which supports a wide range of agricultural production activities. Of the total land area of 460,000 square kilometres, it is estimated that about 30 per cent is suitable for agriculture and of this, only half the area is currently utilised. Soils are generally fertile and rainfall sufficient and evenly distributed to support the cultivation of a wide range of commodities. There are areas where high population densities have resulted in more intensive land use.

Papua New Guinea’s advantage in agriculture comes not only from its abundant land resources but also from its labour resources. Rural communities throughout the country use these resources in subsistence production to provide livelihood and cash crop production is becoming widespread as these communities become more monetised and new consumer items and services demanded. General agricultural production skills and knowledge are well entrenched.
**Resource use**

Subsistence production has been the dominant form of agricultural production where staple crops such as sweet potatoes, yams, banana and taro are grown largely for family consumption. An increasing part of subsistence production is now sold in domestic markets. This is expected to grow as urban populations grow and rural incomes increase. Perishability and high weight to value ratios limit the development of trade in domestic staples. It is estimated that about half the value of agricultural output comes from subsistence production—market and non-market GDP are almost equal for much of the early period since 1978 when forestry and fishing activities were quite limited (Figure 8.4).

Subsistence production is said to be efficient in its use of land and labour resources. The rural population in Papua New Guinea is fairly self-sufficient in terms of food, however, this is changing as rural communities become dependent on introduced food items such as tinned fish and rice. The increasing demand for introduced goods and services has provided much of the impetus for cash-oriented production.

Cash crop production has dominated agricultural development effort with the realisation of these opportunities since the 1950s. Crops such as coffee, cocoa, rubber, tea, oil palm and copra have been produced mainly for exports. Various modes of production have been employed for each of the different crops. Coffee and cocoa were introduced initially as plantation crops but became dominated by smallholders as knowledge and information spread. Oil palm and rubber were promoted as estate crops under resettlement scheme arrangements where smallholder farms were established around a central processing facility and provided with all necessary infrastructure and support services. Copra developed largely as a smallholder crop and tea was developed and has remained essentially a plantation crop.

The relative share of agricultural exports in total export value has declined from 36 per cent in 1980 to 14 per cent in 1995 (Figure 8.6). Coffee is still the dominant agricultural export both in terms of export earnings and the number of producers. The volatility of the major agricultural exports is quite characteristic and is caused largely by international price variability. On average, agricultural exports generate about K250 million in export earnings per annum. The bulk of these earnings are received at the rural level. This has significant welfare implications and the government therefore continues to support commodity prices through stabilisation and more recently through price guarantee schemes.
Agriculture infrastructure

The availability of infrastructure and services is a crucial component of efforts aimed at promoting agricultural development in Papua New Guinea. Road and transport services provide the means by which agricultural produce can reach markets. In general, agricultural development has been constrained by the general lack of such infrastructure, particularly for remote locations. The priority has been to provide these services in areas with significant levels of cash crop production. The establishment of the Highlands Highway, for example, has been a major influence in the expansion of coffee production, processing and marketing. All these activities are currently in the hands of the private sector.

Government involvement in marketing has always been an important characteristic of cash crop production in Papua New Guinea. Marketing Boards were established for the major crops, performing both marketing and regulatory functions. Under new institutional arrangements, much of the marketing function has been taken over by the private sector with the Boards transformed into what are now known as Industry Corporations, which are also responsible for
extension and research. The only exception to this is the Copra Marketing Board which has continued to retain its monopoly on the marketing of Papua New Guinea’s copra.

Agricultural research infrastructure in Papua New Guinea is well established. Funded by government and carried out by the Department of Agriculture and Livestock, an extensive and often quite specialised network of research activities has been established. Priority in agricultural research has been placed on tree crops, in accordance with their importance in generating government revenues. The establishment of Industry Corporations has seen a shift in the establishment of autonomous research institutes for coffee, cocoa, oil-palm and coconuts. Commodity levies are imposed to fund such research, although government grants are still available.

This new setup should see the Department of Agriculture and Livestock devoting more resources to research on staple food crops, livestock, alternative crops and resource management. The emphasis will be on productivity improvements and sustainable farming systems. A National Agricultural Research Institute (NARI) has been proposed and endorsed by government. The Department currently operates nine research stations, strategically located to carry out experimentation under various climatic conditions. These are supported by specialist laboratories in Port Moresby.

The agricultural sector in Papua New Guinea has lacked effective extension services for much of the last twenty years. A whole host of factors are responsible for this, of which the most critical have been inadequate funding and poor motivation and lack of skills. The introduction of the provincial government system was largely responsible for the deterioration in extension services. The transfer of extension functions to provinces was often not accompanied by the appropriate funding levels. Even if adequate funds were transferred, provincial priorities often meant that funds were allocated to other activities. Extension activities took on very low priority in many provinces, affecting morale and motivation.

Agricultural credit services are currently available from both commercial banks and an agriculture bank, now called the Rural Development Bank. The availability of these facilities is likely to have enhanced agricultural development effort. Agriculture, forestry and fishing sector lending has dominated total lending by the Bank, particularly over the period prior to 1989 (Figure 8.8). Well over 60 per cent of lending was targeted at this sector and the bulk of this would
Figure 8.8. Proportion of Rural Development Bank lending by sector, 1980–95 (per cent)

Source: South Pacific Economic and Social Database, National Centre for Development Studies, The Australian National University, Canberra.

Figure 8.9. Proportion of lending by commercial banks by sector, 1979–93

Source: South Pacific Economic and Social Database, National Centre for Development Studies, The Australian National University, Canberra.
have gone to agriculture. Lending by commercial banks to agriculture, forestry and fishing has also been proportionately significant (Figure 8.9). In 1993, over 40 per cent of total commercial lending was to these sectors, although this has been quite variable over the period shown, suggesting that credit availability is not a significant constraint. While it is true that much of the lending is dominated by few large borrowers, the real difficulty for the small borrower is more one of access. Access is difficult because of the riskiness of lending to many small borrowers and the high transaction costs involved.

Another important agricultural infrastructure is training colleges which provide general and specialised skills in all agriculture related fields. Currently there are four colleges, located to service the four major regions in the country. These colleges have been recently transferred to the Education Department with an upgrade in their status to university levels. This should improve the quality of overall training.

**Government policy**

Government policy recognises the important role of agriculture in overall economic development. Agricultural development is a priority because all Papua New Guineans depend on this sector for livelihood. The overall policy objective is to 'to ensure the viability of agricultural production, sustain growth, increase income earning opportunities and to improve rural standards of living' (Papua New Guinea 1996:84). Creating employment opportunities and promoting self-sufficiency are also important components of current government policy.

Within this broad policy framework, a number of specific policy components are stated in the various government policy documents (Papua New Guinea 1989, 1994, 1995). These relate to food production, cash crop production, agro-industrial development and agro-forestry and agricultural services and support programs.

**Food production**

Food production has been largely neglected with past emphasis focusing more on cash crop production. The need for greater food security and self-sufficiency has redirected interest towards domestic food production. The focus is on improving productivity and the sustainability of production, encouraging diversification, improving market access and promoting production for exports.
Cash crop production

Cash crop production has proved to be an effective means of achieving the broader objectives of providing employment and income earning opportunities for much of rural Papua New Guinea. Greater private sector involvement is to be encouraged and improvements in productivity, quality and efficiency are a priority. Crop diversification is to be pursued through research and development. This is seen to be important in reducing the risk exposure of small farmers.

Agro-industrial development

While recent policy documents do not explicitly state this, there has always been government support to encourage further downstream processing of agricultural products. Various incentive schemes have been devised to attract private sector investment into downstream processing. Protective measures such as import bans, tariffs and quotas have been used at various times to promote agro-industrial development. Products such as meat, fish, fruit and vegetables and animal feed have been identified as possible candidates.

Agro-forestry development

Government policy on agro-forestry development has in the past focused on the introduction of trees into the farming system, in part a response to shortage of wood fuel in some areas. Other agronomic benefits are also gained under such systems. The current focus appears to be the complete opposite, where forest areas cleared for logging are to be used for agricultural production.

Agricultural services and support programs

Important elements here are training and human resource development, research and extension, quarantine and inspection, marketing and price support and credit. The general policy objective in these areas is to improve the effectiveness and delivery of these services and programs. Price support programs are perceived as having an important welfare component in that they support rural incomes. The lack of alternative income earning opportunities in many rural communities makes such support critical. Price stabilisation schemes established with commodity boards were abandoned in the late 1980s following the depletion of these funds because of continued low prices. A price guarantee scheme was introduced in the 1993 Budget, offering
guaranteed prices for the four major cash crops. While this did commit significant public resources to agriculture, price improvements in the last three years have relieved much of this pressure. This improvement has persisted because of the government decision to float the kina in 1994.

Future policy issues

Domestic food production

While current policy to promote food production appears to be driven by food security needs, the greatest benefit is actually the high social returns it can generate. Because production is dominated by rural communities (representing the bulk of the population), the welfare implications are enormous. It is also not likely to be constrained by land ownership issues because it builds on an existing production activity.

The future challenge in efforts to promote domestic food production rests not on producers but on the ability of government to address effectively those problems that constrain this subsector. The major problems are variable quality, high post-harvest losses, limited extension and research, inadequate transportation, and distribution networks. Public investment in research/extension and infrastructure development to allow market access would make a significant difference.

Past efforts to promote domestic production of rice, grain and flour have not paid off for the simple reason that Papua New Guinea does not have any comparative advantage in the production of these grains.

Export marketing of domestic foods is something which has not been explored at all. Local fruits and vegetables have some potential, particularly in the emerging South East and North East Asian markets. Vanuatu, Tonga and Fiji have had some success in the development of niche markets with squash and ginger. These high-valued markets provide unique opportunities to take advantage of location and climate.

The greatest challenge in the development of food production is sustainability and environmental degradation. By nature, subsistence agriculture requires continuous clearing of forest lands. If this goes unchecked, the sustainability of agriculture in these areas can be quite doubtful—environmental laws governing agricultural activities must be applied to subsistence agriculture.

Cash crop production

The major future policy issue in cash crop production relates to the price support program and whether this represents the best strategy to
promote the development of this sub-sector. Those in favour of such a policy have supported it on the grounds that it plays a social welfare role in supporting rural incomes. Supporting grower prices during resource booms is considered by some to be an efficient method of distributing resource rents. The arguments against price support are its selective characteristic in targeting specific producers and that it discourages diversification and efficiency by distorting relative prices.

The challenge for the development of cash crop agriculture in Papua New Guinea is the need to improve productivity and to reduce costs. Appropriate research and effective extension are compulsory components of this effort. It is doubtful that price support can generate productivity improvements, let alone reduce costs. These resources are better spent in improving research and extension. These efforts need to be targeted at smallholders because they have the greatest scope for improvement over the medium term.

Longer-term development of cash crop agriculture in Papua New Guinea hinges very much on the issue of land tenure. Gains from productivity and economies of scale are not possible if the land tenure system does not provide the opportunity to expand. Cultural factors play an important role in these systems and caution has to be taken in any effort to introduce change.

In view of this situation and the need to maintain balance, a system which can generate productivity improvements and achieve some economies of scale while utilising existing land tenure arrangements would be desirable. Estate and resettlement schemes organised around villages present some scope for achieving these. However, management problems associated with past schemes must be overcome before such a system can be effective.

**Forestry**

**Forest resources**

Of the total land area of 46 million hectares about 36 million hectares is in forest, composed mostly of hardwoods. Of this, some 15 million hectares is productive with only 1 million hectares actually logged. The remaining 21 million hectares of the forested land is either protected or used for other purposes (Figure 8.10).

Of the 14 million hectares of forest area available for forest development, a massive 36 per cent or 5 million hectares is located in Western province. The next largest forest area is found in Sandaun province.
representing some 12 per cent of the national resource. These are followed by Gulf (7 per cent), West New Britain and Madang (6 per cent each), Central, Southern Highlands and Oro (5 per cent each), East Sepik (4 per cent) and New Ireland, Morobe and Milne Bay (3 per cent each).

It is estimated that the area allocated to forest production is more than half the total potential area available for provinces such as West New Britain and East New Britain, New Ireland, Gulf and Western Highlands. However, at the national level, only about 27 per cent of the total potential area has been allocated to date for forest development. This potential is greatest for Western and Sandaun Provinces.

Allowing for areas designated for agriculture, conservation, gardens, villages and buffer zones, the net forest area available for sustainable management is about 11.7 million hectares (Table 8.2). This converts to

Figure 8.10. Papua New Guinea's forest resources

<table>
<thead>
<tr>
<th>Land area</th>
<th>Productive and protected areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 million ha. non-forested</td>
<td>Non-forested 10 million ha.</td>
</tr>
<tr>
<td>36 million ha. forested land areas</td>
<td>Protection others 21 million ha.</td>
</tr>
<tr>
<td>1 milliion ha.</td>
<td>Productive 15 million ha.</td>
</tr>
</tbody>
</table>

Land area used by type of wood

| Non-forested 10 million ha. | Conifers 1 million ha. |
| Hardwood 35 million ha. | Virgin 14 million ha. |

Virgin and logged areas

| Non-forested 10 million ha. | Logged 1 million ha. |
| Protection others 21 million ha. | Others |

Source: Papua New Guinea Forest Authority, 1996
Table 8.2. Estimate of sustained yield for the forest resources of Papua New Guinea

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross forest area suitable for sustained yield management</td>
<td>14.6 million hectares</td>
</tr>
<tr>
<td>Less areas set aside for agricultural conversion, conservation areas, gardens, villages, buffer zones</td>
<td>2.92 million hectares</td>
</tr>
<tr>
<td>Net area suitable for sustainable management</td>
<td>11.68 million hectares</td>
</tr>
<tr>
<td>Total volume</td>
<td>140.2 million m³</td>
</tr>
<tr>
<td>Sustainable yield</td>
<td>4.0 million m³</td>
</tr>
</tbody>
</table>


A cut volume of about 140 million cubic metres assuming an average volume of 12 cubic metres per hectare. The estimated sustainable yield, assuming a rotation length of 35 years, is 4 million cubic metres. This is slightly higher than the actual harvest level quoted by Duncan (1994) at 3.5 million cubic metres for 1993 due to differences in the length of rotation.

Resource use

It is estimated that 90 per cent of the total harvest from Papua New Guinea’s forests is exported as logs (PNGFA 1996). The major markets are Japan, South Korea, Taiwan, India and China. There has been a steady growth in export volumes since independence, reaching 1 million cubic metres in 1982. Growth continued until 1987 when exports peaked at about 1.4 million cubic metres then declined to a low of 0.9 million cubic metres in 1990. Significant price increases since 1991 saw log exports tripled to almost 3 million cubic metres in 1994. Log exports currently stand at 2.5 million cubic metres in 1995.

The export-oriented nature of forestry has meant that domestic processing utilises only a small proportion of total harvest. The domestic processing industry is currently made up of 49 registered sawmills, 27 furniture and joinery operations, one woodchip mill and one plywood plant (PNGFA 1996). In addition, it is estimated that there are about 700 small mobile sawmills. The capacity of the 49 registered sawmills is estimated to be about 207,000 cubic metres of sawn timber. In 1994, only 350,000 cubic metres of the total harvest was processed domestically. Of this, 85 per cent was used in domestic
industries and the balance exported as woodchips, sawn timber and plywood. The forest sector currently employs about 7,500 people which is 4 per cent of total formal sector employment.

Within the context of a subsistence economy, the total use of forest resources is much more than is indicated by national harvest figures. The total natural forest resource in Papua New Guinea is under customary ownership allowing rights to harvest for all subsistence needs including house-making, canoe-making and clearing for subsistence gardening. Thistlethwaite and Davis (1996) argue that much more forest area has been cleared in the Melanesian countries for subsistence gardening than for commercial forestry. The environmental and forest area management implications are enormous and cannot be ignored.

The allocation of areas for forest resource use is governed by legislation as stated in the Forestry Act 1991 and in the National Forest Policy (1991). These provided the legal basis for the establishment of the National Forestry Development Guidelines (1993) and the National Forestry Plan (Draft 1996). The Guidelines are an interpretation of government policy, specifying exactly how the forestry resource is to be developed and managed. It also specifies the process to be followed before actual harvesting commences.
- Landowners within the resource area must organise themselves into Incorporated Land Groups and the Provincial Forest Management Committee must certify authenticity of land ownership.
- The Papua New Guinea Forest Authority must undertake a Development Options Study providing details such as a resource inventory, means of landowner participation, environmental and social impact assessments and feasibility of local processing and marketing.
- The Development Options Study is used by the Papua New Guinea Forest Authority in preparing draft development guidelines for approval by the National Forestry Board. At the same time, a Forest Management Agreement is negotiated by the Forest Authority with landowners.
- The project is then advertised and proposals called. The Provincial Forest Management Committee does the initial screening and recommends a developer to the National Forestry Board which then makes a final selection. The selected developer is required to lodge a deposit of K50,000 plus K2 per cubic metre of the proposed annual harvest.
- The selected developer is invited by the Provincial Forest Management Committee to conduct a detailed feasibility study outlining the true extent of the resource, a development plan, financial projections and the proposed corporate arrangement. This is submitted as a draft Project Agreement to the National Forestry Board for approval as the Project Agreement.
- When approved, the National Forestry Board recommends to the Minister the issuance of a Timber Permit. Wide consultations are required by the Act before the recommendation is made.
- The developer is then invited by the Minister to make an application for a Timber Permit. This must be accompanied by an environmental plan which has been approved as required under the Environmental Planning Act. In the event that the Minister does not accept the recommendation of the National Forestry Board, he is required to justify and the Board is then required to make a formal recommendation. The National Executive Council then intervenes if the matter is still unresolved.
When granted, the Timber Permit allows the developer to harvest logs in the project area based on approved terms and conditions and for a specified period of time. A performance bond, equivalent to the stumpage fee for one month’s harvest volume is lodged with the Forest Authority.

Forestry infrastructure

The export-oriented nature of the forest industry in Papua New Guinea means that there has been very limited scope for infrastructure development. Much of the logging equipment is imported and is quite mobile. Existing transport infrastructure facilities are utilised, although in some instances temporary roads and wharf facilities have been constructed for short-term use. These are usually abandoned when operations shift to new sites.

An important aspect of granting timber permits has always been the requirement to construct infrastructure such as roads, bridges, schools and aid posts within the permit areas. However, inadequate inspection and monitoring capacity has meant that these requirements have not been fulfilled. In the few cases where they have been fulfilled, quality control has often been lacking so that facilities deteriorate sooner than expected. The current guidelines transfer this responsibility, including those relating to reafforestation, to the landowner groups themselves. These guidelines also specify that landowners receive the largest share of the resource rent.

The other major forestry infrastructure is the Papua New Guinea Forest Research Institute located just outside Lae in Morobe province. Its research program focuses on forest biological research, species screening and development and forestry management issues.

Government policy

Governments in Papua New Guinea have always recognised the importance and potential of the country’s forest resources. Government policy, even prior to independence, has always sought to promote the development of this vast resource. The original Forestry Act 1971 (also known as the Private Dealings Act) allowed landowners to negotiate directly with private companies. The only requirement was to have their land declared as a Local Forest Area.

The absence of direct government involvement and the lack of development and management procedures made this original system vulnerable to abuse. Landowners, who were then quite ignorant of
their rights, were open to exploitation. Forest areas were also abused with widespread environmental damage. The management and implementation of the early policy also hit a snag with the introduction of the provincial government system when provincial and national functions and responsibilities were separated. Duncan claims that this led to ‘loss of control over forestry harvesting, resulting in corruption and environmental damage’ (1994).

The results of the Barnett Commission of Inquiry in 1987 confirmed the general perception that the forest sector was fraught with corruption and malpractice. Immediately following the report from this inquiry, the government initiated a detailed review of the sector with the assistance of the World Bank, resulting in the drafting of the amended Forestry Act 1991 and an endorsement of a National Forest Policy in 1991.

Current government policy on forest sector development acknowledges the need to maximise the benefits of such development to Papua New Guinea, but requires that this must be done in ways that promote sustainable development. The specific objectives of the forestry sector are

- to use forest resources on a sustainable basis to provide long-term development opportunities for landowners and the general community
- to pursue the protection and conservation of ecologically and culturally important forest areas and to maintain sound environmental and management practices
- to maximise employment and income opportunities for Papua New Guinea citizens
- to develop an internationally competitive value-added processing activity (Papua New Guinea 1996:89).

A sustainable forestry strategy was adopted in 1995. Under this strategy, the annual cut rate is limited to about 3 per cent of the permit area. This is consistent with Papua New Guinea’s membership into the International Tropical Timber Organisation (ITTO) where it has made a commitment to produce timber only from sustainably managed forests by the year 2000. This will require a deliberate phasing out of permits where management is known to be unsustainable. The recently finalised Forestry Code of Conduct is an additional commitment to sustainable forestry.

The National Forestry Development Guidelines also specify the fiscal arrangements for forestry revenues. A stumpage fee system was devised to replace fixed royalty payments, export duties on logs and
all other miscellaneous charges. Concerns that a large part of the economic surplus was being retained by operators motivated the new system. This was apparent in 1993 when log prices peaked. The new stumpage system allows resource owners and the government to retain a larger part of the surplus.

Under the proposed stumpage system, a minimum or base stumpage fee of K20 per cubic metre is added to an appraised logging cost plus a minimum profit allowance specified at 20 per cent of logging costs. The sum of these subtracted from the f.o.b. price defines the total surplus, 85 per cent of which must be paid to a representative body appointed by resource owners. A 25 per cent forestry withholding tax is payable on this additional stumpage. As of July 1996, the approved revenue system requires a K10 per cubic metre royalty payment and a variable Project Development Levy, ranging from K2 to K13 per cubic metre, depending on the f.o.b. price of logs. Of the total Project Development Levy, 40 per cent will be paid directly to resource owners and 60 per cent retained in a project area development fund.

The stumpage system is a vast improvement compared to the fixed royalty arrangement and is also quite considerate of operators’ needs to maintain profitability. This is achieved by allowing for normal profits and appropriating a small part of the surplus to them. A point of contention, which has caused the long delay in implementing this new system, has been the cost estimates used in determining a cost allowance. The National Forestry Development Guidelines specify that these will be based on efficient production scenarios and are expected to vary between locations.

Duncan (1994) points out that there are two undesirable features of this new system. First, there is little incentive for the developer to actively seek out maximum log prices. This incentive can be introduced by setting two different rates for allocating the surplus. The maximum rate could be applied at lower prices and a minimum rate at higher prices. Second, landowners and governments have greater exposure to price risk than before. Duncan (1994) proposes an auction system which could eliminate this risk and at the same time address other problems such as price under-reporting.

A number of other important initiatives are also proposed in the National Forestry Development Guidelines. At the national level, it is proposed that forest resources must be utilised to achieve economic growth, to provide employment and to foster greater local participation. Viable domestic processing will help achieve these objectives.
It is proposed that, by the year 2000, at least 30 per cent of the total harvest must be processed domestically. This is to be achieved by allowing domestic log sales on a quota basis by giving preference to those with processing facilities, scaling down log exports, providing fiscal incentives such as duty exemptions and tax relief through the establishment of necessary infrastructure and by granting first-right purchase options at export prices to domestic processors.

Current government policy emphasises the importance of sustainable harvesting while at the same time ensuring that environmental controls are in place and adhered to and forest conservation needs are protected. Landowner participation in both resource use and conservation is considered to be crucial, although their capacity is limited. The strengthening of their capacity through training and public awareness programs is a priority.

**Future policy issues**

While forest sector development may have had some early problems, a drastic turn of events following the Barnett Inquiry gave rise to a much improved environment. A tightening of the Forestry Act in 1991 and endorsement of the National Forestry Development Guidelines in 1993 has enabled the government to regain control over the sector. There is little disagreement that the overall policy thrust is in the right direction. The real challenge, however, is the ability, willingness and commitment to implementing initiatives put in place to achieve the desired policy objectives. Implementation capacity is a general constraint throughout the bureaucracy and nationwide efforts will be necessary to build capacity. Capacity in resource sectors should be given some priority along with health and education.

An important constraint on capacity has been the inadequate levels of government funding. The establishment of the Papua New Guinea Forest Authority is a step in the right direction, but adequate funding is vital if the new set-up is to function effectively. The partial funding of the Surveillance Project in 1995 is a case in point.

A number of more specific policy issues need to be raised. The Guidelines address most of these quite adequately. These include the need for a detailed forestry inventory, the importance of biodiversity, redirection of forestry research to address national priority issues and institutional support and coordination. Two issues which raise some concern for future forestry development are the Revenue System and the current emphasis on downstream processing.
Revenue system

The new stumpage fee system has been designed to increase the proportion of resource rent accruing to resource owners. Given the experiences of the early 1990s, this is perceived to be highly desirable. Furthermore, given Papua New Guinea’s general experience with resource ownership issues, more so in mining than any other sector, this is a deliberate policy choice. It is the government’s responsibility to ensure that the benefits of any resource development are equitably distributed.

The new system is a drastic improvement compared to the old royalty system because it allocates a large part of the economic surplus to forest owners. While this ensures that landowners are guaranteed a part of all windfall gains, it also means that the incentives for corrupt behaviour are very much reduced. Any reduction in the incidence of corrupt behaviour is a significant gain, particularly in resource sectors where corruption can often be associated with unsustainable resource development. In view of these improvements, the new system is quite commendable. However, delays in implementation after their announcement in the 1996 Budget does raise some concern. Vested interests have developed within the industry and further delays could easily shift opinion and more importantly, allow political support for opposing views.

The two undesirable aspects of the stumpage system are its disincentive effects on maximising log prices and the extent of price risk exposure. The incentive to maximise log prices is important because it means that forest resources attract a higher value and economic surplus or rent is maximised. A system which avoids the disincentive effects and eliminates risk exposure while maximising economic rent would be highly desirable. Duncan (1994) suggests an auction system whereby logging rights are auctioned on a regular basis. Logging contractors are forced to compete with each other and the one who bids the highest is granted the logging right for a specified period of time. This right is paid for in advance through a guarantee so that the full price risk exposure is borne by the contractor who is in a much better position to hedge against this risk than landowners and government. The contractor is then in a position to maximise log prices and the guaranteed surplus is likely to be maximised through competition.

There is concern that the level of competition may not be sufficient to ensure that maximum bids are tendered. The high level of concentration that currently exists in the country could easily result in
collusive behaviour, thus reducing competition. Collusion can be detected by independent or in-house assessments of logging costs and expected prices. Other firms could be invited to tender if collusion is suspected.

An auction system as suggested here could be easily incorporated into the current process given the existence already of a tendering process. The only additional requirement would then be that of holding an open auction. All other requirements as stated in the National Forestry Development Guidelines would remain.

**Downstream processing**

Current government policy gives tremendous emphasis to the need to develop downstream processing. The rationale is that because log production for exports creates very little else by way of infrastructure, services and employment, downstream processing is perceived to be a means by which these benefits can be generated and captured within local economies. This is also seen as a form of compensation to local areas for adverse environmental impacts. On the surface, such a policy makes a lot of sense and could easily attract a lot of popular support, even from resource owners themselves. Despite these good intentions, existing economic conditions are likely to prevent the attainment of the full array of benefits.

Important elements of this strategy to promote downstream processing are limitations on log exports to promote a domestic log market and the provision of fiscal incentives to support a domestic industry. The question then is whether a viable downstream processing in Papua New Guinea is possible under existing conditions. Clearly, the proposed intervention by the government to limit log exports and to provide incentives demonstrates that viability is doubtful. This suggests that domestic processing is likely to involve a high opportunity cost.

In the absence of detailed analysis, the economics of the industry would suggest that the promotion of downstream processing will reduce landowner rents. This will occur because it is quite unlikely that domestic processors will pay world prices in the domestic log market. In the absence of subsidies, this is essentially an income transfer from resource owners to processors. Where processing is dominated by foreign ownership, as is likely to be the case, these incomes could easily be repatriated so that they are then totally lost from the domestic economy.

Because landowner rents are likely to be reduced, this policy is in direct conflict with that of maximising/increasing rents to resource
owners. This is a drastic contradiction in policy. The best strategy to maximise rents is to continue log exports rather than to limit or ban them.

Given the capital-intensive nature of timber processing and the subsequent loss of income to resource owners, there is doubt as to whether the net employment effects are really significant. An internationally competitive processing industry would have to be capital intensive. It is likely that greater employment could be generated by maximising rents to resource owners than through the promotion of downstream processing.

The benefits of downstream processing to government revenues are also uncertain. The high level of subsidies required to make downstream processing viable could well outweigh any benefits to government. If funds are available to subsidise downstream processing so that jobs can be created, it would make more sense to use them to create jobs directly. Investing in public infrastructure development, for example, would provide the jobs and at the same time put in place much-needed infrastructure.

It could be argued that one of the indirect benefits of promoting domestic processing is the development of skills which contribute to human capital formation. However, given that the impact on employment is quite limited, such a benefit is not likely to be significant. Skills development has to be approached at the national level rather than through selected industries.

These arguments against downstream processing should also raise some concern about current policy requirement that links downstream processing to Forest Management Agreements. This would reduce the attractiveness of logging activities and result in forced cross-subsidisation. Duncan also argues that this would increase ‘the likelihood of timber being priced well below its market value’ (1994:6).

**Fisheries**

**Resource base**

The Exclusive Economic Zone of 2.3 million square kilometres is the third-largest marine jurisdiction in the South Pacific. The most important resource within this Exclusive Economic Zone is tuna, although other pelagic species of commercial importance are also present in these waters.

Papua New Guinea’s long shoreline (approximately 17,000 kilometres), with its numerous reefs and lagoons, provides an ideal habitat for a large and diverse inshore fisheries industry. A multitude of fish,
shellfish and sedentary species are found in these waters. It is estimated that a total of 1,762 fish species have been found in Papua New Guinea waters. Papua New Guinea’s large land mass and extensive river systems also mean that there is a significant inland fishery, although it is less productive because of limited dependence on this resource. Current production levels for all marine resources are well below their estimated potential yield (Table 8.3).

**Resource use**

Papua New Guinea does not have a strong fishing tradition, although there are a few exceptions to this. The 1990 population census estimated a coastal rural population of about 500,000. Of these, only 120,000 were reported to have engaged in regular fishing activities. The freshwater fishing population was estimated to be about 125,000 in 1990 (7 per cent of the population). The rapid growth of urban centres and increased domestic fish marketing in both urban and rural markets would suggest that the total population dependent on fish consumption is increasing.

Subsistence and artisanal fisheries are the most common form of fishing in Papua New Guinea. It is an important source of livelihood.

**Table 8.3. Current and potential production of fisheries resources (tonnes)**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Current production (per year)</th>
<th>Estimated potential yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skipjack tuna</td>
<td>100,000–150,000</td>
<td>180,000–200,000</td>
</tr>
<tr>
<td>Other tuna species</td>
<td>15,000–45,000</td>
<td>60,000</td>
</tr>
<tr>
<td>Coastal pelagics</td>
<td>&lt;2,000&lt;sup&gt;a&lt;/sup&gt;</td>
<td>100,000–150,000</td>
</tr>
<tr>
<td>Reef and lagoon fish</td>
<td>&lt;10,000&lt;sup&gt;a&lt;/sup&gt;</td>
<td>150,000–350,000</td>
</tr>
<tr>
<td>Deepwater snappers</td>
<td></td>
<td>1,500–2,000</td>
</tr>
<tr>
<td>Prawns</td>
<td>1,000–1,300</td>
<td>1,400–1,600</td>
</tr>
<tr>
<td>Lobster tails</td>
<td>70–100</td>
<td>400–500</td>
</tr>
<tr>
<td>Barramundi</td>
<td>200–400</td>
<td>400–600</td>
</tr>
<tr>
<td>Estuarine resource</td>
<td>1,500–2,000</td>
<td>4,000</td>
</tr>
<tr>
<td>Freshwater finfish</td>
<td>4,000–6,000&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12,000–14,000&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Shell</td>
<td>500–550</td>
<td>800–1,000</td>
</tr>
<tr>
<td>Bêche-de-mer (dry weight)</td>
<td>300–450</td>
<td>600–1,000</td>
</tr>
</tbody>
</table>

<sup>a</sup> Predominantly subsistence catch.

<sup>b</sup> Subject to stocking and enhancement programs.

for most coastal communities. Production beyond subsistence needs is becoming common, particularly near urban centres where the urban population provides an important market outlet. For these communities, fishing is an important source of income. The potential available in the wider domestic market has not been fully exploited because of limitations relating to transport, refrigeration and other service constraints.

Limited commercial fisheries development, particularly in those fisheries which have sufficient stocks such as tuna, coastal pelagics and reef and lagoon fish, has also meant that potential production levels have not been realised. Domestic commercial tuna fishing was established prior to independence in 1975 and continued at a slow pace until the early 1980s when a depressed international market forced most of the remaining operations to close down, so commercial tuna fishing in Papua New Guinea has been largely in the hands of foreign fishing companies.

The bulk of the tuna caught in Papua New Guinea since 1981 has been by foreign-owned purse seiners, fishing under Distant Water Fishing Nations licencing arrangements (Table 8.4). The bulk of this tuna has been targeted at the tuna canning industry in foreign countries.

Licensing is essentially an access right that allows foreign fishing vessels to fish in a country’s Exclusive Economic Zone. Licensing fees are charged for such access and are usually based on estimated catch value. Much of the early fishing effort in Papua New Guinea was based on bilateral agreements, which at that time were dominated by the Japanese. In the early 1980s, there were about 600 Japanese long-line vessels operating under these arrangements in the Papua New Guinea Exclusive Economic Zone. The license fee was based on 5 per cent of the f.o.b. value of the catch. Under-reporting of both the catch and the price was a common problem under these arrangements. Attempts to increase the licensing fee rate was met with great opposition from the Japanese. This had resulted in a drastic decline in the number of Japanese vessels operating in the Papua New Guinea Exclusive Economic Zone. This opportunity has since been seized by other countries such as Korea, Taiwan and the Philippines.

A multilateral agreement is also in place between the United States and the 16 Forum Fisheries Agency member countries which includes Papua New Guinea. This is known as the US Multilateral Fisheries Treaty and came into force in 1988. Under this treaty, a fixed sum of US$18 million is paid for access, of which US$13.6 million is distributed among the 16 with Foreign Fisheries Agency member countries.
### Table 8.4. Tuna catch by vessel type, 1972–92 ('000 tonnes)

<table>
<thead>
<tr>
<th>Year</th>
<th>Pole and line</th>
<th>Purse seine</th>
<th>Longline</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>8.3</td>
<td>0.2</td>
<td>6.5</td>
<td>15.0</td>
</tr>
<tr>
<td>1973</td>
<td>18.0</td>
<td>1.5</td>
<td>11.4</td>
<td>30.9</td>
</tr>
<tr>
<td>1974</td>
<td>45.3</td>
<td>1.2</td>
<td>6.3</td>
<td>52.7</td>
</tr>
<tr>
<td>1975</td>
<td>16.3</td>
<td>2.3</td>
<td>5.3</td>
<td>24.0</td>
</tr>
<tr>
<td>1976</td>
<td>7.1</td>
<td>10.7</td>
<td>7.1</td>
<td>24.8</td>
</tr>
<tr>
<td>1977</td>
<td>17.0</td>
<td>13.5</td>
<td>15.0</td>
<td>45.5</td>
</tr>
<tr>
<td>1978</td>
<td>2.3</td>
<td>14.6</td>
<td>19.5</td>
<td>36.5</td>
</tr>
<tr>
<td>1979</td>
<td>0.2</td>
<td>1.2</td>
<td>1.6</td>
<td>3.0</td>
</tr>
<tr>
<td>1980</td>
<td>0.1</td>
<td>11.5</td>
<td>12.4</td>
<td>24.0</td>
</tr>
<tr>
<td>1981</td>
<td>-</td>
<td>38.7</td>
<td>12.8</td>
<td>51.5</td>
</tr>
<tr>
<td>1982</td>
<td>0.1</td>
<td>95.2</td>
<td>10.9</td>
<td>106.2</td>
</tr>
<tr>
<td>1983</td>
<td>1.8</td>
<td>110.2</td>
<td>12.0</td>
<td>124.0</td>
</tr>
<tr>
<td>1984</td>
<td>0.1</td>
<td>132.1</td>
<td>7.2</td>
<td>139.4</td>
</tr>
<tr>
<td>1985</td>
<td>0.4</td>
<td>126.9</td>
<td>9.8</td>
<td>137.1</td>
</tr>
<tr>
<td>1986</td>
<td>0.2</td>
<td>97.2</td>
<td>6.4</td>
<td>103.8</td>
</tr>
<tr>
<td>1987</td>
<td>0.0</td>
<td>78.3</td>
<td>0.4</td>
<td>78.7</td>
</tr>
<tr>
<td>1988</td>
<td>-</td>
<td>78.3</td>
<td>-</td>
<td>78.3</td>
</tr>
<tr>
<td>1989</td>
<td>-</td>
<td>235.0</td>
<td>-</td>
<td>235.0</td>
</tr>
<tr>
<td>1990</td>
<td>-</td>
<td>148.3</td>
<td>0.1</td>
<td>148.4 (219.5)</td>
</tr>
<tr>
<td>1991</td>
<td>-</td>
<td>182.7</td>
<td>0.1</td>
<td>182.8 (344.0)</td>
</tr>
<tr>
<td>1992</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>- (260.1)</td>
</tr>
</tbody>
</table>

* South Pacific Commission estimate of ‘true’ catch levels (including a correction for under-recording)


---

... according to the catch in each Exclusive Economic Zone (Duncan and Temu 1996). Again the bulk of the tuna caught under this treaty is targeted at the US Tuna Cannery. The Japanese sashimi market is fast becoming a major target.

The only marine resource for which current production levels are near estimated potential yields is prawns. The Papua New Guinea prawn fishery is centred in the Gulf of Papua, near Gulf and Western Provinces. A total of 1,200 metric tonnes of prawn tails are produced each year, the bulk of which is exported earning about K9 million (Papua New Guinea 1993). This represents well over 50 per cent of total fisheries exports. About 12–16 vessels operate this trawl fishery every year. A detailed management plan is currently in place to allow sustainable harvesting (Vonole 1989).
**Fisheries infrastructure**

The nature of the commercial fishing industry is such that the major asset is the vessel itself. For tuna, little or no onshore facilities have been developed, except for some processing facility just off Kavieng in New Ireland to service the industry in the 1970s. Because the bulk of the tuna has been caught under Distant Water Fishing Nation arrangements, there has been no need to develop domestic infrastructure. Current policy aimed at increased domestication will change this because it will be necessary to have onshore infrastructure. Expansion of wharf capacity and handling services, storage and refrigeration, transport and freight services will all be necessary to support increased domestication. To date, much of the infrastructure needs of the fishing industry has been provided for by private initiatives within the industry itself.

For the subsistence and artisanal fisheries, infrastructural needs are quite limited as these fisheries tend to utilise more traditional methods of processing and storage. Public roads and transport are utilised to access markets, particularly urban markets. Increased monetisation of rural Papua New Guinea means that 'cash fishing' is becoming widespread, so demands on fishing infrastructure and services are likely to increase.

Much of the early effort in providing fisheries-specific infrastructure in the rural areas was the development of marketing infrastructure. A series of government-operated coastal fisheries stations were established in selected locations throughout the country. A total of 20 coastal fisheries stations were established and financed by a grant from International Food and Agriculture Development (IFAD) with some counterpart funding from the government. These stations became centres for extension advice and were equipped with freezer zone facilities which allowed them to buy and sell fresh and frozen fish. The Fish Marketing Cooperative was also established to provide central marketing facilities for these stations. Assessment by the Department of Fisheries and Marine Resources is that these facilities have not been effective at all in promoting commercial fishing. It is argued that they suffered from scale and inappropriate technology problems (Papua New Guinea 1993).

It is fair to conclude that fisheries-specific support infrastructure such as landings with berthing and fuel facilities, storage and refrigeration, power and water supply has not been well developed in Papua New Guinea. The little that had been established prior to the 1990s has been privately funded and operated.
Government policy

Despite the large resource base, the fisheries sector currently accounts for only 1 per cent of GDP, reflecting the dominance of agriculture, mining and services in the Papua New Guinea economy (see Figure 8.1). Given such a low level of contribution to GDP, it is no surprise that there has been no real urgency in formulating and implementing fisheries policy. A ‘hands off’ approach appears to have been adopted following the lack of success of the coastal fisheries stations project and direct involvement in marketing. The strategy now is to ‘withdraw from trading activities and to focus on the delivery of ancillary support, such as fisheries extension and the dissemination of market information’ (Papua New Guinea 1994:73). Government policy has emphasised the need to promote the commercialisation of subsistence and artisanal fisheries. While recognising that most coastal communities engage in fishing for subsistence, very few are fully dependent on cash fishing. This appears to be more widespread among the few communities which have access to urban markets, particularly near Port Moresby and Lae.

Government policy of promoting cash fishing at the subsistence level is targeted at increasing cash earning opportunities, expanding the domestic trade of fish and increasing protein supply particularly to inland areas. Transport and market access constraints appear to have prevented the spread of cash fishing. Early efforts to promote marketing of fish and other marine products through coastal fisheries stations and the government’s Fish Market Cooperation had to be abandoned because of their lack of effectiveness.

The rapid expansion of cash fishing among communities near urban centres suggests that market availability and access are important stimulants. Even if fishing requires more capital than say subsistence cash cropping, the existence of a viable market in close proximity has had a significant impact. The absence of such markets in many coastal locations has meant that people are not prepared to make such investments.

The fact that fishing requires more capital than subsistence agriculture also means that credit facilities are probably necessary to move beyond subsistence fishing. While such facilities may have been available through the Rural Development Bank, the familiar story of ‘limited access to credit’ is probably true in this case. Fernando (1991) argues that high transaction costs have been a major factor in limiting access to credit in Papua New Guinea.

The objective of promoting domestic fish trade has not been achieved with any degree of success because of infrastructure and
service constraints. Reliable and consistent supply, good market and transport networks and storage are all necessary for the promotion of the domestic fish trade. The lack of private sector involvement reflects both these and other economy-wide constraints such as law and order and the high cost of services such as freight and communication.

Current government policy recognises the importance of supporting the development of an artisanal fisheries sector in Papua New Guinea. It is estimated that 12,000–15,000 metric tonnes of marine products are produced annually by fishing communities in Papua New Guinea. Of this, only 15 per cent is sold in local markets. This presents enormous opportunities and challenges for the development of this important subsector.

Currently policy emphasises the need for ‘medium to long-term credit for larger private investors and special financing arrangements for economically viable investments for smallholders’ (Papua New Guinea 1996:94). The development of fishing craft, gear, methods and training will be encouraged and supported. It is anticipated that these will take care of supply-side constraints. Demand-side constraints are addressed through assistance provided to the private sector on market information and promotional programs.

Apart from the special credit arrangements that target larger private investors and smallholders, very little else is available by way of fiscal incentives. In fact the 1996 Budget reduced the duty on fishing reels and tackle to 11 per cent and increased the duty on fishing nets to 40 per cent. While the duty on fishing nets is consistent with efforts to develop fishing gear, it fails to address the more immediate problem of supply-side constraints: to encourage more people to engage in cash fishing. Most artisanal fisherpeople do not use reels and tackle.

The other important component of the fishing industry in Papua New Guinea is coastal commercial operations targeting prawns, lobster and barramundi as well as sedentary fisheries resources such as bêche-de-mer, trochus shells, pearl shells and green snail. For prawns and barramundi, small to medium-scale commercial fishing operations are involved with similar operations involved in processing and marketing. For lobster and the other sedentary resources, harvesting is done by village people who then sell to processing and marketing agents. The bulk of the product under coastal commercial fishing is exported.

As with artisanal fisheries, direct government involvement, particularly in marketing through the Fish Marketing Corporation, had to be abandoned in favour of greater domestic private sector
involvement. While domestic private sector investment in commercial fisheries is still small, this subsector has been quite successfully privatised. All harvesting, processing and marketing is now in the hands of the private sector. Government involvement is limited to regulatory functions.

Government’s coastal commercial fisheries policy has been to encourage domestic private sector investment. Licensing arrangements restricted this fishery to Papua New Guinea owned companies and Papua New Guinea-registered vessels. These restrictions are likely to be relaxed as part of current government policy to phase out the ‘Reserved Activities List’. Nevertheless, the scope for further investment in these fisheries is limited by the current low levels of stocks. Sustainable harvesting of this resource has to be a high policy priority for these fisheries.

The third important policy issue is the question of offshore fisheries and, in particular, the development of the vast tuna resource that Papua New Guinea has within its Exclusive Economic Zone. The government recognises the importance of developing this vast resource, but the lack of success with early attempts in 1972 and in 1984 to develop a domestic tuna industry has meant that no serious effort has been made to revive the industry. The resource has been harvested mainly by foreign fishing vessels operating under Distant Water Fishing Nation arrangements.

Current government policy is ‘to revive the domestic tuna fishery and to develop land-based processing facilities’ (Papua New Guinea 1994:72). The private sector is expected to take the lead in this revival. The objective is to ‘establish a viable domestic industry, comprising fishing fleets, processing and holding facilities such as canneries, cold storage and onshore support infrastructure’ (Papua New Guinea 1994:93).

The development of the domestic tuna industry is expected to lead to an eventual phasing out of distant water fishing activities. This is the government’s medium-term strategy. Meanwhile, all licensed domestic foreign fishing vessels are required to conduct transhipment in designated ports. This policy is designed to create additional economic benefit to the local economy. Port fees, increased business for goods and services, employment and tax revenue are expected to increase under compulsory transhipment. There is also the benefit that the total catch is verified before it is taken out of the Exclusive Economic Zone. Under-reporting of total catches under Distant Water Fishing Nation arrangements has been a major problem within the region (Maxwell and Owen 1994).
While current government policy is quite clear in its objective to develop a ‘viable domestic tuna industry’, it is quite uncertain whether viability can be guaranteed under current economic conditions. This raises the question of whether existing fishing specific infrastructure and services are sufficient to support the development of this industry. If not, who is expected to finance such investments? The absence of infrastructure and services could easily affect the viability of the industry. In this case, the government could be expected to provide significant subsidies to entice the private sector. The Tuna Investment Guidelines set out the range of existing incentives.

Tuna fishing is highly capital intensive and very risky. The level of risk is expected to vary with the technology used. It is highly questionable whether a viable purse-seining activity can actually be undertaken as a domestically-based operation. Current policy appears not to differentiate between these. In addition, the phasing out of under Distant Water Fishing Nation arrangements suggests that the government is prepared to take on the risk of highly uncertain returns.

A viable domestic tuna industry can generate large potential gains to the country, however, the realisation of these gains will require substantial investments. Even then, these gains are not guaranteed because of the high risk nature of the activity. The choice then, is between large potential gains which are highly uncertain and smaller—but more certain gains in the form of license fees. Current policy appears to prefer the high risk option.

Future policy options

There is little doubt that Papua New Guinea’s total fisheries resource is at present underutilised. Fisheries policy has aimed at developing this vast resource but the degree of success has so far been limited. A number of issues must be resolved before fisheries development can proceed. As highlighted, fisheries development must be approached at three levels: the subsistence and artisanal fisheries, coastal commercial fisheries and offshore fisheries.

Subsistence and artisanal fisheries

As with agriculture, the development of subsistence and artisanal fisheries can have the largest impact on rural communities. The transformation of such a fishery into one which is more commercial creates opportunities for employment and cash incomes. It contributes to the development of a more dynamic rural economy. The challenge
then is one of how best to foster this transition. It is argued here that such a transition cannot be forced. The early experience with coastal fisheries stations is evidence of this. Supply and demand-side constraints must be dealt with adequately before progress is possible. Public investment in infrastructure is vital if rural fishing communities are to have access to urban markets. Better marketing and storage/refrigeration facilities will enhance transportation and distribution. Fuel supply and outlets for fishing gear and basic repair and maintenance facilities are important supply-side factors.

The lack of credit has also been identified as an important supply-side constraint. Credit is often needed to finance fishing equipment, outboard motors and small fishing boats or dinghies. Credit has traditionally been provided by the Rural Development Bank but the perceived high risk associated with fisheries lending has limited the scope for expansion. Fisheries lending has also been accorded low priority.

A number of recent developments offer opportunities which could assist with the process of commercialisation of this sector. The commitment for greater public investment expenditure by government should see the development of new infrastructure which could open urban markets for more rural communities. In addition, the recently-adopted Provincial Government reforms should see more public servants working at the district level. This would become a ready market for much of the surplus production from rural communities, including fisheries products.

In addition, mining and forestry activities are now more widespread and all are located in rural areas. Significant incomes are being channeled into rural communities from these activities, in turn boosting demand for rural goods and services.

Conditions to promote commercialisation are now more favourable than ever before. A ‘hands off’ approach on the part of government policy could waste this opportunity. It is suggested that coastal fisheries stations be revived to take advantage of this opportunity. Production should be organised along the lines of nucleus estates with a central processing facility which can function as a wholesale outlet. Fishing families are contracted to sell their produce to this central facility which should be equipped with all necessary facilities. Credit and extension training are also provided through this arrangement.

The total investment necessary to establish such a production arrangement is expected to be much less than those spent on establishing resettlement schemes such as Gavien and Cape Rodney.
The Cape Rodney Smallholder Development Project was established at a cost of about K30 million (Temu 1995). For this amount of money, all coastal fisheries stations could be equipped with the most modern equipment and all necessary infrastructure established. The impact is likely to be more beneficial than the rubber schemes. For one thing, people are not displaced as they are able to operate from within their communities. They are also doing something with which they are already familiar.

A central processing/storage facility would ensure that supply is more regular and is guaranteed and that quality control is more effective. These improvements could also present opportunities to explore more distant domestic markets as well as export markets. The existence of 20 such facilities throughout the country would greatly improve market access and foster the development of a domestic trade in fisheries products.

The development of subsistence and artisanal fisheries along more commercial lines is likely to introduce new problems and challenges. The question of harvesting rights and the boundaries of these rights will have to be addressed as these resources attract greater commercial interest. These rights have to be defined between communities that share common fishing grounds. Complications are expected to arise, particularly with those coastal communities with little or no fishing tradition.

The issue of rights is also complicated by the common-property nature of the resource. This makes such a resource vulnerable to over-use and unsustainable harvesting. The breakdown of traditional systems of control means that resource management must have priority to ensure that there is a sustainable resource. Communities have to be directly involved in the management of their resources. This effort should be enhanced by scientific research and management techniques.

Coastal commercial fisheries

This is the one fishery which has had some success in its development as it is now totally operated by the private sector. The fact that the products (prawns, lobster and barramundi) are high value has helped. However, the three fisheries are somewhat location specific. Sufficient commercial quantities are found to exist only in the Gulf and Western shorelines. This limits the scope for expansion into new areas.

Given the limited scope for expansion, resource management is crucial if the fishery is to be sustainable. Policy priority then is to develop...
a detailed management plan. This should be developed in full consultation with the communities concerned and the private operators.

Detailed scientific research is also necessary to determine minimum sustainable yields. The exposure of this fishery to mining waste from Ok Tedi is a concern which has to be taken seriously. The impact on this fishery has to be regularly monitored because any significant level of contamination could easily wipe out this fishery. Some compensation arrangement must be in place in case this happens.

Offshore fisheries

Current government policy to develop a viable domestic tuna industry is based on the premise that all potential benefits to developing this resource are internalised. Under the current licensing arrangements, the perception is that a large part of the resource rent accrues to the foreign fishing company. Domestication is therefore perceived as a means by which Papua New Guinea can maximise the benefits available from the development of its tuna resource.

The policy issue is one of a choice, between developing a domestic tuna industry and/or using Distant Water Fishing Nation arrangements to harvest the resource for a negotiated fee. The current policy choice is to develop a viable domestic tuna industry and to phase out these arrangements as domestic capacity develops.

A number of questions need to be answered if domestic tuna development is to succeed. The first is the question of whether there can really be a viable tuna industry in Papua New Guinea. Then there is the issue of the high levels of public investment needed to set up necessary infrastructure such as wharves, transport, storage and processing. Related to the question of viability is the extent to which the government is prepared to offer incentives and subsidies to make domestication viable. The absence of basic infrastructure means that substantial incentives and subsidies will have to be offered to attract private investment into the domestic tuna industry.

It is argued that the high cost structure of the Papua New Guinea economy is likely to erode much of the viability of a domestic tuna industry. Purse seining is out of the question because it would be impossible to guarantee viability. The prospects for long-lining and pole and line are much better. However, the high cost of the public subsidies available under the Tuna Investment Guidelines could well reduce or even negate such viability. In this case, the subsidies amount to an income transfer to fishing operators, the majority of whom will
be foreign companies. Resource rents become dissipated and the benefits of domestic tuna development are not maximised from Papua New Guinea’s point of view.

There is need for a detailed industry study to determine the best option for Papua New Guinea. Such a study would need to assess all costs and benefits in order to determine viable activities. It is interesting to note that a number of the Micronesian countries (Federated States of Micronesia and the Republic of the Marshall Islands) are investing heavily into the development of domestic tuna industries. It is apparent that the high risk and high capital requirements of tuna development are not a deterrent. This should raise some concern particularly given the fact that investment is being financed using public funds. In small developing countries where capital is a major constraint, the opportunity cost for investing in tuna development could be extraordinarily high. The same could also be true in Papua New Guinea.

If the pursuit of domestic tuna development through purse-seining is not a viable proposition, it make little sense to phase out under Distant Water Fishing Nation arrangements. The policy option then is to ensure that maximum rents are paid for the right to harvest tuna within the Exclusive Economic Zone. It is estimated that licence fees and other payments made by under Distant Water Fishing Nation amount to approximately K16 million per annum (Papua New Guinea 1993). The question then is whether this is sufficient rent relative to that which accrues to the foreign company.

Duncan and Temu (1996) show that if the portion paid by the US government is excluded from the total fees paid under the multilateral agreement with Foreign Fisheries Agency countries, the access fee represents only about 3 per cent of the total value of the catch. This is also representative of other bilateral access agreements, although these were found to range from 3 to 5 per cent. In the absence of any reliable production cost figures, it is difficult to know whether these reflect the true resource rent. The other problems undermining these rents are the high incidence of under-reporting and illegal fishing. Under these circumstances, it would make sense to adopt an access arrangement that maximises rents and minimises under-reporting and illegal fishing.

Duncan and Temu (1996) propose an auction system to maximise rents from tuna for with Foreign Fisheries Agency countries either collectively or as individuals. Under this system, fishing firms from Distant Water Fishing Nations would bid for access rights to fish within the Papua New Guinea Exclusive Economic Zone. A fixed
number of licences are auctioned and the highest bidder is granted the license. The number of licences auctioned would correspond closely with sustainable stocks. The licences would also be tradable to allow for entry and exit and they would be valid for a specified period of time. Under this system, there is no longer any incentive to under-report and it is in the interest of those licenced to report any illegal fishing. Transhipment, which increases the overall cost of fishing, may also not be necessary if under-reporting is minimised. If it remains compulsory, the rents obtained under an auction system would be lower by the cost of transhipment.

Conclusion

The agriculture, forestry and fisheries sectors present a wide array of development challenges. The dominance of subsistence/non-monetary production in all these sectors presents peculiar development issues because market forces are not likely to be effective: people's perception and desires for development may not be consistent with those perceived by governments. The matching of these desires and perceptions is a necessary condition for the successful development of these sectors. Failure to do this is likely to delay the development process.

Resource ownership issues introduce what could be the greatest development challenge for these and other resources in Papua New Guinea. Communal land ownership appears to have restricted private enterprise development, although there are exceptions to this as is clearly demonstrated by smallholder coffee development. The argument, however, is relevant within the context of the absence of a functioning land market which could in turn influence land use and allocation.

The ownership of forestry resources under similar arrangements mean that extensive consultation is compulsory before resource development can actually begin. While this may be cumbersome, it provides security for developers and grants protection for resource owners against unscrupulous rent seekers. For fisheries resources, particularly onshore resources, communal ownership in the absence of traditional access control mechanisms, leads to common access problems such as overuse and the use of unsustainable harvesting techniques. In the case of offshore resources, provincial ownership claims could introduce additional obstacles to the development of these resources.

An additional challenge in the development of agriculture, forestry and fisheries resources in Papua New Guinea is the introduction of new modes of production and technology within an environment with
existing modes of production and technology. The fact that these resources are already being utilised for subsistence production means that additional demands on these resources will create competition and sometimes conflict. While this competition is not apparent at this stage, it is an issue which must be addressed in the future.

The promotion of downstream processing for forestry and greater domestication for offshore fisheries development are no guarantee that the full array of expected benefits will be generated. If viability is not possible, then the development of these resources along these lines will require significant public subsidies. Under these circumstances, it is more logical to maximise resource rents and use these to create jobs, establish infrastructure and provide better social services for the country as a whole.

References


The human resource dilemma: the missing link?

Lauatu Tautea

Twenty one years after independence Papua New Guinea is still looking for that magic touch which will provide the burst in economic growth and enable it to provide an acceptable standard of living for its population. Social indicators which provide indications of the strength of social and economic policy show Papua New Guinea’s track record to be very poor in looking after the welfare of its people. Social development indicators for Papua New Guinea continue to be poor despite phenomenal growth rates at times over the past few years. Life expectancy at birth presently stands at 55 years compared to 65 and 62 for low middle-income countries and low-income countries. The infant mortality rate stands at 57 compared to 51 and 69 for lower middle-income countries and low-income countries. The adult literacy rate is an appalling 52 per cent compared to 75 and 60 per cent for lower middle-income and low-income countries.

The government is in the process of implementing political and administrative reforms to the provincial government system aimed at improving the delivery of goods and services to the people and reducing the costs of such deliveries. The law-and-order situation has proven to be a deterrent to investment due to the inability of the economy to provide jobs for the products of an education system that is deemed inappropriate. Tribal warfare still occurs in the rural hinterland as modern medicine and health care leads to improved fertility and population pressures. The country is still reeling from the effects of its second economic and financial shock after the financial squeeze of early 1994 when a drop in oil prices negatively impacted on government revenue. In 1990 the government implemented its first structural adjustment program via a 10 per cent devaluation of the kina, freezing
of public service expenditure, credit squeeze and reforms to improve public service productivity. The second structural adjustment implemented in 1995 followed from a 12 per cent devaluation and subsequent floating of the exchange rate in September 1994. The structural adjustment package is consequent upon financial assistance provided by the World Bank, International Monetary Fund, Australia and Japan which in turn is dependent upon government implementation of the 27 policy matrix. The present problems exist despite Papua New Guinea being blessed with natural resources and currently experiencing a mineral and petroleum boom. Economic growth for Papua New Guinea is far from impressive reflecting, in part, the shifts in development of the mining and petroleum sector and swings in prices of both mineral and petroleum products. Real growth, estimated at 16.6 per cent in 1993, fell to 3.1 per cent in 1994 and a negative 4.8 per cent in 1995. This year 1996 growth has been forecast at just over 4 per cent. The uncertainty in economic growth performance is a clear indication that the Papua New Guinea economy is yet to enjoy the stable and consistent growth rates enjoyed by its ASEAN neighbours and those of developed economies.

The structural rigidities hampering Papua New Guinea’s economic performance have been identified as due to the lack of basic infrastructure, high cost nature of the economy, imperfect markets and a rigid customary land tenure system. The government announced its major development objectives in the 1996 Budget as improved private sector development, improved delivery of public services, increased employment opportunities, increased rural production and improved access to services and income earning opportunities. The government is intent on fast-tracking a number of major developmental projects to promote economic performance in the months leading up to the 1997 elections. This includes the Port Moresby Poreporena freeway, Jackson’s airport redevelopment and the trans-island highway to name a few. The push for modernisation and industrialisation of the economy has been boosted by the construction of two fish canneries and a cement refinery. The development of the Lihir Gold Mine has been fast-tracked as a means of increasing employment opportunities and contribution to government revenue. The pursuit of economic growth through high capital interventions such as canneries, highways and mining and petroleum ventures will no doubt increase the Papua New Guinea’s capital base and once again push growth rates to enviable levels with the region. The drawback with this approach is that growth
rates present a picture only of the capital base in monetary terms and may not translate into improved living standards for the majority of Papua New Guineans living in rural areas. A long-standing debate continues on the negative aspects of a rigid wages system on productivity and hence the competitiveness of the economy vis-à-vis its competitors. The liberalised wage setting mechanisms which followed from the rulings of the 1992 Minimum Wages Board has silenced critics of wage fixation.

As a contribution to the debate and search for the appropriate development mode we take the view that the answer to our perplexing economic problems stem from an undue emphasis on developing Papua New Guinea’s natural resources and the failure to recognise fully the importance of human resource development in the development matrix.

The case for human resource development

At the firm level human resource development describes those activities such as formal and informal education—on-the-job training that contributes to the productive capacity of the person receiving them. At the macro level, in addition to the above, human resource development refers also to the employment and income distribution, poverty alleviation and health and nutrition policies. Policies on human resource complement population policy because of the impact of improved education and health on fertility. Human resource development is said to have elements of both education, health and nutrition policy. Due to time constraints, this chapter concentrates only on the education aspect of human resource development.

It can be said that recognition of the importance of human contribution to the production process is as old as economic theory. Adam Smith in the Wealth of Nations considered a man’s talents to be part of his fortune as well as that of the society he belonged. Ricardo’s labour theory of value assesses the performance of a firm on the basis of the contribution from the three traditional productive factors—land, labour and capital and used factor prices to measure their relative contribution to the production process. It was postulated that the relative values of commodities are determined by the comparative amounts of labour required to produce them and that the different qualities of labour embodied in production value of the good depends on the comparative still of the labour and the intensity of the labour input. On the other hand Karl Marx argued the supremacy of labour
and its exploitation in deriving surplus which was wrongly appropriated by the capitalists. Alfred Marshall argued that the most valuable of all capital is that invested in human beings.

The human capital theory by Theodore Shultz emerged in the 1960s to explain the individual’s decision to invest in education as based solely on an evaluation of the costs and benefits derived from education. In this context human resource development is viewed as another consumption good which utilises capital goods in the process. The Newhousehold Economics theory (Becker 1976) incorporated non-economic aspects of individual behaviour such as the number of children, time allocation and value of time as important determinants in the individual’s decision-making process on education.

Growth accounting studies have been used to delineate the important contribution of labour or humans to economic development. Denison (1962) and Solow (1962) used the traditional production function to access the relative contribution of the different factors of production to total output growth. These studies indicated that less than 50 per cent of total output growth could be explained by the conventional factors of production. The rest of the changes could be attributed to qualitative changes (technological change) which originated from the human factor.

Harbison and Myers (1965) summarise the importance of human resource development to economic performance thus

In the final analysis, the wealth of a country is based upon its power to develop and effectively utilize the innate capacities of its people. The economic development of nations, therefore, is the result of human effort. It takes skilled human agents to discover and exploit natural resources, to mobilise capital, develop technology, to produce goods and to carry on trade. Indeed, if a country is unable to develop its human resources, it cannot build anything else, whether it be a modern political system, a sense of national unity, or a prosperous economy (1965:ix).

**Comparative experiences of neighbouring countries**

The experience of countries closer to Papua New Guinea—the East Asian tigers and other South and East Asian countries—show the importance of human resource development to economic performance. Countries like Japan, Singapore and Hong Kong all share the common characteristic of not having access to natural resources and they were able to overcome this disadvantage through the effective use of their human resource. Most of these countries were also able to achieve full
employment in the 1940s—Japan, 1960s and 1970s. Japan has been able to achieve its present status as the second most industrialised country in the world without the abundant natural resources. It was able to achieve its present status by instilling Confucian ethics into its work force and providing access to at least seven years of education. Consequently, improvements to the quality of human labour played a strategic role in the selection, adaptation, dissemination and efficient operation of technology. Progress in the industrial manufacturing sector was also accompanied by an average education profile averaging 10 years and was further complemented by in-service and on-the-job training programs. South Korea benefited from Japanese colonisation. The Philippines was not able to take advantage of its elaborate education system to emulate the growth performance of the newly industrialising countries. Apart from the confusion created by being under two different colonial powers, it chose to concentrate its resources on high capital investment, ignoring its agricultural base which supports a substantial proportion of its population. The Sri Lankan model is another case where high human resource investment was not balanced by material investment.

Malaysia and Thailand are two Southeast Asian countries which were able to achieve phenomenal growth rates and full employment. Malaysia approached or achieved full employment by the 1980s. Thailand, which never experienced colonisation, had a very high literacy rate by the 1960s provided by Buddhist temple schools.

It is fair to argue that the consistent and stable growth experienced by these economies are in large part due to the contribution of a more articulate and imaginative human capital stock. There is a need to undertake econometric studies to establish the causal relationship. Any deviation from the stable pattern of growth would be the result of the flow-on effects of capital and technology which raises the productivity of labour from intermittent fluctuations of commodity prices on the world market.

**Education policy**

The prospects for Papua New Guinea's human resource development depend on major initiatives taken in the education and health sectors, including elements of population and poverty alleviation policies. The current education reforms to the education sector, based on the Education Sector Review of 1991, are aimed at providing easy access for all seven
year olds, providing nine years of primary education from prep to Grade 8 and improving access at high school and national high school through top-ups at existing schools.

The education dilemma confronting Papua New Guinea is presented by Gannicott as one where

- fewer than one-third of population aged 15 and over can read or write
- 86 per cent of the adult population have not received any formal schooling
- of the 15 per cent of adults who have attended school, 80 per cent have gone no further than primary school
- only two-thirds of the relevant age group are currently enrolled in primary school (Gannicott 1987).

A more startling picture on educational characteristics shows that of the 53.3 who received no education, 46.6 per cent were male and 63.6 per cent were female (Table 9.1). Furthermore, 69.7 per cent of males in subsistence agriculture had no education, compared to 59.7 per cent in cash cropping (see Table 9.4). Education attainment where 52.3 per cent of Papua New Guineans 10 years old and over in 1990

---

### Table 9.1. Educational characteristics of the citizen population employed in monetary activities, 1971–90 (per cent)

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>53.6</td>
<td>62.1</td>
<td>55.7</td>
</tr>
<tr>
<td>1980</td>
<td>60.6</td>
<td>79.2</td>
<td>68.0</td>
</tr>
<tr>
<td>1990</td>
<td>46.6</td>
<td>63.6</td>
<td>53.3</td>
</tr>
<tr>
<td><strong>Less than six years schooling</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>33.0</td>
<td>29.2</td>
<td>32.0</td>
</tr>
<tr>
<td>1980</td>
<td>60.6</td>
<td>79.2</td>
<td>68.0</td>
</tr>
<tr>
<td>1990</td>
<td>11.6</td>
<td>9.7</td>
<td>10.8</td>
</tr>
<tr>
<td><strong>More than ten years schooling</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>1.7</td>
<td>0.9</td>
<td>1.5</td>
</tr>
<tr>
<td>1980</td>
<td>7.6</td>
<td>2.9</td>
<td>5.6</td>
</tr>
<tr>
<td>1990</td>
<td>14.0</td>
<td>7.0</td>
<td>11.3</td>
</tr>
</tbody>
</table>

### Table 9.2. Citizen wage labour force by educational attainment, 1980 and 1990 (per cent)

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No education</td>
<td>38.6</td>
<td>24.4</td>
<td>22.2</td>
<td>17.6</td>
</tr>
<tr>
<td>Grades 1–5</td>
<td>13.6</td>
<td>10.2</td>
<td>7.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Grade 6</td>
<td>17.7</td>
<td>21.8</td>
<td>17.2</td>
<td>15.0</td>
</tr>
<tr>
<td>Grades 7–9</td>
<td>12.1</td>
<td>8.4</td>
<td>21.9</td>
<td>8.6</td>
</tr>
<tr>
<td>Grades 10–11</td>
<td>15.6</td>
<td>16.9</td>
<td>29.0</td>
<td>25.9</td>
</tr>
<tr>
<td>Grade 12</td>
<td>2.4</td>
<td>2.8</td>
<td>2.6</td>
<td>3.5</td>
</tr>
<tr>
<td>Apprentice/Certificate</td>
<td>9.6</td>
<td>18.2</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Diploma</td>
<td>2.8</td>
<td>3.4</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Degree</td>
<td>1.7</td>
<td>1.1</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Not stated</td>
<td>1.4</td>
<td>1.4</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: In 1980 those educated to above Grade 12 were included with Grade 12. Data for 1980 include the North Solomons.


had no schooling and the other 34.9 per cent had formal schooling up to Grade 6 level (Table 9.2). At high school level 5 per cent had Grades 7 to 9, 3.8 per cent Grades 10 and 11 and 0.6 per cent Grade 12. Only 1.98 per cent are certificate and diploma holders compared to 0.2 per cent with degrees.

Inefficiencies in the present education system are related to its inadequate capacity to meet demand at mainly primary and secondary level, the high attrition rate, high cost at the tertiary level, inadequate supply capacity to meet demand for skilled and professional labour and low quality education. Inadequate capacity at the primary school level is responsible for the fact that only two-thirds of the relevant age group were able to enrol in primary school and 13 per cent in high schools. In 1989 only 34 per cent of Grade 6 students were able to proceed to Grade 7 and the rest either attended the vocational schools or were forced out altogether from the system. At the high school level only 10 per cent of students who completed Grade 10 went on to do Grade 11. The high cost nature of education at the upper secondary and tertiary level is on account of a low teacher to student ratio of about 1:8, employment of expatriates at about two to three times more than national staff and a generous Natschol system.
The choice between providing primary education or tertiary education is a major one confronting policymakers. If anything the educational reforms shows that the government favours the higher marginal returns from investment in primary education compared to tertiary education. By targeting primary education, the government hopes to achieve a fair distribution of income and a more egalitarian society. Already the Government’s bias has been demonstrated in the cuts to the two university budgets and the introduction of the user-pays principle to students at the tertiary level. A continued dependence on foreign skilled labour should serve as a reminder to the government that seeks to downgrade tertiary level education. Government policy towards tertiary education will be dictated mainly by Papua New Guinea’s requirements for skilled professionals. The applications for work permits provide a useful guide for the demand tertiary education. The demand for skilled expatriate (approved positions and work permits issued) stands at 28,724 (Table 9.3). About 42.2 per cent of these were in the professional and technical category, with 34.4 per cent in the administrative and managerial category.

Health policy

The impact of health policy on human resource development is based on the principle that an unhealthy society becomes unproductive. The discussion on health issues focuses on the present Health Plan by reviewing its probable impact on services provided and health indicators. Comparisons between this and the previous health plan will be made to take out the rhetoric from what actually took place.

Policy issues and recommendations

An appropriate human resource development strategy for Papua New Guinea would take into account the existing population education profile and the impact of the present educational reforms. The appropriate human resource development strategy will take into account government population policies, income distribution and poverty alleviation policies and manufacturing and policies to promote economic growth. The long gestation period for investment in human development to bear fruits requires taking medium-term to long-term decisions on the appropriate human resource development strategy relevant to Papua New Guinea. The immediate human resource question for Papua New Guinea is to address the status quo on the present population and
labour for education profiles. An estimated 40,000 people leave the education system each year (Table 9.1). This is a conservative estimate and the true figure maybe around 50,000 since there is a substantial number who cannot make into the education system at all (UNDP/ILO 1993). Since it is assumed that the absorptive capacity of the economy is 5,000 the appropriate human resource development strategy will include strategies to absorb the remaining 45,000 people. Such a strategy will also take into account the effect that most of these people do not possess any educational qualifications.

Table 9.3. An estimate of labour supply, 1990

| Grade 6 leavers who would not have proceeded to further education (Grade 7 and vocational schools) | 28–29,000 |
| Grade 10 leavers who would not have proceeded to Grade 11 or other higher levels of education | 6,000 |
| Grade 12 leavers who would not have proceeded to university | 100–200 |
| Higher Education Output\(^a\) | |
| Universities | 796\(^b\) |
| Technical College | |
| PETT Program | 1,120 |
| Extension | 245 |
| Certificate | 281 |
| Special | 66 |
| Teacher Education | 663 |
| Health Education | 248 |
| Agriculture Education\(^c\) | 87 |
| Fisheries and Forestry | 157 |
| Legal education | 38 |
| Civil Aviation and Culture | 33 |
| Private Sector Colleges | |
| Divine Word Institute | 44 |
| Pacific Adventist College | 51 |
| Sonoma Adventist College | 65 |

\(^a\) Data supplied by the Commission for Higher Education.

\(^b\) The output from universities in 1991 was only 522 due to student unrest, and consequent campus closure.

\(^c\) Figures exclude Post Certificate Diploma Courses for Higher Agricultural Training Institute.

Note: Estimates of items 1, 2 and 3 are based on enrolments in 1989 in the last grade and intake in the next higher level in 1990.

Table 9.4. Labour force and total population with no schooling, 1980 and 1990 (per cent)

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsistence agriculture</td>
<td>83.3</td>
<td>69.7</td>
</tr>
<tr>
<td>Cash cropping</td>
<td>76.6</td>
<td>59.7</td>
</tr>
<tr>
<td>Total labour force</td>
<td>67.0</td>
<td>53.1</td>
</tr>
<tr>
<td>Population over 10 y.o.</td>
<td>60.4</td>
<td>46.7</td>
</tr>
</tbody>
</table>


About 60 per cent of the labour force over 10 years of age do not possess any education (Table 9.4). With a high percentage of the population without any form of education or possessing to Grade 6 education, the appropriate human resource and employment strategies will aim for labour-intensive activities. The UNDP/ILO Report on Human Resource Development has recommended rural development projects encompassing both agricultural and non-agricultural projects. The government will need to provide a supportive policy environment that will permit both agricultural and non-agricultural components of the rural economy.

The report also recommends community participation in the design and execution of rural development projects that are broad-based and integrates all areas taking into account the entire population. Labour-intensive rural public works programs using labour-intensive methods should be initiated based on the village services model. The use of local materials is advocated in capital works program such as roads construction and rural shelter policy will utilise both local materials and unskilled labour.

The Papua New Guinea Government, like any other government, takes a special interest in promoting industrialisation and manufacturing base of the economy. For Papua New Guinea, this has been demonstrated by the keenness to establish the cement factories and tuna canneries despite increase costs to the consumer. A deliberate policy to promote industrialisation requires certain choices to be made about the type of education provided. Adrian Wood’s model of NO-ED (no education or uncompleted schooling at primary) BAS-ED (completed primary or lower secondary but no more) SKILL-ED (those with...
substantial post-basic education) offer the appropriate analytical framework on human resource development to achieve these aims. The NO-ED model typifies the present situation in Papua New Guinea where a substantial proportion of the population are illiterate and the economy exports primary commodities. The BAS-ED and SKILL-ED path offers the best proposition if Papua New Guinea is to pursue modernisation. The SKILL-ED model refers to training under PETT programs offered by technical schools. Papua New Guinea would do well to phase out PETT type training in favour of industry-based training provided on the job as it is superior in imparting industrial and technical skills. More emphasis will need to be given to on-the-job training programs such as that offered by mining companies. There is strong evidence to suggest that development of the Ok Tedi, Porgera, Misima and Kutubu ventures benefited immensely from the superior technical training offered by Bougainville Copper Mine.

The BAS-ED mode is consistent with the creation of a light manufacturing base and will overcome the technological, operational and human capital constraints before expanding to large projects. This model is consistent with the aims of the present educational reforms to allow for nine years of education at the primary school level followed by industry and on-the-job training which is far superior to the present PETT training at technical schools.

The attractiveness of programs to increase the manufacturing base of the economy by most governments entail the introduction of modes of production that are alien to most Papua New Guineans. For Papua New Guinea to benefit fully from the transition, the workforce will be required to adopt a change in values and attitudes consistent with Western production practices as opposed to Papua New Guinea's communal mode of production. Consequently, the type of education will emphasise non-cognitive aspects of learning aimed at changing values of society and the development of work ethics.

Last, but not least, there is a need for human resource development strategies to take the lead in not only emphasising the productive aspect of the human capital but to take into account the fact that the ultimate aim of development policy should be to lead to an improved quality of life for Papua New Guineans.
References


Physical infrastructure is fundamental to resource development—without roads, coffee would not reach sea ports for export; without water supplies mines would not operate and towns would not function; and without electricity most manufacturing industries would collapse. Development of Papua New Guinea’s economy goes hand-in-hand with the development of supporting infrastructure. However, we should not forget that Papua New Guinea gained independence in 1975 with very little infrastructure in place. In the last two decades of development, priority has been placed more on new infrastructure construction than maintenance.

The interrelationship between physical infrastructure and economic and social development is by no means limited only to transport infrastructure. However, as Secretary for the Department of Transport and Works, most of my time is spent on planning and developing transport infrastructure. Land, sea and air transport infrastructure are now the combined concern of the new Department which was created from the amalgamation of the Departments of Transport, Works and Civil Aviation in 1995.

Because my background and responsibilities are mainly with transport, I will primarily discuss the ways in which transport infrastructure can accelerate economic growth and promote social development.

**Why provide transport infrastructure?**

Transport infrastructure facilitates the movement of vehicles, passengers and freight, allowing the widespread marketing of goods and services and the concentration and specialisation of activities. Without transport
facilities, activity is limited to a confined area dictated by pedestrian access and remains largely subsistence in nature. Transport infrastructure provides a communication route, allowing ideas and experience to be exchanged. It permits the delivery of educational, health and other social services.

So, while the basic function of transport is always the same, the choice of projects and their relative priorities can respond to various government objectives: to promote export production; to act as a unifying influence for unconnected regions of the country; to aid the extension of welfare programs; to cater for the latest demand for mobility; or as a means of generating employment.

The present state of development

Papua New Guinea is a mountainous country and spread over several large islands. This ensures a continuing role for sea transport for bulk freight and air transport for high value by weight commodities. Because of terrain and low population density, there is not yet a fully connected road network on the mainland. With the important exception of the Highlands Highway, and the Lae–Madang network, roads radiate only from the provincial centres into the hinterland.

Papua New Guinea supports a considerable number of overseas ports and numerous minor ports-of-call frequented by coastal shipping and small boats. It is penetrated by two large river systems, the Fly and the Sepik, both navigable to 3 metres draft up to 500 kilometres from their mouths. While the Fly supports considerable shipping, mainly to Kiunga for Ok Tedi, there is little commercial use of the Sepik.

Air transport has played a prominent part in Papua New Guinea’s transport development—there are several hundred small airstrips as well as regular scheduled air services between all the regional centres.

Road infrastructure

By world standards, Papua New Guinea is a relatively sparsely populated country. It is also a country with difficult geographic conditions—mountainous and rugged terrain, impenetrable swamps and jungle vegetation, and a multitude of dispersed islands. Though the country still relies heavily on air and sea transport to move people and goods there has been considerable construction of new roads and other transport infrastructure over the last two decades.
These new developments hide the reality that access to modern transport is still not readily available or affordable to many of the population. There is also limited access to articulated water, electricity and telecommunications.

There are some 20,000 kilometres of non-urban roads in Papua New Guinea, of which 9,000 kilometres is administered by the national government (national roads). The remainder are largely the responsibility of provincial and local-level governments. In addition, a significant road network is operated by commercial interests, predominantly forestry companies in the course of their logging activities.

Though nominally there are 20,000 kilometres of non-urban public roading in Papua New Guinea, probably a quarter or more is currently impassable or in some other way not useable for everyday purposes. Even some sections of the national road network cannot be used during the wet season, or can only be used with difficulty in the dry season.

To construct the country’s 9,000 kilometres of national roads today would cost some K4 billion to K5.5 billion. The replacement cost of provincial roads may be of the order of K3 billion to K5 billion.

Two recent studies administered by the World Bank show that this investment is under considerable threat because of lack of adequate maintenance. There is also another serious consequence. Deterioration in the condition of roads is now loading road users with sizeable additional costs in high vehicle operating costs. For example, a set of tyres on trucks operating between Porgera and Lae used to last 14 round trips. Now, with the deteriorating condition of the Highlands Highway, a set of tyres now only lasts 8 round trips.

The Road Inventory/Road Maintenance (RIRM) Study carried out by Beca International Consultants conclude that K140 million a year (excluding costs for emergencies and bridges) needs to be spent on Papua New Guinea’s non-urban roads to optimise user and road agency (that is, national or provincial government) costs.

Of this amount, K90 million a year should be spent on national roads and K50 million on provincial roads. For the last six years, national government has been spending an average of K20 million on actual road maintenance. Expenditure by provincial governments has been less.

In another study undertaken by Works Consultancy Services, the consultants estimated that K12 million needs to be spent on bridge maintenance each year. This excludes funds for emergency work of K1.2 million and replacement of worn-out bridges at K13 million a year. Currently, less than K200,000 a year is allocated to routine bridge maintenance. Most expenditure on bridges occurs as the result of
bridge failure or some other emergency. K4.3 million a year needs to be spent on maintenance of bridges on provincial roads.

In most developing countries, of which Papua New Guinea is no exception, roads are publicly funded and these funds are invariably constrained. Road construction and, more particularly, road maintenance has a limited political appeal and the supporters usually have to fight hard for its share of the annual budget.

With infrastructure development heavily dependent on international donor funding, the lending policies of donors influence project selection. Historically, the preference for dealing with central government has tended to concentrate funding on rural trunk roads, and on capital works rather than maintenance. While this does seem to be changing, we see a lot of funding going into relatively low traffic volume rural roads, while the condition of roads in several urban centres and important economic roads is very poor despite high vehicle operating costs being incurred.

**Infrastructure for civil aviation**

There are 512 airstrips in Papua New Guinea. The Office of Civil Aviation is responsible for operating and maintaining 22 major aerodromes and 25 small national government aerodromes in Papua New Guinea. Provincial governments own and operate about 160 aerodromes; the remaining licensed aerodromes and helipads are owned, operated and maintained by community and private organisations.

As well as its responsibility to provide and maintain aerodromes, the Office of Civil Aviation provides and maintains aeronautical navigational aids and air traffic control and communication systems. Some of the equipment used is old and in urgent need for replacement.

However, in 1996 insufficient funds were allocated for the National Airport improvement plan which basically relates to airport developments, upgrading, specific and routine maintenance. Much of the maintenance in aviation will be funded by The Australian Agency for International Development (AusAID). The maintenance program will cost K30 million over a 3-year period and an additional K30 million will be considered after a review of progress during the second year of the program. This program will eventually cover 37 national airports and will improve—rescaling or resheeting of runways, taxiways and aprons, and also replacement of navigational, meteorological and communication equipment. AusAID will also deliver six new fire tenders.
Port and maritime infrastructure

The main government agencies responsible for the maritime sub-sector are the Department of Transport and Works, which is responsible for regulation of shipping, provision of navigational aids and maritime safety, while Papua New Guinea Harbours Board controls and maintains 17 ‘declared ports’ (ports of entry) around the country.

In addition to the 17 declared ports there are several major private bulk ports and an estimated 300 small port facilities owned by a variety of government agencies and private sector organisations. There is no single government agency responsible for providing, maintaining or regulating these facilities. Private companies operate a number of private ports, wharves and cargo handling facilities throughout the country. Most of Papua New Guinea’s log exports are shipped directly from logging areas adjacent to the coast or inland waterways.

The Department of Transport and Works Maritime Division maintains maritime navigational aids annually to keep them in good working condition at a cost of some K$00,000. There are currently some 167 lighted maritime navigational aids in Papua New Guinea territorial waters, 400 day markers and 6 racons. Eighty-nine unlit beacons are proposed to be upgraded to lit beacons under a K$30 million program funded by Asian Development Bank. Main shipping routes are marked by navigational aids to a rudimentary standard, but large tracts of coastal and reef areas are totally unmarked. In addition, extensive areas of the archipelago are unsurveyed or only partly surveyed.

Maintenance of infrastructure

If we are to accelerate economic and social development in Papua New Guinea the first task to be undertaken is to rectify the often poor condition of transport infrastructure. The poor condition of the country’s roads, for example, is conservatively costing road users at least K$200 million a year in additional operating costs. In addition, the periodic and permanent closure of roads is causing the country to lose a large amount in potential production each year. Crops such as coffee are not grown or harvested because people cannot physically transport their products to market, or can only do so at prohibitive cost. Crops rot because it is impossible to get them to markets. High transport cost is prohibiting cash cropping and marketing of local produce.
Social indicators are not very encouraging; lives are lost, sicknesses endured and education impaired because access to health and education facilities is difficult, costly or unreliable.

The effects of poorly maintained infrastructure is more insidious. The principal consequence is that safety is compromised. If navigation beacons are not working the risks of shipping accidents increase. If airport runways deteriorate to an unacceptable condition, airports are likely to be closed. Poorly functioning of navigational aids and communication systems heighten the risk of air accidents. All this increases economic and social costs, and can cost lives as well.

These observations make it quite clear that inadequate maintenance is a cost to the economy and inhibits economic growth. There is also a serious social cost. Successive national and provincial governments must take more responsibility and improve this situation.

New infrastructure

Construction of new transport infrastructure encourages and supports economic growth. It does this in three ways. First, infrastructure is vital and necessary for development to occur—construction of access to a new mine is a good example. Without it the mine cannot be developed and will not operate. Second, new transport infrastructure can provide a cheaper alternative to existing transport options. This is often the appeal of new road construction, especially where an area only has air access. And third, new construction creates employment. There is a close relationship between income, investment, construction and growth. When national income is high and increasing, a large part of the income is devoted to investment on new infrastructure construction, when the increase in income (GDP growth) is reduced, the growth of investment also decreases.

The construction of new transport infrastructure and the upgrading of existing infrastructure is a major preoccupation in Papua New Guinea. This is understandable given the rapid development of the country over a very short period of time, especially since World War II. At the national level, the government has concerns for building an interconnecting national highway system to promote national integration and to foster economic development.

Each year, much time and energy is spent on constructing new transport infrastructure, such as roads, jetties and airstrips, at the local level. It is often said that much of this is politically motivated.
Unfortunately, this investment is often wasted because the infra-structure is not maintained and in most cases fails to induce and sustain economic development.

One can ask two questions about new infrastructure developments. 'How effective are they in promoting economic and social development?', and 'are the projects the best ones available?'

These questions are best answered when we look at the resources available to implement them.

**Choices**

Given the need to maintain and expand transport infrastructure in Papua New Guinea, funding is extremely limited. The nature of trade-offs in expenditure are then, particularly important. Perhaps the most fundamental trade-off is that between expenditure on maintaining existing infrastructure versus expenditure on new infrastructure.

Currently, national government is spending K400 million on three large transport projects. Construction of the Bereina–Malalaua road will cost K130 million over a 4-year period, the upgrading of Jacksons Airport terminal K150 million over a 3-year period and construction of Burns Peak Project over a 3-year period at a cost of some K120 million. Other approved expenditure on new or upgraded transport infra-structure (excluding ports), amounts to K80 million.

The optimum maintenance expenditure which should be spent on Papua New Guinea’s roads, requires expenditure of K46 million a year on rehabilitation and restoration. K37 million a year is necessary for national roads alone. AusAID is currently funding K20 million annually for such work. The Asian Development Bank is soon likely to approve expenditure of K40 million over the next two years. The European Union committed to an expenditure of K40 million commencing in October 1996, the World Bank and the national government will spend some funds on road rehabilitation and restoration.

This combined expenditure will go some way towards arresting the deteriorating condition of national roads. However, what is missing is assurance that sufficient funds will be made available for routine maintenance. It is the lack of routine maintenance that causes deterioration of infrastructure and high user costs. Inadequate routine maintenance results in the need for continual rehabilitation and restoration work, which is very expensive. It is far better for the country to spend more on routine maintenance and avoid this cost. The same applies to mainten-ance of civil aviation and maritime facilities.
If there is a choice to be made between expenditure on maintenance and expenditure on new construction, there are also choices to be made between individual projects.

For most, but not all, new transport infrastructure projects, feasibility studies are undertaken to establish net economic and other benefits. Theoretically, projects for implementation should be selected in order of greatest benefit. This is not always the case, and projects are implemented which eventually have low or even negative economic rates of return.

Perhaps what is really missing in the selection of new infrastructure construction projects is an emphasis on identifying, selecting and supporting real winners—projects which are most likely to lead to rapid economic development and social improvement. The track record of past infrastructure investments, except those specifically for mining and forestry, is not encouraging. Growth in agricultural output, for example, is only 1 per cent compared to population growth of 2.3 per cent.

We should be taking a far more integrated approach to investment in transport infrastructure. Given the scarcity of resources, far greater priority needs to be given to infrastructure projects which are linked to specific well-supported development projects or programs. We cannot afford the luxury of investing in infrastructure and hoping that economic development and social improvement will follow.

This is not to suggest a government-directed approach to economic development—the private sector should largely take the lead in promoting resource and other developments. What private enterprise needs to do is to be far more coherent in their plans before government provides the necessary infrastructure. This has generally happened with many specific larger developments like oil palm projects, mining and forestry developments. However, wider benefits will be achieved if smaller business developments and the efforts of individual rural producers are also embraced. The promotion of tourism is an obvious example. The Minister for Civil Aviation and Tourism has announced his support for the development of international airports. To justify these developments there needs to be parallel development of businesses to make the most of the new air connections. If this is not assured, then the new or upgraded aviation infrastructure should not be provided by the government.

Government departments have a leading role in identifying and promoting winning economic developments which deserve public investment in transport infrastructure. This must be a joint effort alongside provincial and local-level governments and private enterprise.
Such developments should not just be traditional resource projects, but should embrace developments in the wider community, including support for individual agricultural producers.

We must look seriously at the consequences of continuing to disperse our investments, whether it be in infrastructure or in productive enterprises.

**Establishing priorities**

On the grounds of economic return, spending public money on transport infrastructure maintenance should be accorded the highest priority. The Road Inventory/Road Maintenance Study calculated that expenditure of K140 million a year on road maintenance will reduce user costs by K210 million and save K105 million in overseas funds. This is a 100 per cent annual economic rate of return. Typically, new road projects are calculated to produce an economic rate of return of between 10 and 20 per cent. Most actually return 10 per cent or less.

A saving of K100 million a year to existing road users means that more money will be left for investment in large and small-scale productive enterprises. Quite aside from the benefits from these savings, improved road reliability and reduced user costs also have the potential to significantly encourage increased and new output, particularly for agriculture exports. Social benefits are improved access to health and education services.

Though increased road maintenance has the potential to accelerate economic growth and improve social development pressures to build new transport infrastructure rather than upgrade the existing infrastructure will continue.

To accelerate economic growth, we need to consider new approaches to how new transport infrastructure projects are prioritised. Priority must be given to projects which are economic and social development winners. In some cases these will be obvious—such as particular resources developments. In other cases, we need to go out of our way to package and support potential developments so that when infrastructure is built there will be concentrated and sustained growth and social improvement.

Adopting this approach implies a radical change from current investment in transport infrastructure. In past years, for example, a considerable sum has been spent on a large number of small transport projects through Members of Parliament. The effects of this expenditure have often been very localised, limited in impact and lasting only for a
short while. Full marks to the government for its stand on provincial reforms—under the new Organic Law, if fully implemented, will see all funds channelled through provincial governments through the Rural Action Program (RAP). This will enable the Provincial Assembly, rather than individuals, to decide on what is best for the province.

Prioritising not only affects road infrastructure but infrastructure for air and maritime transport as well. Here, there may need to be trade-offs between modes. In particular, we need to be careful that we do not duplicate between road and air transport. As the road network continues to expand, it may no longer be necessary to retain some smaller airfields. These issues emphasise the need for systematic intermodal transport planning. For example, possible future development of inland waterways will require coordination with the land transport subsector to ensure that wharves and jetties are constructed at locations which are served by road access, and possibly also small airstrips where possible.

Similarly the development of the major ports is associated very closely with the development of extended road systems and the development of new areas to be served from the port.

**Funding and implementation**

The New Organic Law will result in a substantial shift of resources and decision-making to provincial and local-level governments. Providing and maintaining transport infrastructure will increasingly be their responsibility. The converse is that the national government is likely to have less funding and less responsibility. These changes have a number of consequences for each level of government.

Under the New Organic Law, provincial and local-level governments will each receive specific infrastructure grants from national government. The grants are equivalent to K20 per head of population and K20 per square kilometre of area. By law, half of the amount must be spent on physical infrastructure, and half on social infrastructure.

Provincial and local-level governments will also have other funds to spend on infrastructure, such as provincial taxes, special support grants and aid donor assistance.

In recent times provincial and local-level governments have not had such funding at their disposal, nor responsibility for looking after infrastructure. As a result, many provincial and local-level governments do not have the capacity for proper planning and implementation at more sustained levels.
The most likely danger is that availability of extra funds may increase misuse of much-needed funds.

Resulting from the New Organic Law, decreased funding and pressure for additional funding for the provinces will be significant difficulties for the national government. This is likely to have its greatest impact on national government aspirations to provide entirely new transport infrastructure. Donor agencies are amenable to providing funds for the upgrading of transport infrastructure, but are less amenable to funding new infrastructure. The major exception is the Japanese aid agency, OECF, which is currently funding construction of the Bereina–Malalaua road and Jacksons Airport redevelopment projects.

One of the solutions for the national government is to borrow funds commercially, either directly, or via design-and-build project packages. Some 90 per cent of funding for the Burns Peak–Waigani Drive Project will come from commercial borrowing. However, there is a limit on how much the government can or should borrow.

Government initiatives to expand or upgrade the national road system invariably attract a great deal of publicity. Since 1973, it has been responsible for the addition of 620 kilometres to the national road network. However, 130 kilometres of the road construction attributable to government efforts was built for a specific resource development and ultimately paid for by the developers—in this case by Ok Tedi Mining Limited for the road between Kiunga and Tabubil. Over the same period, commercial undertakings have conservatively constructed new trunk roads. This includes construction of the roads to Kutubu and Porgera, and of forestry roads in West New Britain, Sandaun and Milne Bay which will eventually become national roads. This is a significant contribution to transport infrastructure. However, roads constructed by commercial interests are not always the best quality, particularly forestry roads. It is the responsibility of the government to ensure that such roads are built according to agreed standards, specifications and on agreed timetables.

National, provincial and local-level governments also need to be much more productive in instigating and directing the building of new transport infrastructure. Government involvement in building the Kiunga–Tabubil road is one model to follow.

Shortly, Chevron Niugini will begin the upgrading of the existing Kutubu pipeline access road from Kikori to Baina a distance of 62 kilometres. There is an opportunity here for the national government and the Gulf and Southern Highlands provincial governments to build
on this initiative to access a wider area—perhaps even to provide a road connection to the Southern Highlands.

These examples show that much more could be made of commercial developments to add to transport infrastructure without requiring public funding.

**Planning**

Many of these issues are well known at the bureaucratic level. We are aware of many of the shortcomings of what we are doing now, and in a general sense, we are already aware of much of what needs to be done to accelerate economic growth and social development. What we seem to be lacking is the ability to successfully present this information to our political decision-makers in a way which easily allows them to see and assess the available options. The task of doing this is now made more complicated by the devolution of responsibility to provincial and local-level governments under the New Organic Law.

The National Planning Office was re-established last year to develop more rigorous government planning and to coordinate planning activities. Their role is pivotal in making investment in transport and other infrastructure more effective—in identifying projects which will genuinely accelerate economic growth and social development. The National Planning Office can also support increased expenditure on maintenance, not only for transport infrastructure, but for maintenance of buildings which is also the responsibility of my Department. This year, nothing was directly allocated in the national Budget for building maintenance despite the Department having responsibility for maintaining in excess of 15,000 houses and other government buildings throughout the country.

In conjunction with the National Planning Office, we are in the process of developing a formal National Transport Infrastructure Plan. I expect that when this is completed, it will greatly assist in making our transport infrastructure program more effective.

Its formulation should allow national, provincial and local-level political decision-makers to evaluate strategic and implementation options in a systematic way. With the development of a Transport Infrastructure Plan, the opportunity should also be taken to better inform the community, particularly the business community, and to more directly involve them through National Economic Forums in promoting and developing of transport infrastructure.
Provincial and local-level governments must also be encouraged to develop formal infrastructure plans. The Department of Transport and Works and the National Planning Office should be available to advise and assist with this task.

Conclusions

At the present time, Papua New Guinea has a scarcity of skilled and experienced labour. In the short to medium term, Papua New Guinea must therefore rely heavily on exploiting its physical resources to substantially improve the economy. Effective transport infrastructure plays an important part in making this possible.

Here only transport infrastructure is discussed, which is the responsibility of the Department of Transport and Works and of provincial and local-level governments. Decisions about such infrastructure are directly governed by the political process. Port infrastructure has been hardly referred to. Like telecommunications, electricity, and urban water supplies, this is the responsibility of a statutory authority, the Papua New Guinea Harbours Board. For these organisations, decisions about the infrastructure they manage should largely be made within a commercial context. But ignoring statutory authorities does not imply that their mandates and operations should not also be examined; they certainly should be when considering their contribution to economic growth and a social progress.

However, there are a number of issues relating to the infrastructure for which my Department is responsible—three stand out.

First, how to recognise and prioritise infrastructure projects and programs which are most likely to accelerate economic and development. Clearly, properly maintaining existing infrastructure is a priority. It helps preserve the value of past substantial investment, and for road infrastructure, and will produce a sizeable benefit through reducing producer costs and promoting economic growth.

For new or upgrading projects, we need to be more selective in the works implemented. Greater priority should be given to transport infrastructure projects which are likely to lead to accelerated economic growth and social improvement. More effort needs to be made to identify where these are, or to package investment in transport infrastructure with specific integrated economic and social development programs.

The second issue which stands out is that of funding. Funds for investment in infrastructure are always scarce. Under the New Organic
Law this will become even more of a problem for the national government. It may have to rely more heavily on commercial sources of funding and be more innovative in its approach to securing funds. The government should also be more proactive in using commercial developments to build and upgrade infrastructure. It must also be firmer in ensuring that where commercial interests are required to provide infrastructure, they do so to the required standard and in a timely manner.

Last, we need to make a greater commitment to planning. Undoubtedly, there are shortcomings in the way transport infrastructure is currently selected and implemented. However, it will be difficult to make positive changes if we continue to rely on largely ad hoc decision-making. As well, devolution of responsibility to provincial and local-level governments under the New Organic Law makes decision-making that much more complex. The development of formal transport infrastructure plans will help to identify and systematically evaluate sensible options, and to coordinate between national and sub-national aspirations.

If we are prepared to honestly address these issues, I am sure that transport infrastructure will contribute to a much greater economic growth and social development than at present.
Resource mobilisation and national planning
Aid has an important but only partial role in mobilising resources for the development process. Mobilisation of greater international resources, beyond aid and additional domestic resources, is necessary to generate rates of economic growth sufficient to sustain the development process. In this context the role of aid should be seen as a complement to greater domestic and international resource mobilisation.

When we look at the total level of international resources flowing to developing countries, the private capital flows element is now almost three times the size of the official development assistance element.

The Director General of AusAID, Trevor Kanaley, recently addressed the Australian Institute of International Affairs on the issue of ‘aid as a catalyst to development’. He pointed out that while it is true that as self-sustaining development takes off the need for concessional finance declines, aid has usually played a catalytic role in stimulating self-sustaining development in the first place. Virtually all developing countries that have experienced sustained development over the past 50 years have used aid as a facilitating complement to, not as a substitute for, private capital flows.

The reality is that private capital is generally not attracted to non-commercially viable ventures. The pressures of competitive markets and the necessity to generate acceptable private returns on investor funds usually rule non-commercially viable activities, out of consideration for private capital investment, no matter how socially meritorious.

The commercial viability requirement of private capital investment leaves a major role for government and non-government organisations in developing countries, supported by domestic resources and aid, to provide basic social and physical infrastructure and a government framework of stable laws and strong public institutions.
Many studies show that ‘market friendly’ policies work best: secure property rights; reliable enforcement of contracts, a liberal trade regime; low taxes and public spending; and a welcome to foreign investors all contribute to an investment-friendly environment. In many developing countries the appropriate conditions are absent and that is a major reason why those poor countries stay poor—and why they require international assistance to create appropriate conditions for development.

Of course, there is nothing surprising about the complementarity between aid and private capital flows. It has long been recognised that a role for government in market economies is to supply public goods and services which, by their nature, will not be funded through private investment.

The governments of successful developing countries have focused on macroeconomic stability, an appropriate business environment and basic social and physical infrastructure. In the main, the developing countries of Latin America and East Asia have pursued such policies.

Therefore, it is hardly surprising that when we look at the destination of private capital flows we discover that private capital investment does not just happen where it is needed. Today only about 20 developing countries have access to private markets for bonds, commercial bank loans and portfolio equity. And among those with market access, borrowing terms vary widely. Around 75 per cent of foreign direct investment to developing countries currently goes to fewer than 12 countries—primarily in Latin America and East Asia; only 6 per cent goes to Africa; and a mere 2 per cent goes to the least developed countries—10 of which are in the Asia-Pacific region.

Developing country governments with assistance from overseas development agencies need to find ways to entice international resources into developing countries, by facilitating an economic environment more attractive to a broad range of investment options. For example, in circumstances where a large percentage of the population have not received even basic levels of education there are few incentives for foreign firms to set up in-country operations which employ local staff. Where investment does take place it is likely to be confined to low-wage labour-intensive production and a low savings/investment-low growth cycle may be perpetuated. In this scenario, aid can be used to provide education and training from basic and primary level education through to tertiary education. Such assistance helps to establish not only an educated population, but also helps to create a more healthy and productive economy as well.
And this does happen. Development progress over recent decades has been unprecedented in human history. Many developing countries have achieved truly dramatic improvement in overall indicators of human welfare since 1945: despite high rates of population growth, infant mortality rates have more than halved and life expectancy in developing countries has risen by more than 50 per cent (from 41 to 62 years); the percentage of the population with access to clean water has doubled (from 35 per cent to 70 per cent); adult literacy has risen from less than half the population to around two-thirds; food production and consumption have increased at a rate about 20 per cent faster than population growth.

But, as Trevor Kanaley pointed out in his speech, these impressive strides have not been uniform. In some countries poverty is increasing and in many countries the poor have not shared in positive global trends. It is clear that success has been achieved only where the people and the institutions of developing countries have made sustained efforts to help themselves. At the same time, the record shows that international cooperation, including through aid, has contributed greatly and increasingly to development results in recent decades.

This has also entailed a learning process for donors and recipients. Effective development cooperation strategies can be put in place only where there is a commitment by all parties concerned to make the development cooperation relationship successful. In this context it needs to be recognised that there are external partner responsibilities, developing country responsibilities and joint responsibilities in the delivery of effective aid and the achievement of developmental objectives. These are drawn from a document recently issued by the OECD’s Development Assistance Committee—Shaping the 21st Century—which seeks to give a framework for aid in the future.

Donor partner responsibilities include supporting strengthened capacities and increasing participation in the developing country; avoiding the creation of aid dependency; supporting coherent policies in other aspects of relations; and working for better coordination of the international aid system among external partners, in support of developing countries’ own strategies.

Developing country responsibilities include adhering to appropriate macroeconomic policies; fostering accountable government and the rule of law; strengthening human and institutional capacity; and creating a climate favourable to enterprise and the mobilisation of savings for investment.
Of course these responsibilities are by no means exhaustive. They are simply examples of the kinds of responsibilities which must be recognised and embraced by all parties to the development cooperation relationship in order for aid to work.

Turning to Papua New Guinea and the role of aid in resources and planning, it must be stated that over the past 20 years Papua New Guinea has clearly reduced its dependence on aid. However there is still a role for development assistance in Papua New Guinea’s plans. The Development Assistance Committee of the OECD recently noted that, although Papua New Guinea has a per capita income of a lower-middle income developing country (as defined by the World Bank), it has many indicators in areas such as health and education which reflect needs usually seen in much poorer low-income countries.

The clearest demonstration of how resources can be mobilised for Papua New Guinea by aid donors comes not from the Australian program but rather from Papua New Guinea’s own economic reform program. Under the auspices of agreements with the IMF and the World Bank, nearly US$350 million in financial support has been pledged to assist Papua New Guinea, much of which has already been provided. The importance of this goes beyond the range of concessional and non-concessional funding provided, in that this process also provides a framework for donors to demonstrate support for Papua New Guinea’s economic reform objectives.

Looking at more regular aid flows, Australia provides by far the most significant proportion of Papua New Guinea’s aid receipts. But other donors also provide significant assistance as either grants or loans. These include the World Bank, Asian Development Bank, International Monetary Fund, UNICEF, UNDP and Japan, the European Union, France, Germany and New Zealand.

For Australia though, Papua New Guinea receives more of our bilateral assistance than any other country—in the 1995–96 financial year total Australian aid flows to Papua New Guinea were worth A$329 million or more than 20 per cent of total Australian aid.

The substantial bilateral aid program is an important part of the close overall relationship between our two countries, which is strongly influenced by historical ties and Australia’s desire to assist its closest neighbour achieve its development objectives, including increased self-reliance.

Strengthening the Papua New Guinea economy is fundamental to achieving greater development. Each year AusAID publishes an
economic report on Papua New Guinea. The latest and ninth report on the Papua New Guinea economy provides a survey and general assessment of recent economic developments and economic policies. It covers various issues including recent macroeconomic developments, structural reform, public sector reform and sectoral performance. Close attention is paid to issues concerning the implementation of provincial and local government reforms and the current economic reform program with the International Monetary Fund and World Bank.

A strengthened Papua New Guinea economy is being pursued as an essential element in Australia’s aid program with Papua New Guinea. To this end Australia has strongly supported Papua New Guinea’s economic stabilisation and economic reform program which has been agreed with the IMF and World Bank. Australia has also supported the reform program financially, through a non-concessional loan and by focusing aid program activities in support of the reforms. An important component of the reform program includes increased public and private non-mining investment and increased attention to overall resource mobilisation.

Almost all Australian assistance is provided within the framework of the Treaty on Development Cooperation with Papua New Guinea. In order to provide both countries with confidence in their resource planning, financial assistance is specified for a 5-year period. The current Treaty period finishes in June 2000, following a review and extension of the Treaty commitments in 1995. These reviews occur every 3 years (or more often if requested by either party). The next scheduled Review is in September 1998, and will consider aid arrangements into the new century. At present Australia is committed to providing assistance worth some A$300 million each year in nominal terms until the year 2000.

Within this Treaty structure, Australia’s aid program to Papua New Guinea is undergoing a fundamental change. This involves the replacement of direct financial ‘budgetary’ support with jointly-agreed programmed aid. This change is aimed at greater aid effectiveness in the assistance Australia provides to Papua New Guinea. The current financial year sees us at the half way point of this transition—with A$154 million being provided in the form of programmed aid. This shift is allowing Australia to target assistance to meet Papua New Guinea’s broad development needs, focused on six priority sectors.

This sectoral program approach aims to mobilise sufficient resources to strengthen Papua New Guinea’s performance and long-term capacity.
within the specified sectors and encourage sustainable outcomes. These programs emphasise the need to strengthen Papua New Guinea’s ability to develop and implement sectoral programs which increase investment and employment opportunities and improve basic service delivery.

The Papua New Guinea Government has indicated that the health, education and transport sectors should be the primary sectors for Australian funding. Australia and Papua New Guinea are working towards broad coordinated development and ultimately, the aim is to direct 25 per cent of programmed aid to each of these three key sectors. The renewable resources, law and justice and private sectors will absorb the remainder of our program aid.

This is a jointly-agreed aid program. Papua New Guinea agencies and officials are involved at each key stage in programmed aid delivery. Papua New Guinea’s economic circumstances, its priorities and policies are the starting points for the development of programmed aid.

The main focus in the health sector program is on improving low-cost primary and preventative health services in rural communities. This reflects the emphasis which Papua New Guinea’s National Health Plan (1996–2000) places on health management reform and improved rural health service delivery. This will complement the major assistance already provided by Japan in upgrading hospital facilities and a prospective program by the Asian Development Bank in this sector. In the medium term, Australia’s assistance will focus on children’s and women’s health and the establishment of an efficient and effective structure for provincial health service delivery. Long-term training and technical assistance is also planned to enhance the institutional and implementation capacity of the health sector.

The scale of investment in the major sectors such as health will be prodigious—by the year 2000, some A$75 million annually will be provided through programmed assistance to Papua New Guinea’s health sector by Australia. This will require us to fit very clearly within Papua New Guinea’s own plans and often to run agreed activities through Papua New Guinea agencies.

The education sector program is principally focusing on assisting Papua New Guinea to improve access to elementary, primary and secondary education. Priorities include improving teacher training, school infrastructure, technical education and female participation. The challenge is to assist Papua New Guinea in meeting its objectives which include: providing nine years of basic universal education in the
context of children’s local communities; increasing the transition rate from primary to lower secondary grades from the current 36 per cent to 50 per cent and, over time, to 100 per cent; increasing the transition rate from lower secondary to upper secondary grades from the current 10 per cent to 50 per cent; and increasing the upper secondary output from 1,000 to 5,000 by the year 2000. These are substantial objectives needing both large internal resources and considerable donor assistance.

Geography, inadequate provision and maintenance of infrastructure and limited transport services, particularly to rural communities, present formidable barriers to development. They contribute to poor delivery of essential services and unreliable transport of products to markets, particularly in rural areas. Australian support for infrastructure maintenance and development aims to underpin economic development in Papua New Guinea. The stock of public transport assets is very low however and almost all of our assistance is focused on rehabilitating and improving existing roads, bridges and airfields. Again other donors are substantially involved in this sector.

In order to keep funds flowing into regional areas and to stimulate private sector growth, implementation methods for Australian activities, in the transport sector in particular, encourage the maximum involvement of Papua New Guinea companies operating in the construction and engineering areas. Australian technical expertise will be important in overall advisory and design roles but agreement has been reached that small contracts and day labour will be used on road works wherever possible, funded through trust funds. Program activities emphasise the provision of training and staff development opportunities for Department of Transport and Works staff, particularly in the Offices of Works and Civil Aviation, as well as strengthening Papua New Guinea’s capacity for ongoing maintenance of existing infrastructure.

Australia strongly supports Papua New Guinea’s efforts to improve the delivery of services in rural areas. Provincial reforms will need massive changes to the way in which government works and Australia is already providing direct support through sectoral assistance in areas such as health and education. In addition, however, changes are required in finance and accounting support systems. Preliminary discussions with the National Planning Office have begun on possible long-term assistance to strengthen provincial planning. We have agreed in principle to support initiatives of the Department of Finance in areas such as development of provincial accounting and financial manage-
ment systems and the training of staff and will work with the Department on the development of a strategic program for upgrading national financial management information systems.

Not all activities can or should relate to public sector capacities. The development cooperation program is also assisting the building of stronger links between Australian and Papua New Guinean civil societies. For instance, Australia is planning the introduction of a funding mechanism to support Australian and Papua New Guinea’s non-government organisations.

As you would expect in a relationship of this size, Australia and Papua New Guinea need to be regularly checking that Australian aid is meeting Papua New Guinea’s needs. In May 1996 the Australian Foreign Minister, Mr Downer, met with Prime Minister Sir Julius Chan and agreed that, within the context of a shift to programmed aid, officials should meet to ensure that Australian aid was working to support Papua New Guinea’s reform objectives, both in terms of economic and provincial government reforms.

Some of the major measures that have come out of these reviews and the experience of the last three years are

- the use of trust account mechanisms to channel program funds through Papua New Guinean implementing agencies. This enables funding to be provided directly to agreed program activities such as land transport infrastructure projects while meeting Australian accountability requirements. It also keeps substantial funds flowing directly into the Papua New Guinea economy
- the use of the Commodities Assistance Program to supply high priority goods and equipment for development purposes which complement sector programs
- Australian support under limited circumstances for Papua New Guinea agencies’ operational and maintenance costs related to program aid activities
- a system of performance benchmarks, with achievement against these benchmarks taken into consideration when setting future priorities and levels of funding for sector programs
- bringing all these aspects together through policy-based agreements in major sectors to ensure that our funding is directly supporting Papua New Guinea’s development plans
- increasing use of non-government channels to meet basic needs and promote community development, including micro-enterprise development to assist in private sector growth.

As a result of the implementation of these approaches the level of Papua New Guinea's involvement in the delivery of program aid and the value of goods and services sourced from Papua New Guinea are expected to continue to increase. This is of course of considerable concern to the Government of Papua New Guinea. Already substantial levels of programmed aid are being disbursed through Papua New Guinea agencies—in 1996–97 around 30 per cent of total programmed aid is expected be spent through Papua New Guinea government agencies. In 1995–96 over half of Australia's purchases of equipment and materials under the Commodities Assistance Program were bought from Papua New Guinea suppliers. This included items such as medical supplies, building materials for schools and equipment for quarantine activities.

The challenges facing Papua New Guinea in achieving its development goals are substantial. Nevertheless, Australia's large and ongoing commitment to Papua New Guinea since its independence reflects the level of resources Australian taxpayers have been willing to provide to Papua New Guinea. The opportunity now exists for us and other donors to demonstrate an increasing impact of such significant resource flows, in addressing key development constraints.

Note

The views expressed in this chapter are those of the author and not necessarily those of the Australian Government or the Australian Agency for International Development (AusAID).
National planning: past experiences and future vision

Kila Ai

Planning means many things to many people. In Papua New Guinea planning has meant and continues to mean, planning government's interventions in the economy and, in particular, expenditure. The creation of the National Planning Office does not indicate a desire on the part of the government to begin centralised planning of the entire economy. Papua New Guinea has never and does not pretend to, determine the way the private sector uses resources, although clearly the government does attempt to influence the scale and direction of where the private sector uses its resources through the policy environment it sets.

It is clear that if a plan is to be more than a hoped for outcome, there must be means for realising the plan. These range from supportive policies to physical controls—and the Papua New Guinea government has chosen from the entire range. However, the record of delivery on these hopes by successive governments has been mixed.

Having defined terms, let us start at the beginning, independence. In the sense that successive governments have set out their aspirations and objectives for the country and its economy, Papua New Guinea has planned since independence. The Eight Aims, originally formulated in 1972 and formally adopted as both goals and yardsticks in the Post-Independence National Development Strategy in 1976 and the National Goals and Directive Principles are all planning statements. They show considerable consistency with the objectives of this government—and some interesting differences.

Some of these differences are no more than a reflection of changes in thinking about strategies: about how to achieve goals. In many countries of the world a belief in the effectiveness of wholesale government intervention in the economy has given way to less ambitious and more
practical strategies. All over the world, and in Papua New Guinea more unabashedly than most, there is the desire for the development of a vibrant private sector—one of the aims of the government—as a means to the grander aim of, a more equal distribution of economic benefits (Aim 2 of the Eight Aims). The message is clear: we need to increase the size of the economic pie before worrying too much about how we divide it up.

In Papua New Guinea the importance of planning has always been acknowledged but the actual recognition of the discipline of planning has been underdeveloped. The planning apparatus has been changed many times since independence, hoping for a winning combination. The Post-Independence National Development Strategy was developed by the Central Planning Office within the Prime Minister’s Office. This was endorsed by the National Planning Committee, a committee of senior Ministers chaired by the Prime Minister. The strategy led, beginning in 1977, to National Public Expenditure Plan(s); taken with the Development Strategy these could be called a strategic plan.

The National Public Expenditure Plans, the forerunner of today’s Public Investment Programmes, allocated funds to new projects. Funds came from increases in revenues and by squeezing recurrent expenditures; the famous ‘wedge’. In 1983, for example, the budget ceiling for recurrent expenditures was K9 million (4 per cent) lower than recurrent expenditure in 1982. By 1983 about one-quarter of government expenditure was allocated through the National Public Expenditure Plan.

The specific targets of the Second Plan were very vague...The ‘plan’ was simply a list of projects on which funds, presumed to be available, were to be used...(there was) nothing about how expenditures were to be coordinated;...no concern with economic policies of Government, nor with the private sector (MOFID, Kamran Development Planning in Iran, Middle East and North Africa Press, England 1987:41).

While this quote is about Iran, the moral is applicable to Papua New Guinea. In Papua New Guinea we did not concentrate expenditures to achieve our objectives. If you look at actual expenditures by sector from 1978 to the present day, there is no clear predictor of how much extra will go to a sector in any given year. The planning process had no detectable pattern, a clear indicator of its lack of effectiveness. In its 1983 review of Public Sector Management, the World Bank said

There is...little detailed rationale of the public expenditure plan itself. Conspicuously missing is the common (to planning documents) emphasis on targets for macro aggregates or sectoral outcomes. There
is little evidence of arguments of the form 'if we are to achieve X, then it will be necessary to do A, B, C', or of the corollary: the expenditures on projects A, B, C are expected to result in X (World Bank 1983:11).

The Bank’s assessment was broadly—if implicitly—accepted. As a consequence, the National Planning Office began work in January 1984 on a new National Development Plan, to be adopted from 1987. From the end of 1985 work on the Plan reflected the priorities of the then-new government: faster growth through more public and private investment leading to more productive work opportunities and the maximum participation by Papua New Guineans.

A change in government, the policy adjustments following the closure of Panguna and a shift in attention saw the National Planning Office lose its autonomy. In July 1992 the National Planning Committee was reactivated and a Policy Monitoring and Coordinating Committee (PCMC) formed. In 1995 the National Executive Council (NEC) directed that the National Planning Office be re-established. It was formally set up independently of the Department of Finance in December 1995.

Consequences and lessons

Good governance requires purposeful government. But the purpose must remain consistent. This is where Papua New Guinea has not been so successful. We have spent money in one direction after another without giving a policy a chance to embed itself. The funds spent in this way have been sizeable: in the last 20 years over K8.5 billion in revenues were raised, K4 billion in grants received (only those coming through the Public Accounts), K1 billion from the Mineral Revenues Stabilisation Fund and at least K2.5 billion in loan drawdowns.

Some of this money has gone into PTC and Elcom, into highways and wharves, into airports and Air Niugini, into schools and hospitals. It is hard though to find clear links between concentrations of expenditure, investments and sustained increases in output. This means that a lot of what we call investment was poorly chosen and has not proved to be productive. Where we have borrowed to pay for this investment, we are left to pay off growing debts without commensurate increases in output. We now find that debt service payments claim a growing share—now up to nearly 50 per cent—of revenues raised excluding sale of assets, which include the Mineral Revenues Stabilisation Fund receipts and export taxes on logs. This puts a great strain on the recurrent budget—and forces us to devote a great deal of attention to finding money for day-to-day activities.
This is another aspect of the theme running through assessments of planning in Papua New Guinea: planning in Papua New Guinea is driven virtually entirely by the annual budget cycle. This is true—we have often found ourselves having to deal with a short-term crisis in the annual budget. This has severely hampered the ability of the planning organisation to implement its strategy.

The major reasons for this was that goals—whether the Eight Aims or those of the government of the day—were never widely entrenched in political or bureaucratic decision making. There was no clear recognition—by politicians or officials—of the chain: ‘if we are to achieve X, then it will be necessary to do A, B, C’. Nor was there recognition of the corollary: ‘if we use resources to do X then we cannot do Y and so on’. Rather the thinking has been, not only might we do X but we should also do Y and so on, but all in small doses. In other words, everything is a priority. The laudable rhetoric of goods and services to the people has unfortunately been used to justify virtually any expenditure.

This is particularly true when short-term political considerations dominate. Kalecki has identified the political business cycle with a duration set by the need for elections. If, as in the United Kingdom for example, a government must go to the people after 5 years at most, the political business cycle runs over 5 years. In Papua New Guinea we have had to live with a much shorter cycle, at times months! There has been some recognition that this needs to be changed to increase the stability of a government and allow time to pursue and implement an agenda before it is judged on its achievements. As a planner, I can only support initiatives that reduce the uncertainties surrounding the future.

The reform of the Provincial Government system has made the task of planning more complex and challenging. The decisions to implement a decentralisation of decision-making to the provinces in the same year as the National Planning Office was established have added a new dimension to planning in Papua New Guinea.

Substantial resources must now, by law, be transferred to provinces every year. However, the complementary transfer of responsibilities for functions has not been formalised speedily—this division of responsibilities is a prerequisite for effective planning. Its absence could mean planning remains a process of creating hoped for outcomes rather than the realities needed in Papua New Guinea.

An example may clarify this: central government maintains that, in 1996 at least, it could not pay the grants and continue to provide other vital services such as school fee subsidies. Provincial governments
argue that they have no funding to pay the subsidies. In the short term a compromise is reached: both governments call some part of the grants due school-fee subsidies and the subsidies continue to be paid. Effective planning requires this compromise to be formalised so that flows of money between levels of government have understandings over responsibility associated with them. Until such an agreement is in place the Provincial reforms, whatever their merit in promoting participation and local democracy, remain an impediment to effective fiscal planning.

In order for the government to be fiscally responsible, to move forward confidently, we need four things

- widespread agreement on where we are going, on what sort of national we want to be
- we must put an end to the periodic crises we face, an end that can only be achieved by ending the cause of the crises, the ever-widening deficit on the recurrent budget
- we must accept the reality that we are not going to get to where we want to be unless we get out of the cycle of crises
- we have to accept that the gain in the future is worth some pain to be suffered now.

**Future vision**

As Director of the National Planning Office, I want to assure you that this is where planning in Papua New Guinea is going; we are going to meet these four targets.

To end the crisis mentality the National Planning Office has started work on a fiscal responsibility package in consultation with the Department of Finance. There are four components of the package.

- We will propose that fiscal policy is directed towards balancing the recurrent budget with tax revenues, excluding those from activities in natural resources. This cannot be achieved immediately or, realistically, every year. We propose to achieve this balance by the year 2000 and maintaining this position over the economic cycle thereafter.
- We will propose the introduction of accrual accounting. The concept is simple. We must stop pretending that the bills of last year end with New Year’s day; a practice that has caused us trouble in the past. As part of this we will advocate the introduction of Generally Accepted Accounting Standards and of wide training in accountancy within government.
Finally, we propose amending current practices in order to make the budget more transparent. It should be possible to see the total activities of the government—including the ‘off budget’ items—from annual budget documents.

On current projections the 1997 recurrent budget will be greater than the entire 1996 budget. This cannot be sustained together with meeting the twin aims of greater (and more effective) investment spending and fiscal responsibility. The recurrent budget must be reduced from this projection, possibly by up to 15 per cent in 1997. This will be difficult, and it is just one of the hard choices we acknowledge planning must address.

Achieving this target requires us to rethink what government does, what it funds and who does what it funds. We must ask—and answer honestly:

- how much should government be paying for health, education and how much of the costs in these areas should be met by users?
- how much of what the Public Service now does must be done by Public Servants and how much can be contracted out?
- how rational is the government machine and can its cost be reduced?
- can we match resources that must go to the provinces with responsibilities for expenditures?
- can we limit numbers in the public service in Waigani and the provinces?

We will work with provinces to get the maximum effectiveness and efficiency from the resources transferred to them; this is vital. We will work with the provinces to strengthen their planning and budgeting capacities. The Madang Model is a useful tool that has been developed by the National Planning Office for provinces to adopt; it is a tool endorsed by the Prime Minister and the NEC.

In addition, the National Planning Office has started to build close and effective working relationships between the national and provincial governments. We do not, however, want the National Planning Office to do the work of national departments and provincial governments for them. Our task is to help them to build up their capacity to implement the policies of the government: the blueprint we are building up now. The role of the National Planning Office is to work with the Department of Finance to ensure that resource allocation is governed by plans and to ensure agencies receive sufficient funding to carry out their tasks.

We want to be imaginative and innovative in our planning, for example, proposing projects that national and provincial governments
can work on together. There must not be an artificial 'them and us' situation arising from the provincial reforms. The sort of project I have in mind is a continuous boat service to service the communities of the Fly River from Daru to Kiunga. This will give the villagers on the lower Fly access to markets for their timber, their rubber, their fish, their vegetables—and traders and government access to them.

You may think that all of this is still short term; I see it as giving ourselves room for the long term. I assure you, in all of this the National Planning Office has not forgotten the long view. You will have heard the story of the traveller asking a local the way to a destination and being told: 'well if I were you, I wouldn't start from here'. As with travellers, so with nations and planners; we will go further, faster, if we are clear on where we are going, clear on where we are starting from and clear on what lies in between. Being clear on these questions is the task that the National Planning Office has set the Baloiloi Committee.

This Committee is planning for the new century. With support from the Prime Minister, from NEC, from business and from the public, it will set Papua New Guinea on a path that will take perhaps 25 years to walk. Clearly, this requires commitment, a commitment that can only come from wide involvement in laying out the path. But having achieved this, there will be resistance to deviation from the path. Is it in the Plan? How does it get us to where we want to be? Will it become crucial that proposals for spending public monies will have to answer positively if they are to be funded? This is the essence of long-term planning.

It is the role of the National Planning Office to see that this attitude becomes embedded in the decision-making framework of government. When this is done, when the four targets I have set out are met, Papua New Guinea will have achieved, indeed far exceeded, the objectives of our economic reform program. By following the path I have set out we can ensure that we no longer need rescue packages from international organisations. Our future is in our hands—but that does not mean we do not want the welcome assistance of the donor community in our investment program.

In fact I would like to recognise formally and acknowledge the role and the great assistance of aid donors to development in Papua New Guinea. I hope this will continue for some time yet, but we must use it more wisely in future. The National Planning Office, in its role as co-ordinator of donor financing, will see that we do. We must plan many years ahead, ensure that our development spending, whoever it is financed by, meets government priorities. We cannot continue wasting our investment resources on unproductive projects or allow projects in
non-priority areas to deprive important programs of funding. It should not be forgotten that all of these resources have a cost even if it is only an opportunity cost; loans incur interest—our own revenue could be earning interest instead.

Government must take specific steps to improve its capacity to plan and implement projects that are of real value to the nation. The National Planning Office must set the blueprint within which the government, in collaboration with the donor organisations, can implement and sustain projects that push us in the directions we have settled on. Resources will be committed only when they are focused on goals that government and people, are committed to. Our economic reforms will ensure that funds are available to do this effectively.

These reforms, which the government have been pursuing since 1994, are vital to the future prosperity of Papua New Guinea. Our small open economy will only flourish by becoming internationally competitive. We are ideally placed to do this: we have the resources to base our growth upon, we have an economic program that gives every opportunity for the private sector to flourish and we are situated at the edge of the most dynamic economic region in the world. Involvement with organisations such as WTO, APEC and ASEAN can only improve our competitiveness.

This is how I see planning in Papua New Guinea developing over the next 20 years. I believe we can improve markedly from the last 20.

References

Resource rents: distribution and sustainability

Colin Filer

During the twenty years of Papua New Guinea’s national independence there have been two mutually contradictory conceptions of the role of ‘resource rents’ in national economic development.

In the first conception, they constitute a form of economic surplus which can and should be divided between the State and private capital according to a rationally calculable and mutually advantageous formula. The share appropriated by the is then to be invested in the pursuit of long-term economic growth, a progressive reduction in ‘resource dependency’, and the realisation of those National Goals set out in the preamble to the National Constitution.

In the second conception, they belong by right to customary ‘resource owners’, whose ultimate ownership of national natural resources has been obscured by the legacy of colonial law and elided in the formulation of the National Constitution itself. In this conception, any share of resource rent appropriated by the State or private capital is a deduction from this natural right of ownership which must be justified and accepted by specific communities of customary landlords.

In the first decade of independence, the first conception triumphed over the second. In the second decade, the situation seems to have been reversed. This chapter will consider the extent of this inversion, the factors which have contributed to its occurrence, and the implications of this reversal for the pursuit of a ‘national sustainable development strategy’.

Let me begin my discussion of ‘resource rent’ with the parable of the drowned technocrat.

Once upon a time Papua New Guinea had a mineral development policy which was the envy of the world—or so the story goes. This
policy was the magical creation of the first Somare government, the outcome of its brilliant renegotiation of the Bougainville Copper Agreement, concluded back in 1974, then guarded steadfastly for many years by an elite corps of technocrats lodged in the highest pinacles of the State. The echoes of this instrument can still be heard in the wording of the new Mining Act, which is not yet four years old, but by the time this Act was certified in 1992, the ancient wisdom of the technocrats was drowning in a sea of discontent. The floodgates of the State had been forced open by a horde of special interests and local fantasies which sought their Holy Grail by redistributing the 'royalties', the 'equities', the 'compensation' and the many other forms of wealth which they believed the technocrats had hidden in their dungeons of arcane injustice or had simply failed to squeeze from all the wicked foreign devils barricaded in the Chamber of Mines and Petroleum (The Independent 15 March 1996).

What I am trying to depict in this story is a feeling for the psychological content and impact of a growing national dependency on the sale of natural resources.

Now to match the parable with some serious numbers. An indication of the country's economic dependency on the exploitation of mineral and timber resources is given in Table 13.1. Here we can see

- the slow but steady increase in the significance of mineral exports in the period since independence, from less than half to more like two-thirds of all domestic exports
- the more dramatic increase in the relative significance of timber (that is, raw log) exports since 1992, from less than 10 per cent to around 20 per cent of all domestic exports
- the lumpy nature of government revenues from the mining and petroleum sector, as shown in the annual receipts of the Mineral Revenues Stabilisation Fund
- the drastic loss of government revenues from this source in the two years following the closure of the Bougainville copper mine, which prompted the country's first attempt at 'structural adjustment'
- the drastic increase in government revenues from both mineral and timber exports since 1993, which seems to have facilitated the spending spree. This brought about the fiscal crisis and another round of finger-wagging from the World Bank.

It goes without saying that a country which depends on extractive industry, almost entirely under the management of foreign capital, for around 90 per cent of its export income, is bound to be, in some sense, a nation of rent-collectors. Less evident is the corresponding dependency
<table>
<thead>
<tr>
<th>Year</th>
<th>Minerals (million kina and per cent)</th>
<th>Timber (million kina and per cent)</th>
<th>MRSF receipts (million kina and per cent)</th>
<th>Log export taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>231.7 (44.8)</td>
<td>11.8 (02.3)</td>
<td>21.1 (07.7)</td>
<td>n.a.</td>
</tr>
<tr>
<td>1979</td>
<td>369.0 (52.5)</td>
<td>20.9 (03.0)</td>
<td>39.4 (13.9)</td>
<td>n.a.</td>
</tr>
<tr>
<td>1980</td>
<td>322.4 (50.5)</td>
<td>30.0 (04.7)</td>
<td>108.7 (31.6)</td>
<td>n.a.</td>
</tr>
<tr>
<td>1981</td>
<td>300.6 (55.0)</td>
<td>31.5 (05.8)</td>
<td>71.4 (18.5)</td>
<td>n.a.</td>
</tr>
<tr>
<td>1982</td>
<td>302.1 (55.3)</td>
<td>49.6 (09.1)</td>
<td>25.4 (06.6)</td>
<td>n.a.</td>
</tr>
<tr>
<td>1983</td>
<td>373.1 (55.8)</td>
<td>43.2 (06.5)</td>
<td>25.0 (06.0)</td>
<td>4.7 (01.1)</td>
</tr>
<tr>
<td>1984</td>
<td>328.5 (41.1)</td>
<td>69.9 (08.7)</td>
<td>55.5 (11.9)</td>
<td>12.4 (02.6)</td>
</tr>
<tr>
<td>1985</td>
<td>489.9 (54.5)</td>
<td>58.4 (06.5)</td>
<td>23.7 (04.6)</td>
<td>12.6 (02.3)</td>
</tr>
<tr>
<td>1986</td>
<td>561.2 (57.5)</td>
<td>68.0 (07.0)</td>
<td>36.0 (06.7)</td>
<td>13.7 (02.5)</td>
</tr>
<tr>
<td>1987</td>
<td>714.9 (64.7)</td>
<td>103.0 (09.3)</td>
<td>50.4 (07.7)</td>
<td>16.5 (02.5)</td>
</tr>
<tr>
<td>1988</td>
<td>861.5 (70.5)</td>
<td>90.5 (07.4)</td>
<td>91.8 (13.9)</td>
<td>15.6 (02.3)</td>
</tr>
<tr>
<td>1989</td>
<td>676.1 (64.4)</td>
<td>90.0 (08.6)</td>
<td>119.7 (14.5)</td>
<td>11.4 (01.4)</td>
</tr>
<tr>
<td>1990</td>
<td>757.5 (72.1)</td>
<td>65.2 (06.2)</td>
<td>5.6 (00.7)</td>
<td>12.2 (01.6)</td>
</tr>
<tr>
<td>1991</td>
<td>1005.3 (76.7)</td>
<td>81.2 (06.2)</td>
<td>13.2 (01.6)</td>
<td>17.7 (02.2)</td>
</tr>
<tr>
<td>1992</td>
<td>1371.5 (78.3)</td>
<td>140.0 (08.0)</td>
<td>82.7 (08.9)</td>
<td>25.0 (02.7)</td>
</tr>
<tr>
<td>1993</td>
<td>1767.8 (72.0)</td>
<td>400.2 (16.3)</td>
<td>267.8 (23.8)</td>
<td>70.9 (06.3)</td>
</tr>
<tr>
<td>1994</td>
<td>1782.7 (67.0)</td>
<td>483.1 (18.1)</td>
<td>276.8 (21.5)</td>
<td>131.3 (10.2)</td>
</tr>
<tr>
<td>1995</td>
<td>2435.4 (71.6)</td>
<td>436.7 (12.8)</td>
<td>281.7 (18.9)</td>
<td>127.6 (08.6)</td>
</tr>
<tr>
<td>1996</td>
<td>2206.3 (66.2)</td>
<td>564.0 (16.9)</td>
<td>245.0 (16.4)</td>
<td>144.0 (09.6)</td>
</tr>
<tr>
<td>1997</td>
<td>1939.6 (61.7)</td>
<td>605.6 (19.3)</td>
<td>226.2 (15.0)</td>
<td>146.9 (09.7)</td>
</tr>
<tr>
<td>1998</td>
<td>2222.2 (63.3)</td>
<td>648.7 (18.5)</td>
<td>212.2 (13.9)</td>
<td>149.9 (09.9)</td>
</tr>
<tr>
<td>1999</td>
<td>2131.5 (60.5)</td>
<td>695.4 (19.8)</td>
<td>215.2 (13.4)</td>
<td>152.8 (09.5)</td>
</tr>
</tbody>
</table>

Note: It is assumed that log export taxes constitute 96 per cent of all export taxes throughout.

of the State apparatus on revenues derived from the same source, since there are several forms of taxation whose sectoral origins are not readily inferred from the government’s own statistics. So it might not be unreasonable to assume that the business of extracting and exporting minerals and timber now accounts for roughly half of the government’s non-grant revenue. In which case we are bound to conclude, even at this early stage in the argument, that if there is something inherently ‘unsustainable’ about the way that this kind of business is being conducted, then every facet of the nation’s ‘political economy’ is in serious jeopardy.
Although my general argument applies to both the mining and forestry sectors, there are very substantial differences in the technical and political conditions of industrial development and in the constellation of social and economic relationships which constitute the policy process. For this reason, it is not possible to make a step-by-step comparison of the way in which these two forms of development policy have evolved over the last two decades; it is necessary to tell two entirely different stories and then to ask whether and why they might seem to have similar endings. The same problem arises when we embark on the business of defining ‘sustainable development’ and speculating on the prospect of achieving this goal in each of these sectors. Furthermore, the relationship between the immediate past and the immediate future in the evolution of the national forest policy process is currently obscured by a cloud of uncertainty. Since Table 13.1 demonstrates the extent to which the mining and petroleum sector continues to function as the backbone or undercarriage of the national economy, this discussion will focus on the distribution of resource rent and the problem of sustainable development within this sector.

**The technocratic consensus**

Not being an economist, I suppose that ‘resource rent’ is that particular form of ‘economic rent’ which is collected from the ‘resource sectors’ of the economy. Ross Garnaut, one of the original architects of Papua New Guinea’s mineral development policy, defines ‘economic rent’ as ‘the surplus generated from sales after paying the supply prices of all goods and services for production’ (1995:61). According to Garnaut, this is what gets distributed between the various stakeholders who have some kind of veto power over the process of resource development, but it is also liable to be reduced by the impact of stakeholder conflict on what he calls the ‘supply price of investment’. I am somewhat mystified by this latter turn of phrase, so I shall instead address the social costs of doing business, recognising that these are costs to business itself, as well as to ‘society’, and that they do reflect the incidence of political conflict over the distribution of an economic surplus.

Unlike an economist, I shall also allow myself the luxury of believing that the distinctions drawn between those transactions which count as ‘distribution of an economic rent’ and those which count as the ‘purchase of essential services’ or the ‘payment of social costs’ are not simply a matter for academic debate but also the subject of stakeholder conflict. We are not dealing here with facts as obvious as the difference between
a piece of cake and the effort of wielding a knife; we are dealing with questions as delicate as the choice of a label for BHP’s payment of Slater and Gordon’s expenses in the latest Ok Tedi ‘settlement’. And my own interest, as a social scientist, does not lie with the definition or measurement of various forms of monetary income, much less with the construction of mathematical models of relationships between them, but with the nature, direction and impact of political conflict over the distribution of the ‘economic surplus’ generated by extractive industry in Papua New Guinea.

It is not difficult to make lists and tables which display the most transparent or explicit forms in which this surplus has been distributed between the various stakeholders engaged in the business of extracting Papua New Guinea’s natural resources. But these transparencies are themselves the product of that ‘technocratic consensus’ whose validity has been constantly challenged and seriously wounded during the second decade of Papua New Guinea’s own national policy process. In order to illustrate and discuss the technocratic consensus on the distribution of resource rent, I shall therefore begin with its greatest triumph and its greatest disaster—the Bougainville copper project.

The distribution of Bougainville Copper Ltd’s (BCL’s) ‘net revenues’ in its last full year of operation is shown in Table 13.2. From the technocratic point of view, the first thing to be noticed in this table is the division of these revenues between national and foreign stakeholders. By securing just over 70 per cent of BCL’s surplus in that year, Papua New Guinea got what most orthodox economists would regard as something very close to the maximum national share which is compatible with the maintenance of a constant incentive for further foreign investment in the mining sector. From a strictly financial point of view, 1988 was a good year for BCL. In other years, or with other projects, when there is less of a surplus to go round, the maintenance of a constant investment incentive may require some reduction in the national share of the cake. But we are told that, in the hard-rock mining sector, the optimum national share should average something between 60 per cent and 70 per cent of the total, while in the petroleum sector, it should average something between 70 per cent and 80 per cent.

The technocratic consensus also tells us that the most efficient way to collect this optimum national share of the surplus on a regular basis is by taking most of it in the form of taxes which are sensitive to the rate of profit. Two such forms of taxation—corporate income tax and dividend withholding tax—accounted for more than 62 per cent of the
Table 13.2. Distribution of BCL net revenues in 1988 (million kina)

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividends to foreign shareholders</td>
<td>71.9</td>
<td>29.5</td>
</tr>
<tr>
<td>Dividends to Papua New Guinea shareholders</td>
<td>31.9</td>
<td>13.1</td>
</tr>
<tr>
<td>State</td>
<td>23.7</td>
<td>9.7</td>
</tr>
<tr>
<td>Other</td>
<td>8.2</td>
<td>3.4</td>
</tr>
<tr>
<td>Tax payments to national government</td>
<td>132.7</td>
<td>54.4</td>
</tr>
<tr>
<td>Corporate income tax</td>
<td>93.2</td>
<td>38.2</td>
</tr>
<tr>
<td>Group tax (P.A.Y.E.)</td>
<td>10.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Customs duties</td>
<td>14.0</td>
<td>5.7</td>
</tr>
<tr>
<td>Dividend withholding tax</td>
<td>14.5</td>
<td>5.9</td>
</tr>
<tr>
<td>Other</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Payments to provincial government</td>
<td>7.1</td>
<td>2.9</td>
</tr>
<tr>
<td>Royalties</td>
<td>5.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Taxes</td>
<td>1.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Payments to local landowners</td>
<td>1.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Compensation</td>
<td>1.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Royalties</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>243.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Bougainville Copper Limited company records.

The third element of the technocratic consensus is the level of central government control over the distribution of the national share of the surplus (Table 13.2). It looks as if the central government took more than 90 per cent, and the State as a whole more than 95 per cent, of

national share of BCL’s surplus in 1988 (Table 13.2). In Papua New Guinea’s fiscal regime, the dividend withholding tax has normally been levied at the fixed rate of 17 per cent on all dividends paid to foreign shareholders, but the basic rate of corporate income tax has been set at different levels for petroleum projects (50 per cent), large-scale mining projects (35 per cent) and medium or small-scale mining projects (25 per cent). Much has also been made of the ‘additional profits tax’ which companies are liable to pay, in addition to their corporate income tax, on any profits which exceed a 20 per cent annually compounded return on their total investment, but it seems that company accountants have done a reasonably good job of minimising the incidence of such excess. Furthermore, the government itself has allowed the companies to depreciate various forms of capital expenditure for taxation purposes, thus providing further fiscal incentives for the creation of a stable, ‘normal’ rate of profit.
this national income from BCL in 1988. In one respect, this appearance is somewhat misleading, since we know that the formula used to determine the level of ‘minimum unconditional grants’ from national to provincial governments was one which allowed the North Solomons Provincial Government to capture a substantial additional slice of this particular cake. Nevertheless, the technocratic consensus contains a number of arguments which have been used to justify a very high level of central government control over the distribution of mineral resource rents. These may be summarised as follows.

- The economic benefits of the mining and oil industries are not to be found in the creation of new national business and employment opportunities, in which respect they may well do more harm than good, but rather in their contribution to a national investment fund for the creation of physical and social infrastructure. The proper management of such a fund is the proper task of central government.

- The money from these mineral cash cows flows in uneven quantities, depending as it does on the violent fluctuations of world commodity prices. Only central government has the institutional capacity to ‘sterilise’ this stream of money by filtering the greater part of it through the Mineral Revenues Stabilisation Fund, thus avoiding the temptation to spend more than it can afford.

- The State has an honourable constitutional commitment to promote an ‘equitable distribution of incomes’ between different parts of the country. While it may be true that mineral resources have a strange habit of being developed in some of the most remote and backward parts, a small number of scattered mining enclaves will still tend to widen the gap between rich regions and poor regions unless central government uses a significant portion of mineral revenues to achieve the opposite effect.

Taken together, these three arguments have an obvious corollary, which is that other national and local stakeholders lack the capacity of central government to absorb and invest the mineral windfall for what the Constitution describes as ‘the benefit of future generations’. From which it seems to follow that these other stakeholders should receive only as much of the surplus as it takes to create the conviction that all have gained more than they have lost from the development of their national resources. But on this last score, it looks as if someone made a
serious miscalculation of the amounts required to achieve this aim on Bougainville, and that is why the country’s first and foremost cash-cow kicked the bucket.

Table 13.2 already contains a couple of ‘structural faults’ which betray the prior need for compromise with less enlightened points of view. The technocrat has argued that mineral resources should remain the property of the Crown because the State alone has the right and the capacity to regulate their exploitation for the benefit of the nation as a whole. But this worthy principle has long since been diluted by the concession already made in the Bougainville case, that mineral royalties should not only accrue to the government of the province in which the resources were located, but that 5 per cent of them should be passed back to the customary owners of the land which covered these resources, as if to say that they owned 5 per cent (no more, no less) of what was underneath the ground. Likewise, the technocrat has argued that State equity in mining projects does not help to maximise government revenues from mineral exploitation, nor does it help to achieve the parallel aim of maintaining effective government control over the behaviour of mining companies. But the government of Papua New Guinea has constantly maintained, and has normally exercised, the option of becoming a minority shareholder in successive mining projects in order to maintain the symbolic role of State property as a symbol of national pride, wealth and power. It is true that the government secured a substantial stream of dividends from its 20 per cent equity stake in BCL, but there were also significant opportunity costs in the purchase of these shares, and their value has declined considerably in the period since 1988.

If, in light of recent changes in national mineral development policy, we were to construct a version of Table 13.2 to show the prospective distribution of net revenues from a new mining project of similar dimensions to the one which is no longer operating on Bougainville, it might appear that there has not been too much change at all. The most striking difference would probably be seen in the payment of all mineral royalties to local landowners, which, in light of the recent decision to raise the royalty rate itself, would raise their share from less than 1 per cent to more than 4 per cent of the total surplus. If dividends were being paid, the table would probably also show that some of these were being paid to landowners and provincial governments in respect of the equity which they are now being offered at rather tempting prices, and this might even raise landowner incomes.
to something more like 10 per cent of the total. But we would not be able to detect any significant difference in the forms and amounts of taxation levied by central government, and if the tax regime continues to serve the purpose for which it was designed, then the total national share of the surplus would still be much the same.

On the other hand, there are three reasons to doubt whether tables of this kind provide an adequate reflection of the actual dynamics of the mineral policy process.

- First, they are constructed from the standpoint of the ‘first receiver’ in the ball game, and thus conceal the significance of ‘second-phase play’ between the various stakeholders.
- Second, they do not tell us whether the rules governing the distribution and redistribution of mineral resource rent are having any impact on the levels of capital investment in the mining and petroleum sectors.
- Third, they fail to tell us anything about the less transparent ‘social costs’ of doing this kind of business—or, if you like, the number and price of those ‘special services’ which are essential to the reproduction of capital in this peculiar political environment.

Now if we find evidence of a long-term decline in the level of capital investment in Papua New Guinea’s mining and petroleum sector, and if we also find that changes in the fiscal regime are insufficient to explain the extent of this decline, then we should maybe take a closer look at the ‘second-phase play’ and the ‘hidden social costs’ before we find the rest of our explanation in the ebb and flow of the world market.

Before proceeding further with this kind of analysis, we should look more closely at the roles, characters and costumes which actors assume when they engage in their dramatic struggle over the distribution of mineral resource rent. To use the more fashionable terminology, we need to consider the way that different groups of stakeholders have come to determine their separate interests and mutual relationships in the resource development policy process in Papua New Guinea.

**Stakeholder relationships**

One possible picture of stakeholder relationships is presupposed and reproduced by one particular instrument of mineral development policy, the Development Forum (Figure 13.1). In this case, the interests of each collective stakeholder group are defined by their participation in a series of contractual relationships with each other, where the contracts them-
selves are all designed and organised by government officials. In this respect, Figure 13.1 represents the technocratic picture of stakeholder relationships in the mining and petroleum sector, and thus helps us to see that the technocratic consensus is not just an agreement about how to divide up a pile of money, but is also an agreement about the identity—and perhaps the motivation—of the recipients, which goes on to entail certain strategies for the management and control of stakeholder conflict.

Yet there are several ways in which this picture of the 'forum concept' tends to misrepresent the actuality of stakeholder relationships. First, it shows that the State is literally 'on top of the game', but that is only because I have deliberately drawn the diagram from the point of view of a public servant, and even from that point of view, I might just as well have located the provincial government box beneath, and not alongside, that of the national government.

Second, the national government represents the interest of all national stakeholders insofar as these are distinct from the local stakeholders who are either residents of a specific province or members of a particular landowning community. Of course, local stakeholders are also national stakeholders, and therefore have as much right as anyone else to claim that they represent Papua New Guinea’s national interest, even if their own interests are not represented by the national government, but there are also many other national stakeholders who do not think that their own interests are represented by the national government,

---

**Figure 13.1. Stakeholder relations in the ‘development forum’**

Provincial government \(\rightarrow\) MOU \(\rightarrow\) National government

MOU \(\rightarrow\) MDC or PDA

MOU \(\rightarrow\) Landowning community

MOU \(\rightarrow\) Resource developer

Note: MOU—Memorandum of Understanding; MDC—Mining Development Contract; PDA—Petroleum Development Agreement
and many stakeholders within the ranks of national government whose own contributions to the national policy process are based in the pursuit of purely local interests.

It would therefore be more accurate to say that the boxes which seem, at first sight, to contain the representatives of the national government, the provincial government, and the landowning community, in what seems to be a four-way process of negotiation with a particular foreign company over the development of a specific mineral resource, are each actually occupied by a number of individuals (for example, national or provincial politicians) and organisations (for example, national or provincial government departments) whose own interests are by no means identical (see Filer 1990). This means, amongst other things, that the government’s interest in a mining project is a very difficult thing to pin down, and so likewise is the idea of a ‘government strategy’ for dealing with either landowning communities on the one side or mining companies on the other side of the negotiating table.

Since mining and petroleum projects are, by their very nature, grounded in particular physical locations, the local interests of all national stakeholders who take part in the negotiation of any particular project cannot be reduced to the simple distinction between three ‘levels’ of government or three ‘scales’ of policy formation, but depend on the relative proximity of each stakeholder group to the project in question. On the other hand, since people are not tied to particular physical locations, their claims to belong to the area in which each project is located are themselves subject to manipulation and contestation, as evidenced by recurring disputes over the definition of ‘landowning communities’ and ‘areas of preference’ in the mineral policy process.

The final problem with Figure 13.1 is that it conceals the existence and significance of several stakeholder groups who exercise a distinctive influence on the policy process, at one level or another, without necessarily claiming to represent the interests of the companies, the governments, or the communities which have an official role to play in negotiating the development of a particular project. The sense of frustration which such ‘unofficial’ stakeholders arouse in the mind of the true technocrat is nicely exemplified by the complaint of a former Secretary of the Mining and Petroleum Department in a 1992 conference paper, that ‘foreign carpetbaggers’ and ‘environmental fanatics’ were the two main threats to the stability of the local industry (Post-Courier 1 September 1992).

The Development Forum should therefore be compared to a single act or scene in a larger drama whose cast is not confined to the four
characters whose roles are recognised in Figure 13.1, and there is no reason to assume that this is the last act or scene in the play.

An alternative picture of stakeholder relations in the national policy process is presented in Figure 13.2, where the central contest between 'technocrats' and 'landowners' over the distribution of a pile of national natural resources is the name of the game in which a wide variety of more specific groups of social actors are invited (or invite themselves) to play some role and gain some benefit. During the first decade of national independence, when the technocratic consensus really did seem to regulate the process of mineral resource development, some commentators were inclined to regard this central contest as a form of class struggle. Peter Fitzpatrick, for example, in his keynote speech to the 1982 Waigani Seminar, argued that

The State occupies a central position which the technocracy uses to consolidate its class power. In this, it blocks any challenging advance of the national petty bourgeoisie, even at the price of tolerating and encouraging foreign domination (1985:29).

My own preference, with the benefit of hindsight on the vagaries of the national policy process in the second decade of independence, would be to construe the struggle between technocrats and landowners as an opposition of voices or perspectives which may be articulated or adopted by all manner of people—including politicians, businessmen

---

**Figure 13.2. Stakeholder relations in another dimension**

```
<table>
<thead>
<tr>
<th>National stakeholders</th>
<th>Technocrats</th>
<th>Foreign stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Politicians</td>
<td></td>
<td>World Bank</td>
</tr>
<tr>
<td>Public servants</td>
<td></td>
<td>AusAID</td>
</tr>
<tr>
<td>Businesspeople</td>
<td></td>
<td>Multinational</td>
</tr>
<tr>
<td>Lawyers</td>
<td>Money, milk and honey</td>
<td>Lawyers</td>
</tr>
<tr>
<td>Villagers</td>
<td></td>
<td>Greenies</td>
</tr>
<tr>
<td>Consultants</td>
<td></td>
<td>Carpetbaggers</td>
</tr>
<tr>
<td>Mineworkers</td>
<td></td>
<td>Academics</td>
</tr>
<tr>
<td>Journalists</td>
<td></td>
<td>Journalists</td>
</tr>
<tr>
<td>and so on</td>
<td></td>
<td>and so on</td>
</tr>
</tbody>
</table>
```
and public servants—whose interests may draw them to one side or the other, depending on the context or the issue which engages them.

Let me illustrate the technocratic voice, the voice of ‘rationality’, with part of a statement made in the National Parliament by the Minister for Minerals and Energy, John Kaputin, back in November 1987:

The Government’s policy towards the mineral sector has been formulated so as to encourage the development of those natural resources by ensuring investors receive an appropriate return while the State secures optimum benefits. It is recognised that most mining developments individually are neither extensive employers nor can they support large infrastructure. However, development of a mineral deposit is viewed in the wider context of social and economic development objectives. These include, as far as possible, the creation of employment opportunities for Papua New Guineans, the encouragement of greater participation in ventures by Papua New Guineans, the growth of a PNG service industry, the decentralisation of infrastructure development, and the generation of tax revenues (Nuijini Nui 14 November 1987).

As with most ministerial statements, it seems quite likely that these are not the minister’s own words, but the ritual product of a senior public servant. There have been other occasions over the last decade when the former minister has sounded much less like the typical technocrat in his public comments on mineral development policy. On the other hand, he has normally eschewed the kind of ‘grassroots landowner’ perspective which is illustrated by the following excerpt from a newspaper feature article on the vexed question of resource compensation:

When landowners stand with their compensation claims, it is not done in a vacuum. They stand opposed to the cunning, the smart, the educated and the exploiters. They stand, used and abused, and their land so often taken from them. It is in this light that we must look at compensation demands. Only then can we begin to understand why the people in the outlying areas of our country seem to have the urge to create problems for the Government, to provide challenges to their authority. The complicated bureaucratic bungling, the ineffective administration of resources, the unequal distribution of national income, an economy making a few rich and many poor, unequal distribution of services ... you want reasons for ‘unreasonable’ compensation demands? There you have them... All these factors play a part in urging the rural people to get benefits any way they can. It allows the powerless to grab a little power in this unequal world that is Papua New Guinea (Post-Courier 31 January 1992).

I do not know the author of this article, Mr Koreken Levi, but I should not be surprised if I were to find him, one day, sitting in an office...
in the Department of Mining and Petroleum writing a ‘technocratic’ speech for his minister.

My point is not that Papua New Guineans are hypocrites, or that they have a constitutional incapacity to sustain an internally consistent political position. My point is that many national stakeholders do not have the kind of interest in mineral development policy which would necessarily place them on one side or the other in this ‘dialogue of the deaf’. And that is partly because the ‘landowner’ is a person to whom the ‘distribution of resource rent’ is itself a foreign concept. I made this point some years ago, when analysing the origins of the Bougainville rebellion.

Central government departments (and their ministers) may be talking primarily about the distribution of quantifiable economic benefits, including compensation for quantifiable environmental costs, while other participants often appear to be talking about the distribution of ‘rights’ or ‘powers’ (to say ‘yes-or-no’), or about costs (and even benefits perhaps) which cannot be quantified or priced. In addition, much of this debate has a David-and-Goliath quality, in which the ‘customary landowner’ is counterposed to the wicked multinational corporation and its political or bureaucratic allies, and emotional identification with the underdog or the ‘grassroot’ simply fails to engage with an economic discussion of costs and benefits (Filer 1990:100).

We should not be surprised to hear some tremor of indignation in the technocratic voice whose owner is obliged to listen to the motley crowd of stakeholders or stallholders who are constantly trying to squeeze themselves into the space reserved for ‘true landowners’ in the national policy process. Here speaks a former academic and sometime public servant now employed as a ‘landowner expert’ in the oil industry.

Usually some landowners whom their own group refused to nominate as representatives will seek support from advisors, politicians, former politicians, lawyers or former lawyers in order to try all kinds of means to destabilise the true landowners and get some form of involvement for themselves personally. As a rule, the louder the noise the weaker the claim (Power 1993:3).

And here speaks Professor Ross Garnaut, sometime diplomat and long-time academic, noted for his contributions to the resource rent concept.

Like blowflies to a wound, lawyers and consultants swarm to aid any party that might conceivably be able to disrupt the development of a mine, and therefore claim a part of the rent. This ensures that distribution of mineral rent is rarely a simple technocratic process embodying a sovereign authority’s preferences in the national interest, but rather the resultant of complex political forces (Garnaut 1995:62).
There are three aspects of this complexity which seem to me to be worthy of mention at this juncture.

- Although the contest between landowners and technocrats can be, and often has been, portrayed as a sort of struggle between national and foreign interests, like the Melanesian Way of subverting the World Bank, there is a growing cast of both national and foreign stakeholders who, like Professor Garnaut’s blowflies, are liable to turn up on either side of the country’s resource development discourse.

- Even those stakeholders, national or foreign, who conceive their own function to be the maintenance and defence of the ‘technocratic consensus’ on mineral development policy do not thereby exclude themselves from the right and the obligation to represent what they conceive to be the real interests of the ‘true landowners’; and there are even some ‘true landowners’ who are keen to repay the compliment.

- Finally, just because we are dealing with a game whose object seems to be the distribution of a pile of money, this does not mean that the participants all share the same conception of material wealth, or that all regard the pursuit of material wealth as the main motive for their participation.

Which points having been made, I shall now try to illustrate in greater detail the general argument with which I began this chapter, by telling the story of what I call the ‘decomposition of mineral policy’, meaning the decline of the technocratic policy regime, over the course of the last decade.

**The decomposition of mineral development policy**

My task here is to review the ‘progress’ of the mineral policy process since 1985 in order to establish the sequence of policy decisions which have affected the distribution of resource rent, the ‘hidden social costs’ of doing business, and the political relationships between those stakeholders who have a significant stake in the mineral policy debate. There are several ways this story could be told. A distinction might be drawn at the outset between a sequence of decisions or events which serve, like so many signposts, to mark the unravelling of the technocratic consensus on mineral development policy, and a number of relatively permanent threats or pressures, like the endless debate on the question of mineral rights, which constantly affect the question of ‘sovereign risk assessment’ or the ‘legitimacy of the state’ and the effectiveness of its power.
Another distinction could be drawn between those policy debates and decisions which are truly 'national' in their coverage and impact, and those which have primarily been concerned with the development of specific projects. Since the national policy process in Papua New Guinea does not allow either of these distinctions to be made with clarity and consistency over any substantial period of time, I have chosen instead to tell a single story which starts in 1985 and ends, for the time being, in 1996. I have therefore been tempted to portray the policy process as one to which each of four successive coalition governments has made its own particular contribution.

On the other hand, I have also tried to make some allowance for the fact that 'national government policy' in Papua New Guinea has rarely been more than the sum of specific ministerial or sectoral policies, whose formation owes much more to the fluctuating balance of power in an enduring contest of sectional interests than it does to the general concept of development espoused by the government of the day.

If it is true that the technocrats retained effective control over the formulation of mineral development policy throughout the first decade of national independence, then it is only with the benefit of hindsight that we can see the first cracks appearing in this edifice during the years of the first Wingti–Chan coalition government, from the end of 1985 to the middle of 1988. John Kaputin, who held the Minerals and Energy portfolio for most of this period, was normally content to follow the advice of his departmental officials, and these latter had good reason to believe that they were presiding over a mineral exploration boom which proved the wisdom of existing technocratic regulation. Such wisdom was perhaps less evident in the Sixth Supplemental Agreement between the State and Ok Tedi Mining Limited, in which the benefits of copper mining to the national economy were allowed to override the natural justice of compensation claims by downstream landowners. And of course, we can now say that this government went on to make an even greater mistake in its failure to heed and deal with the first signs of devastating conflict over the distribution of national income from the Panguna copper mine—a failure which might have been partly due to the feelings of pride and complacency with which the technocrats regarded the provisions of the renegotiated Bougainville Copper Agreement of 1974.

But if we are looking for the causes of local outrage over the national management of mineral revenues in the period from 1985 to 1988, some emphasis must also be placed on the Placer Pacific share issue—the share float which was meant to broaden the base of national support for
Placer’s investments in Papua New Guinea, but which almost had the opposite effect when a buoyant share market created a quick windfall profit for those citizens and residents who had the wherewithal to take advantage of the opportunity. The question which occupied so much space in the national newspapers during the last three months of 1986 was whether the many politicians and senior public servants who had taken advantage of this opportunity, and most especially Sir Julius Chan in his capacity as Minister for Finance, had thereby breached the conditions of the country’s Leadership Code. Technicalities aside, the point at issue here was not the validity of any specific government policy, but the economic morality of a national political élite. Some commentators have seen the Placer Pacific share issue as an illustration of the ‘parasitic and dependent’ relationship between this national élite and the foreign mining companies with whom they do business (Banks 1990:114). But it was surely more than this. Given the widespread evidence of an upsurge in mineral exploration, it also signalled a new climate of opinion, a sort of ‘mental mineral boom’ in which the popular expectation of great wealth was linked to the popular conviction that there was no such thing as a ‘national interest’ in the distribution of mineral resource rent.

The significance of such beliefs in the conduct of the 1987 national election campaign may well have been underestimated because the election failed to yield a change of government, but the appearance of political continuity did nothing to conceal, and may even have exacerbated, the sound and fury of local stakeholders demanding an end to the ‘parasitic and dependent’ relationship whose image was now firmly entrenched in the national consciousness. No national politician did more to promote this populist cause than the leader of the Melanesian Alliance, Father John Momis, whose own election campaign featured the so-called ‘Bougainville initiative’, demanding a radical redistribution of BCL’s economic surplus in favour of his own constituents in North Solomons Province, and possibly encouraging the far more radical demands which were soon to be made by Francis Ona and his militant supporters.

These expressions of dissent could not induce a fundamental reorientation of mineral development policy precisely because they could not accommodate an alternative conception of the national interest. Indeed, the Namaliu–Diro coalition which took over the reins of government in the middle of 1988 did rather more than its predecessor to maintain the strength of the technocratic consensus, despite the fact
that its Minister for Minerals and Energy, Patterson Lowa, was himself a member of the Melanesian Alliance. This was the government which ratified the Seventh Supplemental Agreement for the Ok Tedi project in 1989 and went on to secure the passage of a new Mining Act in 1992—both pieces of legislation which embodied the basic principles of technocratic regulation. Nevertheless, it was now quite clear that these principles would have to be amended in order to accommodate a variety of local and personal interests united by an 'ideology of land-ownership' which was largely impervious to the logic of an orthodox economist.

It soon became clear that the Bougainvillean rebels had passed beyond the point at which their own interests could be accommodated by a modified version of the technocratic consensus on the distribution of mineral revenues. The armed struggle which engulfed North Solomons Province was undoubtedly taken as a warning of what might happen if public servants and company executives failed to forge a new deal with local stakeholders in the mining sector, but once the Panguna copper mine had been forced to close down its operations in 1989, the task of articulating this new deal was largely detached from the business of ending the Bougainville rebellion. Both before and after the outbreak of that conflict, the search for compromise was not primarily directed to those projects whose mode of operation had already been agreed between the government and the developers, but to those two provinces, Enga and Southern Highlands, within which the future development of the Porgera gold mine and the Kutubu oil field was already the subject of a noisy dialogue between the putative stakeholders, and between which a great deal of additional noise was generated by the Mount Kare gold rush.

Politicians from these two highland provinces persuaded the National (that is, Provincial) Premiers Council to establish its own Working Committee to review the relationship between national, provincial and local stakeholders under existing mineral development policies. According to Thompson and Macwilliam, this was 'a crafty political attempt to shift the site of class struggle to the regional level where provincial class interests would have more control over the outcomes of productive and distributive policies' (1992:172). Amongst the various instances of conflict between national, provincial and local 'class interests', if such they can be called, I would say that this was an unusually transparent attempt to secure some modification of the technocratic consensus, and the actual recommendations of the Working Committee provided a model for subsequent negotiations.
Committee, presented in September 1988, were remarkable mainly for their moderation. While some provincial politicians had been demanding an increase in the mineral royalty rate from 1.25 per cent to 10 per cent of the value of production, the Committee recognised the validity of the technocratic critique of this particular form of taxation, and therefore presented the national government with a choice between

- raising the royalty rate to 2.5 per cent of the value of production and granting 20 per cent of the corporate income tax collected from each project to the provincial government of the province in which the project was located
- leaving the royalty rate at 1.25 per cent of the value of production, and transferring 30 per cent of the corporate income tax to the provincial government.

The Committee also recommended that the area of immediate project impact should receive special consideration in the spending of these larger provincial revenues, but it stuck to the technocratic argument against any increase in the size of direct payments to local landowners.

The national government’s response to these recommendations was to recognise the right of provincial governments and landowning communities to bargain for their share of the economic surplus generated by large-scale mining and petroleum projects developed in their respective domains, but not to concede anything of the national government’s sovereign right to negotiate the development contract directly with the developers. The Porgera gold mine was the first project to be subject to the tripartite process of negotiation between national, provincial and local stakeholders which soon came to be known as the ‘Development Forum’ (see West 1992). The outcome was a set of agreements which made three main concessions to the financial demands of the Enga Provincial Government and the customary landowners of the Special Mining Lease.

- Royalties were still to be collected at the rate of 1.25 per cent of the value of mine output, but the landowners were now to receive 20 per cent, rather than 5 per cent, of the total, while the provincial government’s share would be correspondingly reduced from 95 per cent to 80 per cent.
- The provincial government would be more than compensated for this loss by receipt of a ‘special support grant’ from the national government valued at 1 per cent of the value of mine output, and thus equivalent to the royalty share which it would retain, rather than the smaller share which it would lose.
The provincial government and the landowners would share 49 per cent of the state's 10 per cent equity stake in the Porgera Joint Venture, with an option to purchase the remaining 51 per cent after five years.

Once these agreements had been concluded in April 1989, the technocrats in the Department of Minerals and Energy lost no time in turning their provisions into a 'Basic Mining Package' which could be sold to provincial and local stakeholders in all other mining and petroleum projects in order to restore some semblance of stability to the mineral policy environment. In this endeavour they were only partially successful. There was nothing in the package which could save the Panguna copper mine from the clutches of the Bougainville Revolutionary Army. The 'forum concept' was successfully applied to the Ok Tedi and Misima mining projects, whose development contracts were already in place, though not without a good deal of aggravation in the process and several variations in the detail of the outcome. It proved even more difficult for the national government to balance the demands of the two provincial governments and various landowning communities with a stake in the development of the Kutubu oil field and its export pipeline, and some issues were still subject to dispute when the development licence was issued in December 1990.

By this time, the chance of securing a standard and durable arrangement for the redistribution of national mineral revenues along the lines pioneered by the Porgera forum agreements was already being diminished by the inability of the Enga Provincial Government to spend its greater share of these revenues in accordance with the letter of these agreements. As this reduced the flow of funds from the national government, the result was a rapidly widening credibility gap in the relationship between both levels of government and the local landowning community, whose own access to mineral revenues had already attracted a substantial influx of secondary claimants from near and far.

The same credibility gap was soon to become a routine feature of the Development Forum, and one which has posed an additional hazard for developers because their own facilities and personnel are obvious and immediate targets for local frustrations generated by the failings of a distant State. Placer Niugini's executives decided that the best way to deal with this problem at Porgera was to raise the company's own spending on social infrastructure in various parts of Enga Province and seek a corresponding reduction in its liability to corporate income tax. In this way, the company would have a financial incentive to use its
own engineering capacities to reduce the financial incentive for people in other parts of the province to come and settle in the immediate vicinity of the mine.

The national government was duly persuaded to introduce its Infrastructure Tax Credit Scheme in the 1992 Budget, allowing the developers of mining and petroleum projects to deduct 0.75 per cent of their assessable income for such expenditures. Since there were no corresponding reductions in the national government’s financial commitments to the provinces hosting these projects, this fiscal innovation entailed a further reduction in the national government’s own share of the resource rent.

Concessions of this sort could be justified as part of the political price which now had to be paid for maintenance of the institutional framework within which the technocratic consensus had been formed. But they could not so readily accommodate the lessons which certain sections of the national business and political élite thought they had learnt from the impact of the Mount Kare gold rush and the outbreak of the Bougainville rebellion. Chief amongst these was the belief—or at least the pretence—that ‘landowners’ would no longer be satisfied with the crumbs or peanuts cast in their direction from the distant tables of the State. When this belief was combined with the assumption that every automatic citizen was an actual or potential ‘landowner’ with a legitimate desire for ‘meaningful participation’ in the process of resource development, it soon led to the claim—and sometimes even the threat—that eruptions of popular resentment against the forces of multinational capital could no longer be contained without some fundamental redistribution of mineral resource rights and resource project equity between those national stakeholders whose own sense of national identity and unity had been sacrificed on the altars of the technocratic regime. The questions raised in this way could not be answered by the construction of a new formula for the distribution of resource rent or by the offer of occasional participation in the new form of State ritual known as the Development Forum.

The actual distribution of resource rent from the Mount Kare gold rush in 1988 was far less significant for the maintenance of the technocratic regime than the signal inability of government to regulate the social and economic process by which it was initially generated and through which it very rapidly evaporated. Since the government had already granted CRA the mineral prospecting rights in this area, and CRA’s own geologists had made the discovery which triggered the gold
rush, the removal of free gold by an evanescent horde of small-scale miners was arguably an illegal act, yet one which enjoyed such obvious and widespread popular support that it was widely seen to deny the legitimacy of the government’s claim to ownership of mineral resources located in or under customary land.

The result was three years of inconclusive debate in which various attempts were made to dilute or challenge the strength of this claim. During this time, the technocrats in the national government decided to ‘compensate’ CRA for its earlier losses by granting the company a Special Mining Lease over the area from which the free gold had already been removed, and in which the economic feasibility of large-scale mining was still questionable. This decision had the unfortunate effect of exaggerating the expectations and demands of the many local stakeholders whose earlier participation in the gold rush had understandably served to whet their appetite for another slice of this rich cake. In this way, the debate about the ultimate ownership of mineral resources was translated into an argument about the allocation of rights to explore and develop those resources which could not simply be ‘stolen’ from the State. While some commentators (for example, Larmour 1989) were pointing out that the State could still exercise effective control over the distribution of mineral revenues even if it conceded the ultimate ownership of mineral resources to customary landowners, the ownership of Mount Kare was becoming a battleground in which the political conflict between local stakeholders was threatening to undermine the government’s ability to regulate the process of production.

From the technocratic point of view, the critical factor here was the government’s capacity to sustain a version of the ‘finders-keepers’ rule, by which foreign investors who risked their capital in the hazardous business of mineral exploration could be assured of the right to develop whatever resources they discovered, under conditions which would guarantee them a predictable and reasonable share of the economic surplus arising from the development. The greatest threat to this capacity during the period of the Namaliu government came not from the bickering over an unproven mineral resource at Mount Kare but from a series of concerted efforts to establish a new kind of ‘national control’ over the proven reserves in the Kutubu oil field.

Towards the end of 1989, five prominent national capitalists gathered under the title of Monticello Enterprises and set out to persuade other stakeholders in the Kutubu project that the Kutubu Joint Venture’s right
to extract and sell the oil which it had discovered should not entail the right to build and own the pipeline and other export facilities. Instead they proposed that this latter right should be vested in a separate corporate vehicle, to be known as the Papua New Guinea Pipeline Company, in which PNG citizens and national institutions would hold at least 51 per cent, and foreign oil companies no more than 20 per cent, of the shares. Needless to say, this proposal was none too popular with the oil companies themselves, or with some senior government officials, first because it was inconsistent with the Petroleum Act, and second because it would prevent the Kutubu Joint Venture from deprecating the cost of pipeline construction against its liability to corporate income tax (Brunton 1992). Between April and July 1990, the proposal was subject to intense debate in the local press and the national parliament, and government ministers were also divided on its merits. The technocrats won this argument because the proponents were unable to convince a majority of national stakeholders that their own personal interest in the outcome was secondary to a conception of the national interest which appeared to entail a further transfer of wealth from the public purse to several private pockets. But they had to fight the same battle all over again during the final months of the Namaliu government, when Cabinet was persuaded to consider the formation of a National Oil and Gas Company which would collect its own share of Kutubu’s resource rent through the local monopoly or ‘coordination’ of various forward and backward linkages created by the process of extraction.

The installation of the second Wingti–Chan coalition government after the 1992 national election effectively put an end to this particular battle, and the Kutubu Joint Venture was left to conduct its business in relative peace and quiet until the Development Forum caught up with it again in 1994. But this did not mean that the new government was content to accept the technocratic definition of the national interest. On the contrary, the new Prime Minister and his Minister for Mining and Petroleum, Masket Iangalio, lost little time in turning the battle of Mount Kare into a general assault on the multinational bastions of the hard-rock mining industry, and simultaneously turning a deaf ear to the sounds of technocratic advice emanating from the senior echelons of the public service. As a result, CRA was finally persuaded to turn its back on Mount Kare, though this brought little material comfort to its opponents, PJV was told to hand over a larger slice of its equity to the State, though the State could not find the money to pay for it, and RTZ was told to develop the Lihir project in a joint venture designed by ministerial advisers, and simply refused. There is no doubt that this
situation of stalemate caused a further loss of confidence in the ranks of major investors, and if this was seen in some quarters as the price which had to be paid for the consolidation of a new form of economic nationalism, there is little evidence to show that it has served to reduce the intensity of conflict between national and local stakeholders over the distribution of an economic surplus whose absolute size now seems bound to diminish with the further passage of time.

The vote of no-confidence which brought about another change of government at the end of 1994 may have reflected a wider vote of no confidence in the financial situation of the State, but it also repaired some of the broken lines of communication which serviced the technocratic regulation of the mining and petroleum sector. Although the new Minister for Mining and Petroleum, John Giheno, was thought to have backed the Monticello proposal in his occupation of another ministry in the Namaliu government, senior public servants and industry executives saw him as a pragmatist who was more interested in scoring goals through ‘constructive teamwork’ than in moving the goalposts around an increasingly muddy playing field. The first test of his skills was the conduct and conclusion of the Lihir Development Forum, and the main obstacle to his success was the intransigence of Lihir community representatives whose own sense of alienation from the State had led them to demand a much more substantial share of the projected resource rent than had hitherto been won by their counterparts in other parts of the country (see Filer 1995). This problem was magnified by the fact that Lihir was located within the electorate of the new Prime Minister, whose own reputation in the landowning community had been considerably damaged by his membership of the previous coalition government, and while John Giheno was not a member of the Prime Minister’s own political party, he was still expected to negotiate a set of agreements to which the Prime Minister would be the ultimate signatory. There were two main innovations in the deal which was concluded in March 1995.

- First, the community’s own local government body, the Nimamar Development Authority, would receive at least 30 per cent of the Special Support Grant allocated to the New Ireland Provincial Government, plus 30 per cent of the total royalties collected from the mining company, not counting the 20 per cent which was already due to the landowners of the Special Mining Lease.

- Second, the overall royalty rate would be raised from 1.25 per cent to 2 per cent of the value of the mine’s output, thus
increasing the value of the community’s 50 per cent share of the total royalties, in exchange for the community’s agreement to accept a 15 per cent equity stake in the project instead of the 20 per cent stake which its leaders had been demanding ever since the Wingti–Chan government threatened to reserve a 50 per cent stake for the nation as a whole.

In effect, the price of local support for a major mining project whose development was now seen to be an essential precondition of the nation’s economic recovery would now have to be some combination of reforms to the fiscal regime governing the whole mining sector and revisions to the set of forum agreements already made in respect of other projects.

The new royalty rate was indeed mentioned during parliamentary debate on the belated 1995 budget, and then announced again at the Mining and Petroleum Investment Conference in Sydney, where Minister Giheno himself conceded that it had been introduced as a ‘safety valve’ to ‘let off pent-up expectation’. It had now been bundled up in a package of mineral policy amendments, whose other main ingredients were

- the promise to provide landowners with a certain amount of ‘free equity’ in new mining and petroleum projects
- an undertaking to extend the scope of the Infrastructure Tax Credit Scheme to cover 2 per cent (instead of the present 0.75 per cent) of a developer’s assessable income.

It is interesting to note that this package of novelties, introduced in the midst of a major fiscal crisis, would have the obvious and immediate effect of reducing national government revenue from the mining and petroleum sector, either by making tax concessions to the developers or else by meeting the ‘pent-up expectations’ of landowners and provincial governments. The new royalty regime was actually designed to do both these things, since developers were assured that the extra royalty would be treated as tax already paid to (and then to be given away by) the national government. This did not prevent industry representatives from complaining that the new royalty rate, like the promised transfer of ‘free’ project equity to resource owners, would create more local jealousies and conflicts without necessarily reducing anyone’s expectations or demands. And they had even more cause for complaint when the government brought down the 1996 Budget, because the one item in the package which would have been most favourable to themselves, the promised extension of the Tax Credit Scheme, was passed over in silence.
The new Organic Law on Provincial Government and Local-level Governments promises to continue the existing trend to redistribute mineral revenues from the national government to a small elite of ‘lucky-strike’ communities. Under Section 98, which deals with ‘Benefits Derived from Natural Resources’, the share of mineral royalties disbursed to project landowners is raised from its presently variable but constantly increasing level to 100 per cent of the total collected by the government. This measure does have the advantage of restoring an element of consistency between the new projects to which the new formula will apply, but this gain is arguably outweighed by other costs and risks. In particular, we are bound to wonder how long the landowners of existing projects will be persuaded by the force of Subsection 98(7), which points out that the provisions of Section 98 ‘do not affect existing agreements relating to natural resources which are in force before the coming into operation of this Organic Law’. For example, some of the Lihirians who thought they had done well to secure 50 per cent of the Lihir project royalties for the Lihir community through agreements signed in April 1995 might now be wondering whether they should have waited until the Organic Law was certified in July and then claimed the whole lot. On the other hand, the manner in which the Lihirians agreed to distribute royalty receipts amongst themselves—20 per cent to the landowners of the Special Mining Lease (SML), 30 per cent to their own ‘interim local-level government’—is one which would not be allowed under the terms of the new Organic Law. And that is another reason why the mining industry has been so vociferous in its complaints that this particular provision will create a much wider and more socially disruptive gulf between ‘project landowners’ (meaning SML landowners) and their neighbours.

Complaints about the new royalty regime seem to have fallen on deaf ears. Although the raft of amendments gazetted in September 1995 does contain some significant alterations to Section 98, a critical observer might well be forgiven for concluding that these are designed to intensify, rather than reduce, the level of conflict and confusion arising from the distribution of mineral royalties. For those subsections which specified that developers were to follow the existing practice of paying royalties to the national government in the first instance, and then required the national government to pass the whole lot back to the landowners, have now been replaced by subsections which include royalties in a general package of ‘landowner benefits’, along with ‘premiums, compensation and other assistance’, and require the
contents of this package to be given either to the national government, or to the relevant provincial government, or to the relevant local-level government, before they can be handed back to their rightful owners. While Lands and Community Relations officers around the country scratch their heads and wonder which type of benefit should be paid to which level of government, they will find no answer to this question in the wording of the new Organic Law. And the time it takes for the various benefits to make their way through the various levels of government will be extra time for landowners to imagine that their dues are being misappropriated along the way. If the law says that these benefits belong entirely to the landowners and originate with no-one but the developers, it is hard to see why the government should seek to do more than supervise or certify the transaction between the two parties. It might make sense for the government to do more than this if the government had left itself with the option of imposing a tax on the royalties to which it had once laid more substantial claim as the legal owner of the mineral resource from which the royalties derive. But this option seems to have been ruled out by the wording of Section 98, which says that government agencies involved in handling ‘landowner benefits’ shall not subject them to anything more than handling charges and a ‘nominal tax’. Papua New Guinea must surely be the only country in the world in which the State insists on its own legal ownership of all mineral resources, and then excludes itself by law from any share in mineral royalties, even by way of a royalty tax.

Supporters of the new Organic Law may now say that the State has taken steps to compensate itself for the loss of all royalty revenues by the imposition of an entirely new set of ‘development levies’ which the developers of new projects will henceforth be obliged to pay ‘to the Provincial Governments and Local-level Governments of the province or area in which the development is situated’. Subsection 98(2) goes on to list these as ‘infrastructural development levies’, ‘economic development and land use follow-up levies’, ‘community and social development levies’, and ‘any other levies as are from time to time determined by national law or by agreement’. Needless to say, the mining and petroleum companies have been even more alarmed by the prospect of paying an indefinite number of additional taxes than they have been by the prospect of local conflict over the distribution of royalties which are already lost to their accounts. Furthermore, the amendments gazetted in September 1995 look as if they were designed to rub salt into these wounds, since Subsection 98(4) now adds an obligation on
the developer to provide 'expertise and professional advice' on the use of these development levies to all three levels of government.

Some mining company executives believe that they have received an assurance from government officials that the new levies should be seen as a substitute for the Special Support Grant (SSG), and that this substitution somehow removes the threat of an additional tax burden. The levies certainly do bear comparison with the SSG to the extent that they are payments due to provincial and local-level governments, rather than the national government. The crucial difference is that the SSG comes from the national government's own consolidated revenue, even though it is calculated as a percentage of the value of some specific project output, and is therefore not a form of taxation at all but a transfer from one level of government to another. Since the wording of Section 98 leaves no doubt at all that the new levies are to be drawn directly from the developers' own pockets, it might make more sense for the mining companies to try and offset the value of these levies against the balance of their tax liabilities to the national government through an extension of the Tax Credit Scheme like that which they almost persuaded the government to grant them in 1995.

In that case, what would become of the Special Support Grant? Interestingly enough, it receives no explicit mention in the new Organic Law, though it seems that some allowance has been made for the continuation of this arrangement in Subsection 99(1), which declares that the National Government 'may, in accordance with an Act of Parliament or by contract, share with Provincial Governments and Local-level Governments the revenues of the National Government generated from the sources within a province and a local-level government area'. On the other hand, the amendments gazetted in September 1995 contain an interesting reminder of the recent failures of provincial governments to make good use of the SSG. Subsection 98(3), which originally stated that the development levies would be 'managed and controlled jointly by the Provincial Governments and the Local-level Governments', now states that they shall be 'controlled through a trust fund which shall be managed and administered in accordance with an Act of the Parliament'. This turn of phrase offers one glimmer of hope to those corporate accountants who have bothered to study the Eighth Supplemental Agreement for the Ok Tedi project. In light of the proven inability of the provincial government to make effective use of its own revenues in the development of Western Province, the national government now proposes to transfer the responsibility for actually spending
the SSG to OTML's Lower Ok Tedi Fly River Development Trust—a sort of 'taxation in reverse' which will enable (or oblige) the mining company to greatly extend its range of activities in the field of 'contract administration', and perhaps make up for the fact that it has not previously been able to take full advantage of the Tax Credit Scheme because it has not been making a big enough profit. If the mining and petroleum companies were to pay their development levies to trust funds administered by themselves, and then provide the various levels of government with 'expertise and advice as to the use of the development levies' in the shape of a record of what they had done with them, they would only be doing what OTML has already done, and they might even have a chance to convince the government to use the provisions of the Tax Credit Scheme to embrace the expenditures of the Trust.

Unfortunately, government has not done very much of late to clarify the options or their costs and benefits to each of the major stakeholders. The developers are certainly worried about this state of affairs, but their concern is currently modified by two considerations: those companies which are not involved in developing the Nena or Gobe projects can comfort themselves with the thought that Section 98 will not apply to them anyway, while those who are involved with these new ventures can seek alternative remedies in Subsection 98(6), which says that 'the rates, management, sharing arrangement, and application of the development levies' is yet another matter to be determined by a separate Act of Parliament. As I understand it, the Acts in question will have to be amendments to the Mining and Petroleum Acts which are currently in force. In March 1996 the Prime Minister went back to Sydney with what appeared to be a promise not to amend these pieces of legislation for another four years, though one must presumably wonder whether he has the power, even if he has the intent, to sustain this constitutional anomaly for such a period of time.

These considerations should serve to remind us that lawyers have now achieved a more prominent place in the long line of stakeholders queuing up for a share of the resource rent generated by the mining and petroleum sector. The recent settlement of the legal contest between BHP and recalcitrant landowners of Western Province provides the most striking illustration of this point. As part of this settlement, BHP has agreed to pay about K7.5 million to the lawyers representing the landowners, and this is said to be half the amount which the company has already spent on its own team of lawyers and public relations experts while defending the case. The other main ingredients of this settlement, including the relevant provisions of the Mining (Ok Tedi
Restated Eighth Supplemental Agreement) Act of 1995, are as follows

- Under the ‘general compensation system’ specified in that Act, OTML has already paid K14 million into a trust fund to provide compensation to local landowners for damage done to the Ok Tedi and Fly river systems during the first ten years of mining operations to the end of 1994, and further index-linked payments of at least K4 million per annum are to be paid into the trust for the remaining life of the project.

- Individual landowners may continue to claim compensation for specific damage under the terms of the Mining Act, and if they succeed in doing so, OTML has the right to deduct the value of such compensation, up to a maximum of K20 million, from the amounts due to the general compensation trust fund, but it has recently agreed that such deductions would be matched by top-up payments to the Lower Ok Tedi Fly River Development Trust, which is simply the general compensation mechanism established before the litigation began.

- OTML has now agreed that the general compensation fund will also be immune from deductions which it might otherwise have claimed, under the Eighth Supplemental Agreement, to meet the cost of implementing a new waste disposal scheme in accordance with the recommendations of an independent study of the available options.

- OTML has also undertaken, as part of the latest settlement, to construct a special ‘lower Ok Tedi additional benefits package’, with an estimated value of K40 million, in recognition of the unusual level of environmental damage incurred by landowning communities along the lower Ok Tedi River.

- As previously noted, the Lower Ok Tedi Fly River Development Trust will assume responsibility for the implementation of development projects identified by the Fly River Provincial Government for funding under the Special Support Grant.

- Following the precedents set by the latest round of forum agreements for other projects and general revisions to the fiscal regime, the people of Western Province will now receive the benefit of one-third of the government’s 30 per cent equity stake in OTML, which may not be very great, and the royalties levied on the mine will be raised from 1.25 per cent to 2 per cent of the value of output, thus providing some additional comfort to provincial and local stakeholders who have not been involved in the recent litigation.
And finally, the cost of compensation payments to the downstream landowners, including the cost of the litigation itself, will be deducted from OTML’s liability to corporate income tax. This last provision is the one which really strikes at the heart of the technocratic regime, because it almost certainly means that the national government will never be able to recoup its own investment in this project, and that is why the national government has, if anything, been more reluctant than BHP to settle the litigation at such a cost.

Of course, Ok Tedi is a special case. So was Bougainville. The second of Papua New Guinea’s large-scale mining projects continues to operate at a new price, while the first remains permanently shut. But one thing they do have in common is the probability that neither will henceforth make a positive net contribution to national government revenues. If the same fate were to befall the other large-scale mining and petroleum projects by which the government sets such store, then a very large question mark would be raised over the sustainability of the technocratic recipe for development in this sector. As matters stand, we can only note the continued accumulation of several smaller question marks. In the latest review of the Kutubu forum agreements, for example, we find that the national government has taken another pair of steps beyond the precedents set by the outcome of the Lihir Development Forum, firstly by granting the local landowner company a 7 per cent share of the state’s equity stake at no cost, and secondly by raising the level of the Special Support Grant from 1 per cent to 2 per cent of the value of output. These concessions fell considerably short of what some local stakeholders had been demanding, but there is no reason to assume that the government will be able to resist the pressure to turn these into general features of its development policy, and no reason to assume that the forum process will not continue to generate an indefinite number of new concessions in specific project negotiations which will then undergo the same transformation, each one representing a net deduction from the national government’s share of the nation’s mineral resource rent.

**Industry, state and society**

The recent history of the Development Forum gives no ground for us to believe that the national government has either the political will or the institutional capacity to halt or reverse its own inclination to transfer an ever-increasing share of mineral resource rents to local stakeholders. Even the most ardent technocrats concede that this instrument of
mineral development policy was and remains an essential and rational method of accommodating and incorporating the wide variety of local pressures and demands which have been accumulating in this sector. And indeed, over the last seven years, the forum process has contributed a good deal to the national government’s stated aim of securing the greater participation of local stakeholders in negotiating the conditions of resource development. Yet this seems, almost inevitably, to have been achieved at the cost of encouraging a zero-sum, short-term, adversarial pattern of relationships between government agencies and local communities as they continually struggle over the distribution of mineral royalties, project equity, special support grant (SSG) expenditures, and a variety of other benefits which can be debited to project revenues. Each new forum has increased the share of these benefits which accrue from a specific project to its own ‘landowning community’, and has correspondingly reduced the share which is retained by the national government.

This means that each new mining and petroleum project is liable to be developed under terms and conditions which immediately threaten the deals already done to facilitate the development of all existing projects. In this context, the government is unable to exercise its legitimate role as an agency of effective development planning in project impact areas, but normally stands condemned for its own failure to keep whatever promises it has made in some previous round of negotiations. This kind of failure provokes a corresponding resentment on the part of local communities, whose leaders are thus encouraged to make additional demands on the developers who have increasingly become the surrogate for government itself. And so the wealth, power and authority of the State appears to be trapped in a permanent crisis of governance.

If the technocrat now sees the Development Forum as an unavoidable institution with an unsustainable outcome, we should remember that the forum concept itself represents a technocratic understanding of relationships between stakeholders in the mineral policy process. If we ask how the changing distribution of mineral resource rent reflects the shifting balance of power between these stakeholders, our answer needs to recognise the diversity of creatures which now invade the body of the State to consume ‘their share’ of the economic surplus or else feed directly from the stomach of the Wicked Multinational Corporation. The victims of this process have recently sought to diagnose and limit their affliction by refusing to talk about ‘landowners’ in public, and talking about ‘project impact area people’ instead. In this way, they
both confirm and deny the extent to which an ideology of landowner-
ship now serves to contain and encourage what Ross Garnaut calls
'the emergence of a rent-seeking society, in which individuals and
groups see opportunities for advancement principally in terms of the
claims that they can lay on government and the resource industries' 
(1995:66). At the same time, we should be wary of assuming that we
are merely dealing here with some peculiar property of Melanesian
national culture (see McGavin 1994). Although there are sound economic
reasons to believe that Papua New Guinea is the prisoner of a 'resource
dependency syndrome' which affects the attitudes and behaviour of
many national participants in the mineral policy process (Filer 1995),
the recent history of the Ok Tedi compensation litigation reveals that
the rise of the unofficial stakeholder is a global, as well as a local,
phenomenon. And the State is the meat in the sandwich.

If the official construction of the Development Forum (Figure 13.1)
conceals the political dynamics of this process, its economic aspects are
likewise hidden by the technocratic definition of the economic surplus
and its component parts (Table 13.2). While technocrats like to complain
about goalposts being moved by unofficial stakeholders, they may not
notice that the same characters are also getting an increasing share of
the ball—primarily by 'selling dummies' to the government and the
developers. In other words, the government's own methods of measur-
ing the provincial and local shares of the resource rent generated by
each mining and petroleum project is one which increasingly under-
estimates the proportion which is finally diverted from investment to
consumption. On the one hand, the present fiscal crisis of the State
reveals a deep-seated institutional incapacity to invest the proceeds of
a transient mineral boom 'for the benefit of future generations'. On the
other hand, the likely transience of the boom is partly due to the State's
failure to regulate the 'hidden social costs' which keep eating into the
bottom line of company accounts—the landowner compensation
packages, area development trusts, local business monopolies, educa-
tional sponsorships and training programmes, provision of social services,
environmental monitoring and mitigation programs, sovereign risk
insurance, legal fees, security measures, public relations campaigns,
and so on.

Should we therefore conclude that the current system of production
and distribution in the mining and petroleum sector, under what remains
of the technocratic regime of accumulation, is inherently unsustainable?
The trouble with this question is that the definition and measurement
of ‘sustainable development’ is yet another bone of contention between the stakeholders in the mineral policy process. For example, popular wisdom—the wisdom of ‘the landowner’—tends to assume that ‘non-renewable’ resources exist in finite quantities, so that a certain rate of extraction must lead, over a certain period of time, to a situation in which they have literally ‘run out’. The technocrat replies that ‘known reserves’ of any mineral resource are liable, if anything, to increase faster than the rate at which it is extracted and consumed, because the current value of the resource is the factor that decides which known reserves are worth exploiting and how much money should be spent on finding more (see Beckerman 1995). From this point of view, the business of extracting mineral resources from a particular country will not cease to be ‘sustainable’ because it is undertaken too rapidly, or because it damages the physical environment, but because of some deficiency in the social and political institutions which are meant to ‘sustain’ the economic process of exploration and development. But the social and political scientists will then observe the need to distinguish between the sustainability of a certain form of ‘economic development’ and the sustainability of these supporting institutions, which must presumably be defined and measured by entirely different standards.

In which case, what remains to be said about the relationship whose existence is apparently highlighted in the title of this chapter—between the distribution of mineral resource rent and the sustainability of mineral resource development in Papua New Guinea? Is one pattern of distribution more or less sustainable than another, or are there several ways of distributing resource rent which would all be equally sustainable if only they were stable over time? Can we avoid the risk of a circular argument by finding an indicator of sustainability which neither measures the actual distribution of resource rent nor turns out to depend on the fallible concept of finite resources? Not being an economist, I hesitate to answer questions like this, but it looks as if the technocrats in the Department of Mining and Petroleum are using mineral exploration expenditures as their main indicator of sustainability, and this is perfectly understandable once we acknowledge that exploration is the activity which ‘creates’ new mineral resources. By this criterion the future does not look too bright. For example, the Department’s own figures tell us that hard-rock exploration expenditures have declined from almost K69 million in 1988 to just over K36 million in 1995, which means, in real terms (and in US dollars), a fall of more than 60 per cent over that period. If the government wished to reverse
this trend, then it might be well advised to reduce the tax burden on the mining industry, and in this sense to redistribute current resource rents between the developers and the other stakeholders (see Tilton et al. 1986:57). But if the recent transformations of the fiscal regime were ever intended to achieve this effect, there is little evidence that they have so far been successful.

Of course, the Department of Mining and Petroleum has a vested interest in sustaining the industry for which it is responsible. Some economists will say that policy measures which help to sustain this industry may still have a neutral or negative impact on the overall pattern of economic development, because countries like Papua New Guinea, which depend so heavily on the exploitation of their mineral resources, suffer as a consequence from strange afflictions like the ‘Dutch Disease’ or ‘Resource Curse’ (Auty 1993). In that case, the general cause of ‘sustainable development’ might best be served by policies or activities which have the effect of reducing the extent of this dependence. The technocrat may point out that it is not necessary to reduce the overall level of investment in the mining and petroleum sector to achieve this goal, provided that the government is able to ensure that a reasonable share of the mineral resource rent is being sensibly invested in other sectors of the national economy. But if this condition cannot be met, it might make more sense to slow down or discourage the growth of investment in the mining and petroleum sector, provided that the other sectors can compensate for the resulting fall in national income.

The figures in Table 13.1 suggest that the forestry sector has an especially important role to play in making up for the projected deficiency in mineral exports and revenues. They might also help to explain the present government’s apparent determination to speed up the allocation of new timber concessions to foreign logging companies, even at the cost of losing the financial support of the World Bank. Can it therefore be argued that the production and distribution of timber resource rent represents a viable alternative to the production and distribution of mineral resource rent as a method of keeping Papua New Guinea’s government and society in the style to which it has become accustomed? The simple answer to this question is a negative one, because the current levels of timber harvest are already close to the levels which can be sustained in the long term, the national share of the resource rent is already close to the level at which it will begin to discourage further investment in the timber industry, and there are no grounds for special optimism about the average price of Papua New
Guinea’s timber on the world market. Nor does it seem likely that the negative economic effects of mineral resource dependency will be greatly alleviated if the main alternative to mining rocks is mining forests.

Nevertheless, there are some institutional factors which help to explain the preference for logging projects over mining and petroleum projects. In hard-rock mining circles, Papua New Guinea is sometimes known as ‘elephant country’—the sort of place where you take big risks, spend big bucks, and end up with a few big projects. Nowadays, some wags might say that it is more like an elephant’s graveyard—where everyone’s favourite sport is to shoot the corporate monsters lumbering around a national park whose gamekeepers are all landowners in disguise. The bureaucratic construction of mineral resource development in this country bestows a high level of visibility, inflexibility and vulnerability on the large-scale, long-term investments to which it has hitherto been committed. By these criteria the logging companies and their investments are more like tree pythons which drop on unsuspecting landowners wandering in the overgrown grass on the edge of the bumpy playing field with the moving goalposts, squeeze the life out of them, coat them with saliva and swallow them whole, while the rest of the players have their mind fixed on the main game—hunting elephants.

This metaphorical contrast is not meant to support the popular belief that there is something especially ‘corrupt’ about the logging industry, but rather to gloss the difference between the technical, economic, political and ethical character of these two forms of resource development. After all, Papua New Guinea’s political landscape is remarkable even to its own native inhabitants as a place which is crawling with ‘snakes in the grass’, so one should hardly be surprised if it provides a welcome habitat for larger snakes which live in trees. And while it may be true that the typical logging project is more flexible, less visible, and less vulnerable than the typical mining or petroleum project, the same distinction can be drawn between large and small projects (or large and small companies) within each of these two sectors.

Within the mining and petroleum sector, it is sometimes argued that the gamekeeper-State should recognise its own incapacity to manage a herd of elephants and do more to encourage the development of medium-scale, medium-term investments of the type now represented by the new mines at Tolukuma and Wapolu. Some years ago Richard Jackson came to the conclusion that

a slowing down of the mining boom would not be a bad thing for everyone, including the miners, if it enabled the emergence of an
integrated programme of mining development of a size capable of being more readily digested by Papua New Guinea's bureaucracy and of a volume which did not force the pace of change in rural areas to a speed and extent which no-one can handle (1992:88-9).

If Papua New Guinea had a government which thought along these lines, the deliberate but seemingly accidental excavation of mineral policy potholes (or the use of sand and mud to fill them in) might actually be the most effective way of achieving a restricted form of development, precisely because the rural population has such great expectations of 'salvation by resources'. But if this means that national politicians cannot stand up and announce to the world (and the World Bank) that they want to slow down the rate of mineral extraction, it also means that they probably have expectations which are very similar to those of their constituents.

Indeed, this version of the argument that 'small is beautiful' has a number of drawbacks.

- First, it may lead us to assume that the current preference for 'downsizing' has been, or could be, the effect of a deliberate and concerted national policy when it may have rather more to do with the laws of the jungle. Many orthodox economists would certainly argue that 'the rate of development should be left to the commercial judgement of the developer' (Parsons and Vincent 1991:14).

- Second, the pythons would have to breed very rapidly indeed to compensate for the volume of mineral revenues which national stakeholders stand to lose from the extinction of the elephants. There is some doubt whether the policies of the government or the laws of the jungle can achieve this substitution.

- Third, the 'new wave' of medium-scale mining projects is largely directed towards the exploitation of resources previously explored by the larger mining companies which are now leaving the field. In this sense, they are more like vultures than pythons, and their presence is unlikely to outlast the bodies of the elephants on which they prey.

If the State in its present form depends for its survival on a constant flow of mineral resource rent, but is unable to maintain or recreate the kind of policy regime which will encourage or ensure a constant flow of new investment in the mining and petroleum sector, and is unable to resist or dilute the multiple claims of unofficial stakeholders to a constantly growing share of the rent which it still
manages to collect, then we are surely led to the conclusion that this form of State is also like an elephant—perhaps even a dinosaur—whose day of reckoning is not too far away. And unlike the elephants in the private sector, this one cannot move to another part of the jungle.

Even our orthodox economists might agree that a form of government which tends to consume rather than invest its own share of the nation’s natural capital is one which does not deserve to survive. Some might even say that this is why there ought to be a greater share of mineral resource rent going to the private pockets and the corporate bodies of a ‘landowning’ civil society. The question then is whether the recipients gain more from the opportunity to invest, squander, or squabble over their own pile of elephant droppings than the nation as a whole loses from the deterioration of ‘government services’ which are funded from the same source. Some might argue that the resilience of the Melanesian ‘landowning community’, with or without its share of mineral resource rent, is what explains the policy failures of national government and the prospective decline of foreign investment in the mining and petroleum sector. But one still wonders how far the institutions of the State can be allowed to deteriorate, or how extensively they must be reconstructed, if thousands of these landowning communities are not to lose the economic foundations of their national integrity.

References


Restructuring decentralisation: political and economic issues

Desh Gupta and Henry Ivarature

Papua New Guinea is a unitary state with some decentralising features (Chelliah 1981). Essentially this means that the national parliament has the legal authority to withdraw or change such powers for provincial governments. In 1995 the national parliament abolished the 1977 OLPG and introduced the Organic Law on Provincial Governments and Local-level Governments (hereafter referred to as OLPGLLG).

At the time of self-government in 1972, there was a sentiment among Papua New Guinea politicians, and more specifically among members of the Constitutional Planning Committee, that the system in Papua New Guinea was highly centralised. Pressures for greater autonomy were very strong in Bougainville. In parts of Papua (mostly around Port Moresby and Central Province) as well as parts of East New Britain (Gazelle Peninsula), there were similar pressures. But in the rest of the country, the sentiment for greater autonomy, especially in the populous Highlands region was absent. The Highlands region lagged behind in education and health services and depended on the Australian government and the administration in Waigani to rectify the situation. In general the Highlands’ politicians were not in support of early independence, let alone in favour of greater provincial autonomy because equalisation in the provision of health and education services required Waigani and Canberra to provide funds and skilled labour to the lagging provinces and, as Canberra withdrew its authority, it initially reduced the rate of growth in its aid flows to Papua New Guinea. Subsequently as authority was passed on fully to the Papua New Guinea government, such aid began to be reduced in absolute (real) terms as well. Greater provincial autonomy by tying down the disbursement of funds to the established levels of education and
health services meant that, unless national government revenue expanded or expenditure on central functions was cut back, additional revenues for the lagging provinces would be difficult to find. In addition, the more developed provinces (such as North Solomons), with more economic activity would be able to raise more internal revenue, thus moving ahead of other provinces lacking such an economic base. Lagging provinces also lacked skilled labour to manage the decentralised functions. Consequently the new bureaucracy added to operating costs of decentralisation without necessarily improving resource allocation for such provinces.

Nevertheless, in response to the recommendations of the Constitutional Planning Committee and secessionist threats from Bougainville, the national government agreed to create provincial governments. The August 1976 ‘Bougainville Agreement’ signed between the North Solomons Provincial Government and the national government resolved the impasse between the two and formed the basis of the 1977 OLPG, which spelt out transfers of certain national taxes on a net basis, the basis for the payment of derivation grants, provincial taxing powers and of provincial non-tax revenue. Though there were no similar pressures from elsewhere for the creation of provincial governments, provincial status on the same basis as North Solomons was granted to all former districts in 1977 and 1978 following the recommendations of the 1977 McKinsey Report.

In practice the ability to plan and implement decentralised activity required skills in project design and implementation, which were lacking at the provincial and local level—more so in some than others (Bird 1983). According to Axline (1986:170) ‘local-level government is operating poorly even in many provinces which score well on performance at the level of district administration’. In addition, agricultural development, village industry and better internal trade required mobilisation of local resources for the construction and maintenance of roads and bridges. There was a lack of any political strategy to mobilise such resources. The local hut/poll tax, which was a means of mobilising such resources during the colonial period, steadily fell into disuse in the post-colonial period. Essentially, the PNG state was too soft to enforce obligations on its citizens.

**A sense of failure**

Though there was some reduction in inter-provincial educational inequality, more so at the community level than at high school level
(Gupta 1992), there was the sentiment that the benefits of decentralisation had failed to make any impact outside the provincial centres. In general, it was felt that

- the performance of provincial governments with a few exceptions ranged from poor to fair
- strong political rivalry between the national government and provincial governments led to disruptive intervention by national politicians and provincial politicians
- skills shortages and lack of staff development programs led to poor financial administration and financial control; there was lack of any proper inventory of assets and inadequate maintenance of physical assets by the provincial governments
- local-level governments with very few exceptions were in a very bad state, 'characterised by poor administration, misuse of funds by staff, and neglect by provincial government' (Axline 1986:162-170).

This analysis was confirmed from time to time by the reports of the Auditor-General. For instance the Auditor-General’s 1992 audit report of fourteen provincial governments found that

- most provincial governments had performed poorly and many had failed to deliver goods and services to the people
- most provincial governments had experienced deterioration in matters relating to the control of accounts as well as in the maintenance of financial records and also in their presentations of financial statements
- most provincial governments also displayed a lack of proper management as well as lack of financial discipline. Furthermore, many provincial public servants were said to have contributed to some of the delays experienced with the implementation of various government policies and projects. The overall negative consequences of these failures was the impact which was experienced by the national government’s general macroeconomic policies.
- a number of schemes which some provincial governments undertook (for example constituency or electoral development funds) either failed to produce the desired results or suffered from lack of proper accountability

Lack of accounting and management skills as well as lack of commitment to the tasks at hand meant that the decentralisation
process operated with serious handicaps. It is not surprising then that it did not produce the desired outcomes. Provincial governments and supporters of the system blamed the National Government for lack of commitment to the decentralisation process and for inadequate funding and training for these poor outcomes. But there were some provincial governments where it could be argued that decentralisation had worked, with improved services at the local level; probably the Islands provinces were more successful in this respect.

The OLPG versus OLPGLLG: opponents and proponents

Even though the sentiment for the creation of provincial governments in most of Papua New Guinea (outside Bougainville, Gazelle and Central) in the early 1970s was unclear and probably not strong, once the provincial governments were in place, they assumed a life of their own. Support for the provincial government system, with each of the 19 provinces having an elected Legislative Assembly, Premier, ministers and provincial executive council, strengthened. At the same time support within the National Parliament waned. Those elected to the provincial assemblies were seen to compete with the national parliamentarians for resources to disperse and were seen by the national parliamentarians (and as reflected in a high turnover of such) as undermining the position of the latter. Consequently there was the private interest of the national parliamentarians, which drove the provincial government reform agenda (initially through amendments to the 1977 Organic Law to increase the powers of the National Executive Council to suspend provincial governments and to give it the sole power to appoint the provincial secretaries and then to create and expand the ‘slush fund’ for use by MPs in their electorates), culminating in the 1995 OLPGLLG. Similarly there was the private interest of provincial governments in opposing such reform proposals.

The public interest arguments for reform were that competition between the national parliamentarians and provincial assembly members detracted from the objective of improving the delivery of goods and services to the villagers and therefore what was needed was a model of cooperative decentralisation—to be achieved by abolishing separate provincial assembly elections and with national parliamentarians taking over the running of the provincial governments and assemblies supported by representatives of local-level governments (Deklin 1995). Those who supported the reforms argued that the system under the OLPG had failed to deliver improved goods and services to the
villagers and in particular the local level had suffered and that the 1995 OLPGLLG would improve cooperation between the national, provincial and local level of governments and that abolition of separate provincial politicians and elections would save the country resources, which would be made available at the local government level.

Those who opposed the reforms argued that the failure was in implementation of reforms and that inadequacy of financial and training resources had prevented improvements in delivery. But the financial situation in 1995 when the reforms were introduced was much tighter than it was when the OLPG was introduced and 19 provincial assemblies created. Overall resources as compared to 1993 had become tighter in 1994, 1995 and 1996 because of the 1994 financial crisis. Without the reforms, it is possible that even less resources would have been made available to lower-level governments in 1996 and 1997—the OLPGLLG has required minimum grants which are larger (especially for the more populous provinces) than the ones which were being made available under OLPG. The Minimum Unconditional Grant (MUG) under the OLPG, which formed the basis of bulk of the transfers from the national to the provincial government did not cater for the expanding needs of the provinces, but was rather aimed at stabilising the levels of services as at the 1976/77 level (Final Report of the Committee of Review on Financial Provisions of the Organic Law on Provincial Government 1982).

Some constraints and lessons

In some ways the skills constraint in 1995, though serious, was less serious than in 1977; given the slow but steady increase in education at all levels of the education system, there has been an increase in the supply of the educated, which has been more rapid than the expansion of employment in the formal sector (Gupta 1991). Nevertheless, skills constraint continues to pose problems for the decentralisation process, especially at the district and local levels. But the more serious constraint has been in infrastructure deterioration due to lack of maintenance—the consequence of the tightening of the budgets over 1982–85, 1990 and especially over the 1994–96 (inclusive period) period; budgetary tightening invariably means that the maintenance expenditure is the first to be reduced. In addition, subsidies to the more efficiently-run health and education services provided by church organisations are cut back.

Consequently, there is some lack of understanding as to why decentralisation under 1977 the OLPG failed to improve delivery of goods and services and why the changes introduced through the 1995
OLPGLLG superseding the OLPG are likely to make only a marginal difference to the overall outcome. Through the 1995 OLPGLLG a belated attempt is being made to wind back the demands at the national level and to transfer more resources to the provinces and local level. Essentially, the reasons for the failure lay in the inability of the national government to cut back on its demand for resources in order to transfer resources to the provinces; the inability of the provincial governments to mobilise resources (such as land and labour) to protect the share of resources going into maintenance of assets and to increase the share going into infrastructure improvement by improving the efficiency in the use of resources in the delivery of services. The more efficient delivery of health services and even of education services was by non-government church-run organisations, but funding for these was squeezed much more than for government services every time the government’s budgetary difficulties increased. This has been much more the case during the 1994, 1995 and 1996 fiscal restraint.

Efficiency in the use of existing assets, mobilisation of resources and protection of maintenance of existing assets does not feature in any discussion of decentralisation, so it is not surprising that decentralisation has failed to deliver. In addition and equally important has been the need to expand the economic base of the provinces, even as the adverse impact of the Bougainville crisis and of falling budgetary support from Australia continue to impact on the ability of the national government to increase funding to the provincial governments.

The provinces’ dependence on the national government for funding is high. In 1980 over 90 per cent of all provincial financing came from the national government (Chelliah 1981). In 1982 provincially-raised revenue comprised around 5 per cent of all national government funding (Table 14.1); only for Morobe and North Solomons did this revenue exceed 15 per cent. The Committee Draft Report (p.18, quoting Ron May) points out that there is nothing unusual in the provinces being dependent on the national government, except that the degree of dependence on the national government was exceedingly high and such dependence by making the provinces dependent on the national government irked the provincial governments. By 1989, the degree of dependence had been reduced for most of the provinces, mainly as a result of the introduction of sales taxes, particularly on beverages and tobacco (Table 14.1). It is likely that the 1990 Budget reduced the dependence of the provinces further, but mainly because of reduced allocations flowing from the national government, because of the
Bougainville crisis and the reduced revenue flows to the national government.

Cooperative decentralisation, which was the expected outcome of the 1995 OLPGLLG, has failed to materialise to date, reflecting partly the misunderstanding with regard to the resources to be transferred to the provinces. Provincial Governors expected much larger amounts than they actually received. The net fiscal situation for the provinces, after their new expenditure responsibilities were taken into account, was worse in a number of instances in 1996 than before the introduction of the OLPGLLG; Central Province is an example (see Table 14.4). In addition the Governors expected a greater degree of

### Table 14.1. Provincially-raised revenue as a percentage of National Goverment Funding, 1982–96

<table>
<thead>
<tr>
<th>Province</th>
<th>1982</th>
<th>1989</th>
<th>1996 (Budget)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western</td>
<td>1.6</td>
<td>1.2</td>
<td>..</td>
</tr>
<tr>
<td>Gulf</td>
<td>1.3</td>
<td>6.1</td>
<td>8.4</td>
</tr>
<tr>
<td>Central</td>
<td>1.8</td>
<td>5.0</td>
<td>..</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>3.1</td>
<td>5.7</td>
<td>..</td>
</tr>
<tr>
<td>Oro</td>
<td>5.4</td>
<td>11.3</td>
<td>..</td>
</tr>
<tr>
<td>Southern Highlands</td>
<td>1.1</td>
<td>4.7</td>
<td>40.5</td>
</tr>
<tr>
<td>Enga</td>
<td>1.1</td>
<td>5.6</td>
<td>..</td>
</tr>
<tr>
<td>Western Highlands</td>
<td>2.5</td>
<td>18.6</td>
<td>..</td>
</tr>
<tr>
<td>Simbu</td>
<td>2.6</td>
<td>9.4</td>
<td>..</td>
</tr>
<tr>
<td>Eastern Highlands</td>
<td>9.0</td>
<td>21.0</td>
<td>11.8</td>
</tr>
<tr>
<td>Morobe</td>
<td>16.1</td>
<td>28.1</td>
<td>58.9</td>
</tr>
<tr>
<td>Madang</td>
<td>2.6</td>
<td>16.7</td>
<td>..</td>
</tr>
<tr>
<td>East Sepik</td>
<td>10.7</td>
<td>8.9</td>
<td>..</td>
</tr>
<tr>
<td>Sandaun</td>
<td>0.1</td>
<td>8.2</td>
<td>..</td>
</tr>
<tr>
<td>Manus</td>
<td>4.0</td>
<td>6.1</td>
<td>..</td>
</tr>
<tr>
<td>New Ireland</td>
<td>3.0</td>
<td>12.1</td>
<td>..</td>
</tr>
<tr>
<td>East New Britain</td>
<td>9.7</td>
<td>17.3</td>
<td>18.3</td>
</tr>
<tr>
<td>West New Britain</td>
<td>7.6</td>
<td>16.3</td>
<td>..</td>
</tr>
<tr>
<td>North Solomons</td>
<td>15.9</td>
<td>n.a.</td>
<td>..</td>
</tr>
<tr>
<td>Mean</td>
<td>5.2</td>
<td>11.2</td>
<td>..</td>
</tr>
</tbody>
</table>

Source: Provincially Raised Revenue taken from Statements of Accounts of individual provinces. Total National Government Funding Taken from National Government Budget estimates and includes Net MUG, Allocations to individual provinces for maintenance of minor power houses, capital works, urban councils, under Divisions 271-290, Public Service and Teaching Services Commission salaries, Secretariat Staff Grants, Derivation Grant, Mining Royalties, Bookmaker Revenue, Tobacco Tax, Timber and Mining Royalty Grants, towns services, air charter and marine hire. differential grants, teaching awards and special support grants. 1996 figures are taken from provincial budgets.
discretion over the spending of moneys; but in practice the Finance Department and Provincial Affairs have kept a tight rein.

The issue of inter-provincial inequality

Under the 1977 OLPG the 19 provinces received national government funds under the Minimum Unconditional Grant (MUG) aimed at stabilising and maintaining the transferred activities to the provinces at the level of spending in 1976/77. The calculation of the base (1976/77) MUG figure and the formula used in its subsequent adjustment had implications for the delivery of services to the provinces.

MUG being the principal source of funding for the provincial governments was then also implicitly instrumental in perpetuating the gap in social indicators between the provinces; this was contrary to the second of the Eight Aims

More equal distribution of economic benefits, including movement toward equalisation of incomes among people and towards equalisation of services among different areas of the country.

Those provinces which delivered more services (assuming that the cost of services was the same across the country) as at 1976/77 received larger funding. Thus provinces with historical advantages in terms of outlays in education, health, primary industry, business development, information and administration, that is, in the transferred activities, were in a position to maintain these advantages. In addition, provinces which had a historical advantage in education and therefore in skills were better placed to bid for provincial projects under the National Public Expenditure Plan (NPEP), thus increasing the tendency towards a widening gap.

Nevertheless there were two or three arrangements through which the national government attempted to reduce these inequalities.

The rate of increase of transfers under MUG was faster to the provinces, which were less developed and which did not seek and obtain full financial responsibility (FFR) (Axline 1986:Table 24; also Axline 1986:99–100). Against this in the budgetary cuts which occurred over the 1994–96 (inclusive), non-FFR provinces suffered the severest cuts. This is partly because the FFR were somewhat better equipped to protect their grants, but also because the introduction of free education or ‘school subsidy’ benefited the provinces with the highest educational enrolment ratios as they received proportionately the most subsidy for 1994 and 1995, before the responsibility for the payment of this subsidy
was transferred to the provinces in 1996. Since there was no national government top-up of this subsidy in 1996 for the provinces its disequalising impact was eliminated.

The other arrangement was through national projects under NPEP, which under the strategic objective of helping less developed areas could be designed for the lagging provinces. In practice, since NPEP was allocated under 9 strategic objectives (and helping less-developed provinces was only one of them), this objective became difficult to achieve in the broader framework of NPEP. Moreover, given the wide range of strategic objectives, both the formulation of annual NPEP and project selection required larger and larger amounts of outlays for administration and led to thinner and thinner distribution of funds over space through NPEP (Axline 1986:137); implementation capacity remained weak. There was some concern with planning being based on piecemeal projects, so in March 1978 NPEP ‘sectoral programs’ for implementation in the 1979 and 1980 Budgets were established. The sectoral programs in 1979 were in the areas of rural health, community schools and provincial high schools and in 1980 in the areas of agriculture, commerce, rural transport and non-formal education. Geographical distribution of these funds favoured the less-developed provinces and projects under these programs were jointly put together by provincial and national officials. But from 1981 the effectiveness of these sectoral programs was undermined by national parliamentarians (MPs) capturing control over the rural transport and rural agricultural sectoral programs—this was the beginning of the ‘slush fund’ arrangements which the MPs have sought in the subsequent period. This brought into focus the conflict between MPs and provincial legislature in the allocation process as a means to getting elected. Where the historical lag in inception of modern health and education services was the greatest, such conflict was the most intense and support at the national level for the provincial government system was the weakest. This conflict was to be the catalyst for the support from most MPs for the 1995 OLPGLLG.

The third arrangement was the creation of the National Fiscal Commission (NFC) under the 1977 OLPG with the objective of providing grants on a per capita basis, unless other priorities required it to do otherwise. In 1978–84 the NFC had funds ranging annually from K3 million to K7 million for distribution. Even if NFC had distributed these funds on a per capita basis, thus injecting some equality in the transfers of funds from the national government, given the paltry sums
involved, this would have made only a marginal difference to the provinces. In practice the NFC was further limited by the need to provide additional resources for the rising cost of maintenance of capital assets transferred in 1977 as well as the cost of maintaining the basic infrastructure of provincial government (Axline 1986:85). From 1986, the NFC increasingly fell into disuse and in the nineties, there were no funds made available to convene it.

Changes in economic conditions by changing the revenue base could improve or worsen the relative position of a province. In recognition of this, there has been in place a Less Developed Areas Program, which has provided support for large-scale development projects in these areas. National Government support took the form of funding studies designed to attract external financing for integrated rural development projects from international multilateral donor agencies (Axline 1986:144). Such projects were seen from the second half of the 1980s to be expensive and beneficial to only a small number of people directly involved in the projects. The spread effects apart from the oil-palm projects of West New Britain were rather weak. Consequently support for such projects at the national level weakened in the subsequent period. The derivation grant (which was 1.25 per cent of the value of exports less payments for royalties) has formed an important source of revenue for the important coffee-exporting provinces of Western Highlands and Eastern Highlands and to a more limited extent for Chimbu, as well as the cocoa and copra-exporting provinces of East New Britain and until 1989 for Bougainville, and oil palm in the case of West New Britain.

The major changes in the revenue base of the provinces have come with the introduction of mining projects and, to a limited extent, timber projects. For instance the Panguna mine, until the emergence of the Bougainville crisis from the late 1980s, created the basis for heightened economic activity in North Solomons (or Bougainville as it is called now), with the province (excluding the National Capital District, which had the advantages of agglomeration economies) leading the others substantially in both economic and social indicators (Gupta and Polume 1982). From the late 1980s the revenue base of Bougainville has collapsed. Meanwhile the revenue base first of Western or Fly River (with the onset of the Ok Tedi mine), then of Milne Bay (with the introduction of the Misima mine, though to a far less significant extent than Fly River), followed by Enga (with the opening of the Porgera mine) and then of Southern Highlands and of Gulf (with Kutubu Oil and related pipeline) has increased; the latest province to become a
major mining province is New Ireland (Lihir Gold). Part of the revenue increase has come from royalty payments (of 1 per cent of the value of production/exports of mining or timber royalties, shared with the communities in the areas in which the resource is based, with the share of the provincial governments declining) plus from 1990 through 1 per cent of the f.o.b. revenues as Special Support Grants from the mining project located in that province. In Enga and Southern Highlands there are revenue flows from the provincial government equity in Porgera and Kutubu Oil, respectively. Although the mining projects in general have very limited spread effects (given the enclave nature of the projects), increased employment and business opportunities and sales by locally-based businesses to the mines have created increased commercialisation. Social indicators have also improved in these provinces, particularly in the areas surrounding the mine site; as has commercial activity, with increased income flows from royalties and businesses associated with the mines. Forestry projects have had a more limited effect; these had more effect in West New Britain, where there has been a high concentration of forestry projects. West New Britain has also gained from successful oil palm projects.

Provinces such as the National Capital District and, to some extent Morobe, with their large urban centres have been able to raise substantial internal revenue through taxation on economic activity.

The 1995 OLPGLLG, by basing the minimum unconditional grants on formulas, which (excluding the maritime provinces) increase in direct proportion to the population and which also have an equality factor (though this has still to be determined by the National Economic and Fiscal Commission) is more equalising than was the case with the 1977 OLPG. The shift towards this equality though is tempered by Staffing and Teaching Services Grants, which continue to favour provinces with more developed educational and administrative services. In addition the mining provinces continue to enjoy the advantages of having grants related to these projects. The 1996 total grants compared to those in 1989 are presented in Table 14.2. Internally raised provincial revenue is dependent on the level of urbanisation.

Given that grants have a relationship to the population base and that there is requirement for the National Statistical Office to conduct a census every 5 years (compared to the previous 10) some developments may follow. First, there is a danger that the population census figures may become more questioned than has been the case in the past. Second, there will be an incentive for provinces to incorporate more of
Table 14.2. Population size, national government grants to provinces in 1989 under OLPG and in 1995 under OLPGLLG; and internal provincial revenues in 1989

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fly River</td>
<td>110,420</td>
<td>17,880.1</td>
<td>27,501.1</td>
<td>214,561</td>
</tr>
<tr>
<td>Gulf</td>
<td>68,737</td>
<td>8,659.8</td>
<td>20,042.2</td>
<td>528,250</td>
</tr>
<tr>
<td>Central</td>
<td>141,195</td>
<td>12,958.7</td>
<td>17,034.6</td>
<td>647,935</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>158,780</td>
<td>11,912.7</td>
<td>21,408.1</td>
<td>679,023</td>
</tr>
<tr>
<td>Oro</td>
<td>96,491</td>
<td>8,362.8</td>
<td>18,739.6</td>
<td>945,400</td>
</tr>
<tr>
<td>Southern Highlands</td>
<td>317,437</td>
<td>18,180.8</td>
<td>39,779.9</td>
<td>854,500</td>
</tr>
<tr>
<td>Enga</td>
<td>235,561</td>
<td>14,374.0</td>
<td>28,853.5</td>
<td>804,943</td>
</tr>
<tr>
<td>Western Highlands</td>
<td>336,178</td>
<td>18,973.7</td>
<td>30,845.7</td>
<td>3,529,100</td>
</tr>
<tr>
<td>Simbu</td>
<td>183,849</td>
<td>14,043.1</td>
<td>18,395.9</td>
<td>1,320,049</td>
</tr>
<tr>
<td>Eastern Highlands</td>
<td>300,648</td>
<td>21,110.4</td>
<td>32,248.8</td>
<td>4,433,190</td>
</tr>
<tr>
<td>Morobe</td>
<td>380,117</td>
<td>25,084.0</td>
<td>39,995.7</td>
<td>7,676,150</td>
</tr>
<tr>
<td>Madang</td>
<td>253,195</td>
<td>18,945.8</td>
<td>27,226.9</td>
<td>3,163,945</td>
</tr>
<tr>
<td>East Sepik</td>
<td>254,371</td>
<td>20,337.1</td>
<td>27,707.5</td>
<td>1,810,000</td>
</tr>
<tr>
<td>Sandaun</td>
<td>139,917</td>
<td>13,487.8</td>
<td>16,344.9</td>
<td>1,106,000</td>
</tr>
<tr>
<td>Manus</td>
<td>32,840</td>
<td>6,204.5</td>
<td>12,318.7</td>
<td>378,476</td>
</tr>
<tr>
<td>New Ireland</td>
<td>86,999</td>
<td>13,498.2</td>
<td>20,847.0</td>
<td>1,633,280</td>
</tr>
<tr>
<td>East New Britain</td>
<td>185,459</td>
<td>20,245.2</td>
<td>21,833.4</td>
<td>3,502,422</td>
</tr>
<tr>
<td>West New Britain</td>
<td>130,190</td>
<td>12,519.8</td>
<td>18,999.3</td>
<td>2,040,728</td>
</tr>
<tr>
<td>Northern Solomons</td>
<td>154,000</td>
<td>n.a.</td>
<td>14,436.9</td>
<td>n.a.</td>
</tr>
</tbody>
</table>


...the adjoining rural areas into their urban centres, and perhaps for communities to inflate their population figures during the future censuses. Third, the resources needed by the National Statistical Office for conducting censuses and processing census data will increase. Given the budgetary constraint, some of NSO’s other functions are likely to suffer. Similar constraints are likely to apply to the operation of the NEFC and given the history and fate of the NFC, the question for debate is how effective is the NEFC is likely to be.

The fiscal constraint

In general a fiscal constraint operated in Papua New Guinea. This was because total revenue flows for the national government peaked in 1974...
for two reasons: real aid flows from Australia began to be wound back after that date; and BCL made the highest profits in 1974 (other than in 1988) in its history and under a renegotiated agreement paid the highest company tax (including additional profits tax) in real terms—in money terms the amount of such tax was higher in 1979 and 1988. Consequently the trend in government revenues in real terms from BCL was downwards after 1974. With the onset of the Bougainville crisis, this fiscal constraint tightened further. But in anticipation of revenue flows from Porgera and from Kutubu Oil, the governments in Papua New Guinea overcommitted themselves in the early 1990s, leading to the financial crisis in 1994 and 1995 (Duncan and Temu 1995; Gupta 1995).

Starting from 1994, the shift in Australia’s aid to Papua New Guinea towards project/program aid, which had begun in 1986, accelerated—even if revenues from the mining sector picked up, the total amount available for disbursement from the national budget may not rise. The budgetary situation has tightened since 1993, following the blowouts of 1990–93. Total expenditure in money terms after public debt servicing in 1995 was more than 10 per cent lower in 1994 in real terms and more than 20 per cent less than in 1993 in real terms. Estimates in the 1996 budget suggest that the total amount available to the national government for outlays in real terms is likely to continue to fall in real terms in 1996 and in 1997 (Table 14.3).

Preliminary data (Bank of Papua New Guinea 1995, Table 3) suggests that for 1994 whereas the burden of budgetary adjustment cuts fell disproportionately on economic and infrastructure outlays, in 1995 they fell disproportionately on provincial government’s recurrent outlays (Table 14.4).

The 1995 Budget failed to reduce national wages and salaries costs to the extent planned. At the same time the Public Investment Programme

| Table 14.3. Overall budget constraint, 1993–99 (million kina) |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Total Expenditure | 1751.0          | 1722.4          | 1854.5          | 1924.3          | 1972.3          | 2092.4          | 2207.6          |
| Public Debt Service | 297.7           | 383.6           | 429.4           | 478.0           | 536.9           | 575.8           | 643.8           |
| Balance         | 1453.3          | 1338.8          | 1425.1          | 1446.3          | 1435.4          | 1516.6          | 1563.8          |
| Inflation       | 2.9             | 17.3            | 5.0             | 14.6            | 14.6            | 14.6            | 14.6            |

Source: Papua New Guinea 1996 Budget, Vol. 1, Economic and Development policies, Table 4.3(a); inflation data from Bank of Papua New Guinea.
Table 14.4. Ratio of appropriation between sectors (per cent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Budget</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current expenditure at national level</td>
<td>57.7</td>
<td>62.9</td>
<td>64.8</td>
<td>69.2</td>
<td>61.4</td>
<td>67.7</td>
<td>58.8</td>
</tr>
<tr>
<td>Economic and infrastructure&lt;sup&gt;a&lt;/sup&gt;</td>
<td>15.7</td>
<td>12.2</td>
<td>13.4</td>
<td>9.7</td>
<td>21.6</td>
<td>14.8</td>
<td>24.8</td>
</tr>
<tr>
<td>Provincial government&lt;sup&gt;b&lt;/sup&gt;</td>
<td>26.6</td>
<td>24.9</td>
<td>21.8</td>
<td>21.1</td>
<td>17.1</td>
<td>17.5</td>
<td>16.4</td>
</tr>
</tbody>
</table>

<sup>a</sup> From 1994 this is equivalent to the Government Development Budget and the Capital component of recurrent expenditure.

<sup>b</sup> From 1994, Provincial Government expenditure refers to the recurrent expenditure not identified in category 2.

<sup>p</sup> Projected


was in practice considerably below that budgeted and debt service costs were much higher than planned. Though the 1996 Budget at first glance plans to cut substantially the share going on national recurrent expenditure, in practice this is, like the 1995 Budget, unlikely to be realised. This is because of rising debt service costs (Table 14.3). In addition, the government’s decision in 1996 to award large pay increases to expatriates through exchange rate protection of their pay packet as well as 10 per cent salary increases for local public servants will tend to inflate the share going on national and provincial recurrent expenditure and reduce that available for the economic and infrastructure sector. Moreover the defence and law and order expenditure associated with the continuation (and in some ways the worsening) of the Bougainville crisis is likely to dampen resources available for this sector.

Transfer of monies to Provincial, District and Local Governments

Breaches of the 1995 OLPGLLG

The 1995 OLPGLLG has been breached in two respects: in the transfer of Development Grants; and in the transfer of Derivation Grants.

The Minister for Finance’s Budget Speech had K200 million being transferred from the national to the provincial levels. In practice only K133 million of the funds are being added to the budgets for the provinces. This is mainly because only 75 per cent (or K50 million less) of the minimum grants that the provinces are entitled to under the 1995 OLPGLLG in the context of the Development Budget is being transferred in 1996. In 1997, this is planned to rise to 90 per cent and in 1998 to 100 per cent. Financial constraint at the national level (see
Table 14.3) and the lack of capacity development at the district and local level are the reasons for breaching the OLPGLLG.

The Development Budget for the provinces is comprised of the minimum provincial infrastructure grant plus local-level government and village services grants plus (to a considerably less important extent for most provinces other than National Capital District and Morobe) town and urban services grant. Being conditional grants, the Development Budget under OLPGLLG is protected from being raided by administrative and salaries’ costs. The national government has budgeted to reduce the administrative and salaries’ grants in 1996 (Table 14.4). Consequently the objective of the OLPGLLG has been to redirect resources away from administration at both the national and provincial levels towards infrastructure and development. But this shift is not as dramatic as at first appears to be the case (see Table 14.3): around K60 million (or K550,000 per MP) is comprised of funds for Rural Action Program (which includes K33 million of what was formerly known as the EDF or ‘slush fund’ and which was formerly administered and spent by the MPs in their constituencies and on projects of their choice). If we remove this K33 million as simply a rearrangement of the budget rather than as a net transfer; then the net transfer drops to K100 million. In addition, there are functions, which were previously the responsibility of the national government, which have been transferred to the provincial governments. These functions include ‘education subsidies’ (which were in lieu of the so-called ‘free education’ and which have increased as such subsidies have spread to all schooling grades) ‘expansion of grades 7 and 8’ (top-up of community schools), payment of village courts, church health services and maintenance of health services. Though we do not have the total cost for all provinces, for Central Province these added functions were seen to cost around K3 million (Table 14.5). For Central Province after adjusting for these additional functions, there was no net increase in transfer (even in money terms) from the National Government to that provincial government in 1996 over 1995. Compared with the actual amounts dispersed in 1993, the allocated amounts in 1996 for Central were 87 per cent in money terms and 66 per cent in real terms. For the other provinces, the story is not likely to be different.

In 1997 and 1998 as the Development Budget moves to 90 per cent and 100 per cent of the minimum grants under the OLPGLLG, there will be added funds of K30 million and K50 million, respectively, transferred to the provinces. This will require adjustments at the national
Table 14.5. Central government funding from national government, 1993–96 ('000 kina)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding to Central Province</td>
<td>16,089.8</td>
<td>16,113.3</td>
<td>14,151.0</td>
<td>17,034.8&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Less cost of additional functions in 1996</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>3,034.4&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>14,004.4</td>
</tr>
</tbody>
</table>

<sup>a</sup> Includes K2.75 million of Rural Action Program.

<sup>b</sup> Does not include K500,000 which Central Province pays for the use of Port Moresby General Hospital as a part of cost-sharing arrangement with the National Capital District.


level, but given the high inflationary environment of 1995 and 1996 (for which inflation is likely to exceed the budget forecast of 5 per cent), the real value of such transfers is likely to be less (and, in the case of Central Province, considerably less) than was the case in 1993.

There is another area in which the OLPGLLG was breached. This was in the payment of Derivation Grant. Under the 1977 OLPG this grant was equal to only 1.5 per cent of the exports (excluding for timber and metals where royalties were being paid), but the 1995 OLPGLLG required a payment of 5 per cent of the value of such exports. In the 1996 budget, there was no change in payment of the Derivation Grant (certainly there was none for Central Province). The problem here is that it is not easy to identify exports by province. It appears that once the new formula for the payment of Derivation Grants is implemented, Western Highlands as the largest coffee exporting province will have the most to gain; other provinces likely to gain between 1.5 and 2.0 million kina are West New Britain and Eastern Highlands—these figures are rough calculations based on the 1996 Derivation Grants (Table 14.6). Using the 1996 Derivation Grant data, and assuming that they are reliable and that 1.5 per cent of exports were being paid in that year, a 5 per cent Derivation Grant will require another K12 million to be paid to the provinces. This, will require a further adjustment at the national level. This coming on top of the added payments for Development Grants and with budgetary aid from Australia being wound back,
requires substantial tightening at the national level. Given the wage increases of 1996, it means that such tightening will fall again on the maintenance and capital expenditure outlays; it is also likely that the National Government may pass on some more expenditure functions to the provinces; thus reducing the need for adjustment at the National level. If the adjustment burden of such transfers as well as salary and wage increases is borne at the national level only, then public service employment cuts will need to be larger and continue into 1997 and 1998.

The budget allocations for 1997 and beyond are likely to be affected by the recommendations of the National Economic and Fiscal Commission (NEFC), which is now responsible for the calculation of the equitable factor in the four grants (Provincial Government and Local-level Government Administration Grant, Provincial Infrastructure Development Grant, Town and Urban Services Grant and Local-level Government and Village Services Grant). The NEFC was not in place

<table>
<thead>
<tr>
<th>Province</th>
<th>1996 Budgeted derivation grants</th>
<th>Adjusted derivation grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fly River</td>
<td>65.4</td>
<td>218.0</td>
</tr>
<tr>
<td>Gulf</td>
<td>122.8</td>
<td>409.3</td>
</tr>
<tr>
<td>Central</td>
<td>49.7</td>
<td>165.6</td>
</tr>
<tr>
<td>Milne Bay</td>
<td>25.0</td>
<td>83.3</td>
</tr>
<tr>
<td>Oro</td>
<td>208.0</td>
<td>693.3</td>
</tr>
<tr>
<td>Southern Highlands</td>
<td>44.5</td>
<td>148.3</td>
</tr>
<tr>
<td>Enga</td>
<td>98.7</td>
<td>329.0</td>
</tr>
<tr>
<td>Western Highlands</td>
<td>1672.6</td>
<td>5422.8</td>
</tr>
<tr>
<td>Simbu</td>
<td>222.4</td>
<td>741.3</td>
</tr>
<tr>
<td>Eastern Highlands</td>
<td>713.6</td>
<td>2378.4</td>
</tr>
<tr>
<td>Morobe</td>
<td>166.5</td>
<td>554.9</td>
</tr>
<tr>
<td>Madang</td>
<td>268.2</td>
<td>893.9</td>
</tr>
<tr>
<td>East Sepik</td>
<td>240.3</td>
<td>800.9</td>
</tr>
<tr>
<td>Sandaun</td>
<td>12.1</td>
<td>40.3</td>
</tr>
<tr>
<td>Manus</td>
<td>3.8</td>
<td>12.7</td>
</tr>
<tr>
<td>New Ireland</td>
<td>278.8</td>
<td>929.2</td>
</tr>
<tr>
<td>East New Britain</td>
<td>440.0</td>
<td>1466.5</td>
</tr>
<tr>
<td>West New Britain</td>
<td>846.8</td>
<td>2822.4</td>
</tr>
<tr>
<td>Total</td>
<td>5479.2</td>
<td>18262.2</td>
</tr>
</tbody>
</table>

at the time of the 1996 Budget. The NEFC will need research resources to determine relevant social and economic indicators in order to calculate such an equitable factor. If such resources are not made available, then the NEFC is unlikely to be effective. Data for income and social inequalities at provincial, district and local levels is likely to be unreliable in the case of Papua New Guinea. In addition, the new formulas for transfers to provinces and local-level governments are much more equalitarian than were the transfers under the MUG. The new formulas are based on population, land area and, in the case of maritime provinces, on sea area. They therefore take into account the added costs of providing services and population based formulas are much more equalitarian. Moreover the experience of National Fiscal Commission, the predecessor of the NEFC, in promoting equality was rather poor. Given the budgetary constraint, therefore, it is better if the NEFC attempts to promote economic activity through the appropriate application of conditional supplementary support grant to stimulate economic activity.

Skills constraint

In some ways the skills constraint is not as serious as it was 20 years ago. This is simply because the slow but steady expansion of the education system at all levels has expanded the skills base. But productive life of skilled personnel is shorter in Papua New Guinea than it is in other countries in the region. Consequently some of skills’ base is being continuously depleted through early mortality. ‘Brain drain’ to date has not been as serious a matter for Papua New Guinea as for some other Pacific Island economies, but it is likely to assume greater preponderance in the future as opportunities in the core public service dry up. At the same time, with the implementation of the OLPGLLG, the demand for skilled personnel at local government and district level is likely to increase. Relatively poor salaries and poorer infrastructure, health and schooling facilities have not, to date, attracted skilled personnel to these levels of administration. Increases in salaries at these levels as well as improvements in facilities may attract some of the skilled personnel being made redundant at the national government level.

A related issue, which has tended in the past to increase recurrent costs, is the inability of the staff at the provincial level to forecast revenue accurately from internal sources. Often forecasts about revenue from land taxes, retail sales taxes have been exaggerated. This has led some provinces to overcommit on new staff and salaries; thus reducing
the amount available for infrastructure and development.

OLPGLLG will increase the demand for staff with accounting skills. This is because there are expected to be three local-level governments (and treasuries) per district or national electoral constituency and these will be required under the OLPGLLG to submit annual reports and statement of accounts to the national parliament. Most provinces and institutions have regularly been unable to meet these requirements in the past. The problems are likely to worsen, unless part of the Australian aid is diverted towards training.

The issue of the integration of Australian project/program aid into the new planning structure will also have to be worked out; it will also be demanding of more skills at the local and provincial levels.

**The banking sector**

One of the other problems facing the provinces has been the withdrawal of banking services from some of the districts. This has been caused partly by the perception of a worsening law and order situation in the districts. But it has made it difficult for district cash offices to function. If this process cannot be reversed, it is difficult to see how district treasuries, let alone local-level treasuries, will be able to function.

**Centralisation or decentralisation**

OLPGLLG is more decentralist in purpose—this is because relatively more of the resources are being transferred to the local level than was the case before. This is being done specifically through the Local-level and Village Services Grant. But the overall control of the outlays at the provincial level lies with the (yet to be appointed) provincial treasurer, who is responsible to the Secretary of Finance. Financial controls are being (and have been) tightened in response to the budget blowouts of the 1990–94 period. Nevertheless in the past slow bureaucratic processes led to lack of initiatives at the provincial level and it generated the pressures for the creation of ‘slush-funds’. Given the reduced bureaucratic capacity at the national level, there is a danger that centralised processes may delay, in a number of cases indefinitely, some of the local initiatives. The new planning processes are to be both top-down and bottom-up.

Given the resource constraint and therefore the inability of the National Planning Office charged with training district and local-level planners as well as coordinating plans at the various levels, there are likely to be either poorly designed plans and projects or there will be delays in bringing new projects on the design list. Slow or poor
implementation has been the problem in the past and it is not clear how this problem is likely to be overcome in the future.

Some concluding comments and policy suggestions

Basically the objective of transferring resources from national and provincial recurrent to economic and infrastructure development appears to be appropriate in the context of Papua New Guinea’s development needs. The problem is likely to be the constraints posed by the fiscal situation as well as inadequacies of skills, particularly at the district and local levels. In addition, there has been the problem in the past in protecting the maintenance outlays and thus preventing the deterioration of existing infrastructure. Given the continued pressures from the salaries budget, it is likely that maintenance outlays will continue to be sacrificed. In this context, the tendency for provincial governments to assume the ability to raise unrealistic levels of internal revenues and to determine provincial government employment on that basis has to be monitored by the provincial governments as well as the national government Departments of Finance and of Village Services and Local-level Government (provincial affairs).

The new formulas for the distribution of grants to the provinces and local-level governments are more equalitarian than were the grants distributed under MUG. In addition the OLPGLLG ensures that monies will be available at the local level. This was not the case under the 1977 OLPG. In this sense the OLPGLLG is more decentralising than the OLPG.

The OLPGLLG requires more resources to be transferred to the provinces and the local-level governments. This has meant, in the context of a tightening budget situation, pressure to restructure and reduce outlays at the National Level. In 1996, the national government by not transferring the full amounts of the Development Grants and by transferring additional expenditure functions to the provinces, reduced the burden of adjustment on itself. But in 1997 and 1998 approximately another K42 million and K62 million will have to be transferred to the provinces and local-level governments. In addition as the Australian budgetary grant in 1998 is reduced by another K70 million (assumes one kina equals one Australian dollar and compares to the present), there will be added pressures for adjustment; more so given the increases in salaries in 1996. Tensions between the different level of governments will heighten; it is highly likely that as in the past the maintenance and capital outlays will be reduced and will come out considerably below those planned.
Skills constraint, particularly accounting, planning and implementation skills will continue to constraint the performance of the provinces and more so of the local-level governments. It is unlikely that the expanding accounting and auditing requirements, as specified in the OLPGLLG for 267 local-level governments, 89 districts and 20 provincial governments as well as the more resource constrained national departments will be appropriately satisfied. Though necessary, such requirements consume resources without generating income. A simplification of the accounting and auditing systems is necessary, if Papua New Guinea is not to get mired in the controversies similar to those of the past, but now multifold, because of the inadequacies of skills and management. At the level of current development, it is more important to encourage mobilisation of resources at the local and provincial level, than to demand stringent record-keeping arrangements, which in any case cannot be adequately monitored.

There is also the issue of how, given the skills and financial constraints, the rapidly expanding Australian project/program aid will be integrated into the planning processes at the local and district levels. Obviously, if it is now diverted towards the maintenance of and expansion of infrastructure relating to schools, clinics, roads, airstrips, bridges and wharves, then this would stimulate an improvement in social and economic indicators. But it is important that as far as possible local materials and skills are used and there is the incorporation of training of local personnel, so that local capacity for such maintenance is developed.

Similarly for reasons of fiscal constraint, how effective will the NEFC be? What will the National Statistical Office sacrifice in order to conduct a 5-yearly census? To help the NEFC develop appropriate social and economic indicators, the next Australian aid consultancy for Papua New Guinea could be designed to carry out this function. Given that a number of grants under the OLPGLLG are population based, such social and economic indicators should not be used to determine the equality factor, which is an arduous task and which, as the historical experience of the operations of the National Fiscal Commission suggests, is likely to make only a small difference in the longer run. Instead they should be used to provide for conditional complimentary support grant to stimulate economic activity in the lagging district(s). For the conduct of 5-yearly censuses more financial and skills support should be sought from multilateral donors. For the census the NSO should redesign its questionnaire to obtain income and expenditure data, in addition to education and health data so reliable trends in social and economic indicators are available to provinces, districts and local-level governments.
Given the budgetary constraint at the national level and therefore at the provincial level, what the provinces and the district governments need is a strategy which will mobilise resources. This means the mobilisation of labour resources at the district and local level for the addition to and the maintenance of assets. By shifting resources and decision making to the local level this may be achieved. Local-level governments may now begin to collect hut/poll taxes, given that they have use of such taxes under the OLPGLLG. But only time will tell, if such mobilisation is taking place or not. To date this has not happened.

The withdrawal of banking facilities at the district level and their absence at the local level has made cash offices non-operational at these levels. An innovative way would be to appoint either a retail grocery store or a petrol station in the district(s) and local level as commissioned agents of the bank.

There is also a need for a strategy to generate income-producing projects in all provinces, but more so in provinces which are lagging behind economically and socially. Such projects are likely to generate urban-based activities to service the projects as well as to process the resources, which initially attract the projects. There is a relationship between urbanisation and internally generated provincial revenue and if properly managed this can set in process a virtuous relationship between the two. In addition, under OLPGLLG there is a population based Town and Urban Services Grant, which may encourage strategies, which will expand the urban base in the provinces.

Bougainville drove the decentralisation changes in the early post-colonial period. Given that the Bougainville situation remains unresolved, will the decentralisation arrangements which are brought into being in that province to resolve the impasse be the same or different from those for the rest of the country? Will they have an impact on the decentralisation process for the other provinces? We pose these questions for discussion without having an answer to them.

Essentially, the OLPGLLG is likely to increase rather than decrease the demand for scarce accounting, administrative, planning and implementation skills. If the new decentralisation process gets trapped in complex accounting and auditing arrangements and their fulfilment, then it will achieve even less than the OLPG, which it replaced and which was seen to have failed Papua New Guinea. If it leads to the mobilisation of resources, increased local government revenues, increased income-generating projects and activities, urbanisation and employment, increased internally-generated provincial revenues and expansion of education and health services, then it will have succeeded.
References


Papua New Guinea, Budget Papers, Government Printer, Port Moresby, various.


Papua New Guinea came to independence 20 years ago with huge promise and a wealth of natural resources. But this abundance has often brought with it more problems than benefits, witnessed in the recent upheavals:

- the national disposable income has tripled in the last 20 years with little, if any, improvement in the standard of living
- employment opportunities lag behind the numbers entering the workforce
- services and infrastructure are in disrepair
- rural-urban migration has often led to frustration and not the expected new opportunities
- the stable economic environment of the 1980s has been abandoned following the Bougainville crisis in 1989.

This collection of papers examines the many aspects of Papua New Guinea's resource base—human, mineral, oil and petroleum, forestry and fisheries—and the government policies that oversee these resources. The role of foreign aid is also discussed.

The collection highlights Papua New Guinea's strengths, weaknesses and achievements, identifying structural problems and evaluating policy directions, trends and impacts.

Ila Temu is Managing Director of the Mineral Resources Development Company and former Research Director, Islands/Australia program at the National Centre for Development Studies.

A joint National Centre for Development Studies/National Research Institute publication supported by the Australian Agency for International Development (AusAID).