

Multinational mining and petroleum companies' perceptions of the policy framework in Papua New Guinea

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The urge for economic development, coupled with the increasing globalisation of capital, has made developing economies more receptive to foreign direct investment (FDI) provided by multinational companies seeking to extract natural resources, access cheap labour, or circumvent import barriers. Although some determinants of FDI (for example, stable government, civil order, and tax policies) are important in the location of manufacturing and services as well as resource-based industries (mining and petroleum), others are industry specific. A host developing country is likely, therefore, to tailor its policies to attract direct investment by multinational companies. As Caves (1996) points out, however, such investment is not without complications owing to the different objectives of host governments and multinational investors.

The challenge for developing countries is to regulate multinational companies' activities in line with national development priorities, without removing the incentives for these companies to invest. It is not unusual for multinational companies to express their disapproval of government policies, pressuring policymakers to provide what they consider to be appropriate policies, particularly with respect to the fiscal regime,

infrastructure, and law and order (Trebilcock 1983; Caves 1996; Brunetti and Weber 1997; Doel 1998; Manning 1999; Levantis and Manning 2000; Imbun 2003). Most of the studies cited here have focused on policy development and implementation with respect to FDI. No systematic attempt has been made to survey the multinational companies' perceptions of the policies adopted by developing countries.

This paper aims to fulfill two objectives: first, to fill a gap in the academic literature by examining multinational mining and petroleum companies' (MPC) perceptions of the existing policy framework regulating the mining and petroleum industry in Papua New Guinea. It examines the degree of satisfaction evident in policy acknowledgment and approval by mining and petroleum companies working in Papua New Guinea—unlikely to be uniform across the different types of companies. Those companies dissatisfied with the policy framework are more likely to contemplate withdrawing investment, whereas those companies generally content with the existing regulatory environment may either exert pressure for change or operate silently within the industry. The paper tests this hypothesis and discusses the results in the

context of Papua New Guinea's policy environment. The study's second aim is to analyse the challenges small countries like Papua New Guinea face in providing an environment appropriate for multinational companies, particularly those in the mining and petroleum sector.

Perceptions of the policy framework in developing countries

There is a large academic literature on foreign investment in the mining and petroleum sectors of developing countries (see, for example, Vernon 2000; Johnson 1990). The writings cover diverse areas ranging from foreign investment and political conflict (Rothgeb 1989, 2002), negotiation of mining agreements between multinational MPCs and developing countries (Radetzki 1986; Otto 1996, 1997; Hughes 1975; Waelde 1977, 1989; Fritzsche and Stockmayer 1978; Radetzki 1986) to region-specific studies documenting foreign direct investment in mining (Morisset, 2000; Singh and Jun, 1995; Hill and Athukorala, 1998). Academic interest in multinational MPC investment in developing countries has also included anthropology (Godoy 1985; Ballard and Banks 2003), the environment (Gedicks 1993; Ali 2003), and corporate social responsibility (Korhonen 2003; Zwetsloot 2003; Jirasek 2003). It would appear that the three major areas of concern about the behaviour of large-scale mining and petroleum developments, reflecting both scholarly and civic interest, are how huge multinational MPCs deal with vulnerable small governments, how they deal with local inhabitants, and how they deal with the environment.

There is, however, no academic discussion of the multinational MPCs' perceptions of the policy framework in which they operate in developing countries. Concerns about a country's policies are usually confined to

industry magazines and journals and statements reported in local newspapers.

Multinational MPCs invest in developing countries in spite of the perceived higher risk in these countries compared to developed countries. They take this risk on the calculation that the expected utility of investing is higher than that of alternative activities (Polum 2000). Throughout the exploration, development and operation of their project, multinational MPCs anticipate that the host government's policies will be favourable and stable for the duration of their investment. But the shaping and implementation of mining and petroleum policies is a dynamic process, and distribution of the benefits between governments, resource owners, and developers is often complicated by overlapping sets of jurisdictions that endeavour to govern the industry in the context of an ever-changing array of local and international issues.

Many developing-country governments lacking revenue embrace foreign mining capital (Fraser Institute 2000), but, although global FDI has increased substantially over the past decade, the share received by developing countries has declined (UNCTAD 1999). The competition for the limited FDI going to developing countries has been fierce, with various countries offering favourable investment policy frameworks in a bid to lure investors. The Philippines is one of several developing countries (Chile, Ghana, Indonesia and Tanzania are others) that have recently changed mining policy with the aim of attracting overseas capital, particularly Chinese capital. As one top Philippine official stated, no doubt echoing bureaucrats from other resource-rich nations,

[t]he growth of the mining industry is critical in inducing greater economic growth, attracting more investment, creating jobs, reducing poverty...and six-time multiplier effect on economy (Mineweb 2004).

The mineral and petroleum policy framework in Papua New Guinea

While changes in fiscal policy and their impact on returns to mining investment are among the most contentious points for foreign investors in Papua New Guinea, other investment risks exist in the form of geological endowments, security of access to land, political stability, and changes in other government policies, such as environmental policy (Barwick 1995; Imbun 2003).

Papua New Guinea's mineral policy framework before and immediately after political independence in 1975 provided a stable environment for foreign investment (Filer and Imbun 2004). It was premised on the long-term approach of maximising the government's revenue share and facilitating infrastructure development in rural areas, thereby fulfilling the country's development goals (Papua New Guinea 1977). Reluctant to risk budgetary resources or borrowing capacity for any individual project, PNG governments have required private investors to assume exploration risk and responsibility for the provision of all necessary infrastructure. Governments were committed to seeking minority equity in mining projects and the application of 'carried interest' in petroleum projects (Daniel and Sims 1986; Imbun 2003; Filer and Imbun 2004). This policy framework was considered appropriate because it simultaneously provided incentives for project development while retaining opportunities for raising tax revenue.

Since independence, however, the policy framework has become cumbersome and complex. The inclusion of provincial governments and landowners as legitimate stakeholders, combined with successive governments' 'chaotic policy regimes', has made the policymaking process more expensive, time-consuming, and frustrating. The inclusion of other stakeholders in project

negotiations has given wide scope for project-by-project negotiation and exercise of government discretion, instead of the earlier basic policy regime with its general applicability. The extent of legislative activity can be seen in Table 1.

In an effort to fund bulging government expenditure, and pressured by interest groups, various governments have turned to manipulating the fiscal policy regime relating to mining and petroleum to meet short-term goals. Moreover, two civil uprisings directly related to the industry (Bougainville in 1989 and Mt Kare in 1999), the Ok Tedi environmental debacle, and the subsequent unceremonious departure of BHP in 2002 have presented a gloomy picture of Papua New Guinea as a country for large-scale mineral and petroleum investment (Banks 2001). Most of these upheavals occurred in the late 1980s and 1990s, when depressed metal prices prompted stiff competition for investment among potential host nations and forced many mineral countries to relax their grip on the fiscal regime (Chamber of Mines and Petroleum 2002a).

These economic and social disturbances reduced investors' confidence, prompting a huge backlash from the industry. For the existing operators, however, the fiscal policies have become the most contentious point, forcing them to lash out at the government (Chamber of Mines and Petroleum 2002b). One highly critical review of the fiscal regime for the mining and hydrocarbons industry recommended the 'elimination wherever possible of these negotiable and discretionary elements' (Daniel et al. 2000:9). The choice presented to the government is either to reform the industry, taking into consideration the views of independent parties and project operators, or to maintain the fiscal regulatory regime and watch the industry decline.

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Table 1 Major landmarks in the development of Papua New Guinea's mineral and petroleum policy framework

1974	Passage of Mineral Resources Stabilisation Fund Act (Chapter 194).
1975	Establishment of Minerals and Petroleum Policy Committee.
1977	Passage of Mining Act (Chapter 195) and Petroleum Act (Chapter 198).
1978	Passage of Environmental Planning Act.
1988	Introduction of Development Forum.
1989	Revision of mineral policy framework by NEC decision 98/89.
1992	Introduction of Infrastructure Tax Credit Scheme. Passage of new Mining Act.
1993	Government insists on purchase of additional equity in Porgera project.
1995	Revision of fiscal regime by NEC Decision 46/95. Passage of Organic Law on Provincial Governments and Local-level Governments. Finalisation of natural gas policy statement. Passage of Mining (Ok Tedi Restated Eighth Supplemental Agreement) Act.
1996	Passage of Mineral Resources Development Company Pty Ltd (Privatization) Act.
1998	Passage of Oil and Gas Act.
2001	Passage of Mining (Ok Tedi Mine Continuation Agreement) Act.

Source: Filer, C. and Imbun, B., 2004. *A Short History of Mineral Development Policies in Papua New Guinea*, Resource Management in Asia-Pacific Working Paper No. 55, Research School of Asia and Pacific Studies, The Australian National University, Canberra:4.

Despite the adverse investment climate, a few notable developments have occurred recently. The government injected US\$10 million into the industry in the Mining Sector Institutional Strengthening Project in May 2000 (World Bank 2000), aiming to strengthen human resources, technical and other capacities in the Department of Minerals and Energy. The project has yielded new geoscientific data about some of Papua New Guinea's most promising geological regions and the bureaucracy has been made more effective; and it was anticipated that more MPCs would be attracted as a result. Further, a US\$5 billion gas pipeline project to transport gas from fields in the Southern Highlands to north-eastern Australia is advancing after significant market agreements were finalised in October 2004.

Information gathered

In addition to interviews with senior management and industry personnel, and reviews of industry journals, the major source of information for this study was a survey of 43 multinational MPCs. They represent a response rate of 36 per cent from the 120 companies that were posted a questionnaire in 2002. The list was taken from the membership of the PNG Chamber of Mines and Petroleum, the peak industry group in Papua New Guinea. The Chamber is a well-resourced organisation whose role is non-industrial and mainly involves consulting with government on matters pertaining to the industry and some public relations activities. The companies identified were either engaged in some way in exploration activities or in the operation of mining and petroleum projects.

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The 36 per cent response to the survey was significant given that some 45 of the 120 companies affiliated with the Chamber of Mines and Petroleum were service providers and not investors or operators. However, not one of these companies chose to respond to the survey. Of the 43 respondents, 36 were from the mining sector and seven from the petroleum sector. This composition was representative of the industry, as the bulk of the major operators and explorers in the industry were miners. Of the companies involved in the mining sector, five were operators of existing projects and the remainder (31) were involved in different phases of exploration.

Company perceptions of the policy framework: classification and measurement

The survey solicited responses to six questions (see Table 2) measuring the multinational MPCs' acceptance of the current policy framework applying to the industry. The subjects were then asked to indicate their perceptions of the general political, social and economic policy situation in the country (see Table 3). Their level of satisfaction was measured on a scale of 1 (low) to 5 (high). The study used factor analysis to determine whether the questions were eliciting different information. In Table 2, only one factor has an Eigen value higher than 1. The factor loading of the six items ranges from 0.68 to 0.84, all above the acceptable value of 0.5 (Hair et al. 1995). The measure of internal consistency (Cronbach test) is 0.85, indicating that this scale is highly reliable and consistent with theoretical concepts. This result means that all six questions reflected companies' level of satisfaction with the policy environment. On average, the perceptions of existing industry policies reflected moderate

satisfaction (3.08, where 5 indicates full satisfaction).

In response to the question identifying major issues that most adversely affected the industry, many factors stood out—landowners, government perceptions and attitudes, environmental scrutiny, land accessibility, law and order, stability of government, unstable fiscal regime, fly-in-fly-out provisions, government bureaucracy, national infrastructure, competition for investment, and international metal prices and currency (Table 3).

Almost all of these issues are known to be obstacles to investment and operations throughout the economy, not only in the mining and petroleum sector. Many industry advocates and other commentators have stressed the need for prompt remedial action on the part of the government to assist investors (Manning 1999; Levantis and Manning 2002). However, of the 13 issues identified, only competition for investment and international metal prices are externally determined; the remainder are generated internally—a cause for concern for existing as well as potential investors. While many of the issues identified (such as infrastructure, law and order, unstable government, fiscal regime, and government bureaucracy) are typical of many developing countries, several others are particularly important in Papua New Guinea. The fly-in-fly-out issue, landowners, and land accessibility, while not especially significant elsewhere, are of critical social, economic and political significance in a country where 98 per cent of the land is under tribal communal ownership. These issues have proven a major stumbling block for companies, as they are required to go through a tedious process of negotiations with tribal landowners and numerous government officials to initiate investments. During the in-person interviews, several companies referred to this process as the 'most grueling' to sort out before doing business in Papua New Guinea.

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Table 2 Average values, standard deviations, and factor analysis of multinational MPCs' perceptions of the industry policy framework

	Average standard factor	Item value	Deviation loading
To what extent is your company satisfied with the existing policy framework?	3.7	0.86	0.75
To what extent are the current issues affecting your industry? (Please identify the major issues)	3.69	0.92	0.79
How closely are some of these issues linked to your operations?	3.68	1.04	0.68
To what extent is the government currently looking into these issues?	3.41	1.03	0.68
To what extent would your company tolerate the major issues affecting operations?	3.78	0.93	0.81
How long does your company want to keep operating in the country despite the major redressing of the issues?	3.59	0.96	0.84
Eigenvalue	3.47 m		
Variance explained (per cent)	57.8		
Cronbach test	0.85		

Table 3 Major issues identified by multinational MPCs as influences on activity and viability

Major issues	Mineral explorers (n=31)		Mine operators (n = 5)		Petroleum explorers (n = 4)		Petroleum project operators (n = 3)		Total (n = 43)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Landowners	31	100	5	100	4	100	3	100	43	100
Perceptions	22	70	4	80	3	75	2	66	31	72
Environment	5	16	5	100	2	50	3	100	15	35
Land	31	100	5	100	4	100	3	100	43	100
Law and order	18	58	5	100	3	75	3	100	29	67
Government	25	81	3	60	3	75	2	66	33	77
Fiscal regime	31	100	5	100	4	100	3	100	43	100
Fly-in-fly-out	26	84	2	40	1	25	2	66	31	72
Bureaucracy	23	74	1	20	2	50	1	33	27	63
Infrastructure	30	97	3	60	2	50	2	66	37	86
Competition	25	81	-	-	3	75	1	33	10	67
Int' metal prices and currency	31	100	5	100	4	100	3	100	100	100
Others	16	52	3	60	3	75	2	66	24	56

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Table 3 provides a descriptive analysis of the 43 mining companies' perceptions of major issues affecting the mining industry. The relative ranking of the issues denotes no significance (as all were seen as major obstacles), but multinational MPCs were particularly concerned over landowner issues and taxation policies. The last item ('Others') includes miscellaneous concerns ranging from theft in the workplace, delays in getting work visas approved, to general inefficiency in services and the lack of sufficiently skilled technical and professional personnel. These issues were not cited as frequently as the other obstacles.

Several observations can be made from the information presented in Table 3. Generally, it seems multinational MPCs were deeply anxious about these issues. Although there are some minor differences between mining and petroleum projects, and rather more between exploration and project activities, these differences are overshadowed by the focus on a few key issues cited by all of the companies surveyed—landowners, land, fiscal policy, and international commodity prices. Clearly, these issues are critical to maintaining socially and financially sustainable projects.

Dealing with landowners over land access has become a formidable and cumbersome process in all stages of resource development in Papua New Guinea. In fact, it has become common practice that no project can be finalised without acknowledging and incorporating the interests of landowners and local communities in the project area. Finding a balance between resource development and landowner aspirations has made policymaking in the mining and petroleum industry challenging and dynamic. A large body of literature (Connell and Howitt 1991; Henningham, May and Turner 1992; Filer 1999; Filer, Henton and Jackson 2000) has documented the challenges and tensions

landowners create for developers and government in attempting to maximise their own benefit from mineral and development policies. Vigorous and incessant lobbying for landowner participation in projects, combined with sometimes unrealistic claims, has negatively affected most of the developers: 'how far can we tolerate?', as one expatriate mine manager remarked. The question reflects the sentiments of the industry.

Multinational MPCs' have also been deeply concerned by the country's fiscal instability for many years. While improvements in fiscal management since 1999 have reassured investors, many critics have found the reforms inadequate. The Fraser Institute, a reputable independent organisation, assessed mining and petroleum countries in 2000, ranking Papua New Guinea last in terms of taxation, administration of existing regulations, native land claims (landowner issues), environmental regulations, infrastructure, and socioeconomic agreements. Another report found the country to be a poor investment choice for mining companies, ranking it twentieth out of 24 countries surveyed for their mining potential (Daniel et al. 2000:64).

International metal prices and currency fluctuations were also seen as not conducive for exploration and operation of mining and petroleum projects. Metal prices have, until recently, been very low, limiting the flow of investment into the country. This situation has now sharply reversed. The country has also been prone to currency fluctuations, with the kina devaluing twice in the 1990s to assist the domestic economy and present an image of a stable fiscal regime (Imbun 2003:38).

The level of response to the other issues varied slightly. However, a good deal of consensus was found amongst companies over the issues of national infrastructure and government instability. The condition of

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infrastructure was of major concern to 86 per cent of the companies. Government funding for maintenance of major highways has been consistently insufficient, raising the cost of the delivery of goods and services. Of the 43 companies, 77 per cent felt that the rapid turnover of governments had an adverse impact on Papua New Guinea's international standing.

Further, 72 per cent of the respondents felt that government policies towards fly-in-fly-out operations were having an adverse impact on their operations. Fly-in-fly-out operations have been one of the most hotly debated issues in PNG politics. Some land-owning communities have opposed the construction of mining towns and related amenities, but the great majority of landowners have favoured such developments rather than the operation of mines on a fly-in-fly-out basis. The issue came to a point in the late 1990s when a bill was presented to parliament to compel developers to construct project townships rather than rely on fly-in-fly-out operations. Although the bill was never passed, project developers have become apprehensive of the issue, which has the potential to create conflict with government and landowners, who sometimes do not understand workers' views and the economics of projects. McGavin, Jones and Imbun (2001) found that most workers at the Porgera gold mine were not prepared to bring their families to the site for fear of potential lawlessness.

Law and order problems and government bureaucracy were also seen as major obstacles by 67 and 63 per cent, respectively, of the respondents. The widespread breakdown in law and order has long been a cause for concern among existing and new investors. Government departments have constantly been criticised for not living up to taxpayers' and investors' expectations. Although red tape and low productivity are associated with public service almost everywhere, such

problems are particularly evident in Papua New Guinea. Manning (1999:20) found in his survey that the lack of investment in Papua New Guinea showed that the efficiency of government 'is poor and it has declined very badly'.

Fifth, environmental policies and competition for investment were raised as problems—by 35 and 25 per cent, respectively, of the companies surveyed. The PNG government has lately devoted serious scrutiny to the environmental management practices of large-scale resource extractors, in response to the Bougainville mine dispute, the Ok Tedi debacle, and the increasingly environmentally conscious population. It has taken on the uneasy task of shaping, overseeing and regulating environment policies, often in the face of unyielding resource developers (Ballard and Banks 1999). Competition for investment was another major concern given the competition worldwide over mineral and petroleum developments. The companies thus underlined the urgent need for the PNG government to restore fiscal stability and create an environment conducive to investment.

Finally, the petroleum sector did not differ greatly from the mining sector in terms of the major issues identified.

Correlation of results

We sought to verify these findings through interviews with representatives of several multinational MPCs as well as by analysing the frequency of media releases that have highlighted the industry's concerns. In October 2000, interviews were carried out with nine firms that had their offices in Port Moresby. All except one were respondents to the postal survey. Five represented mining interests and four represented petroleum interests. They were asked only two questions: whether their company was content with the current policy framework

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regulating their industry, and whether their company would leave in the event of an adverse change in the policies (Table 5 summarises the results of the interviews).

The responses seem to confirm the concerns identified earlier. Variations in responses are generally accounted for by the respondents' status as operators or explorers. Hence, operators generally viewed existing policies as a concern but indicated they would stay, presumably to recoup costs and hope for better policies. The explorers generally thought the investment climate was already unsuitable, so any drastic government policy change adversely affecting their operations would cause them to leave. The views, more or less, reflected those in the postal survey questionnaire.

Interviews with multinational MPCs provided overwhelming evidence of a correlation between extent of congruence and its implications on mineral and petroleum policies in the country. Among the four mining companies interviewed, opinion differed on the effectiveness of policies regulating their industry. Only one mining company agreed in principle with the

government's aspirations and thought the 'existing policies are still competitive' with those of other (developing) countries with similar resource potential. The company qualified its position and acknowledged the significant role of local community, particularly landowners, in aiding smooth management of large-scale resource projects, which was a testimony to the effective facilitatory role of government. Others mentioned instability, particularly in fiscal policies, coupled with a stream of *ad hoc* policies that had buffeted the mining and petroleum industry. Some interviewees cited several policy changes as matters of grave concern. These included the 1999 policy changes in PAYE marginal tax rates to target high-income earners, a VAT which did not zero-rate the industry but applied a limited drawback, representing a tax grab for a number of mining and petroleum projects. The royalty tax rebate of 0.75 per cent was abolished, thus increasing royalties to two per cent instead of an effective 1.25 per cent, and a tax was imposed on the cost of fly-in-fly-out operations covering both domestic and international flights. All these taxes

Table 4 Correlations of policy framework regulating mining and petroleum industry

Q1 Is your company content with the current policy framework regulating your industry?

Industry	Yes	No
Mining	2 (40 per cent)	3 (60 per cent)
Petroleum	1 (25 per cent)	3 (75 per cent)
No. of respondents	9	

Q2 Would your company leave if there were an adverse change in the policies favouring the government (gain)?.

Industry	Yes	No
Mining	1 (20 per cent)	4 (80 per cent)
Petroleum	2 (50 per cent)	2 (50 per cent)
No. of respondents	9	

Source: Author interviews, Port Moresby, October 2000.

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imposed a further burden, particularly on the struggling mining sector. According to one resident mining executive, 'this is a severe imposition at a time when the mines of Papua New Guinea were, and are, struggling to remain competitive with the presently very low metal prices'.

On the issue of withdrawing investment, the potential for a sharp change in policy regulation of multinational MPCs drew a fairly mixed reaction from the interviewees. Only one of the four mining companies, an exploration company, thought they would leave permanently if the government radically altered the fiscal and taxation aspects of regulation, which probably reflects the greater risk exposure of that company's activities. The remaining interviewees thought prevailing policies already too disadvantageous, indicating that they would challenge further refinements in favour of the state rather than simply withdrawing from the field. They believed that Papua New Guinea still had some sound policies but that more industry input was needed to reflect better the views of all parties concerned.

The petroleum companies were divided on this question. Two felt that radical policy change would be unrealistic for the government, given its heavy reliance on revenue generated by the industry, and that unilateral government action without consulting the industry would verge on suicidal in the circumstances. In contrast, the other two, predominantly involved in exploration, thought the industry over-regulated and argued that any further adverse policy amendments would drive existing and potential investors away.

The author next analysed media releases by multinational MPCs or their peak body, the PNG Chamber of Mines and Petroleum, on issues pertaining to the industry in search of a correlation with the interview findings. Table 6 exhibits the number of items concerning common issues appearing in

industry newsletters, journals and the two national newspapers in 2001. From observation, the mining and petroleum industry's views were made known in the Chamber of Mines and Petroleum *Bulletin* (CMPB), run three times a year. *PNG Resources* (PNGR), a quarterly magazine, reporting on mining and petroleum investment in Papua New Guinea, published views only accompanying the PNG mining and petroleum conference held in Sydney biannually. The issue analysed is of 2000, as the conference was held in that year. Occasionally the PNG Chamber of Mines and Petroleum and individual investors highlight their views through the *Post Courier* and *The National*, two daily newspapers. Industry views on policies and issues also appeared in miscellaneous records (MC), particularly from individual project bulletins and newsletters.

The author calculated the frequency with which the topics analysed in Table 3 were raised in these literature sources in 2001–02, finding that the ten major issues were discussed most frequently, a reflection presumably of their importance to the industry.

Several points can be made from the information in Table 6. First, the multinational MPCs have been very vocal in expressing their dissatisfaction with government policy and they have been effective. The industry has used as its main public relations body the Chamber of Mines and Petroleum, which has systematically advanced the industry's stance on government policy in meetings and mining conferences, although individual companies are also at liberty to make their concerns known. The industry's importance to the PNG economy has made PNG governments eager to acknowledge and consider its suggestions and positions. It is not surprising, therefore, to find that unpopular policies are often revisited on the basis of

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feedback from the Chamber and its members. For instance, the removal of the Additional Profits Tax (APT) and relaxation of the Ring Fencing provision and Double Deduction of Pre-production Exploration Costs were some of the policy amendments made by the government in 2003 in favour of the mining sector (Chamber of Mines and Petroleum 2003:2).

Another observation is the perception of the severity of the issues. Some issues are seen as so severe that they curtail or deter investment. Fiscal issues, in particular, are cited by the industry as obstructing their performance and continued investment. Former and current executives of major foreign resource operators have stated bluntly the inevitability of an exploration embargo on Papua New Guinea if fiscal restrictions are not relaxed. One mining chief

compared the country to a dead goose with no more eggs as the few existing mines run out of life. These mines were developed under previous fiscal and exploration regimes; subsequent regimes have reduced the volume of exploration and thus of new mines opening (Barwick 2000).

Yet, the major issues facing the mining and petroleum industry tend to be structural and therefore inherent in PNG's current socio-economic and political framework—a tumultuous political and social landscape. Only international metal prices and competition are external influences. Law and order, land, landowners, government, and infrastructure are some of the acute issues affecting not only on the mining and petroleum industry but also other sectors. Manning (1999) found that crime (and the general breakdown in law and order) was

Table 5 Coverage of issues confronting the PNG mining and petroleum industry in the media, 2001–02 (no. of items)

	<i>Chamber of Mines and Petroleum Bulletin</i> (3 issues)	<i>News PNG Resources</i> (4 issues)	<i>PNG Mining and Petroleum Prospectus</i> (1 issue)	<i>Post Courier</i> (1 year)	<i>The National</i> (1 year)	Misc. records
Landowners	5	8	3	320	380	67
Perception	10	5	6	180	165	34
Environment	4	9	4	330	358	67
Land	3	5	5	192	167	56
Law and order	5	5	4	420	603	56
Government	6	6	6	287	320	23
Fiscal regime	10	7	6	226	200	21
Fly-in-fly-out	3	4	3	45	32	34
Bureaucracy	2	4	3	178	198	23
Infrastructure	3	5	4	216	289	45
Competition	5	5	5	23	45	15
International metal prices and currency	8	11	5	136	156	57
Others	6	9	7	87	75	87

Notes: The author calculated the frequency with which the topics analysed in Table 3 were raised in these literature sources in 2001–02, finding again that the 10 major issues were discussed relatively frequently, a reflection presumably of their importance to the industry.

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one of the serious problems raising the costs of doing business in what is already a tenuous business environment. The same study found that accessibility to land and landowners' ability to heavily influence the commencement and operation of projects posed a strong disincentive to existing and potential investors. These issues have become so entrenched in PNG's social and political situation that any attempted solution that fails to consider their root causes is doomed to failure.

Some issues listed in Table 6 occur more frequently across almost all journals. The distinction between general societal issues and those issues specific to the mining and petroleum sector can explain this. For instance, law and order, landowners, infrastructure, environment, government perceptions, and government pose impediments to the multinational MPCs. But they are seen in the same light by other large-scale, natural resource developers, as was apparent from coverage in the two national dailies, *Post Courier* and *The National*, in 2001. Other issues that particularly affect MPCs, such as the fly-in-fly-out situation, work permits and visas, weather, human resources, and business support, were more sparsely covered outside the specialist industry literature.

Above all, the year 2001 saw many critical developments in the mining and petroleum industry, confirmed by the high incidence of press releases and reportage in industry journals. The debilitating saga of BHP's management of the Ok Tedi mine since the mid 1980s came to a close in 2001 when the Australian mining giant decided to quit the environmentally disastrous project to save its global reputation (Filer and Imbun 2004). The medium-sized Misima gold mine was also shut down in 2001 after it exhausted its ore production and resorted to stockpiled ore, which was exhausted in 2003. The Kutubu oil fields operated by Chevron

Corporation were renamed Chevron Corporation and Texaco Inc, as the two oil giants merged, but this had no direct impact on the PNG operations. Other developments, such as the entry of new industry players like Canadian zinc and nickel producer, Noranda, the PNG Gas Project, and industry conferences made 2001 a busy year for the industry. The issues accompanying these and other developments are reflected in Table 6.

From the empirical analysis, three themes stand out in the multinational MPCs' perceptions of the major issues facing them. First, varying dissatisfaction between mining and petroleum companies is related to the existence of major adverse issues. The correlation analysis confirms varying degrees of acknowledgement in appreciating and critiquing government policies. In other words, the level of grudging approval of particular government policies differs between operational companies and exploration companies. This is obvious in exploration companies' low satisfaction and more intense contemplation of withdrawal. Further, there is marked variation in acknowledging some issues (employee turnover, training, and localisation) between the mining and petroleum companies. Existing operators of projects are more willing to cling onto their projects in the hope that 'unpopular' policies will be refined, whereas explorers are more likely to leave. Finally, the issues identified pose a huge challenge to resource developers. The fiscal and landowner policies are particularly seen as obstacles to large-scale investment.

Implications

The major issues facing the PNG mining and petroleum industry pose several challenges to the country and investors. Various developments point to the need for delicacy

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in policymaking in the globally competitive and relatively constrained environment. Whilst it is essential to maximise revenue, even through some unpopular policies, the PNG government seems to have indulged in creating a unilateral 'frontier of control' in the industry. This kind of policymaking has led to a disgruntled industry that reacts to every government policy move.

Consequently, the sharp drop in mineral and petroleum exploration activity since the late 1980s was partly blamed on the government's lack of sensitivity to industry expectations in its regulation of the industry. Exploration licenses declined from a record 135 in 1987 to just 14 in 1998 and PNG received only a meager 0.75 per cent share of the US\$250 billion global exploration expenditure in 2000. The seriousness of this issue is more evident when Papua New Guinea is compared with other mining countries, such as Australia, where exploration expenditure increased by 120 per cent over this 1987–98 period. Australian mining and petroleum investment in exploration in Papua New Guinea fell by over 90 per cent during the same period (Barwack 2000; Anderson and Moramoro 2002). In absolute terms, the country lost substantial amounts of exploration investment. Although the problem could be partially because of the depressed global mineral investment outlook in that period, industry observers argued that the lack of new investment was largely on account of the country's policies. This view is reflected in the Chamber of Mines and Petroleum Executive Director's report of August 2002 to the effect that, 'whilst there is no doubt that these other issues (that is, law and order, infrastructure) are of great importance the taxation regime is the fundamental issue in attracting the international exploration dollar' (PNG Resources 2002b:2). The Chamber's argument has been that Papua New Guinea's potential for attracting exploration capital is unsurpassed,

given its proven geological prospects for mineral and petroleum deposits. What the government has to do is to tackle other issues on a long-term basis but attend immediately to taxation and other fiscal issues in order to consolidate the industry.

Another challenge facing the government in its quest to regulate the mining and petroleum industry is to gain the ability to separate the issues of wealth creation and wealth management. Since independence, no government has coherently managed to separate these issues in formulating policies for the sector. As Christmann and Stolojan (2001) maintain, developing countries ought first to provide an environment conducive to wealth creation, and then divide the wealth according to broadly agreed principles. The PNG government should spend more time addressing the first step—establishing viable conditions for wealth creation—rather than being preoccupied with the subsequent step.

The government needs not only to formulate responsible policies but also to spend its revenue from the mines responsibly. Many observers (for example, Christmann and Stolojan 2001; Filer and Imbun 2004) argue that, although the revenues generated from mining and petroleum have supported the government's expenditures, the industry is a 'sunset industry' and therefore unable to promote sustainable development. Because revenue from the industry can be expected to fall substantially over the next decade with the closure of the Ok Tedi and Porgera mines, the failure to tie investment in the industry to other sustainable endeavours should be a major cause of concern. Another of the government's key challenges is to understand that its mining and petroleum industry is part of an increasingly integrated and competitive world. Moreover, there is ever-closer scrutiny of the industry by civil society, investors, and others.

Following the major Taxation Review of 2000 and the unprecedented pressure exerted

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by the mining and petroleum industry, the government amended its contentious taxation policies. In 2003, the controversial Additional Profit Tax (APT) was scrapped and ring fencing was reduced to allow new explorers to invest. Double deduction of pre-production exploration costs (200 per cent) was also allowed, which took into consideration depreciation of plant and equipment at 25 per cent. Similar changes were made to the petroleum tax regime, including removal of the APT and the incentive tax rate of 50 per cent (see Table 5).

Despite the recent reforms, the industry is not satisfied with the tax regime because the PNG state retains the right to take up a

30 per cent equity interest in any mineral development and because of some taxes levied. However, there are encouraging signs of new exploration companies coming into the country. In 2003, there were a record number of 14 applications for new mining exploration and several for petroleum exploration. Ten new mines are progressing towards the production stage. If the rush of applications is any indication, the industry is regaining its competitive status in world mineral and petroleum exploration. At least this is how the Minister for Mining recently saw the situation: 'I have had the chance now to correct mistakes and I am glad that the industry is finally seeing some real excitement' (*The National*, September 2004).

Table 6 Changes to the mining and petroleum taxation regime in 2003

Mining policy changes	Petroleum policy changes
Income tax rate of 30 per cent	Removal of additional profits tax
Dividend withholding tax rate at 25 per cent	Incentive tax rate (50 per cent)
Accelerated depreciation allowance of 25 per cent	Loss carry forward time limit
Royalty rate at 2 per cent	Gas project special tax credit
Abolition of additional profits tax	Premium for use of the fiscal stabilisation act
Depreciation of plant and equipment (25 per cent)	Deduction of exploration expenditures
Loss carry forward time (open-ended)	Gas Project Forward Time Limit (open-ended period for oil and gas developments)
Relaxing of ring fencing	
No mining levy	
No capital-gains tax and fiscal stability-optional at 2 per cent	
Removal of the additional profits tax	
Mining corporate tax rate of 30 per cent (reduced by 5 per cent)	
Double deduction of pre-production exploration costs (200 per cent)	

Source: Chamber of Mines and Petroleum, *Bulletin*, 2003.

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Conclusions

The study finds that the multinational MPCs were moderately satisfied with the policy regime regulating their industry. Their disapproval of some policies seems to have prompted the withdrawal of some operations and the stemming of new exploration capital. While the 43 mining and petroleum companies surveyed identified ten major issues, they saw landowners, land, the fiscal regime, international metal prices, and currency fluctuations as the major factors adversely affecting the industry. Fiscal regulation was identified as the most adverse factor in the operation of mining and petroleum projects. As regards the other issues, the views of mining and petroleum companies vary. The slight variations in response appear to be driven by the respondents' focus: explorers tended to be more insecure and apprehensive than existing operators.

There is evidence that individual companies dissatisfied with the existing policy regime are willing to challenge the government directly over reform, eschewing use of the Chamber of Mines and Petroleum. The study makes obvious the major challenges facing the industry and the government's endeavours to reform it on the basis of independent reviews and industry critique. Above all, the challenge facing the government is how far it can go in drawing the 'frontier of control' without destroying the industry. Although the challenge seems to have been addressed, Papua New Guinea still faces problems in gaining the maximum possible revenue and wealth from mining and petroleum operations. What needs to be done, and what is not happening, is that the country must attend to the issues of revenue generation from mining, petroleum and other activities before working on issues relating to management or distribution of that wealth. This is the message the multinational MPCs want the government to hear and act on.

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