



The Malahang Industrial Centre and the development of industrial centres in Papua New Guinea

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This survey of the Malahang Industrial Centre sheds light on further development of industrial centres in Papua New Guinea. The Malahang Industrial Centre led to an improved business environment with better security conditions, subsidised rent, reliable power, water and communications, but the increase in employment came at a high cost and the increase in manufacturing activity was disappointing. A one-stop shop did not develop. The Industrial Centres Development Corporation was placed into the situation of a government-owned construction company. Marketing was poor. And the general investment climate in Papua New Guinea continued to influence investment decisions. The proposal to privatise the Corporation could change the outcomes but for the moment the impact of the industrial centres is at best limited.

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This paper examines the achievements and problems experienced by the Malahang Industrial Centre (MIC) in Lae, Papua New Guinea. Chen (2000) examines the prospects for industrial centres in Papua New Guinea, based on the experience of export-processing zones in various developing economies. This paper looks closely at the experience of the MIC in order to shed further light on future industrial centre development in Papua New Guinea.

Fieldwork was conducted in Port Moresby and Lae in November 1999.

Interviews were carried out with officials in government departments and research institutes, and with tenants within the MIC. A survey questionnaire was also distributed to the tenants within the MIC and to other manufacturing firms in Lae. However, the surveys among manufacturing firms are not yet complete, thus the analysis in this paper is based on the information obtained from the visit to the MIC and the survey responses of tenants within the MIC. First, the paper looks at the policy background to the establishment of industrial centres in Papua



New Guinea, then summarises the development of the MIC, before exploring the achievements and problems experienced. Some suggestions about the future development of industrial centres are discussed in the last section.

Concept and purposes

Structure and performance of the industrial sector in Papua New Guinea

Since independence in 1975, Papua New Guinea's economy has experienced sluggish development. Even at independence in 1975, the PNG government recognised the economy's dependence on mining and agricultural resource-based exports. This dependency has increased since the mineral boom in the 1990s. The industrial sector (manufacturing and construction) has remained small, representing about 15 per cent of economic activity throughout the period since independence (Table 1). But the mineral sector, though rapidly growing is an enclave, and agriculture is subject to high price variability that is externally determined. Thus, there is high national concern over employment generation in general and in industrial development in particular.

Total manufacturing employment was 21,067 in 1984 and grew to 25,708 in 1995, an annual growth rate of 1.8 per cent. Over

the same period, however, the population grew at 2.4 per cent and urban population grew at 4.1 per cent.

The most often cited reasons for the stagnant manufacturing development are the fast growth in the mining sector and the lack of new investment in the manufacturing sector. Expected returns from investment in the mining sector are considered to be high compared to the manufacturing sector. Success in the manufacturing sector is constrained by many factors. First, there is a lack of international competitiveness—mainly because the existing manufacturing sector developed behind a high tariff wall, with uncompetitive exchange rates and real wage levels until the 1990s. Although there has been a large real exchange rate depreciation and fall in real wages since 1994, the supply response has been poor because the general investment climate in Papua New Guinea is not favourable. A number of issues are considered as barriers to business. Among them, crime, corruption, poor infrastructure, poor land accessibility and policy instability are the most important ones.

Policy background of industrial development

Concerned as it has been with the poor industrial development and employment generation, various policies and strategies have been developed by the Government of

Table 1 Papua New Guinea: gross domestic product by sector, 1970–95 (per cent)

	1970	1975	1980	1985	1990	1995
Agriculture, forestry and fishery	40.1	29.7	33.1	33.3	28.4	32.2
Industry	19.2	29.0	26.5	24.8	28.6	39.7
Mining and quarrying	1.0	13.4	13.2	10.0	13.4	24.2
Manufacturing	5.3	7.5	9.5	10.9	10.0	8.4
Construction	12.9	8.1	3.8	3.9	5.2	5.7
Services	40.7	41.3	40.4	41.9	43.0	28.1

Source: Adapted from Valk, 1996. *Review of Industrial Policies in Papua New Guinea*, Port Moresby.



Papua New Guinea. The first explicit policy document aimed at the industrial sector was the 1984 'White Paper on Industrial Development'. The next major official industrial policy document was the Medium Term Industry and Trade Development Action Plan released in 1991, and followed rather quickly by the policy document 'Beyond the Minerals Boom' in 1993. Several institutions were consequently created to implement industrial policy. These were the Small Business Development Corporation, the Construction Industry Authority, the Industrial Centres Development Corporation (ICDC), the Investment Promotion Authority (IPA), and the National Institute of Standards and Industrial Technology.

The concept of industrial centres is similar to the export-processing zones that have been established in many countries. Export-processing zones were designed to attract footloose manufacturing activities producing mainly for the export market. In order to attract appropriate activities into the zone, they attempt to provide a package of geographical location, infrastructure and services, and incentives. Industrial centres as conceived in Papua New Guinea are similar to export-processing zones but are a more general concept in that they are intended to attract manufacturing activities producing for both the domestic and foreign markets.

One rationale for this form of industry development is that the government can take advantage of the large revenues generated from the mining sector to diversify the structure of output in Papua New Guinea. That is, through the provision of infrastructure services, the government is trying to encourage the private sector to take the lead in industrial development. If the government can create an environment conducive to investment, the private sector is likely to respond and opportunities for employment, income and growth will be created (Temu 1993).

Strategy and objectives of industrial centres

Aside from the MIC, the government has committed to the development of three other industrial centres (Chen 2000). In encouraging industrial development through the establishment of industrial centres, the government has identified three areas requiring intervention: lack of incentives, the high cost of essential services and lack of institutional support. The incentive regime was seen to be weak and uncoordinated. The cost of services and utilities such as electricity, telecommunications, transport and rentals is estimated to be 50 per cent higher than Papua New Guinea's competitors (Temu 1993). Although private organisations have played a supportive role, the government's view was that there was a need to strengthen and streamline existing government institutions and establish new ones. The establishment of the ICDC, with responsibility for the establishment of industrial centres, was part of this new approach.

During the interviews in Port Moresby, the Manufacturing Council of Papua New Guinea argued that the establishment of the industrial centres was need and incentive-driven. They argued that the need for the establishment of industrial centres was mainly due to the complex land tenure problem. In Papua New Guinea, little land is available for industrial development or for use as collateral. Further, industries are primarily located in the major cities. Therefore, the government sought to relocate industry outside the major cities by establishing the industrial centres. Another perceived need is that the government is obligated to provide for its people by establishing the means and facilities to build national businesses, however, the high cost structure of business has prevented nationals from entering industry. Therefore, the establishment of industrial centres can provide nationals with cheap entry. For



example, small factories can obtain subsidised factory space for a few years and move on to non-subsidised factory space after they have become established (Valk 1996). Bureaucratic procedures in Papua New Guinea can be cumbersome, leading to long delays in the processing of applications for business licenses, permits and so forth. The establishment of industrial centres could provide a one-stop administration point and reduce difficulties in this area.¹

The argument for the establishment of industrial centres as incentive-driven is based on the judgment that the stagnant industrial development is due to the lack of incentives. The services provided by the industrial centres and the accompanying fiscal incentives are seen to increase interest in investment by the private sector.

The incentive package

Like export-processing zones, industrial centres in Papua New Guinea are not just a geographical location with standardised factory buildings. Incentives are also provided to make the industrial centres more attractive for potential investors. As noted by the Manufacturing Council of Papua New Guinea, the industrial centres are incentive-driven, by way of direct exemptions through pioneer status or tax holidays.

Further incentives are provided by the ICDC. Some tenants in the MIC receive a 50 per cent subsidy on their rental, and a land tax exemption is also available. The ICDC is classified by the Lands Department as a non-profit agency and therefore all tenants are exempted from paying land taxes. However, if the land is sold to tenants or other buyers, this exemption does not apply as the individual titleholders will then be responsible to the Department of Lands. The ICDC management has also negotiated an agreement with the Morobe Provincial Government whereby the MIC is exempted from paying any provincial sales taxes. Since the MIC and its management have been set

up in an administrative block, a PABX telecommunications system is available to supply all the tenants of the centre. In this way, the tenants can avoid paying Telikom for connection fees.

One of the main reasons for establishing the industrial centres was to counter the lack of law and order and the effects this was having on private-sector investment and the operational costs of existing businesses. The MIC provides a perimeter and interior lighting system. In addition, there are 12 security personnel who provide perimeter and general security. This security is provided by the MIC administration and tenants bear no extra costs.

A one-stop administration was another of the objectives in establishing the industrial centres, however, in practice this service cannot be provided. Rather, the ICDC is able to initiate and streamline the red-tape process.

Developments to date

It is proposed that four industrial centres be established in Papua New Guinea. The first of the regional industrial centres—the Malahang Industrial Centre at Lae—was constructed in 1990 and opened for business in 1993. The second centre, planned for the Islands region, is under construction on an 80 hectare site at Ulaveo, Kokopo, in the East New Britain province. Planning for the Southern Region Industrial Centre has commenced with the indicative budget and financing plan being completed and appropriate forms for financing under the Public Investment Program lodged. Site selection and acquisition for the Highlands Region Industrial Centre is underway.

The Malahang Industrial Centre

The Malahang Industrial Centre (MIC) occupies 22 hectares. When it opened in 1993, there were six nursery unit buildings



(each contained five units) that occupied 12,377m² and eight standard factory buildings (each contained four to five units) that occupied 32,000m². In addition, the centre's administration offices occupy 7,340m², while the commercial centre occupies 3,661m². Industrial buildings at MIC include eight steel space frame, standard factory buildings, each divided with removable partitions into four factory units of 300m² each, or 1,200m² per factory building. There are six steel space frame workshop buildings, designed particularly for small and medium-scale enterprises. Each workshop is divided by removable partitions into five units of 60m² each. Partitions between adjacent units are demountable so units can be combined. Each unit has a separate electricity metre. Electricity installations in each unit provide for 240 volt basic wiring. Ablution facilities and industrial-waste receptacles are provided. Water mains and sewerage outlets are laid at the back of each building for individual connection. The rest of the land (serviced plots) was made available for lease for storage or other individual developments. There are 58 serviced allotments in a variety of sizes to meet the varied needs of industrial activities. The allotments are arranged around a ring-road system with lined surface water drainage, concrete footpaths and street lighting. Each allotment has individual access. Water, sewerage and power are

available to each allotment through a reticulation system. Telecommunications lines are situated underground. The ICDC employs a private security firm to supplement the services of the official law-enforcement agencies. Supporting the industrial centre is an administration centre that houses the MIC management office and a secretariat from which tenants can charter services at nominal rates. A commercial centre providing postal, banking, shopping, eating and other commercial facilities, further extends the communal structure of the centre.

Occupancy status

The increase in tenancies over the past six years is shown in Table 2. It is obvious that there is high demand for nursery units—after just one year of operation, two-thirds of all the nursery units (30 units in total) were leased. But only one-quarter of the 35 standard factory buildings had been leased out. The high demand for the nursery units was probably due in large part to the rental differentials. For nursery units, the rental is K200–300 per unit (about 300m² per unit), while the rental for a standard factory building is K1,250–1,500 per unit (about 1,000m² per unit). By 1998, however, all the units were fully tenanted. The occupancy data do raise a question about why the occupancy rate for standard factory buildings jumped from 53.5 per cent in 1997 to 100 per cent in 1998.

Table 2 Occupancy status of the MIC, 1994–99 (per cent)

	1994	1995	1996	1997	1998	1999
Standard factory building	3.0	25.0	37.5	53.5	100.0	100.0
Nursery units	20.0	73.0	83.5	93.5	100.0	100.0
Serviced plots	-	-	-	1.0	1.0	4.2
Commercial centre	-	-	8.5	8.75	100.0	100.0

Source: Information for 1994–98 was obtained from ICDC, 1998. 'A review of the industrial centres development program and the Industrial Centres Development Corporation Act 1990', *Industrial Centres Development Corporation Program Review*, ICDC, Port Moresby. Data for 1999 was estimated by the authors using the tenancy information from MIC.



The occupancy rate for the serviced plots has remained very low. Although these plots have had few tenants, there has been considerable interest in purchasing them. The problem is that the ICDC has not been at liberty to sell the plots because the ICDC Act does not allow it to do so. Discussions have also revolved around the possibility of converting serviced plots into factory buildings that could be rented out. The MIC complains, however, that it is not allowed to sub-contract the construction of factory buildings in the MIC—the ICDC is the sole agent responsible for the construction of all factory buildings in the industrial centres.

Financial performance

The PNG government borrowed a total of US\$8.4 million in 1990 from the Asian Development Bank (ADB) to develop the MIC. Together with its own equity capital of US\$2.18 million, the total cost of the development was US\$10.58 (at that time, the exchange rate between the US dollar and the kina was 1:1). In 1994, the government signed an agreement with the ICDC to on-lend a total of K4 million to the ICDC with a grace period of five years and a repayment period of 20 years. Interest is payable at a rate of 6.5 per cent on a reducing balance commencing in 1995. The government therefore assumed K6

million of the loan as its equity in the project, therefore, the MIC is 60 per cent state owned and 40 per cent ICDC owned. Under this agreement, the total liabilities of the ICDC for the MIC amount to K9.705 million. This is the total of both principal and interest repayable to the state on the K4 million loan on-lent to the ICDC (ICDC 1998). When the centre's buildings were fully occupied in 1998, the ICDC was able to repay not only the interest but also the principal of its K4 million loan from the rental revenue collected.

Composition of tenants

The MIC accommodates all types of business operations, including manufacturing, services, retailing and short-term warehousing and storage facilities (Table 4).

While only the two most recent years of data showing the composition of the tenants in the MIC are available, there are significant differences between tenancy in these two years. In 1998, there were only three manufacturing firms out of 35, and tenants in wholesale and distribution were dominant. In 1999, manufacturing firms had increased to 10 out of 37. Since the major purpose in establishing the industrial centres was to foster growth in the manufacturing sector, the current composition of the tenants leaves the objective unfulfilled.

Table 3 Rental revenue status of the MIC project, 1994–98 ('000 kina)

	1994	1995	1996	1997	1998
Standard factory buildings	14.40	120.00	180.00	256.80	480.00
Nursery units	14.40	52.56	60.00	67.32	72.00
Serviced plots	-	-	-	1.07	1.07
Commercial centre	-	-	6.40	6.59	62.80
Total	28.80	172.56	248.50	331.78	615.87

Source: ICDC, 1998. 'A review of the industrial centres development program and the Industrial Centres Development Corporation Act 1990', *Industrial Centres Development Corporation Program Review*, ICDC, Port Moresby.



Table 4 Composition of tenants of the MIC, 1998–99

Type of operation	1998		1999	
	No. of firms	Total (per cent)	No. of firms	Total (per cent)
Manufacturing	3	8.6	10	27.0
Assembly	8	22.9	8	21.6
Wholesale	17	48.6	11	29.7
Retail outlets	1	2.9	1	2.7
Other services	6	17.1	7	18.9
Total	35	100.0	37	100.0

Note: The tenants in the commercial centre of the MIC are not included.

Source: Data for 1998 was obtained from ICDC, 1998. 'A review of the industrial centres development program and the Industrial Centres Development Corporation Act 1990', *Industrial Centres Development Corporation Program Review*, ICDC, Port Moresby. Data for 1999 is based on the information provided to the authors by the MIC.

Ownership

The firms within the MIC are dominated by PNG nationals. Of the 18 firms located in the nursery units, there is only one joint-venture business (a PNG/Taiwan joint venture) and one foreign owned (German). Of the 17 firms located in the standard factory buildings, four are foreign owned.

Firms within the centre tend to be small in physical terms. There are only three companies occupying more than three nursery units. Only four companies occupy more than three of the standard factory buildings.

A considerable number of firms hold short-term leases. Among the 37 firms in the nursery units and standard factory buildings, there are four firms that have leases of less than six months (with an option to renew on expiry); there are another 11 firms with 12-month leases (also with an option to renew on expiry). As implied by the short leases, the turnover rate of firms within the centre tends to be quite high. However, another notable feature of occupancy in the centre is that some firms have expanded their leased space after operating for some time in the centre.

Achievements, and problems to be solved

The performance of the MIC has been examined through discussions with officials in the centre, business leaders and particularly the results of a survey of tenants. Of the 37 tenants occupying the standard factory buildings and nursery units, 22 responded to the survey questionnaire. This is a reasonably high proportion of the tenants, so the results should provide a fair indication of the views from the tenants' side.

It has been recognised that the purpose of establishing industrial centres in Papua New Guinea is to reduce barriers to manufacturing development. It is exceedingly difficult to acquire land for industrial development, while the worsening law and order problems have adversely affected business in Papua New Guinea in many ways. The operation of the bureaucracy and business regulations impose severe administrative burdens on entrepreneurial activity. An industrial centre should be able to improve the situation by providing secure tenure to land, a well-fenced secure production area, and one-stop



administration. Subsidies provided through rentals and costs of utilities should also lower business costs.

Overall assessment

Firms chose to locate their business within the MIC mainly because of better security conditions, cheaper rent and the reliability of the power, water and communication facilities (Appendix Table A2). The incentives provided appear to be reflected in an investment response. From Tables A1, A3 and A5, up to 73 per cent of the surveyed firms are new investments. It may be going too far to suggest that all of these newly invested firms would not have invested without the existence of the industrial centre, but the survey results do throw a positive light on the establishment of the MIC. Prior to 1999, the majority of the firms were in the wholesale sector, but, as noted, there was significant growth in the number of manufacturing firms between 1998–99. This leaves open the question of why wholesaling has received more encouragement from establishment of the MIC than manufacturing.

If the ultimate goal of establishment of the industrial centres is job creation, the new investment generated within the MIC is definitely progress towards this goal. Although jobs have been generated, however, the cost per job created is high in an economy where the opportunity cost of capital is very high. The total employment generated is estimated to be well below 300 (including those firms relocating from elsewhere).² Therefore, the capital cost per job created is about K35,000.

Individual aspects

Land availability. One of the objectives of establishing industrial centres in Papua New Guinea is to assist in overcoming the difficulties of acquiring land for industrial development. In the survey of tenants within the MIC, half of the 22 respondents indicated

that ease of gaining access to land was one of the major reasons determining the location of their business in the MIC. The land acquired for the development of the industrial estate is alienated land and does not derive from customary ownership. As such, it does not meet one objective of the program, in that no new land was made available for the development of manufacturing as envisaged.

Law and order problems. The MIC provides a security-fenced perimeter and an interior lighting system throughout the centre. In addition, the ICDC employs a private security firm that provides a total of 12 security personnel for perimeter and general security. Most of the survey respondents said that the security conditions were the main reason they located their business within the MIC (Table A2). The improved law and order situation within the MIC is also reflected in the responses to the survey questions regarding the safety of working after dark and the incidence of theft (Tables A15–A18). From the survey, it is clear that the property of firms within the MIC is rarely damaged or stolen, and after-dark work is not a problem as regards the security of workers. Although the safety of their firm's staff and property is still a concern, some firms responded that due to better security within the MIC, this concern has been reduced considerably. The majority of the tenants also believe the distribution of their firm's products is not constrained by security problems. This may be because many firms are in the wholesale business and most of their sales are within the province. Compared to other areas, Lae is regarded as having less law and order problems. If more firms distributed their products to other markets, say, in rural areas, the response to this question may well have been different.

One-stop administration. The provision of one-stop administration for setting up business was one of the objectives in establishing the industrial centres. In the



survey, slightly more than 50 per cent of the tenants thought that the streamlined administration was an attraction to locating their business within the MIC (Table A2). While this result reflects the importance of streamlined administration to firms, the streamlining is more at the MIC management level. More particularly, the major difference is in the provision of utilities and security rather than government administration. As was noted in the interview with senior ICDC officials, the ICDC is yet to provide one-stop administration. Although it is helpful in facilitating the administration involved in establishing business, potential tenants still have to go through the normal procedures. The cumbersome bureaucratic procedures in Papua New Guinea often lead to long delays in the processing of applications for licenses, permits and rebates. The facilitation of the ICDC in the administrative work will of course help, but not resolve, the problem.

Subsidy on rentals. During an interview with senior ICDC officials in late 1999, it was said that the rental rates were subsidised by up to 50 per cent. However, from the ADB's mid-term report, it can be seen that there have been changes in the relationship between the rental rates charged by the ICDC and the market rates (Pohoresky et al. 1998). Initially, rental rates for nursery units were highly subsidised compared to market rates in Lae, but the rental rates for standard factory buildings were slightly above the market rate. Market rentals later caught up with rates charged for standard factory buildings. Rental rates for vacant plots were thought to be considerably in excess of going market rates. These changes in the rents charged by the MIC and the market rate may, to a certain extent, explain the change in the occupancy rates at the MIC. There was high demand for nursery units from the beginning of the MIC (Table 2). However, standard factory buildings filled very slowly, while serviced plots are mostly still vacant (Table 2). The effects of the subsidy on rentals are also

reflected in the tenants' response to the survey questions. Cheap rent (together with stable supplies of power, water and communication facilities) is the second most important factor determining their choice of location (Table A2). Further, 50 per cent of the tenants regard the rental subsidy as very important in determining their investment decision (Table A13).

Management. Management problems have affected the operation of the MIC. These are reflected at two levels. As a result of the political instability, the Deputy Managing Director of the ICDC has changed from time to time, and the corporation itself has experienced changes. For example, the ICDC was abolished by the previous government so that it was only a small office under the Investment Promotion Authority (IPA), but the IPA and ICDC continued to carry out their administration and marketing separately. These changes may well have resulted in inconsistencies in management. At the level of MIC management, a major problem is the low quality of its labour force. The MIC lacks basic records of activities within the centre: staff lack capability in understanding basic terminology, and as elsewhere, staff lack discipline.

Transportation. Of the tenants surveyed, 63 per cent regard the good transportation links to markets as one of the reasons encouraging them to locate their businesses within the MIC (Tables A2 and A14). Poor transportation was a major constraint to MIC development when it opened for business. According to the tenants, when the MIC was opened, it took an hour to travel by car between the MIC and Lae. Further, bus services were not available at that time. In 1998, the road was upgraded using funds from AusAID. That section of the road became the best in the Lae area. Eventually, it will reduce travel time between the Lae township and the MIC to ten minutes by car, and bus services have been extended to the MIC. As noted, the majority of the MIC tenants were



wholesalers for whom the poor transportation was a major obstacle. Another problem the tenants faced was that it was difficult to have their employees living in the town since it was hard for them to get to work. Some of the tenants were considering providing accommodation nearby, but it was difficult to obtain mortgages to finance the construction of houses. This financing difficulty is reflected in the fact that the main source of capital for firms' investment is self-financing (Table A4).

Marketing and promotion. A factor that had a large impact on the early occupancy rate of the MIC was the lack of marketing and promotion of the facilities. According to the ICDC (1998), although the ADB carried out a survey of potential demand, there was no follow-up promotion activity. During the construction period there was very little effort by the ICDC to inform potential tenants and the general public about the services and the facilities that the MIC would be offering. In fact the government has done little to involve the private sector in the whole exercise. People normally get to know about the centre through personal contact. Managers of the MIC told the authors that what they did was to wait for people to come and knock on the door. Of the existing tenants, 32 per cent of those surveyed found out about the MIC through friends or relatives, while about 45 per cent found out about the MIC through advertisements (Table A6). There is also a lack of coordination among government departments and programs. The authors were told by interviewees from the ICDC and IPA that when the ICDC was only an office under the IPA, the ICDC and IPA were marketing their programs separately.

Building sizes. Management has been advised from time to time by potential and current tenants that the factory buildings in the MIC are either too large or too small. The MIC also received inquiries about the availability of tailored factory buildings. Additional flexibility in building sizes may need to be built into the units.

Nursery units. There has been a continuing strong demand for the nursery units, especially by local small and medium-sized enterprises. An equally interesting fact has been the high turnover rate of occupation of the nursery units. An obvious reason for the high demand has been the low rents. The high turnover rate seems mainly due to the lack of managerial skills among local entrepreneurs. The manager of the MIC revealed that some of the tenants in the nursery units are having difficulties in paying rent. As elsewhere, this demonstrates that while people are willing to make the best of the opportunities available to go into business, they often lack the necessary skills to make it a success. Lack of initial investment capital for establishing a business may be another constraining factor for those who try to take advantage of the opportunities.

Demand for industrial centres. The ICDC realised that inefficiency in marketing and promotion, including lack of follow-up to the demand survey, contributed to the lack of demand for the MIC. As a consequence, the ICDC believed that potential tenants may have set up their own facilities because they had not heard from the centre managers for lengthy periods. Since those who can will set up their own facilities if they do not hear from the centre managers, it seems that there is a big question mark over the real demand for industrial centres. In other words, without knowing whether the industrial centre is setting up or not, determined investors will continue to work towards setting up their own facilities. In response to the survey question, 'Without the existence of the MIC, would you choose another site on which to establish this business?', 36 per cent of the tenants answered 'yes' (Table A7).

Another point also relates to the real demand for industrial centres. Firms within the MIC claim that they had mostly relocated from outside or were looking for places to start new affiliates in Lae. With the better buildings and subsidised rentals available, they eventually located in the MIC. Without the



existence of the MIC, they would have simply set up business elsewhere (this point is validated in Tables A1, A3 and A5). Around 30 per cent of the existing tenants in the MIC had relocated in this way.

Conclusions and recommendations

The establishment of the MIC has improved the private-business environment in Papua New Guinea to a certain extent. In particular, the better security conditions, subsidised rent and reliable power, water and communication facilities within the MIC have been major attractions for existing businesses to relocate into the MIC. The establishment of the MIC and its accompanying incentives, including rental subsidies, did encourage a number of new investments. But this achievement has been at a very high cost per job created and the proportion of manufacturing activities in the MIC, although growing, is still quite low.

If the Government of Papua New Guinea continues to pursue this approach to stimulating manufacturing development, the experience of the MIC offers some lessons for future development of industrial centres.

In establishing the industrial centres, the ICDC sees its role as not only building facilities but also improving the business environment as it relates to the land availability issue, law and order problems, and cumbersome bureaucratic procedures, by providing cheap entry to firms aiming to build national businesses. Unfortunately, of these roles, only security and reliable supplies of water, electricity and communication have been markedly improved by the establishment of the MIC. The land acquired for the construction of the MIC was alienated land the program did not make any new land available for industrial development. Therefore, it is recommended that the ICDC negotiate with customary owners for the lease of land for industrial development and leave alienated land to the

private sector. From the experience of successful export-processing zones in developing economies, a one-stop administration facility is one of the most important attractions to firms that relocate into the centre. If the PNG government can in some way achieve a one-stop administration, the response from the private sector should improve significantly. The authors therefore recommend that the ICDC take measures to make the one-stop administration effective in practice so that the costs of doing business can be reduced considerably.

Occupancy rates within the MIC seem to respond quite closely to changes in the rental rate. Although there may be economic grounds to justify rental subsidies to build up national businesses, such subsidies may result in the relocation of firms from outside to inside the MIC. While relocations are unavoidable, the pricing of the rental rates can be used more strategically in order to build up businesses gradually. For example, the progressive reduction of subsidies on rentals would be more effective than the current uniform subsidies.

The ICDC sees itself as a provider of infrastructure facilities in the form of factory buildings, nursery units and serviced plots, together with support facilities that could be utilised by domestic and foreign enterprises interested in establishing manufacturing industries. The heavy emphasis on its role of providing infrastructure facilities leads to the ICDC being effectively a government construction company. There are two aspects to this situation. First, the supply-driven provision of industrial estates does not always meet demand effectively. This can be seen from the fact that potential tenants of the MIC say that the factory buildings are either too large or too small. Because the ICDC regards itself as the sole authority for the construction of buildings in the MIC, sub-contracting of tailored factory buildings by potential tenants on the serviced plots is not permitted. Second, it leads to a diversion from



the initial purpose of establishing industrial centres in Papua New Guinea. The original purpose was to improve the business environment that had been constraining manufacturing development. To place the ICDC in the situation of a government-owned construction company is not necessary. One can imagine an extreme scenario where the government has a policy of offering a subsidy on rentals to those who want to start new businesses in the manufacturing sector. If such a policy is available, it is not difficult to see that some businesses will be looking for available factory buildings. In response to this demand, construction companies (or potential investors) will build more factory buildings. Therefore, it is strongly recommended that while the ICDC is following the original purpose in establishing the industrial centres in Papua New Guinea closely, a more relaxed policy and practice on the construction of buildings on the industrial estates need to be followed.

The lack of marketing and promotion was found to be a major factor affecting the occupancy rate of the MIC. While the authors are not in a position to provide advice on marketing and promotion, we believe that improvement in a number of aspects would increase awareness of the industrial centres and the facilities they offer. Regular follow-up to the demand surveys of potential tenants at different stages of the development would inform those potential tenants about the availability of the facilities. The ICDC needs to work with other government departments and private business associations in taking an integrated approach to promoting industrial centres and other government development programs. If this is done, all parties would not only benefit from economies of scale in marketing, but also have access to a better spread of government programs.

The information available strongly suggests that the well-constructed and serviced centre at Lae was not by itself attractive enough for potential investors. Transportation links should be an integral

part of the establishment of industrial centres. If such infrastructure is not provided, the centre's industrial facilities will remain under-utilised.

The 1999 Budget proposed to privatise the Industrial Centres Development Program, including the MIC and other industrial centres. The corporatisation and subsequent privatisation of the ICDC is expected to have a number of effects. Privatisation will enable the state to reflect the value of its investment in the ICDC through the issuance of shares in the company. Proceeds from the sale of shares in the ICDC will generate revenue to the state that could be used to settle existing debts with the ADB totalling approximately K16.0 million. It would also fund the costs of the second phase of the building works for the MIC, as all buildings are currently fully occupied. This could also yield enough revenue to fund the development of the second industrial centre at Kokopo.

As recognised by the ICDC, the success of the centres in fostering the growth of the manufacturing sector is heavily dependent on the general investment climate in Papua New Guinea and that this will remain a long-term goal for the ICDC (ICDC 1998). A private-sector survey conducted by the Institute of National Affairs on the major factors contributing to the lack of investment in Papua New Guinea found that general governance issues such as law and order problems, corruption, poor infrastructure and policy instability are the most important—more so than price controls, labour regulations, and environmental and trade regulations (Manning 1999).

The establishment of industrial centres may act as a policy 'enclave' to reduce barriers to doing business in Papua New Guinea. For example, the ICDC could negotiate with landowners to acquire more land for industrial centre developments, thereby assisting those having difficulty in accessing land for industrial development. A one-stop administration would reduce delays in dealing with the bureaucracy.



However, policy instability resulting from political instability can never be limited through the establishment of the industrial centres.³ Law and order problems affect businesses in Papua New Guinea in many ways. The MIC has achieved economies of scale in providing better security conditions for tenants within the centre, but the comprehensive impact of law and order problems in constraining manufacturing development cannot be resolved by industrial centres. For instance, the mobilisation of savings is poor in Papua New Guinea, which reduces the availability of credit. Law and order problems are one of the factors constraining the development of the banking sector, thereby reducing the effectiveness of savings mobilisation and intermediation. Current tenants in the MIC say that their investments have been mainly self-financed. Without curbing the law and order problem and thereby improving the mobilisation of savings, it is unrealistic to expect a significant increase in investment. Another example of the widespread impact of the law and order problem is seen in the fact that most MIC tenants are not manufacturers. Downstream processing of raw materials has the potential to be a significant form of manufacturing in Papua New Guinea but raw material producers face difficulties in getting their products to markets. Similarly, the poor transportation links between Lae township and the Highlands is a constraining factor in encouraging downstream processing and manufacturing of agricultural products. In summary, the establishment of industrial centres can reduce the barriers to investment in the manufacturing sector to some extent, but the wider impact of this minor improvement in the investment environment will be very limited. Without directly attacking the major constraints to manufacturing development, the success of the industrial centres in fostering manufacturing development will remain limited.

Notes

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- 1 This point was not raised by the Manufacturing Council of Papua New Guinea, but was emphasised by ICDC officials.
- 2 Firm data are not available. The estimate is based on information derived from visits to the MIC and the response to survey questions from tenants.
- 3 In fact, the ICDC's management has been adversely affected by this instability.

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Appendix A Summary of results of survey questionnaire given to MIC tenants

General information	Number	Per cent
Table A1 Is the firm at this location a new investment?		
Yes	15	68.2
No, just a relocation	7	31.8
Total	22	100.0
Table A2 What are the factors determining the location of your business?		
Close to main material input markets	3	13.6
Good transportation linkage to sales markets	14	63.6
Easy to acquire land	11	50.0
Easy to get adequate staff	8	36.4
Stable power, water and communication facilities	16	72.7
Cheap rent	16	72.7
Subsidies on utilities	9	40.9
Streamlined administration	12	54.5
Better security conditions	19	86.4
No response	-	-
Table A3 Is the enterprise a subsidiary of a firm with headquarters elsewhere?		
Yes	6	27.3
No	16	72.7
No response	-	-
Table A4 What are the main sources of capital for your enterprise		
Stocks	6	27.3
Enterprise debt bonds		
Loans from the main state banks	3	13.6
Loans from foreign banks in PNG	1	4.5
Loans from informal credit channels		
Profit		
Self-financing	10	45.5
No response	6	27.3
Table A5 Before you invested in the MIC, had you ever invested anywhere else in PNG?		
Yes	5	22.7
No	16	72.7
No response	1	4.5



Table A6 How did you find out about the MIC?

From friends/relatives	7	31.8
Business association (if yes, specify)	-	-
Government agency (if yes, specify)	1	4.5
Advertisement	10	45.4
No response	7	31.8

Table A7 Without the existence of the MIC, would you have chosen another site on which to establish this business?

Yes	8	36.4
No	6	27.3
Don't know	7	31.8
No response	1	4.5

Infrastructure and utilities

Number

Per cent

Table A8 How frequent are power outages experienced by your firm?

Once in more than 3 months	15	68.2
Once a month	3	13.6
Once in two weeks	-	-
Once a week	1	4.5
Once a day-	-	-
No power for long period	-	-
No response	3	13.6

Table A9 Does your firm own a generator because of unreliable or fluctuating electric power supply?

Yes	1	4.5
No	19	86.4
No response	2	9.1

Table A10 How long does it take to get a telephone line connected?

Less than 1 month	10	45.4
1 to 3 months	2	9.1
3 to 6 months	-	-
6 months to 1 years	-	-
More than 1 year	1	4.5
Difficult to say	1	4.5
No response	8	36.4

Table A11 Is there a sewerage system in your area?

Yes	19	86.4
No	-	-
No response	3	13.6

Table A12 If yes, does it work well?

Yes	19	86.4
No	-	-
No response	3	13.6



Table A13 How important is the subsidy on your rental in determining your firm's investment decision?

Very important	11	50.0
Important	2	9.1
Not important	-	-
No response	9	40.9

Table A14 How would you describe the transport linkages to the markets for your firm's products?

Good	11	50.0
Average	4	18.2
Not good	-	-
Bad	-	-
No response	7	31.8

Law and order problem **Number** **Per cent**

Table A15 Is after-dark work possible for your firm, considering the security situation of your staff?

Yes	17	77.3
No	3	13.6
No response	2	9.1

Table A16 In your firm's management, is the safety of staff and property of your firm a concern?

Yes	20	90.9
No	1	4.5
No response	1	4.5

Table A17 How often is the property of your firm damaged or stolen?

Rarely	18	81.8
Sometimes	2	9.1
Often	-	-
Very often	-	-
No response	2	9.1

Table A18 Is the distribution of your firm's products constrained by security problems?

Yes	1	4.5
No	17	77.3
No response	4	18.2