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The landowner relocation programme

Susanne Bonnell

The history of relocation

In order to construct the mine, the Porgera Joint Venture (PJV) had to relocate landowners living in the area of proposed mining activity and provide these landowners with improved housing. The Relocation Agreement was negotiated directly between the landowners and the PJV as part of the total compensation package programme. The Porgera relocation programmes was of a massive scale unprecedented in Papua New Guinea's mining history. In 1988, those planning for relocation never envisaged just how massive it would be. The original number of families planned for relocation grew progressively from 230 to 420. Relocation houses and new villages were the most visible change to Porgeran lifestyle brought about by the development of the mine. By the time the fieldwork for this chapter was undertaken, more relocation was being planned for the new Kaiya Lease for Mining Purposes (LMP) (see Chapter 7). It then looked as if something like 600 relocation houses would have been built by the end of 1994. This new relocation programme should have benefited from the experience gained in the previous programmes. But the sheer size of the relocation programme complicated the foreseen and unforeseen consequences of planned change. The landowners who negotiated a better lifestyle for themselves now had to deal, not only with the

jealousies of the 'have-nots', but also the judgments of their children and grandchildren. And for the PJV, relocation was a bit like grabbing the tiger by the tail. The PJV had to take hold, it could not let go, and the eventual outcome was uncertain.

Background

The Social and Economic Impact Study (SEIS) for the Porgera project recommended that relocation should be kept to a minimum as 'the relocation of people under other mining developments in PNG has inevitably resulted in considerable misunderstanding, conflict and social hardship' (Pacific Agribusiness 1987[1]:92; see also Jackson 1987). This was certainly the case with Bougainville, the only landowner relocation programme which had been undertaken by a mining project at this time. But relocation was unavoidable in Porgera because, unlike Ok Tedi or Misima, a large number of people were living in the area proposed for mine development.

The SEIS recommended the 'design of the mine infrastructure and operations so as to minimise relocation of families', and that 'those families unavoidably relocated be supplied by the PJV with housing equal to or better than their existing housing, with an upper limit established by negotiation between the PJV and community representatives, with government arbitration if necessary' (Pacific Agribusiness 1987[2]:39). Both Jackson's 1987 report and the SEIS recommended that Alipis village be assisted to develop into 'an informal Melanesian mining community'. Other than that, the reports left the mechanics of the inevitable relocation unresolved.

Placer duly contracted Fritz Robinson, who had been part of the SEIS study team, to undertake an in-depth relocation study which began in January 1988 and lasted six weeks.¹ Robinson's study was based on the assumption that a relocation programme, in which people moved house but remained on their own land, was preferable to a resettlement programme, which would have meant moving people onto purchased or leased land. The relocation option was seen to be less socially disruptive, and its feasibility in the Porgera context was enhanced by the cognatic kinship system of the Ipili, which provided considerable flexibility for people to find alternative land on which to build their new houses.

Robinson's study included a survey of existing houses on and near the proposed plant site area, the proposed open pit area, and Alipis village. He also surveyed land and gardens in Yarik, Olonga and

Timorope. Besides meeting with male landowners, he met with women's groups to ascertain their opinions and needs. The latter was probably a first for the mining industry. The comprehensive report included details of plans with costings of various house design options; relocation areas; compensation arrangements; and the physical aspects of relocation, including garden contracts, rations and infrastructure needs. The main deficiency in this study was the author's estimate that only 230 families would need to be relocated. This was due to

- changes in mine development plans which Robinson had not been aware of
- an increase in the number of eligible persons previously omitted from the lists compiled by clan leaders; and
- failure to consider the relocation of Alipis village because the land on which it was situated was not needed for mine development.²

Nevertheless, Robinson's report provided the framework for Placer's negotiations with the landowners for the relocation agreement.

Negotiations

Placer employees Dave Moorhouse and Graham Hogg set up the Landowners' Negotiating Committee (LNC) in early 1987 for landowners of the clans and sub-clans within the Special Mining Lease (SML). This committee was composed of 23 representatives of the clans and sub-clans and their agreed alternates.³ The LNC was originally set up to negotiate the Compensation Agreement which was concluded at the end of January 1988, and it then went on to negotiate the Relocation Agreement. Involvement of the LNC was critical in the negotiations, and the members soon developed in confidence as the negotiations continued. Vic Botts' laconic comment (Davis Film and Video 1990) that the Porgerans were accomplished negotiators rather understates the aggression, intimidation and chaos of the negotiation process. The LNC had the capacity to stop proceedings, but did not do so because they wanted the mine. Many Porgerans perceived the mine to be their only possible chance to catch up with the rest of Papua New Guinea after years of neglect. In addition, there was also an element of personal greed in the negotiations from some landowners seeking additional benefits. Despite disagreements which were often violent, both parties always returned to the negotiating table.

The establishment of criteria for eligibility to receive a relocation house was the most contentious subject of negotiation between the two sides. An arbitrary decision had to be made which was acceptable to the company and to Ipili culture. The outcome is best summarised by Robinson (1991), who was not only responsible for the relocation study, but also for implementing the relocation programme itself.

Some of the criteria for inclusion in the relocation programme included:

1. A residential status of longer than 3 years (originally 5 years).
2. Inclusion in one of the seven clans on the SML.
3. The presence of a 'habitable' house.
4. One relocation house per head of family.
5. Only married people to be eligible.

These apparently simple criteria were not simple in practice. There were a number of different perceptions operating. Someone who had been living with relatives in Paiela or Tari, but who had visited the SML (and perhaps stayed a month or two) considered themselves fully eligible.

Inclusion in one of the clans in the genealogy books said nothing about residential status. In several cases genuine members of the clan were not in the genealogies. There were a significant number in the *epo atene*—invited guest—group. These people have the rights to garden and build houses and to participate in most of the life and actions of the clan. But they are not part of the clan by blood, and do not appear in the genealogies. There are individuals in this group who have lived and worked with the clan for 15 years or more.

The 'habitable' house was very difficult to determine. The way houses developed is either purpose built as a dwelling (which is not a problem); or developed from a garden house (or in some cases a piggery), which is a problem. What begins as a garden house can end as a major family residence. This often happened.

For six months preceding the relocation another of the several waves of immigration occurred. Many of the garden houses and piggeries became occupied by relatives and were upgraded and made habitable.

During the survey which determined eligibility for relocation, the average household size was 13. Wiessner's figure for Wabag in the Central Enga is 5 per household.

Various other anomalies appeared: widows who have remarried outsiders, abandoned women and children, unmarried men and

women of nearly marriageable age who suddenly declared themselves married, and unmarried men and women of middle age who had a well-established household.

When these anomalies appeared and continued to appear, decisions were made quickly and in consultation with the Landowners' Negotiating Committee...I suspect up to 8 relocation packages should not have been given to the individuals concerned.

The long term *Epo Atenes* were included for full relocation if they had been resident for 10 years or more. Shorter terms were given lesser benefits.

Another problem to overcome was that of the design of the relocation house. Robinson felt the men would have been just as happy with the cash, but the PJV viewed the relocation house as a family benefit. Robinson's research had shown that most people lived in houses between 25 and 32 square metres in area. Most people to be relocated lived in bush material houses, but some lived in houses partially or totally made of permanent materials. In addition, some houses in Alipis had electricity. There was a need to find a compromise between the style of Frank Faulkner's house on the government station, which was the preference of the LNC, and a semi-bush material house suggested by the PJV.⁴ The LNC insisted on electrical wiring and running water, and many members also requested six bedrooms. The LNC and PJV finally came to an agreement for a four-bedroom house with a total living area of 42 square metres and sidings made of 'V' crimp aluminium as protection against fire and theft (see Map 4.1). An internal shower was optional.

Village trade stores were another major issue. There were 42 trade stores in Alipis alone. These stores varied from small bush material buildings selling a limited variety of goods to quite large buildings made of permanent materials. The larger trade stores carried a wide variety of goods, including frozen meat, often had a snooker table, and had huge turnovers. Owners wanted compensation for loss of trade while these stores were being moved and/or rebuilt. The outcome was that trade store owners either received compensation in cash or their stores were moved and rebuilt to the same or higher standard. There was no compensation for loss of trade.

With the exception of Alipis village, most Porgerans lived in small hamlets or homesteads. This settlement pattern tends to lower social stress due to the distance between neighbours. However, the cluster

Figure 4.1 Porgera relocation house plan

Source: Bonnell, S., 1994. *Dilemmas of Development: social change in Porgera, 1989-1993*, Porgera Social Monitoring Programme Report 2, Subada Consulting Pty Ltd for Porgera Joint Venture, Thornlands (QLD).

settlement pattern had attractions to both landowners and the PJV. From the people's viewpoint, clusters or villages would mean better services and utilities. From the PJV's viewpoint, this reduced the cost of building a large number of houses. In the end, the two parties agreed to focus on the creation of new villages within the boundaries of the SML at Apalaka, Kulapi, Yarik, Olonga and Timorope, with the PJV providing access roads and services.

The Relocation Agreement

The Relocation Agreement for the SML between Placer (PNG) Pty Ltd (on behalf of the Porgera Joint Venture) and Landowner Agents of the Tieni, Waiwa, Tuanda, Pulumaini, Angalaini, Mamai and Anga clans of Porgera was signed in September 1988. Some of the main points in the agreement were

- 'The PJV and the Landowners have agreed that if the mine is developed the PJV will in addition to making payments under the Compensation Agreement make certain payments and grant certain benefits to assist in the relocation of those landowners whose rights of residence or occupation are affected by the development of the mine. This payment represents a once only event to residents affected by the developments. No further payments for relocation will be considered' (p.2).
- 'The PJV agrees to pay compensation for hardship and disturbance as follows: to the head of each family of Re-Located Landowners One thousand Kina (K1,000); and to the head of each family of Epo Atene Residents Five hundred kina (K500)' (p.3).⁵
- Construct housing to the standard of attached plan (see Figure 4.1).
- 'Seek Elcom's agreement to provide assistance or funding to erect a standard Elcom pole and transformer where the houses in the new locations are clustered near enough to transmission lines to make this feasible' (p.4).⁶
- 'Construct a road from Yokolama to Apalaka and an access road linking the Pulumaini new location with the Anawe by-pass road: and to maintain them in a trafficable condition' (p.4).
- 'Clear small, flat areas adjacent to housing clusters in new locations for use as community meeting places' (p.4).

- 'Provide professional geotechnical officer to inspect, and advise on the stability of house sites in order to minimise any future problems from landslide damage' (p.4).
- 'Relocate two churches and provide one relocation house for each to be used by the respective pastors' (p.5).
- 'Relocate two aid posts and provide one relocation house for each to be used by the respective Government Health worker, subject to government approval' (p.5).

The PJV was not obliged to

- 'Maintain or repair houses other than failure caused by poor workmanship or materials for the first six months' (p.5); or
- 'To pay for the connection of individual houses to the power supply or for the supply of power to such houses' (p.5).

With regard to rations

- During the period of relocation the PJV agrees to provide rations to relocated landowners if necessary as follows: 'Such rations will be in accordance with prescribed Government scales; Rations will be delivered weekly to a representative of each family at a designated point...' (p.6).
- 'The supply of rations will commence on the date the family no longer has access to traditional garden land and shall continue until the food gardens in the new locations are ready to harvest or for a maximum period of nine (9) months' (p.6).⁷

Similar relocation agreements were later negotiated between the PJV and landowners for the Suyan Townsite and Kairik Airstrip. The Suyan townsite was a lease for mining purposes outside the SML, while Kairik was a state land purchase. While the state paid the Kairik landowners for the land, the PJV paid for all improvements at the same rate of compensation as for land within the SML, and provided relocation houses in the same way as for the SML and Suyan landowners. This action was felt by some to be a dangerous precedent for future state land purchases.

The PJV entered into a relocation agreement before they knew the extent of the ore deposit, and faced the dilemma of committing large amounts of money before they had a mining agreement. Construction of the relocation houses began in late 1988. The first 49 houses, most of which were in Kulapi, were ready for occupancy in February 1989, with an additional 71 houses under construction. By the time the SML was issued in May 1989, nearly 120 families had already been relocated.

The move

In view of the anticipated social disruption caused by mine development, especially to women and the family, Robinson (1988:7) recommended in his report that a female social worker be based in Porgera. Although this was originally envisioned to be a government position, mine management agreed to hire a temporary consultant to assist initially with the settling-in process of the relocation families, especially the women. I arrived in February to take up this position during the week in which the first families were moving into their new homes.

The relocation programme consisted of lands and relocation staff assisting families with the physical move, relocation staff purchasing and distributing rations to households, and the social development staff visiting each household to assist with settling in. Programmes to relocate landowners were coordinated from the chaotic Yokolama Lands Office complex, which more often than not resembled a fighting zone. High decibel arguments, physical fights and threatening behaviour were centred around grievances concerning compensation payments and relocation houses.

Social development staff visited each house as soon as possible after the owners moved in. The programme was primarily aimed at assisting women with the adjustments. Most of the families relocated had never lived in permanent material houses before, and needed advice on use, care and maintenance of the relocation house and its contents; this included demonstrations on operation and care of the stove, cleaning S-bend of sink, care of mattresses, how to clean floors, and so on. In addition, the house was checked for any construction faults, and those found were referred to the construction contractors. This was also a time to discuss any other concerns brought up by the women.⁸ Settling-in visits were followed up with workshops. These workshops were conducted in one house with occupants from nearby houses attending. Workshops covered house care, hygiene, consumer awareness plus general discussion on any matters women raised. These workshops formed the basis for starting women's groups and the Porgera Women's Association.

Three relocation villages were built within the SML boundaries. The first was Kulapi/Area 6 (on Pulumaini and Angalaini clan land), followed by Yarik/Timorope/Olonga (on Tieni clan land), and in 1990 the first houses were constructed at Apalaka (on Tuanda and Waiwa clan land). Construction at Suyan began in 1990, and at Kairik in 1991.

Besides the relocation villages, houses were constructed on or near existing roads, either scattered among existing houses or in small extended family clusters. In mid 1993, relocation houses were located along the Yokolama-Panandaka-Mungalep-Kakendaka road on Mamai and Angalaini clan land, and along the Wendegonga-Anawe-Poare section of road to Porgera Station on Pulumaini and Anga clan land. From Porgera Station, houses were located on the road between Suyan and Kairik and between Suyan and Ingau. A few houses were constructed off-road, the most notable being the single house across the Kaiya River.

The impact of relocation

My own relocation survey was conducted between January and May 1993. By this time, many relocation houses, especially those in Kulapi and Yarik, had been occupied for about four years. The purpose of this survey was to observe the condition of the relocation houses and to find out what changes had taken place in the lives of the people who had been relocated. The survey was aimed primarily at getting the women's viewpoint. Mogom Tili and More Aliana, PJV Community Affairs staff who also lived in relocation houses, assisted me with the interviews. Mogom, More and I had worked together for nearly three years with most of the people interviewed, and we were able to reflect with the women on the changes that had taken place. In spite of explanations, I am sure that people I interviewed still considered me to be a PJV employee, and this may have affected some of their replies.

The survey sample

As of January 1993, 420 relocation houses had been built. Out of this total, one house was destroyed in 1989 during a family dispute, and two houses at Kairik were burned down early in 1993 during tribal fighting. The relocation survey covered 96 houses in all the main cluster areas except Mungalep and Kairik (see Table 4.1). This represents 23 per cent of the total number of relocation houses constructed. Mungalep and Kairik were not surveyed due to tribal fighting in these areas during the survey period.

The number of people (actual residents) living in relocation houses ranged from two to twenty, with an overall average of 8.1 persons per house. This would indicate that approximately 3,400 people were relocated (i.e. 8.1 people times 420 houses). John Burton (pers. comm.) estimated that there were approximately 7,000 Porgerans in the

Table 4.1 Relocation survey sample, 1993

Location	Houses	Persons	Mean h/h size	Range of h/h size
Kulapi	24	204	8.5	2–16
Anawe	15	111	7.4	3–11
Suyan	11	97	8.8	2–11
Apalaka	15	120	8.0	3–10
Yarik	21	148	7.0	3–13
Olonga	10	99	9.9	5–20
Total	96	779	8.1	2–20

Source: Relocation survey data.

Porgera Census Division in 1993, which would suggest that about half of them were living in relocation houses. However, my survey did not attempt to differentiate between ‘Porgeran’ and ‘non-Porgeran’ residents. Many of the landowners, male and female, were married to non-Porgerans, and their children might also have been married to non-Porgerans, and the relatives of these non-Porgerans might also have been living in the relocation houses. Therefore, it is probably more accurate to say that somewhere around one-third of ‘Porgerans’ were living in relocation houses in 1993.

Settlement patterns

Prior to relocation, most Porgerans (with the notable exception of Alipis village) lived in scattered family hamlets. The preferred relocation option was cluster-style living. This option was preferred by the landowners because the company agreed to construct access roads and supply electricity connection points to clustered settlements. The option was also preferred by the company because it would simplify the logistics of constructing the relocation houses. Some people, however, did opt for living outside the main cluster areas. The reasons for this included personal preference and the fact that some people were obliged to settle on land to which they had traditional rights.

The result of the people’s decision to have their houses built in cluster areas was the creation of new villages. Many people during the survey said that they liked this new style living pattern because they felt more secure living close to other clan members. On the other hand, the creation of new villages created new problems. These problems (as discussed below) include rubbish disposal, firewood availability, easy

access to food garden land, toilets, and so on. Most of these problems were compounded by the influx of non-Porgeran relatives.

Overcrowding

It was difficult to come up with a criterion for defining overcrowding. One option to define overcrowding is to use the average number of people per house prior to relocation. In his 1988 study, Robinson found the average household size to be six, and he used this number for all the planning options for relocation, which included house size, rations, etc. However, the relocation houses were larger than the average pre-existing houses—42 square metres as opposed to 25–32 square metres. Therefore, a second option is to use the average of two people per bedroom, or eight people per house, which was the average number of occupants in the survey. A third option, suggested by Robin Hide (pers. comm.), was to find out how many houses had more than twice the number of occupants that were originally envisaged, i.e. more than 12 people per house. Table 4.2 shows the level of ‘overcrowding’ on each of these three criteria.

Other factors in the definition of overcrowding would be adult/child ratios and the relationships between the people living in the house. One example of overcrowding was an unhappy household with 12 occupants: the husband, his first wife and their six children; the recent young second wife whom the first wife disliked; and the oldest daughter’s husband and their two children. Customarily, a man would have separate houses for wives who did not get along, and married children would also have separate houses, all in the same compound. If custom had been followed, there would probably have been only seven people in this house.

Table 4.2 Number of relocation houses with more than 12, 8 or 6 residents				
Location	Houses	Over 12 (%)	Over 8 (%)	Over 6 (%)
Kulapi	24	3 (12.5)	12 (50.0)	16 (66.6)
Anawe	15	0 (00.0)	4 (26.7)	10 (66.6)
Suyan	11	2 (18.1)	6 (54.5)	10 (90.9)
Apalaka	15	1 (06.7)	7 (46.7)	11 (73.3)
Yarik	21	1 (04.8)	6 (28.6)	12 (57.1)
Olonga	10	3 (30.0)	4 (40.0)	8 (80.0)
Total	96	10 (10.4)	39 (40.6)	67 (69.8)

Source: Relocation survey data.

Another example of overcrowding was a house with 20 occupants: the owner and his family plus the owner's brother and his family, who were not entitled to a relocation house. A third example was a household with 16 people: the owner and his wife and children, plus two children from a previous marriage and four non-Porgeran relatives.

These examples illustrate the main causes of overcrowding

- polygamy, especially the case of men who had taken new wives since moving into relocation houses
- Porgeran relatives moving in because they felt they were entitled to relocation houses
- non-Porgeran relatives moving in to gain the advantages of living near the mine
- married children continuing to live with parents because they wanted relocation houses of their own.

The effects of this overcrowding were family disputes, wear and tear on the house itself, plus the damage caused during these disputes. It was also a strain on already limited water resources and food gardening land. There were possible health consequences from communicable diseases.

Condition of houses

The way that the houses were maintained was itself a reliable indication of the people's attitude to a new way of living, and the relative success of the relocation programme. The houses were generally well looked after, especially when one considers the ratio between the total area of the house and the number of people living in it.

On the survey form, I gave each house a subjective rating of either excellent, good, fair or poor. 'Excellent' was for an outstanding example of cleanliness and care for the house and its surroundings. 'Good' meant the house was above average, very clean and well looked after. Houses with a 'fair' rating could have done with an improvement in housekeeping. The 'poor' rating was for houses which were basically uninhabitable due to filth or damage or both.

There was some criticism, especially in the Community Issues Committee meetings, that the relocation houses were too small—that they were 'matchboxes'. This was certainly a valid complaint for the 40 per cent of households with more than eight occupants. However, all but one of the women interviewed liked the new houses, and this

was reflected in the care they were taking of them. If the people did not like the houses, they would have destroyed them or not cared for them. The demand for relocation houses by those who did not qualify, as well as the adult children of those who did, indicates that the relocation house was definitely the status symbol of Porgera.

The following is a list of the reasons which women gave for liking their relocation houses, in order of their relative frequency. Many women gave more than one reason.

Good stove, no smoke and saucepans are clean	56
Water inside the house	51
No lice, fleas or cockroaches	14
No rats	10
Electricity	10
Easy to clean	7
Shower inside the house	7
We sleep well	6
The houses last a long time	6
We have good beds and furniture	4
We do not get sick, we are healthier	4
Lots of space, 4 bedrooms	2
They look nice	2

Another advantage of the relocation houses that many women mentioned was that they no longer had to carry heavy loads of firewood. This confused me at first, until I realised that they had no firewood to carry because they were buying it. There were very few negative responses, but they are noteworthy.

The house is too small for more than one wife	1
The bush material houses are warmer	2

Table 4.3 Condition of relocation houses

Location	Excellent	Good	Fair	Poor	Total
Kulapi	0	7	17	0	24
Anawe	1	7	6	1	15
Suyan	1	9	1	0	11
Apalaka	0	8	7	0	15
Yarik	4	10	7	0	21
Olonga	1	7	2	0	10
Total	7	48	40	1	96

Source: Relocation survey data.

A *haus kapa* (permanent materials house)

is no good if you do not have money

2

Many house owners had made extensive and interesting alterations to the basic relocation house design. The most common change was the addition of a veranda, which was usually covered and sometimes enclosed to make additional rooms. Other alterations noted were the removal of internal walls to make fewer, but larger rooms, the addition of a septic toilet, and a larger concrete shower block. Nearly all owners had built a bush material kitchen (*haus kuk*) near their relocation house. This was encouraged by relocation staff for the following reasons

- older people and sick people were more comfortable sleeping in more traditional style houses, with the open fire on the floor
- it was a good place to house excess visitors or unruly children
- at times, it was more appropriate for cooking
- it was handy during domestic disputes.

In the house of an old couple, the husband said he preferred to sleep in the *haus kuk*, but his wife said she preferred to sleep in the relocation house. The matter of the *haus kuk* is best summed up by one woman who said that she liked both houses—the relocation house was good for sleeping, and the *haus kuk* was good to sit in and tell stories.

Four years after house occupancy, the lino on the floor was beginning to show some signs of wear and tear, but otherwise the houses still appeared to be structurally sound. As previously mentioned, the PJV had no responsibility for maintaining relocation houses under the terms of the Relocation Agreement. The rationale behind this was not just the convenience and cost savings to the company, but also because it would encourage self reliance. The problem was the lack of any custom or history of maintaining traditional houses—one merely lived in a house until it fell down, and then built a new one. The concept of preventive maintenance was hard to get across, as was the problem of gaining the skills and access to materials needed for repairs.

Owners appeared to have no problem in accepting responsibility for specific damage caused by people, such as the broken louvres and flywire often caused by owners who had lost or misplaced their keys. But they were not inclined to accept responsibility for damage caused by landslips or routine wear and tear. Despite the Relocation Agreement, PJV Community Affairs relocation staff were assisting landowners with maintenance needs, for example providing materials for minor repairs,

referring home owners to local plumbers and carpenters, and replacing rotten timber on tank stands (a contractor fault discovered long after the six-month deadline had passed).⁹ Furthermore, any landslip problems were being referred to the PJV's geotechnical staff for investigation. The dilemma was in trying to find the balance between developing a sense of home owner responsibility and assisting owners with maintenance problems as they developed over time.

Water supply

It appeared that the 500-gallon water tanks connected to the relocation houses were adequate for no more than three rain-free days for small families, and required daily rain for larger families. This problem was recognised during the first dry spell in Porgera in 1989. It was a constant issue with the women, who were the primary users of water, and was raised with the PJV Site Manager during a meeting of the Porgera Women's Association in July 1991. Later, this issue was raised by the men during a Community Issues Committee meeting.

New style houses and increased income for buying clothes, bedding and improved personal hygiene made the Ipli more intensive users of water than they had been before relocation and compensation. Other factors compounding this problem were

- overcrowding
- traditional alternative water sources affected by mine development and the influx of outsiders
- obligations to relatives who did not have tanks
- stealing of water
- tanks filling up with silt
- leaking taps
- no cultural history of water conservation; and
- people just used more water because it was there.

The size of the water tank was a point lost amongst the various trade-offs made in the negotiations over the relocation house design. While it is certainly arguable that the water tanks were too small, the results of the survey in Table 4.4 show that an unreasonable number of people were using them, especially when compared with the number of occupants recorded in Table 4.2.

Many relocation house owners were providing water for other people who lived nearby or in their homestead. Most of these were outsiders, with the notable exception of Olonga, where the owners were providing water primarily to other sub-clan members who were

Table 4.4 Numbers of people using water tanks

Location	Houses	Users	Average users/ house	Range of users/ house
Kulapi	24	277	11.5	2–21
Anawe	15	215	14.3	3–39
Suyan*	11	121	13.4	3–23
Apalaka	15	129	8.6	3–13
Yarik	21	178	8.5	3–17
Olonga	10	125	12.5	5–20
Total	96	1,045	11.1	2–39

Note: *Figures for Suyan are for nine houses. Two houses had tanks that were damaged beyond use.

Source: Relocation survey data.

not eligible for relocation houses. With the benefit of hindsight, it may have been better to install 1,000 gallon tanks with the relocation houses, but access to a safe, clean water supply was not just an issue for people in relocation houses; it was a widespread concern throughout the valley.¹⁰

Food gardens

The loss of land for food gardening purposes was recognised as a probable negative consequence of mine development by several experts. A 1986 garden survey (Jackson 1987:B-1) showed an average of four gardens per household, ranging from a low of 2.8 gardens per household in Suyan up to 5.2 gardens per household in Alipis.¹¹ Robinson's 1988 survey also indicated an average of four gardens per household, with an average household size of six persons (no details of household size had been given in Jackson's study). In the 1993 relocation survey, I asked household occupants how many sweet potato gardens they had. The results shown in Table 4.5 indicate a significant decrease in the number of gardens since 1988. In Yarik, there was a distinct difference between the number of food gardens belonging to the Tieni Wuape and the Tieni Waingalo households, with an average of 1.6 gardens per household and 8 gardens per household respectively. The one household with 25 gardens was a one-off case which I cannot explain.

Even though I made no attempt to measure the total area of the gardens reported by each household, the decrease from an average of

Table 4.5 Number of food gardens per relocated household

Location	Houses	Gardens	Average gdns/ house	Range of gdns/ house
Kulapi	24	28	1.2	0–2
Anawe	15	18	1.2	0–4
Suyan	11	21	1.9	0–6
Apalaka	15	34	2.3	1–10
Yarik	21	83	4.0	0–25
Olonga	10	21	2.1	0–5
Total	96	205	2.1	0–25

Source: Relocation survey data.

of four to two gardens per household, as well as the reported 15 households with no food gardens at all, indicated the need for further investigation.

- How many families actually did not have enough land for food gardening due to loss of land from mine development?
- How many families had alternate land they could use, but not within reasonable access of their relocation houses?
- How many women were not gardening by choice because they had adequate income to meet their present needs?
- How many women were not gardening because their husbands were not clearing, fencing and draining new garden land?
- What was the effect of garden land shortage on the traditional fallow system?

Reduction in the number of food gardens was a concern because food gardens were the economic base of Ipili society. Removal of this economic base created a situation of economic dependency and problematic relationships between the landowners and the mining company, especially when combined with unmet employment expectations. This had already happened on occasions, especially with the Pulumaini landowners at Kulapi. There was certainly nothing to indicate any alternatives for the majority of landowners, other than to return to a subsistence lifestyle when the mine finally closed or if they were unemployed. Yet women who were not gardening were not passing their skills on to their daughters. With a projected further mine life of approximately 15 years (in 1993), this could mean a generation losing its gardening skills. Furthermore,

food gardens were the main area of control that women had in society, and their loss could have negative consequences for the family.

With regard to food garden land, the people of Kulapi were disadvantaged compared to the other relocation areas (see Chapter 5). The people of Kulapi had to clear primary rainforest to make their new gardens. Soil was poor, with a high water table, and there was excessive leaf mould with a high nitrogen content. This, combined with the comparatively high altitude, inhibited the formation of tubers in sweet potatoes. When this problem was recognised in early 1989, experts from the national Department of Agriculture and Livestock were brought in to make recommendations. It was felt that time would cure the problems of excessive nitrogen and draining of the soil, but improved agricultural practices would be the only way to improve soil fertility. In the meantime, a programme was initiated to grow potatoes as a substitute staple crop. From September 1989 to April 1991, free seed potatoes and fertiliser were distributed under a programme supervised by the Women's Section of the PJV. The programme was suspended because of the increasing numbers of outsiders requesting seed, and because a few women who had persevered with their sweet potato finally had gardens that were producing tubers. It was also recommended in 1989 (and periodically re-recommended) by relocation staff that the PJV release unused Pulumaini land in the SML to Kulapi landowners for gardening purposes.¹² The PJV had already paid compensation for the use of this land, and there was concern that, if the PJV needed to use this land in the future, there would be further compensation demands by landowners.

The creation of the Anjolek dump site and excision of the Kaiya LMP also threatened to have a negative impact on the availability of gardening land. During the survey, several women in Apalaka and Yarik expressed their concern about losing their remaining garden land to the expansion of the mine. This included

- loss of land due to the Kaiya LMP surveying
- fear of increased landslides due to mining activities
- possible loss of land if the mine expanded to the ridge behind and above Yarik; and
- loss of access to their gardens which lay on the other side of the proposed Anjolek dump site (see Chapter 6).

Rubbish disposal

While most houses in the relocation areas and their immediate surrounds were tidy and free of rubbish, this was not the case for trade stores, public areas, or tracks leading to the houses. People were encouraged to build rubbish pits as part of the relocation programme, and there was extensive extension work on the 'effluence of affluence' problem, but any improvements were short-lived. Kulapi village was even the target of a special improvement programme, mounted by the PJV's Community Affairs Division, in which the community was provided with centrally located rubbish bins, but these were still being dumped in the bush.

The main problems with rubbish disposal throughout Porgera, and not just in the relocation areas, were

- people not perceiving rubbish to be a problem
- the local government council's inability or lack of will to enforce council rules pertaining to rubbish disposal
- the new clustered settlement pattern which made rubbish more visible; and
- increased affluence which produced more rubbish than in the past.

Some people were using rubbish pits which they had dug themselves, but most threw their rubbish in the bush or in creeks, and most of this rubbish, unlike that of the past, was not biodegradable. Only two people interviewed during my relocation survey (one man in Apalaka and one woman in Yarik) perceived rubbish in the community as a problem, and both suggested that the PJV arrange for rubbish collection.

Toilets

The relocation house came with a pit toilet built on a cement slab, enclosed by a moveable steel shed. In the first 49 houses, the shed was not moveable, but the design was subsequently changed. Pits were shallow in construction due to the high water table. The actual hole in the cement slab was quite small, and while this ensured that children did not drop in, it did make hygiene a bit difficult. Toilets did not come with a lid for the hole, but many people constructed lids as recommended during the relocation settling-in programme.

The theory behind the relocatable slab and shed was that when the pit was full, the owner would then dig a new pit and move the slab and shed. The results of my survey, as shown in Table 4.6, indicate that this was not happening. Out of the 96 households in the survey, 37

Table 4.6 Toilet facilities of relocation houses

Location	New pit	Old pit	Dug out	Blocked	Flush	None	Total
Kulapi	4	1	14	4	1	0	24
Anawe	8	5	0	1	0	1	15
Suyan	3	4	0	3	0	1	11
Apalaka	7	2	3	2	0	1	15
Yarik	9	4	7	0	0	1	21
Olonga	6	2	1	1	0	0	10
Total	37	18	25	11	1	4	96

Source: Relocation survey data.

(38.5 per cent) were actually using a new pit; 18 were still using the old pit in its original form;¹³ 25 were using a 'dug out' version of the old pit, in which the owner had dug a hole beneath the latrine and poured water in to flush out the pit;¹⁴ and 11 were no longer able to use the old pit because it was blocked, but the owners were not interested in constructing a new one (Table 4.6). In one case, the owner had installed a septic flush toilet in the house. In four cases, there were simply no toilet facilities at all. One person reported to me that he got rid of his toilet because his neighbours' children were using it and soiling the area.

Firewood availability

As a result of the influx of outsiders into Porgera, and the new clustered settlement patterns, there were very obvious areas of deforestation in the Porgera Valley. This had led to a shortage of firewood and building materials. As indicated in Table 4.7, many people in the main relocation areas were beginning to feel the effects of the shortage of firewood in 1993. This was obvious in the houses which used to have a lot of firewood stored underneath. Four years previously, when I began the relocation work, the stoves were in constant use, but during this later survey, I found that most of the stoves were cold, suggesting a marked decline in the frequency of use. People were now buying firewood at Kulapi (Waile Creek road area), Paiam, Kairik, Tipinini, and as far away as Tumudan and Mulitaka. While this would have provided some additional income for the people in those areas, it was tough on those people who had to buy firewood but did not have an income

earner in the family. One woman actually said the relocation houses were cold.¹⁵

Electricity

Jackson (1987) reported that electricity was an anticipated benefit of mine development, and indeed the provision of electricity to relocation areas was a major consideration in the negotiations for both the Relocation Agreement and the Porgera Development Forum agreement between the landowners and the national government.¹⁶ At the time of my survey, the national Electricity Commission was only just starting to connect relocation houses to electricity generated from the Hides gas plant. Houses in Kulapi had not yet been connected, but 26 of the 46 houses visited in Yarik, Olonga, Timorope and Apalaka had been.¹⁷

Prior to electricity connection, landowners protested—at times violently—that they wanted the connection and electricity supply to be free. However, once connection was underway and the first electricity bills were received, this became rather a dead issue. The initial connection fee was K80, which included a K20 deposit. If only lights were being used, the cost was about K5 per month. The accounts shown to me during the survey were as follows: K19.40 for 74 days; K12.75 for 90 days; K11.68 for 81 days; K12.72 for 90 days; K14.08 for 90 days; and K55 for 90 days (but this last house had security lights, a TV-video, and connection to a chicken project). Kerosene cost between 50t and K1 per bottle, and the women said that they were using one or two bottles a night for lamps, which would have meant a monthly expenditure of K15–30. The advantages of electricity were obvious to all. Besides the cost factor, other reasons people gave for liking

Table 4.7 **Availability of firewood in relocation houses**

Location	Enough	Short supply	Must buy	Total
Kulapi	12	11	1	24
Anawe	2	3	10	15
Suyan	11	0	0	11
Apalaka	4	9	2	15
Yarik	1	4	16	21
Olonga	0	1	9	10
Total	30	28	38	96

Source: Relocation survey data.

electricity were its cleanliness and the convenience of having light at night whenever they felt like it. On the other hand, a few people still expressed concern about finding the money to pay their electricity account. The first overdue account notices were about to be issued, and if there were many defaulters, there would probably have been a resurgence in the demand for the PJV to foot the bills.

Electricity could mean a quantum leap in consumerism. As electricity had only recently been connected, and only to Apalaka and Yarik, the results of the survey were rather inconclusive on this score. Many women appeared happy just to have electric lights. Some expressed interest in purchasing washing machines and electric cookers, and this would be related to the lack of firewood in the area.

Problems and concerns

The problems and concerns listed below, in order of stated frequency, were those of the women interviewed during the survey. The numbers do not add up to 96 because women often had more than one concern. It is also interesting to note that many of the women who listed tank water as one of the primary benefits of living in the relocation house also listed lack of water as their main concern.

Concerned about food gardens	33
No work or no money	27
Concerned about water	26
Want electricity	18
Lack of firewood	15
Concerned about children's future (in housing or employment)	12
Just worried about the future	6
Worried about the possibility of landslides	5
Concerned about outsiders stealing	5
Concerned about drinking and gambling	4
Other concerns mentioned by three or less women included	
It is hard living in Yarik	
How do we fix things if our husbands have left us?	
It is too crowded	
Miss the old house (life?)	
Water used to taste better (than tank water)	
The clinic fees are too high	
Worried about new sicknesses (AIDS).	
One of the problems that came out strongly in the survey was the	

conflict between parents and children. Older children were putting pressure on their parents by bringing their spouses to live with them in the relocation houses. The children wanted their own relocation houses, and were accusing their parents of selling them short when they entered into the relocation agreement. Many women said that their big worry was, 'Where are our children going to live?' This was expressed as part of their concern for the children's future in the survey form, as well as in informal meetings with groups of women in the relocation areas. Some women were very concerned that their sons were idle, and all they did all day long was drink and play cards. The problem of idle, unemployed youth, who felt they had been left out of all the benefits of compensation and relocation that their parents received, was considered by some to be near the explosive point. Some people I spoke to thought it was quite possible that in the near future some relocation houses in Kulapi and Mungalep would be destroyed by angry children.

Many women in Kulapi were very concerned and anxious about the future. They were concerned about how long the mine was going to operate, was the PJV going to stay or go, would they ever be able to go back to their land. It was suggested by one prominent Porgeran landowner that this concern was related to the 'fly-in/fly-out' issue. He said that, because the company was not bringing the families of employees to live in Porgera, people were worried that the mine wasn't going to last a long time. Another explanation of this anxiety could be related to the 'end of the world' beliefs that crop up from time to time in Ipili culture. Perhaps the most logical explanation is that, because the women's expectations were not met, they were merely wondering 'What next?' It should be pointed out that not everyone was in a state of anxiety. Residents of 12 houses in the survey said they had no problems and were happy with their new lives.

The dilemma of the relocation house

It could be said that the relocation programme was too successful. The objective of the relocation programme was to move landowners from the area of proposed mining activities, and to provide these landowners with an improved house as part of the total compensation package. The result was that the relocation houses provided a dramatic improvement in the standard of living for a large number of people. The improved standard of living for owners of relocation houses then created new problems. People who did not get relocation

houses were jealous of those who did. Children of parents who had relocation houses were demanding that they too be provided with relocation houses. The relocation houses locked people who were previously more mobile into their new places of residence. The newly created relocation villages, with increasing population density due to high birth rates and the immigration of relatives, were facing problems of environmental degradation and a shortage of gardening land to meet the needs of the inhabitants.

Relocated marriages

A separate marriage survey was conducted in the relocation areas to shed further light on the problems which had been a central concern of the Porgera Women's Association since it was founded in mid 1989. The main complaint was that Porgeran men had been using compensation money to 'buy' new wives, most of whom were 'outsiders', and then deserting their Porgeran wives and children (see Chapter 2).¹⁸ The sample for this survey was the first 100 relocated married men—approximately 25 per cent of the relocated men with extant marriages. Informants were asked

1. How many wives did this man have before relocation (which roughly equates to the time when the large compensation payments were made)? and
2. How many wives did this man marry after relocation?

Notes were made as to the place of origin of each wife, deaths, divorces and wives who left their husbands.

Increase in polygyny

Meggitt reported a 30 per cent polygyny rate for Porgera in 1957, based on a sample of 41 men, while Kyakas and Wiessner (1992:153) have more recently estimated a 20–25 per cent polygyny rate for Enga Province as a whole. Glenn Banks reported a figure of 8 per cent for Porgera in his own 1993 survey (see Chapter 3), but this figure cannot be related to the others as it relates to households rather than marriages.

The results of my own survey (Table 4.8) indicate a dramatic increase in polygyny from 19 per cent before relocation to 43 per cent by mid 1993. Between 1989 and 1993, a further 7 per cent of men in the sample had at some time been married to more than one wife, but were now in monogamous marriages because they had divorced one or more of the previous wives, or because one or more of the wives

had left the marriage (*meri i ranawe*). This meant that, at some time between 1989 and 1993, 50 per cent of the men in the sample had been practising polygamy!

The 100 men in the sample had a total of 135 wives prior to relocation, and acquired 75 new wives between 1989 and mid 1993, making a total of 210 wives. This meant that the average number of wives had increased from 1.35 to 2.1 over that period. It is probable that this polygyny rate would decrease again, as there was an increase in the failure rate of the marriages contracted after relocation. Of the 135 marriages contracted prior to relocation, 15 (11 per cent) had already failed, with 13 wives divorced and two who ran away. Of the 75 marriages contracted after relocation, 15 (20 per cent) had already failed, with five wives divorced and ten who ran away. Nine of the post-relocation wives who left their husbands were non-Porgerans.

One practical reason for 'traditional' polygyny was the high male death rate due to warfare. The economic basis of polygyny was the need to cultivate more sweet potatoes to increase the number of pigs in the household herd. More wives meant that more sweet potato could be cultivated to feed more pigs, and pigs were the essential means for men to increase their personal wealth and prestige. But even in the past, the failure rate of polygynous marriages was high because of conflicts which stemmed from the opposing interests of men and women.

For a man, marrying more than one wife was one of the roads to success...For a woman, having a co-wife meant sharing her husband with another woman, sharing the family's garden land and sharing the family's pigs to be given away in exchange between her relatives and those of her co-wife. The road to success for men thus divided the

Table 4.8 **Types of marriage before and after relocation (per cent)**

Type of marriage	Before	After
Monogamy	76	41
Polygyny	19	43
Serial monogamy	5	8
Polygyny to monogamy ^a	0	7
Now single	0	1

Note: ^a These were men who had previously had more than one wife at the one time, but who now only had one wife.

Source: Marriage survey data.

possessions and territory of women. Only wealthy leaders, skilled in handling social and personal relations were able to manage lasting polygynous marriages (Kyakas and Wiessner 1992:154).

The modern forces of money and education have distorted the practice of polygyny in ways which have had a further adverse impact on women and the family. Cash provides the means to literally buy wives. Men now marry for sexual purposes rather than the more economic purposes of the past. In Porgera, men could formerly only acquire additional wives if the first wife agreed or if she failed to have children. On the other hand, there was now very strong evidence that men were using the village courts (an introduced institution) to rewrite custom in their favour. This was made possible because women had no traditional voice in the public arena.

Today, throughout the highlands, cash is being used for brideprice payments, either directly or indirectly (when it is used to buy traditional wealth). When cash only is used for marriage, Porgeran women classify that as an inferior marriage and say contemptuously: '*em i-baim long moni tasol*' ('he bought them with money only'). As women gained increasing freedom to marry the man of their choice, one may well ask why they agreed to marry a man who already had a wife or wives. The women may either have truly desired the man or merely wanted a rich husband with the idea that they would oust the previous wife or wives. The Western colloquialism 'gold digger' has been particularly apt in Porgera.

Women, although often victims, are not without power. A strong first wife can influence a husband to leave his second wife. For example, one woman I knew left her husband after he took a second wife. She took the children and moved in with relatives until (she said) he came to his senses. The new wife was felt to be no threat as she was 'lazy and only after money'. In this case, the first wife won. However, the more common result in Porgera has been the abandonment of the first wife (and her children) and/or increased domestic violence. Porgeran women also said that, when a husband wanted to take a new wife and get rid of the old one, he would beat her so that she would leave and return to her relatives. According to custom, if the wife leaves, the husband does not have to refund the brideprice.

Although Porgeran women were very vocal in their condemnation of polygyny, in principle they were not totally opposed to it (in spite of their professed Christian values) if the husband followed custom and looked after all his wives and children. However, I only met two women in polygynous marriages in Porgera who indicated they were happy

with their situation. Both these women were first wives who maintained their prestige and were in charge of the subsequent wives. I do not know what the co-wives thought of the situation.

The relocation house added further stress to the polygynous family. Often, there was a dispute as to which wife should occupy the relocation house. If more than one wife occupied the house, this frequently led to disputes between co-wives. This unhappy situation was common. In 1989, I tried unsuccessfully to convince a badly beaten woman to come with me to the hospital. She refused, as she said that, if she left her new relocation house, her husband would move in his new wife. She still had the house in 1993, but her husband was living elsewhere with his other wives.

Many women in Porgera (indeed throughout the highlands) have been suffering the effects of an increase in, and distortion of, the practice of polygyny. I support their viewpoint that this practice has no place in modern Papua New Guinea. Polygyny is as socially repugnant as other local 'customs' such as cannibalism, infanticide, domestic violence and tribal fighting for example. It is in violation of Christian beliefs, the National Constitution and the United Nations Declaration of Human Rights. Cynics will rightly point out that legislation has not diminished tribal fighting or domestic violence, and that the Christian churches have had little effect on polygyny, especially in the highlands.¹⁹ Laws of this country are made by men, many of whom do, or would like to, practice polygyny themselves—especially the members from the five Highland provinces. Although it is not possible to legislate morality, nevertheless the problem still needs to be dealt with.

Increase in marriage to outsiders

Table 4.9 shows the extent of the increase in marriages to 'outsiders'. This table compares the place of origin of the wives whom the 100 surveyed men had married before the start of the relocation programme in 1989, with the place of origin of the wives whom they married after it had started. The results show that 64.5 per cent of the wives acquired after relocation (that is after receiving large compensation payments) were non-Porgerans, and 64 per cent of the wives were from non-Ipili speaking areas. The greatest increase was for wives from the Tari District of the Southern Highlands. As previously mentioned, there had been a high failure rate for the recent marriages to outsiders.

Table 4.9 Wives' place of origin before and after relocation (per cent)

Place of origin	Before	After	All wives
Porgera	79 (58.5)	19 (25.3)	98 (46.7)
Paiela	25 (18.5)	8 (10.7)	33 (15.7)
Laiagam	14 (10.4)	13 (17.3)	27 (12.9)
Tari	8 (5.9)	22 (29.4)	30 (14.3)
Wabag	4 (3.0)	2 (2.7)	6 (2.8)
Kandep	3 (2.2)	7 (9.3)	10 (4.8)
Chimbu	2 (1.5)	0 (0.0)	2 (0.9)
Hagen	0 (0.0)	3 (4.0)	3 (4.1)
Kopiago	0 (0.0)	1 (1.3)	1 (0.5)
Total	135 (100.0)	75 (100.0)	210 (100.0)

Source: Marriage survey data.

While most Ipili marry other Ipili, it was also traditionally common for Ipili men or women to marry outsiders—especially their Huli or Engan neighbours. This was to increase their population for defence purposes, to help with customary obligations, and to increase the potential for survival in a harsh environment. With the sudden influx of cash, the Ipili became more attractive as marriage partners, while their customary practice became dysfunctional. Because Porgera was now an attractive place to outsiders, family members of the non-Porgeran spouse would take advantage of the marriage ties and move in. This led to chain migration which compounded the outsider problem. Taken to the extreme, this could cause the Ipili culture to be extinguished through marriage.

Impact of marital breakdown

When marriages broke down, the two most common consequences were either divorce or abandoned wives and children. Other consequences were murder, suicide, or the wife abandoning husband and children.

During the period of this study, divorce in customary marriages was normally conducted through the village courts. Women claimed that the village courts were making it too easy for men to divorce. There was no mediation. This situation usually occurred when a man wished to take a new wife. The most serious allegation had to do with the repayment of brideprice. Village courts were making orders for women to repay the brideprice to their husbands in the event of divorce (I saw several such court orders). Failure to repay meant jail

for the woman. This was certainly not custom. Women did not pay their brideprices in the first instance.²⁰ This was an example of men using the village court system to rewrite custom.

While men were finding it fairly easy to obtain a divorce in the village court, women were not. As women had no say in the courts, when a husband took a subsequent wife, they were forced to stay in polygynous marriages against their will and their religious beliefs. There had been cases of women being forced to stay in violent marriages. In one marriage, the wife either committed suicide or was murdered, which led to a tribal fight. She had repeatedly gone to the village court to try to end this marriage. There are methods of appeal under the Village Courts Act against decisions which do not follow custom, or where the aggrieved party was not permitted to present his or her case. Many women were still ignorant of the grounds for appeal. Even if appeals were lodged, the appeal system did not seem to work.

A second consequence of marriage breakdown was abandoned wives and children. The marriage survey, unfortunately, did not obtain figures on the number of wives who were still married by custom, but who were no longer being looked after by their husbands. This problem had been a concern of the Porgera Women's Association. The PJV's Welfare Officer confirmed that he spent most of his time dealing with complaints from women who stated that they had been abandoned by their husbands. These complaints were not only from Porgeran women, but also from the wives of PJV employees who did not see their husbands on their rostered days off work or receive money from their paychecks.

Notes

- 1 The terms of reference were based on the suggestions made by Dave Moorhouse, then on Placer's Porgera staff, in consultation with other individuals with extensive local knowledge—Polly Wiessner, Frank Faulkner, Phil Gibbs, Kurubu Ipapa and Graham Hogg.
- 2 The mutually acceptable decision to relocate the residents of Alipis had been reached by the time that Robinson's final report was submitted.
- 3 The LNC is not to be confused with the Porgera Landowner's Association which, though formed in 1986, was suffering from credibility problems (see Chapter 2).
- 4 Frank Faulkner was the Senior Liaison Officer employed by what was then the Department of Minerals and Energy (later Mining and Petroleum).

- 5 The K1,000 disruption allowance was determined at a rate which would furnish a house using furniture made at Wanepop Vocational Centre in the Lagaip District of Enga. Only two houses were furnished before Wanepop was burned down.
- 6 This is not to be confused with clause 18.1 of the agreement between the National Government and the Porgera Landowners which states: 'The Porgera Joint Venture is to be directed to make all necessary arrangements to ensure supply of electricity to individual houses—(a) in existing relocation cluster settlements with 12 months of the execution of this Agreement, [and] (b) in all similar future settlements necessitated by the issues of any mining tenements at the time of the construction of those settlements.' It is my understanding that the National Government did not in fact direct the PJV to do this, but it did become an issue, especially in Mungalep, Suyan and Kairik.
- 7 Garden contracts were issued by the PJV. Relocating families were encouraged to make gardens to replace the ones on land required for mine development. Payment for garden contracts was in three instalments; after garden cleared and fenced, when garden was prepared for planting, and when the planting was completed. In anticipation of a Relocation Agreement, 17 garden contracts had already been let by February 1988.
- 8 One problem noted during the first visit to the new houses was the lack of an outside water tap. Women complained it was too hard to wash clothes and all their small children inside the house. The outside tap became *the* feminist issue in the relocation programme. After 120 houses had been built, the outside tap was finally incorporated into the house design for all subsequent relocation houses, though it took several months before the original 120 houses had outside taps installed.
- 9 A number of specific maintenance problems were noted during the relocation survey and discussed with PJV's Community Affairs staff so that they could take remedial action.
- 10 In 1993, the PJV was favouring two methods of dealing with water supply problems. Where there was an available clean source, a gravity feed system with a free-flowing outlet would be installed. This method was in the process of being piloted at Kulapi at the time of this research. Where this first option was not feasible, the alternative was the installation of rainwater tanks connected to public buildings with good catchment areas, such as churches, schools or community centres. Tanks had already been installed in many areas of Porgera, as well as other areas outside of Porgera covered by the PJV's community relations programme.
- 11 Most Alipis residents relocated to Yarik.
- 12 The women of Kulapi, without exception, still listed the lack of good gardening land as their biggest concern in 1993. Those of the Pulumaini clan were especially aggrieved by their perception that the Tieni clan had gained an unreasonable advantage by moving to

- Alipis to be near the company, and then being moved back to Yarik and given relocation houses near their existing food gardens.
- 13 This is what they told me, though it is hard to believe that they were not yet full after four years of use. This remains a mystery that I did not investigate!
 - 14 This expedient, which was only feasible on hilly sites, could be regarded as a serious health hazard in high density living areas, because the effluent simply drained down the hillside.
 - 15 Staff in the PJV's Community Affairs and Environment departments had long been aware of the problem, and had started programmes to produce seedlings for distribution and for youth reforestation projects in the SML. It was reasonable to assume that many people would become increasingly dependent on purchasing firewood for some or most of their needs.
 - 16 Many residents of Alipis village had free electricity provided by the company before the relocation programme started.
 - 17 Elcom staff did provide some education during connection, but this appears to have been patchy, and the leaflets that were distributed were in English.
 - 18 Many Porgeran men received large amounts of money from the Mount Kare gold rush, as well as compensation money from the PJV. However, it was generally felt that gold rush money was spent on loose women, while compensation money was used to buy new wives. This fits with the notion that Kare money was not 'real' money (Davis Film & Video 1990).
 - 19 A significant number of Porgeran pastors and other church leaders had entered into polygynous marriages since 1988.
 - 20 According to Chris Ballard (pers. comm.), this trend was also evident in the Tari area, where men were divorcing their wives and obtaining a refund on the brideprice to finance a new wife.