

LOCAL COMMUNITIES AND MINES

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Mineral development can create new communities and bring wealth to those already in existence, but it can also cause considerable disruption. New projects can bring jobs, business activities, roads, schools, and health clinics to remote and previously impoverished areas, but the benefits may be unevenly shared, and for some they may be poor recompense for the loss of existing livelihoods and the damage to their environment and culture. If communities feel they are being unfairly treated or inadequately compensated, mining can lead to social tension and sometimes to violent conflict. (See Chapter 8.)

Mining's interaction with local communities has changed over time. With the dramatic decline in the costs of transporting bulk materials and the emergence of multinational companies as major players, mines can now be located far from where the ores are processed. At the same time, they have become larger and more technically complex, bringing a decrease in employment and an increase in the skill levels required of workers. In many countries, mines have tended to become specialist enclaves, isolated from other sectors of the economy. The premier example of this is 'fly-in, fly-out' operations based on long-distance commuting. This invariably means that the communities living nearby gain less in terms of jobs, business opportunities, and the multiplier effects.

Exploration increasingly occurs in remote regions with little or no development. By nature of their remoteness, the areas to be explored are frequently ones where the title to land is disputed or unacknowledged and where local government lacks the capacity to provide essential services or to mediate between mining companies and local communities. A consequence is the potential for mining companies to wield too much power in the local context. Traditional cultures may have difficulty coping with vast industrial operations and the influx of outsiders. A growing appreciation of the intrinsic value of traditional cultures has heightened awareness of these issues. All these trends have significantly changed the balance of costs and benefits at the community level and have contributed to a rethinking of mine-community relations.

In addition, all mines have a finite life span, and it is difficult to sustain the direct benefits they bring to communities in terms of wages and improved welfare after mine closure. The infrastructure that develops

with a mine may be scaled down or neglected when the mine closes unless provision has been made for maintenance and upkeep well in advance.

Communities are particularly vulnerable where linkages with other sectors of the economy are weak.

There is an inherent tension between local and national rights to mineral wealth and the other benefits brought about by mining. That people living near mines or adversely affected by them should be compensated for any inconvenience, hardship, or loss of opportunity suffered is generally not disputed. The question is, should they receive a larger share of the benefits? If so, how should that share be determined? The rationale for local communities to receive a greater share of the benefits is clear: first, for communities to accept mining on their doorstep, they must see some realizable benefits over and above being compensated for loss or other impacts. Second, for mining to contribute to the goals of sustainable development at the community level, it must provide a net benefit to the affected community. Sustainable development requires an equitable sharing of benefits; if there is obvious inequity, there will be strife, which impedes the development process. The question is therefore more appropriately, how should the share of benefits received by communities be decided? This is discussed later in the chapter.

Sustainable Development at the Community Level

At the local level, sustainable development is about meeting locally defined social, environmental, and economic goals over the long term. Interactions between the mine and community should add to the physical, financial, human, and information resources available – not detract from them. (See Table 9–1.)

The challenge is to ensure that the effect of interactions are regarded as positive by those affected locally as well as by the promoters of the project, and that communities develop in ways that are consistent with their own vision. This may be realized through, for example, the provision of social services, income, or skills development. Enhancing community values presents a particular challenge, given the often intense social change brought about by mining and the potential influx of outsiders.

Table 9–1. Means for Sustainable Development at the Community Level

Resources – quantity, quality, access to them, and realizable value

Physical resources

- Land, natural resources, and environmental services
- Productive equipment to make use of these services
- Infrastructure (especially safe and secure shelter, water supply and sanitation, education, energy, transport, communications)

Financial resources

- Income
- Savings, investments, and credit

Human resources

- Health, safety, and security
- Skills, knowledge, and qualifications
- Jobs and other economic strategies such as migration/remittances and subsistence activities

Information

- Information about technical/policy/market opportunities and obligations
- Information about change

Community values and knowledge

- Shared values, norms, goals, and aspirations for sustainable development
- Community knowledge of society, environment, and economy and their interaction
- Associated social traditions (history, culture, religion)

Community institutions

- Community governance institutions, mechanisms, rules, and sanctions – for participation in problem and opportunity assessment/ debate/ communication/ consensus/ conflict management/ decisions/ self-help/ joint work/ learning and innovation/ social security/ cost-benefit sharing/ vigilance and monitoring/ accountability
- Legitimacy and reputation of the community and its institutions
- Trust, leadership, membership, management of community groups, federations, networks
- Internal relations/partnerships within the community, such as gender/ethnic relations
- Relations/partnerships with other communities, actors, and service providers
- Other means to seize opportunities, manage risk, and improve resilience

Individual and community powers

- To negotiate with bureaucracy and private sector
- To influence politics, policy, laws, and instruments
- To influence market conditions
- To plan/control developments and activities in the vicinity
- To express community needs, ideas, and choices

Individual and community rights

- To claim, receive, defend, transform, and trade material and financial assets
- To information
- To representation and engagement in processes (political, policy, legal, market)
- To development and self-determination

Key factors: Community coherence, diversity, equity, stability, resilience, options, pace

Power differentials can leave a sense of helplessness when communities confront the potential for change induced by large, powerful external companies. The problems are most acute where local government capacity or other forms of local representation are lacking and where community rights are not enforced by the central government. Ensuring that mechanisms are in place to enable local communities to play effective roles in decision-making is one of the greatest challenges in mining's ability to contribute to sustainable development at the local level.

Whatever is agreed to (or not, as the case may be), minerals activities must ensure that the basic rights of the individual and communities affected are upheld and not infringed upon. These may include the right to control and use land; to clean water, a safe environment, and a livelihood; to be free from intimidation and violence; and to be fairly compensated for loss. Such rights may be enshrined in the national law or based on and expressed through a range of international human rights instruments and agreements. (See Chapter 8). Moreover, all groups have a right to development, and the interests of the most vulnerable groups – the poor and the marginalized – need to be identified and protected. Reconciling the various rights and responsibilities in different governance environments to the satisfaction of those concerned is perhaps one of the most difficult challenges.

Having the right processes in place to reach outcomes acceptable to as broad a range of community members and other stakeholders as possible is the way forward. Such processes have to be within the confines of available resources and capacity as communities themselves work towards sustainable development.

Gains and Losses at the Local Level

It is important to acknowledge the different categories of community involved in or affected by mining operations:

- *Occupational communities* – households or families who derive all or most of their income from mining.
- *Residential communities* – households or families who live within the geographical area affected by mining. They may live in close proximity or many miles away, such as on a river polluted by mine tailings. These communities fall into two types: those in existence before the mine was built and those that have developed as a result of the mining operations.
- *Indigenous communities* – households or families with an ancient and cultural attachment to the land where mining occurs or has an impact.

These three categories are not mutually exclusive, of course. Indigenous communities may work in a mine, and therefore be occupational communities too, while long-distance commuting, as is the case in fly-in, fly-out operations and operations that rely on migrant labour, may mean that occupational communities do not live near the mine. (This chapter does not deal with occupational communities formed by artisanal or small-scale miners.)

In occupational communities, people must have the means to survive and prosper, either in the same place or elsewhere, once mining ceases. Issues such as the transfer of skills and future employment must therefore be addressed. In residential communities, minimizing the environmental footprint of mining will be a priority, and thus access to information about potential impacts as well as the power to influence decisions will be important.

Indigenous people present a special case of community. As well as having specific social needs, in many countries they are the poorest and most marginalized

in society.¹ Indigenous communities have traditionally been based on very distinct systems of decision-making, social and political institutions, and systems of wealth generation and distribution. Additionally, indigenous culture, whose value has commonly gone unacknowledged, is often closely associated with natural resources that have social, economic, and spiritual significance. Many of the differences between indigenous cultures and wider society have been poorly understood. Moreover, development involving minerals and other natural resources has been the cause of displacement and victimization, made easier by poor protection of indigenous peoples' rights to their land. The injustices of the past and present have engendered a deep mistrust of outsiders – in this case, governments and mining companies.²

The goals of sustainable development will differ among indigenous communities. For some it may mean that their attachment to their land and culture survives the upheavals caused by mineral development. Others may be ready to abandon subsistence activities and explore the opportunity to benefit from, for example, improved housing, health care, and education. Either way, it is crucial for the survival of indigenous communities that their rights and culture are respected.

The nature of the mining operation – including its size, life span, and type of mineral being extracted – will influence the interactions between mining and the community and the means available for working towards sustainable development. The more recently established operations are more likely to use environmentally friendly technologies and be more sensitive to social concerns. The characteristics of mining operations tend to differ regionally (see Chapter 3), which also affects the nature of interactions.

The stage of the mining operation is another important determinant of effects:

- The exploration stage is of comparatively low economic impact but is critical since it is often the first encounter between the community and mining company. Encounters can be sporadic but extend over long periods of time as different companies undertake exploration activities in a locality. This is the stage at which the relationship between the community and mining company (or industry) is set up, which, depending on how it is managed, can result in either positive or negative perceptions of

the industry for a long time, including the later stages of mine development and operation.

- The construction phase, although relatively brief, is probably of greatest impact in the short term and has long-term implications. It potentially brings a boom in jobs but can also cause considerable physical and social upheaval, opening up remote areas through the development of infrastructure and stimulating migration to the area.
- The production phase has the longest-term impacts – bringing, for example, income and infrastructure, but also negative and often unintended repercussions.
- The impact of the closure phase depends largely on the degree of forward planning and the available means to sustain benefits, such as institutional capacity and financial resources.

The actual impacts experienced and the perceptions of the community will depend on the pre-existing situation, the process of community engagement and capacity-building, the role of governments, and other social changes. The credibility or trust in the government as well as attitudes towards private or foreign capital will affect a community's attitude towards a mining project.³ The relationship between the mine and community can also dramatically change at any stage of the mining life cycle due to unintended events such as accidents and social conflict, or due to changes external to the mining operation.

This chapter focuses mainly on the production and closure phases. The dynamics of the interaction at the exploration stage are quite distinct from these later stages of development.⁴

An Economic Perspective

Communities can receive compensation and substantial flows of revenue when a large mine is established, which can act as an important catalyst for change and growth. For areas previously peripheral to the cash economy, these monetary flows can transform the economic and social basis of communities. The types of payments and the way they are used are key to mining's ability to contribute to sustainable development at the community level.

As noted in Chapter 7, losses suffered by communities in homes, land, or access to other sources of livelihood should be compensated. However, there are many problems with compensation systems. They may, for

example, address property values recognized by the legal system much better than they deal with informal occupation of land or the loss of traditional subsistence livelihoods. Many actors now recognize that cash for people with little prior experience of cash economies may leave them worse off in the long run, as it may lead to social tension or investments that yield few long-term gains. Experience shows that social tensions resulting from compensation agreements made at the beginning of an operation are likely to continue throughout the life of the mine.

The closer countries are to the source of mineral wealth, the further away they often seem to be from capturing many of the benefits. This paradox is often repeated within countries, with the regions that are rich in minerals losing out, in economic terms, to those that are not. In many instances, communities do not receive a share of the equity of mining operations since their surface rights to land do not translate into rights over minerals. Though often hampered by the low governmental capacity or the lack of political will, a key challenge is to ensure that an agreed proportion of revenues is redistributed locally.

Mining often provides local communities with jobs, which may enable those in subsistence to join the cash economy. Others who already had paid work may find themselves better off, since in many countries mining pays relatively higher wages. Particularly in developing countries, wages may increase through localization schemes or through moving local employees into higher positions within a company by way of corporate training. Counter to this, however, modern mines tend to have much higher levels of productivity than older mines, employing small but highly skilled work forces. A recent study in Chile found that the number of mine workers with higher education rose from 26% in 1990 to 36% in 1996 (compared with 14% for other sectors).⁵

In some regions, mining provides the bulk of job opportunities. The Grasberg copper and gold mine in West Papua, employing 14,000 people, provides a dramatic example: the number of indirect jobs created as a result of Freeport's mining activities is estimated at 75,000.⁶ Elsewhere, with the exception of the construction phase, many mines no longer generate significant numbers of local jobs. In Peru, a GRADE study showed that the local sources of employment are very limited, and that much labour is imported.⁷

A smaller number of employees means that the multiplier effect has declined relative to historical levels.

Retrenchment is a current concern for mines all over the world, and some regions have been severely hit. Until recently, for example, Romanian mines were government-owned and received huge subsidies. With the liberalization of the economy, the government closed 178 uneconomic mines with 83,000 miners – resulting in a sharp economic decline in mining regions.⁸ While workers could find work in different mines, it may involve uprooting their families; other mine workers could be employed in alternative activities, as many have developed transferable skills through education and training.

Another important source of economic benefits to communities, particularly where mining is the main activity, is the input services provided to mining operations. Companies are increasingly required to assist local business development, to outsource services, and to give preference to local businesses. However, increased demand may cause the prices of goods and services to rise locally. Moreover, the concentration of economic activity centred around the mine often increases the community's dependence on the mining operation, making it vulnerable to downsizing or other changes and exacerbating the power imbalance. On the other hand, since the company may also depend on the community for employees and services, a well-organized community can potentially make numerous demands on the company.

A Social Perspective

It is difficult to separate the economic impacts of mining operations from the social impacts. Many social problems are direct consequences of poverty, and if mining helps a community become prosperous, it may also help it tackle social ills such as malnutrition, illiteracy, and poor health. On the other hand, mining activities may cause economic hardship – by polluting rivers and damaging fish stocks, for instance, or by appropriating grazing land and forestry resources. This, in turn, may exacerbate existing social problems or create new ones.

If the revenues from mining are not equitably shared, this aggravates inequalities within communities. For example, a social audit of the Grasberg mine showed that the worsening inequalities in income distribution

favour young adults, modifying their position and prestige vis-à-vis their elders and affecting traditional social structures.⁹ If people in a community perceive the revenues of mining to be unfairly shared, this can result in social tension and even violent conflict within the community or between the community and the mining company or government.

Relocation

The displacement of settled communities can be a significant cause of resentment and conflict associated with large-scale mineral development. Communities may lose their land, and thus their livelihoods, disrupting also community institutions and power relations. Entire communities may be forced to shift into purpose-built settlements, into areas without adequate resources. They may be left near the mine, where they may bear the brunt of pollution and contamination. Involuntary resettlement can be particularly disastrous for indigenous communities with strong cultural and spiritual ties to the lands who may find it difficult to survive when these are broken. (The resettlement of communities is also discussed in Chapter 7, as are the difficulties faced by communities without legally recognized land tenure.)

As with compensation payments, some of the issues associated with relocation may take years to surface. Where houses built with permanent materials replace traditional homes, for instance, communities may not have the skills required to maintain them, and companies may be reluctant to become involved in the process. Increasing household sizes may place pressure on relocation housing; young people may demand an equivalent dwelling when they marry.

Migration

One of the most significant impacts of mining activity is the migration of people into a mine area, particularly where the mine represents the single most important economic activity. For example, at the Grasberg mine the local population increased from under 1000 in 1973 to between 100,000 and 110,000 in 1999.¹⁰ Similarly, the population of the squatter settlements around Porgera in Papua New Guinea (PNG), which opened in 1990, has grown from 4000 to over 18,000.¹¹ With this influx of newcomers, disputes may arise over land and the sharing of benefits. (These were among the factors that led to violent uprisings at Grasberg in the 1970s and the 1990s.)

Sudden increases in population can also lead to pressures on land, water, and other resources as well as bringing problems of sanitation and waste disposal. In San Ramon in Bolivia, for instance, migration led to an increase in land and housing prices and the saturation of public services, including schools. Among the corrective measures taken, the mining company is making extra tax contributions to improve the local school system.¹² And population increases create difficulties in determining the level of facilities required, particularly when the population rises substantially after the initial resettlement planning.

Migration effects may extend far beyond the immediate vicinity of the mine. Improved infrastructure can also bring an influx of settlers. For instance, it is estimated that the 80-meter-wide, 890-kilometre-long transportation corridor built from the Atlantic Ocean to the Carajas mine in Brazil created an area of influence of 300,000 square kilometres.¹³ From a social perspective, such an influx can lead to the build-up of a large mass of people with weak links into society as a whole and a disruptive influence on local social control, leadership, and lifestyles. From the corporate and state perspective, these migrants may be seen as representing an increased security risk and may effectively dilute the value of benefits provided to the host communities.¹⁴

Infrastructure Improvements

There can be significant infrastructure improvements with the construction of a large mine.¹⁵ Most mining operations of any size are served by airstrips, roads, water supplies, sanitation systems, and electricity. If these are restricted to use by the company, and designed solely for company objectives, they may be of little relevance to anyone else. With some advance planning and a willingness to consult with the community, however, these can bring lasting benefits at little or no added cost. And the development of infrastructure may facilitate other forms of economic activity, such as tourism.

Health

In terms of community health, a basic paradox arises. Resources available locally for health services typically increase markedly with the advent of mine development as companies develop facilities for employees and their families. Moreover, employment and increased living standards can bring important nutritional and psychological benefits, and hence better health standards. But these may not necessarily translate

Photograph not shown

into overall improvements in community health if the facilities are not made available to the broader community or if the introduction of new diseases and health risks associated with the mine are taken into account. Relatively isolated communities, including indigenous peoples, may be particularly vulnerable to diseases brought by miners, such as influenza, malaria, and HIV/AIDS. Abandoning traditional subsistence lifestyles of hunting and fishing, and instead buying food from outside, could lead to a nutritionally poorer diet.

A key issue is sustaining health services and benefits in the community after mine closure, which might depend on the approach taken during the life of the mine. Training local health paraprofessionals, for example, might provide higher benefits in the long term than importing contract doctors.

Another constraint is the complexity of causal effects for certain diseases. In some developing countries, it is often difficult to confirm a relationship between mining and the spread of already prevalent diseases such as malaria and HIV/AIDS. (See Box 9-1.)

Finally, some of the detrimental health effects of mining on communities may surface years after mining has ceased. An example of this is found in South Africa, where communities near an asbestos mine that closed in 1968 registered higher incidences of lung diseases several years after the operation ended.¹⁶

Education

As with health, access to educational services and facilities can improve dramatically for communities close to or around large mines, particularly for mines

Box 9–1. HIV/Aids in Southern Africa

In Southern Africa, there is a general belief that the spread of HIV/AIDS is a particular problem within mining projects, due mainly although by no means solely to a migrant labour system in which workers spend months away from their spouses, often living in single-sex hostels with a high prevalence of sex workers. One difficulty in assessing this relationship is the lack of uniformity in statistical evidence. For example, a research report on HIV/AIDS undertaken by ING Barings concluded that mining will be the most affected sector in South Africa, followed closely by transportation and storage. The researchers predicted that about 27% of mineworkers will die of AIDS by 2005. In contrast, a project undertaken by the South African National Union of Mineworkers and a number of mining companies found that the incidence of sexually transmitted diseases is higher in townships than in mining communities. What is evident is that findings differ significantly depending on the population surveyed, since the spread of HIV/AIDS is not uniform through Southern Africa.

Another difficulty in data collection is the lack of acknowledgement of the disease by those infected and their families. This can be attributed to a number of factors, including cultural taboos on the open discussion of sex, the stigma associated with the disease, and a lack of awareness about the link between AIDS and other diseases. Since AIDS manifests itself in the form of other diseases such as tuberculosis and pneumonia, poor health is often attributed to these illnesses rather than AIDS.

Sources: Business Day, 28 December 1999, cited in Elias and Taylor (2001); Ndubula (2001).

in remote areas of developing countries. The mining company is often involved in the provision of educational facilities – either directly or indirectly through the redistribution of revenues by the state or through innovative means such as the tax credit scheme in PNG.¹⁷ Other increases in educational opportunities come through scholarships. These can come in the form of corporate support or through Trust Funds or foundations, such as the Inti Raymi Foundation in Bolivia, which sponsors educational projects, and the Rio Tinto Aboriginal Foundation in Australia.¹⁸ Even though the opportunity to receive income through direct or indirect employment in the mine can act as a disincentive for schooling, education is one of the most significant and lasting benefits that a community can derive from a large mine.

For different reasons – including the recent trend towards streamlining of mining operations to improve efficiency, and the recognition that companies could not provide long-term funding – there has been a tendency to move away from providing services such as housing, schools, and health care for mineworkers and their families, except in remote regions. The privatization of previously state-owned mining companies has accentuated this trend, though declines in social provisions could also result from the continued operation of financially non-viable state-owned mines.¹⁹ In Guyana, the privatization of the Linden bauxite mine brought with it a desire on the part of the new owners to be relieved of the responsibility for most of these services.²⁰

Social Change

The social benefits of minerals development must be seen in the context of the many social problems associated with large-scale mining operations. These mines may be accompanied by the widespread availability and consumption of alcohol, an increase in gambling, the introduction of or increase in prostitution, and a widely perceived breakdown in law and order. Violence, alcohol-induced and domestic, may increase. And, as at the Porgera mine, migrants may encourage traditional forms of violence such as tribal fighting. Of course, many of these processes of social change may be under way already and mining may simply accelerate them. These problems are not restricted to pre-existing communities. Male-dominated mining camps, such as those found in South Africa, often attract prostitutes and may lead to high levels of sexually transmitted diseases. In an effort to overcome some of these problems, mine accommodations are being improved. In South Africa, in areas where the work force can be drawn locally, there is a trend away from single-sex hostels to family accommodation.²¹

Mining activities often involve social tension within affected existing communities. There can be differences of opinion within a community about a whole range of issues. While some welcome a new mine, others may oppose it. While some are satisfied with compensation packages on offer, others will wish for more. While some are reluctant to countenance any change, others will eagerly embrace new business opportunities. Such is the case in Canada, where the small Innu population is currently struggling to come to terms with plans to mine Voisey's Bay nickel deposits in Labrador.²²

Options for Women

Women account for approximately 70% of the world's poor, lacking not only in income but also in access to resources, services, and opportunities in the economy and society.²³ Mining operations are often perceived as widening gender disparities within communities. Women tend to bear a disproportionate share of the social costs and receive an inadequate share of the benefits. Since women often play an important role in reducing poverty at the household and community level, and have the right to equality, this problem deserves serious attention.

In occupational communities, women are more often spouses of mine employees, and are therefore passive recipients of benefits. There are few job opportunities for women in mining communities. Despite the recent development of proactive policies by some labour unions, governments, and companies, mining remains a male-dominated sector. In a number of countries, this is in part due to legislation prohibiting women from working underground, a ban based on contested evidence that such work endangers women's health.²⁴ In some countries, such as South Africa, such discriminatory laws have been repealed, but few women have taken up this opportunity for employment. In 2000, women made up only 2.3% of the work force in the South African mining industry, mainly in jobs traditionally their domain, such as clerical, catering, nursing staff, adult education, and human resources.²⁵ Men continue to dominate mine-related work. Similar imbalances exist elsewhere.²⁶

In some countries, a greater number of women used to work in mining, but their participation in the work force decreased due to increasing mechanization and the resulting bans on female labour. In India, for example, from 1900 to 1935 women accounted for over 30% of the work force in open cast mining in the Eastern Indian collieries, whereas today they represent approximately 6% of total employment in mining and quarrying in the region.²⁷ At the international level, a number of International Labour Organization (ILO) conventions have restrictions for women's involvement in shift work and in underground mines. These include the 1919 Convention on Night Work and the 1935 Convention on Underground Work, although ILO is no longer actively seeking ratification of the latter.²⁸

Increasing female employment at mine sites would bring direct benefits to women and children by

increasing their incomes. It could also contribute to a 'normalization' of mining communities, helping to mitigate many of the social ills, such as alcoholism and prostitution, found in some occupational communities. Clearly, strategies need to be developed for integrating women into the sector. But they need to be realistic: the trend in the mining sector today is towards downsizing the work force.

Change brought on by minerals development can also contribute to an erosion of women's traditional socio-cultural roles. Men involved in mining are well placed to enhance their social position through their access to employment and business opportunities. As landowners, they may also receive a higher proportion of benefits in compensation and royalties. As traditional lifestyles are eroded, the contribution of women to subsistence production may also become less appreciated in a new cash economy.²⁹ Particular attention needs to be paid to the potential impacts on women's land rights, status, identity, and assets.

The lack of job opportunities for women in mines is aggravated by other limiting factors, including the relative isolation of many mine sites, the absence of local markets to support other economic activities, a lack of credit facilities, and insecure tenure, with the provision of homes often being dependent on the employment of spouses. And since women are often responsible for subsistence activities, as farmers, herders, and agriculturists, they are likely to be disproportionately affected by any negative environmental consequences of mining. Further, women face not only the burden of subsistence production on land degraded by mining developments, they may also lose assistance in this task, as the men go to the mines.³⁰

The lives of women in areas hosting migrant workers have been shaped by the sector for generations. In the communities of migrant workers and fly-in, fly-out operations, women are left at home to play a crucial role in maintaining the household economy – supporting families, managing the land, and often receiving only a portion of the wages. Increased incidences of domestic violence and marital breakups can result from the greater stress on family life, with men spending large amounts of time away. In some cases, women may pick up sexually transmitted diseases from partners home on leave. Cases of sexual abuse of indigenous women and girls linked to mining

operations are common, though not often discussed. For instance, an independent inquiry into employees at a Rio Tinto mine in Borneo found ‘cases where local Dayak women and girls had been raped or coerced into having sex’.³¹ Following these allegations, Rio Tinto worked with a local NGO and the Indonesian Human Rights Commission (*Komnasham*) to determine the facts in an open and transparent forum. The company has also engaged *Komnasham* to help raise awareness of human rights issues at the operation.³²

This is not to say that women do not benefit from mining. The provision of services such as water and electricity in occupational communities will reduce the time spent on chores such as walking long distances in search of potable water or firewood for fuel. There are also benefits from improved nutrition and access to medical services, and from the move away from the provision of single-sex hostels towards family dwelling units in some countries – with facilities such as schools in the settlements. These improvements in living standards can have a spill-over effect on gender equity through, for example, enabling mineworkers to send both boys and girls to school. In this respect, however, women are vulnerable to recent changes in the mining sector, including privatization, downsizing, and retrenchment.

Women can also benefit from community programmes within mining communities. Unless gender issues are considered from the outset, however, existing disparities can be reflected in the distribution of benefits. For example, research undertaken by MMSD Southern Africa found that in a community irrigation scheme sponsored by a mining company in Zimbabwe, only 20% of plot holders were women, and these tended to be already powerful landowners.³³ The inequity stemmed from a government policy that plot holders had to have an annual income of Z\$600 (US\$226, in 1990 figures) as well as land in dry fields to exchange with the previous owner of the plot now under irrigation. As land in Zimbabwe is inherited along the male line, the criteria basically excluded single women and widows. Clearly, since women are largely responsible for food security, this particular scheme would have more impact on poverty alleviation if more women had plots of land.

A Cultural and Political Perspective

Mineral development often changes the balance of power within communities. This can be exacerbated by mining companies being unaware of or choosing to ignore traditional decision-making bodies and negotiating with individuals who do not have the trust or support of their own community. Companies have been criticized for using ‘divide and rule’ tactics, which can seriously undermine the social cohesion of indigenous and other communities.³⁴

Large flows of money at the local level can encourage bribery and other forms of corruption, undermining the potential for communities to receive a fair share of the revenues from mining for longer-term investment. This may damage the social fabric and lead to conflicts. (See Chapter 8.)

Conflict in and around mining operations usually stems from poor governance. It is also more likely to take place where the distribution of mineral revenues and benefits are non-existent or perceived to be unjust, or where the community opposes and actively resists any mining activity on their land. Companies or even central governments may have little understanding of the customs and traditions of those living in and around the mines, and may therefore be insensitive in their dealings with local communities, potentially fuelling further conflict. It has been suggested that in a number of cases of conflict involving local communities and mining interests, radical environmental NGOs (often headquartered in a foreign country) have been involved whose primary aim is to contribute to tension in the community through misinformation and fear-mongering.³⁵

In some cases, human rights abuses by police or security forces acting in the interests of the company may occur. A number of complaints recently brought to the Community Aid Abroad Mining Ombudsman concerned Australian companies operating in various developing countries who had been removing people, sometimes violently, from their land or homes. In some instances their houses, mining equipment, or other assets have been destroyed.³⁶

Mining activities can cause considerable disruption to local cultures, especially when the operations occur, as is increasingly the case, in areas occupied by indigenous

people who have had little contact with the outside world. While some of the ‘western’ values imported by the mining company and its workers may be admirable or suitable, this is by no means always the case. Cultural clashes may occur, with deep-reaching destabilizing effects on traditional ways of life.

Often the very activity of mining and its accompanying infrastructure can strike at the heart of indigenous culture. For example, the construction of the infrastructure for the proposed Voisey’s Bay project in northern Labrador is likely to threaten the migration of caribou. Caribou cows with their calves tend to avoid noisy areas such as roads and pipelines. The herds are therefore likely to be cut off from some of the best habitat for food and growth, potentially damaging their health and productivity. The pattern of extended seasonal migration to hunt for caribou is central to the subsistence of the Innu people and incompatible with full-time wage labour, and caribou play a crucial part in the social, cultural, and spiritual beliefs of the Innu.³⁷

Some local cultural traditions and practices decline, or their significance alters, which may be particularly lamented by older members of communities. In many cases traditions may have already been in decline as a symptom of general modernization. At some locations, companies may deliberately intervene and try to support cultural institutions or events. At the Red Dog mine in Alaska, indigenous peoples have negotiated flexible working hours to accommodate their needs to return to their communities to hunt and fish, with a Subsistence Committee that plays an important role in environmental protection. One of the committee’s first tasks was to select a route for the 85-kilometre road from the mine site to the port that would largely avoid important caribou migration paths, fish spawning areas, and waterfowl nesting sites.³⁸

A related cultural issue is that of geographic boundaries between groups. Borders that may have been fluid may become more precise and fixed as they become critical to obtaining benefits from a development. This can lead to the recognition of some rights to the exclusion of others. A group with traditional rights to hunt in an area, for instance, may not have this recognized in the distribution of benefits from a mine if there are groups with a more complete set of rights (such as residence) to the area.

An Environmental Perspective

Much of the environmental damage caused by mining affects local communities, most significantly in terms of their livelihoods and health. Environmental health problems may become evident not just close to the mine, but some distance away.

Overburden, waste rock, tailings dams, buildings, roads, airstrips, and so on – as well as immigration of population and increased human activity – all create considerable change in local environments. (See Chapter 10.) This may lead to loss of biological diversity, including plants and animals important to peoples’ livelihoods, such as cultivated land or pasture for livestock. The changes may affect land used by indigenous people for hunting and gathering, shift cultivation, or adversely affect forests that yield timber and a wide range of non-timber forest products such as game, resins, dyes, vegetables, and medicinal plants. The destruction of habitats fostering traditional herbal and medicinal plants can also weaken indigenous people’s autonomy and identity, not to mention their health. Noise from mining operations can be a problem for nearby settlements. For example, the heavy vehicle traffic around mining operations can also disturb surrounding ecosystems and climates.

In dry climates, dust from mining operations, traffic, and waste impoundments can be extremely problematic. If dust suppression methods are not rigorously applied, fine particles can easily be inhaled. At times the dust may contain deleterious substances, such as metals. A common complaint, for example, is clothes getting covered with dust while they dry. In extreme cases, the dust can cause respiratory distress.

Problems caused by dust pollution are also of concern in the smelting phase of mining. In a study in Mexico, researchers assessed the level of lead exposure in children aged 6–9 attending three primary schools who lived near a lead smelter. They concluded that soil and dust ingestion and inhalation were the main routes of exposure, and that environmental contamination resulted in an increased body burden of lead, suggesting that children living in the vicinity of the smelter complex were at high risk for adverse effects of lead.³⁹

Mining operations often require vast quantities of water. This can create a number of changes in the supply and quality of water for other uses. Besides

damaging biodiversity, water depletion may also destroy or reduce fish stock, depriving local people of a vital source of food and, possibly, livelihood. Mining operations can contaminate surface and groundwater through acid drainage, chronic leaks from waste impoundments, or direct disposal of waste in water bodies. Water contamination can result in important pollution legacies years after mining operations cease. (See Chapter 10.) Domestic uses of contaminated water for cooking, drinking, swimming, and washing can have health impacts. The contamination of water may contribute to the build-up of toxic chemicals in fish and in those who consume the fish.

Other changes in water systems can greatly affect communities, particularly when large amounts of waste are dumped in rivers or along shorelines. Rivers can widen and become impossible to cross, for example, or become shallower and difficult to navigate. Riverbank land can also flood and be lost. Bays and shorelines can be altered, as happened in Chanaral, Chile, where an artificial beach was created by mine waste smothering port installations and ocean fauna, affecting local fishing patterns.⁴⁰ And in Bougainville, local communities believe that an increase in malaria throughout the province was caused by an increase in the area of marshland created by mine tailings blocking river tributaries.⁴¹

Another environmental impact of mining is an unintentional one: mine-related accidents of various kinds. Such accidents can have serious consequences for communities. For example, in 1998 a truck delivering to a mine in Kyrgyzstan spilled two tonnes of sodium cyanide into the Barskoon River. It was alleged that more than 1000 people who drank the affected water were hospitalized.⁴² The company claimed that the numbers were inaccurate, and that ill effects were caused by the chemicals used by the government to treat the spill. One of the most publicized accidents occurred in the Philippines in 1996, when the concrete plug sealing a drainage tunnel at the Marcopper mine burst. Up to 4 million tonnes of mine tailings poured into the Boac River. A month later, a UN team declared the river biologically dead. Besides destroying all aquatic life, the spill affected more than 20,000 villagers who lived along the riverbank.⁴³

Maximizing Mining's Contribution to Communities

If mining operations are to help communities work towards sustainable development, the communities need to be able to participate effectively in the decision-making processes for establishing and running the operations, in order to avoid or minimize potential problems. Moreover, the relationships between the community and other actors, including the company and government, need to be ones of collaboration, trust, and respect. It is obvious that the benefits brought and enabled by mining must be maximized and the negative effects avoided or mitigated. Furthermore, the benefits need to be shared equitably within communities and sustained after the life of the mine. The actions of companies and governments need to reflect cultural sensitivity and relevance.

Evidence gathered during the MMSD Project shows that while many examples of good practice exist, the current situation often falls far short of these goals: local communities all too often do not participate in decision-making or in guiding the impacts of mining, bear a disproportionate share of the costs of mineral development without adequate compensation, and receive an inappropriately small share of the economic and social benefits.

The complexity and diversity of communities presents a particular challenge, as do trends towards downsizing in the industry, increased technology, reduced direct employment, and weaker economic linkages. Another is ensuring that the goals and means of achieving sustainable development are defined by the community. Perhaps the greatest challenge, in light of the power imbalances, is determining who is responsible and accountable for realizing developmental choices and outcomes at the community level, and how this accountability is best administered.

Widespread community demands for relevant, direct, and sustained benefits from mineral wealth are a relatively recent phenomenon, so frequently neither government institutions nor companies or communities themselves have been properly equipped to respond to them. Governance structures, particularly in developing countries, are often inadequate to ensure that communities receive a fair share of the benefits

that could be put to equitable and sustainable use. If governance structures are weak and unrepresentative, so too generally is the legal framework regarding citizens' rights and the protection of the public good. (See also Chapter 14.) This challenge cannot realistically be met by individual companies acting alone.

Matters are complicated in the short term by the process of decentralization occurring in some countries. Local governments are becoming important actors as they take on many of the roles previously left to central government. Yet in many developing countries local governments are weak and ineffective; others are unrepresentative. Agreements negotiated solely between them and a mining company may not be recognized as legitimate by local people. At an administrative level, local governments often do not have the capacity for effective management of the collection and distribution of revenue, let alone the capacity to respond to issues such as the need for an integrated land use policy with a long-term perspective.

As became evident in the MMSD workshops on managing mineral wealth, in such situations communities often turn to the operating companies, which have found themselves providing development services to obtain or to maintain their social licence to operate. Traditionally, these services tend to have been provided in a paternalistic manner, leading to dependence on the company and a situation in which benefits cannot be sustained when the mine closes.

A new relationship is beginning to emerge, based on recognition of the rights of communities and the need for community participation in decision-making. Moreover, new initiatives seek to avoid the company assuming the role and responsibilities of government, but rather focus on improving the capacity of local government and other local institutions to deliver mine-derived benefits over the long term. It is increasingly recognized that non-governmental organizations (NGOs) and other civil society groups can also act as independent mediators, facilitating the flow of information to and from communities and implementing actions in partnership with companies and government. This approach centres on establishing a formal relationship with local people and their representatives and being guided by their needs and priorities – in effect, trying to work well with formal and informal local governance structures.

The work undertaken by Business Partners for Development (BPD) provides useful lessons on local partnerships. This project-based initiative studies, supports, and promotes strategic examples of partnerships involving business, civil society, and government working together for the development of communities. The Natural Resources Cluster of BPD – co-convened by BP Amoco, WMC Resources, CARE International, and the World Bank Group – has five pilot projects to develop guidelines, systems, and structures for dealing with community issues and mitigating risk by optimizing development impact on host communities.⁴⁴

There is much talk about the potential costs of sustainable development. At the local level, however, working towards sustainable development need not imply increased costs. It is often about doing things in a better way rather than doing more. It requires investing more time in proactive processes, but often less on physical investments. Mistakes that are made should be shared and used as a basis for learning rather than ignored.

The remainder of this chapter suggests mechanisms for maximizing mining's contribution to communities, including mechanisms for redistributing revenues from the national to the local level, promoting the role of women, providing services and infrastructure to local communities, maximizing local employment and the contracting of local businesses, developing skills and diversifying the economic base, resolving conflicts, planning for mine closure, and ensuring the capacity of a community to participate effectively in decision-making.

Revenue Distribution and Use

Traditionally, all taxes and royalties from mining operations have gone to the central government, and the only benefits from equity that communities could expect to receive were those that trickled down through central government spending. This is not to say that money has not been used to the benefit of communities when collected at the national level through, for example, the establishment of funds or investment in services such as education.

In many countries, this is now changing, and negotiations and agreements increasingly include communities and regional or local authorities receiving

a share of the revenue. A proportion of rents should, of course, continue to go to central government to ensure that the benefits from the mining of national resources are distributed equitably throughout the country. The amount going to a local administrative structure should be part of an agreement involving the central government. (See also Chapter 8.)

Recently, attempts have been made to redistribute some of the benefits to the local level through changes in policy and legislation; such changes have taken place in a range of countries, including Bolivia, Canada, Colombia, Indonesia, the Philippines, PNG, South Africa, and Venezuela. In the Philippines, for instance, mineral royalties prior to 1995 went directly to central government, which generally failed to distribute a significant share to the provinces. Following a new mining law in 1995, local governments benefit in three ways: 40% of the excise tax goes to local governments, local governments can impose a real estate tax on mining companies, and mining companies must donate 1% of their operating costs to a social development plan that is used in local communities.⁴⁵ Changes such as these have achieved varying degrees of success. In some cases implementation is hindered by the vagueness of policy. In the Southern African Development Community (SADC), for example, most member countries' mineral policy reforms are not explicit in terms of the relationship between mining projects and communities near mine sites.⁴⁶

Even where policy is explicit, bureaucracy may hamper reform where, for example, numerous government ministries remain responsible for decisions. In the case in South Africa, although the government has embarked on policy and legal reform, weak local governance and complex fiscal disbursement mechanisms at the national level have made it difficult for communities to obtain funds. The Public Finance Management Act of 1999 governs disbursement of funds to municipalities. It requires agreement and consultation from the Ministries of Finance and of Provincial and Local Government before the Minister of Minerals and Energy determines that any community or local government may receive a payment from mining royalties. The act specifies that the funds disbursed to municipalities should be paid into a Local Economic Development Fund administered by the national Department of Provincial and Local Government.⁴⁷

In some cases the capacity to implement policy reform simply does not exist. In others, a lack of institutional capacity and transparency at the local level may constrain the development impacts of revenues directed to local administrations. Such attempts do not always fail, but they may be hampered by certain weaknesses. (See Box 9–2.) In Peru, there is legal provision for the distribution of revenues to the

Box 9–2. The Mineral Development Fund, Ghana

Mining companies in Ghana produce gold, diamonds, manganese, and bauxite, and they pay the government both a corporate tax (at 35%) and royalties that range from 3% to 12%, depending on profitability in a given year. In addition, they give the government a 10% equity stake. This revenue all goes to the central government, however, since mineral ownership in Ghana is vested in the President.

As a way to redistribute some of this income, the government in 1993 established a Mineral Development Fund. This is replenished by 20% of the mining royalty payments (which in 2000 corresponded to 8% of the government's total mineral revenues). Half of the fund goes to the Mines and Geological Survey Department and the Minerals Commission to support special projects. The rest is distributed in the mining areas for projects to mitigate the effects of mining – 25% via the district assemblies and the rest to communities.

Although most people agree with the principle of the fund, there is considerable dissatisfaction with the way it is working. The mining sector institutions say that the monies are often delayed, which affects their budget planning. The district assemblies also complain of delays, and argue that they should get a larger share since the traditional authorities are not using the money to benefit the communities. The communities say that the funds are useful but inadequate. The companies welcome the fund since it takes some of the pressure off them, but also say the traditional leaders are misusing the money.

The fund clearly has a number of weaknesses. It has no formal legal backing and does not seem to be making a visible social contribution. At an MMSD Workshop on Managing Mineral Wealth, it was suggested that to move forward the fund should be covered by an Act of Parliament and supervised by a board of trustees. Also its objectives should be more clearly defined to include the creation of alternative livelihoods, and the companies should take an active part in supervising use of the money from the fund.

Source: Mate (1998); Manu (2001).

regional and local levels, but until recently regional governments received no information on how much revenue they were to obtain, and mining revenues were not being returned to the mining area by national governments.⁴⁸

In some countries, local administrations are bypassed and the money is distributed directly to communities. Several mineral-rich countries and regions have established investment funds whose purpose is to spread some of the wealth derived from mineral operations across a broad swath of the population. One of the more successful has been the Alaska Fund established in 1976 – 25% of all oil and gas revenues in the state were deposited in the fund. The money there cannot be withdrawn, and since it was established the fund has grown to over US\$25 million. A dividend scheme ensures that every citizen of Alaska receives an annual cheque, amounting at present to around US\$2000.⁴⁹ Needless to say, this fund is extremely popular.

In Australia, Northern Land Council exploration licence agreements usually provide for traditional Aboriginal owners to achieve an equity position of around 5% in any project developed as a result of exploration on their land. There may also be provisions for the developer to help owners increase their equity if mining proceeds through, for example, an interest-free loan or an issue of equity financed from royalty income foregone by traditional owners.⁵⁰ (See Chapter 7 for land use agreements and impact benefit agreements.)

Ideally, revenue distribution should be decided through equitable decision-making structures involving representatives of the affected stakeholder groups. A successful example is the Development Forum in PNG, which is based on a participatory approach to decision-making – involving government, company, and local community representatives. The Development Forum concept was incorporated into the 1992 Mining Act. The outcomes took the form of three Memoranda of Agreement among the landowners, the provincial governments, and the national government. They cover issues such as the provision of infrastructure, the delivery of government services, local staffing, the breakdown of royalty payments, funding commitments, and the provision of equity for local communities and provincial governments. To date, the Development Forum has functioned well and has been instrumental in achieving a higher level of participation by local communities.

It has also secured a greater level of community support for mine development. Further refinement of the memoranda could provide a greater focus on sustainable development for local communities.⁵¹

A further challenge relates to the way in which benefits are best distributed within communities. Once a mine starts operating, the range of economic and social influences begin to play out in an uneven way between and across communities. Past experience has shown that there may be winners and losers within communities. Even traditional decision-making procedures, such as public negotiations between kinfolk, may be ill equipped to deal with the influx of large sums of money. New structures and guidelines may be required to handle the distribution and sustainable use of compensation and other monies. Communities can bear some responsibility as to whether inequalities are strengthened or weakened. For instance, Aboriginal organizations in Australia have sought changes to Queensland's Aboriginal Land Act 1991, which, by creating a hierarchy among categories of people in terms of the nature of their affiliation to land, increases the possibility that royalty payments will exacerbate inequalities in indigenous communities affected by mining.⁵² At the same time, Marpuna community members on Cape York have sought to develop structures to distribute equitably royalty from a new mine on their land, regardless of the provisions of the Aboriginal Land Act.⁵³

In many respects, the central issue is less about how much is received than about how it is used – how should this revenue best be spent to contribute to sustainable development? In PNG, for example, the bulk of compensation is paid in cash, and ample evidence suggests that much of the revenue is spent or invested outside the area. Researchers looking at Porgera estimated that just 5–10% of compensation payments were invested, 20–25% went into business developments (most of which quickly failed), and 65–75% had been used (or redistributed and then used) within Porgera or distributed to people outside the area.⁵⁴ Much of the cash flowing to individuals is distributed widely among community members. While this helps spread the economic benefits of the mine, smaller amounts of cash are likely to be used quickly, which works against the longer-term accumulation of assets there.

The incorporation of mining into local and regional development plans can assist in sustaining benefits and

ensuring a diversified resource base. Where such a plan does not exist, it should be developed through some form of multistakeholder forum. If government capacity is lacking, an NGO or other independent third party should be responsible for administering the work. The plan should be revised and assessed at predefined intervals throughout the life of the mining operation.

In summary, the redistribution of wealth from national to community level can be facilitated through policy and legal reform. Ideally, the share of revenue received by the community should be determined through a democratic process and incorporated into initial agreements between governments and mining companies. The design of policy, regulations, and agreements must reflect the capacity to implement them. In the short term, where there is insufficient government capacity to distribute revenue, the best option is to take a collaborative approach, where companies and NGOs work with government and at the same time build local administrative capacity. In the long term, the aim should be that a local administrative structure take over the role of redistribution. Alternatively, revenue can be redistributed directly to communities through equity payments or investment funds.

Gender Disparities

The impact of mining on women has been exacerbated by the failure to identify them as a distinct group of stakeholders in the planning and operation of mine sites and to establish trusted means of communication. This clearly needs to be redressed. One difficulty is the emphasis on consulting and channelling information to community leaders, who are invariably male.

Photograph not shown

Women's interests are typically subsumed into wider interests. Field research undertaken at an operation in Zimbabwe for MMSD Southern Africa's Gender and the Mining Community Report highlighted difficult relationships between the mine management and women living in the mining community. Although channels of communication existed, the women felt threatened by the presence of men throughout the hierarchy. Women were also reluctant to speak up and raise concerns in case they jeopardized the employment conditions of their spouses. The perception of poor communication was not shared by the mine authorities.⁵⁵

Mining can provide an opportunity for reducing gender disparities through direct and indirect employment and through access to project services. During the operational phase, women can benefit from a parallel process of encouraging diversification in the local economy and skills development. This would also help to cushion the shock of current downsizing.

National and international organizations have adopted gender-specific policies. For example, the SADC Heads of Government Declaration on Gender states that 'the integration and mainstreaming of gender issues into the SADC Programme of Action and Community Building Initiative is key to the sustainable development of the SADC region'.⁵⁶ Similarly, the SADC Women in Mining Trust's area-wide commitment to achieving gender equality provides an enabling environment for setting targets and achieving substantive change towards greater women's participation in the regional mining sector.⁵⁷ The challenge is to translate policy into practice.

In some cases, conscious efforts are made by companies to address the needs of women. For example, in Zambia companies provide neo-natal health care for women in occupational communities.⁵⁸ In La Oroya, Peru, the *mineras* (miners' wives) broke the cycle of unemployment and poverty by starting small businesses, following the establishment of a community bank that lends money to women.⁵⁹ Such efforts need to be replicated where possible.

To conclude, mining has the potential to act as a catalyst for the improvement of women's economic and social situations. Gender considerations need to be mainstreamed so that the effects of mining projects on women and opportunities provided by them are fully considered:

- Governments need to develop national gender-specific policies to, for example, encourage appropriate access to credit and landownership for women. NGOs and companies will need to play a role in translating these into practice.
- Companies should also develop gender-specific policies, including recruitment and skills-development strategies for women, which could be developed in partnership with governments, trade unions, and NGOs.
- The formation of loose associations, cooperatives, and savings clubs among women could be encouraged and resourced by companies, government, and NGOs.
- The basis for legislation restricting women's work in mines needs to be examined using current scientific evidence, and legislation should be amended accordingly.
- Women should be given the opportunity to be fully involved in decisions concerning the interaction of the mine with their community. Gender-sensitive channels of communication between women and mine personnel need to be in place. Female employment at all levels can assist in this, as can the sensitization to gender issues of male employees and both men and women within the community. The way to achieve this should be determined on a case-by-case basis and guided by the women in the affected community.
- Specific measures should be put in place to monitor and evaluate the gender performance of operations during the different phases of mine life through to post-closure.
- Finally, there is a dearth of literature on women and large-scale mining settlements. Further research is needed to address the concerns of women affected by mining.

Projects, Funds, and Foundations

During the past decade, many mining companies – often in collaboration with governments or other groups – have established programmes to ensure that communities share the benefits of mineral development. These have been set up prior to the opening of a mine or in reaction to dissent among affected communities or to criticism from NGOs and others.

At Porgera, the company employs more than 100 community development workers.⁶⁰ At the Antamina

mine in Peru, the company has developed a Sustainable Development Plan with the UN Development Programme, which is thought to be the first of its kind within the industry.⁶¹ The plan is still in its early stages, with recognition of the need to be realistic about capacity requirements.

Where provincial and local government capacity is too weak to deliver services such as roads, health, and education, infrastructure tax credits have proved a useful instrument. The Bolivia Mining Code, for example, permits companies to invest in community infrastructure and to offset this against tax liabilities.⁶² At the MMSD Workshop on Managing Mineral Wealth, concern was expressed that infrastructure tax credits may undermine government capacity and may not be an ideal long-term solution.

Companies have often used foundations to address governance issues, particularly with respect to corporate social investments. Some foundations rely entirely on company money; the more successful ones have been able to attract interest from external donors. This is important for ensuring independence and for the sustainability of foundations after the mines close. The nature and success of foundations vary considerably, however. (See Box 9–3 for two examples.)

The lessons from the experiences to date of several tax credit schemes, funds, and foundations are clear:

- These are useful mechanisms for ensuring that communities derive benefits both during and after a mine's life.
- Companies should ensure that their financial contributions to foundations are fixed and transparent. Ideally, funding should not detract from government spending.
- Where foundations, trust funds, and infrastructure tax credits are used as an alternative to redistribution of benefits through government, this should be made explicit.
- Foundations and funds should be managed by an independent structure to ensure trust and institutional sustainability, or at a minimum should be overseen by a board of directors representative of the different stakeholder groups. In the medium to long term, alternative financing mechanisms would strengthen the likelihood of the funds being sustained. Ideally, governments or NGOs should take primary responsibility.

Box 9–3. Company-Sponsored Foundations

In Namibia, the Rossing mining company created the Rossing Foundation in 1979. The foundation is overseen by an independent Board of Trustees and is financed through donations from the earnings of the Rossing Mine. The company contributes 3% of its net earnings to the foundation, and by 1996 it had invested US\$25 million. It is estimated that more than 15% of Namibians have benefited from the activities of the foundation.

The Rossing Foundation's principal objective is to improve the living conditions of Namibians through activities such as informal education and training, a library network, and assistance to self-support programmes in the rural communities, particularly in the artisanal sector. The policy is to create projects principally in regions where Rossing employees were recruited.

The activities of the foundation have grown enormously since 1990, and it is now an internationally accepted organization that between 1994 and 1996 administered US\$10 million from other donors, including the World Bank, the European Community, and the US Agency for International Development. Strategic areas of investment are in line with government policy and accepted by the community. Key to the foundation's success is a bottom-up, participatory approach to decision-making and the priority given to the development of trust among all participants.

In Bolivia, the Inti Raymi Foundation, set up in 1991 by the Inti Raymi Corporation, also attempts to facilitate development in the region surrounding a mine and characterized by poverty. It supports development of the region through training and education and through support to agricultural production, housing and water supply, reforestation, health, infrastructure, and artisanal activities. Although in relative terms the efforts to maintain a good relationship between the company and the community are considered to be positive, a number of problems have been identified:

- There is a lack of information and transparency on the part of the company and foundation.
- Communities have not been involved in decision-making processes and, as a result, several projects have failed.
- The staff at the foundation changes frequently.
- The company uses its investments in the foundation to reduce tax payments, so the state is subsidizing the foundation.

Source: McMahan (1997).

- Mechanisms should be designed in a way that bolsters rather than undermines government capacity.
- Effective community participation in decision-making and throughout all stages of the project is essential to the success of sponsored projects.

Supporting Small Local Businesses

A number of companies have adopted preferential procurement policies towards local suppliers and distributors. Many of these are increasingly enforced through provisions in national policies and legislation concerning foreign direct investment through, for example, joint ventures, partnerships, and outsourcing as a way of localizing multiplier effects.

For instance, in 1998 Hamersley Iron (a subsidiary of Rio Tinto) opened a mine at Yandicoogina, in Western Australia. The mine is on lands to which various Aboriginal peoples of the Banyjima, Yinhawangka, and Hyiyaparli language groups have Native Title claims. Prior to establishing the mine, Hamersley entered into lengthy negotiations with the Gumala Aboriginal Corporation, which was expressly established to represent Aboriginal interests. The result was the Yandicoogina Land Use Agreement, signed in 1997. Negotiations took 18 months, and an external mediator was used throughout.⁶³

The agreement provides the Aboriginal peoples with benefits of more than A\$60 million (US\$46 million) over 20 years in the form of long-lasting community development, training, employment, and business opportunities. Gumala Enterprises Pty Ltd (GEPL), the business arm of the Gumala Aboriginal Corporation, launched three new enterprises after signing the agreement – an earthworks business, a catering and servicing company, and a business hiring equipment and fuel supplies. The first two are operating successfully, and have contracts with Hamersley and other major employers in the area. GEPL now employs 100 people and has significant Aboriginal representation.⁶⁴

Similarly, in an effort to promote local economic development, AngloGold has implemented a programme for small enterprise development in South Africa. The company sources a substantial proportion of purchases from small firms, awarding tenders on a competitive basis. At each operation, outsourcing opportunities are organized through Small Business

Committees, which provide a platform to receive and generate new business ideas and to screen new business proposals. AngloGold also provides non-mine opportunities to small businesses. Associated with this quest is a package of assistance that includes services such as management and technical assistance, venture capital, loan finance, bridging finance, loan facilitation, and joint ventures.⁶⁵

In conclusion, supporting local businesses provides an important means of benefiting communities and building human and financial resources. Preferential procurement policies towards local suppliers and distributors should be incorporated into mining agreements and company policy. Local procurement should be accompanied by skills development and, ideally, the identification of additional economic activities, in order to reduce the community's dependence on the mine.

Employment and Skills Development

One way that projects can contribute to sustainable development is by building human capital through direct training and education of the work force. As the industry has moved to smaller and more specialized labour forces, there are concerns that opportunities for a large number of semi-skilled jobs may further decrease, with yet fewer employment opportunities for local people. While it is still possible to hire and train individuals, it may take some hard targets to which managers are held accountable to increase the percentage of local labour slowly as training programmes qualify them for work. At Escondida mine, 80% of the 2000 permanent staff have been hired locally.⁶⁶ As with the support to local businesses, this requirement is increasingly stipulated in national law and policy.

Better still is to provide employees with the opportunity to become shareholders in the company. In South Africa, for example, Employee Share Ownership Participation Schemes are seen as important vehicles for the participation of employees in the management of existing mining companies.⁶⁷

The Red Dog mine in Alaska provides another example. It is the largest zinc mine in the world, operating under a lease with NANA Regional Corp, Inc., an Alaskan native corporation. The mine is located in Alaska's Northwest Arctic Borough, which has a

population of around 6800, mostly Inupiat peoples, known as shareholders. The mine is the principal industry in the borough. The Red Dog Operating Agreement includes commitments to provide training and employment for NANA shareholders. It also stipulates that NANA will receive an increasing share of profits over the 40-year life of the mine.⁶⁸ Currently, Red Dog and its major contractors employ 630 people, of whom 62% are NANA shareholders. The original agreement forecast that 100% of employees would be NANA shareholders by 2001, but it has been difficult to find enough skilled employees in such a sparsely populated region. To encourage NANA shareholders to work in the mine, the company has introduced flexible working hours so that people can still find time for hunting, berry-picking, and other subsistence or traditional activities during Alaska's brief summer months. While NANA strives to improve educational standards in the borough, Teck Cominco, the parent company, has provided training and scholarships to students interested in pursuing a career in the mining industry.⁶⁹

Employment of local people is often constrained by a shortage of skills within a community – large mining operations should be seen as significant opportunities for workers and other members of local communities to develop skills. In many countries, legislative provisions govern requirements for skills development in companies.

In South Africa, private-sector human resource development initiatives have broadened the scope beyond the technical skills development of individuals and entrepreneurs to include training programmes for young people and women.⁷⁰ In 1999, the Escondida mine in Chile established a specialist training centre, the Centro Técnico Escondida (CTE), that helps develop the occupational skills required in mining and heavy industry. CTE offers multi-year apprenticeships in areas of key industrial need; hundreds of workers, from both the Escondida mine and others, have benefited from its programmes.⁷¹

A number of conclusions can be drawn. The employment of local people is essential and should be incorporated into mining agreements and company policy. If skill levels in the local community are not sufficient at the outset, a staged approach to employment may be necessary, complemented by skills training.

For employment schemes to have long-term success with indigenous, tribal, and other marginalized communities, it is essential that specific language and cultural requirements be accommodated. Local people should be trained and given the opportunity to hold senior managerial positions, not just the lowest-paid manual jobs. There should also be cultural awareness programmes, not just for mine managers but for all employees, particularly if there is a prevalent culture of racism against local employees.

Skills training should not be limited to workers but should be extended to the community as a whole. The design of programmes should consider the need for alternative economic activities to support the community during and after the life of the mine. Skills development should be linked to educational trusts to ensure that opportunities continue after the mine closes.

Retrenchment

Some initiatives are more directly geared towards the concerns of workers who lose their jobs, in terms of providing psychological support and helping them develop skills or seek new employment. One example is the Care retrenchment project in Southern Africa. Between 1990 and 2000, 360,000 mineworkers lost their jobs.⁷² This has had a major impact on mining communities, especially in remote areas and among communities that have been almost entirely dependent on the income from mining. The impact of retrenchment can be far-reaching, as each migrant mineworker usually supports many dependents at home.

Against this background, the Care Project was launched in 1999. In April, Placer Dome Inc purchased 50% of the South Deep mine in South Africa. For the mine to be economically viable, major retrenchment and modernization were required. This involved laying off 35% of the work force (2560 workers) over four months. The Care Project was set up to help retrenched mineworkers develop new skills and find jobs elsewhere. Its initial aim was to provide support and assistance so that 70% of retrenched employees (or a nominated family member) would become economically active by the end of 2001. The project also sought to help develop infrastructure and expertise to run an HIV/AIDS programme.⁷³

Traditionally, mining companies provided retrenched employees with a small cash severance and a three-

month training period. The company initially provided this package, but it was deemed inadequate. A team of over 20 trained field workers met one-on-one with retrenched employees and their families to counsel and advise on project benefits. In addition to providing skills and vocational training, the project also seeks to enhance the institutional capacity of the Mineworkers Development Agency and The Employment Bureau of Africa. Geographically, the Care Project covers rural communities in Mozambique, Lesotho, and Eastern Cape Province in South Africa, where most workers and retrenched live.⁷⁴

Though it may be too early to assess the impact of the Care Project, the challenges facing it are not unique in rural development. Any process to enable retrenched people (or nominated family members) to create their own jobs or find an alternative one is likely to be fraught with constraints, such as dispersed or unavailable markets, infrastructure, and cultural barriers.

An alternative to seeking new forms of employment in home communities is for retrenched workers to work in other mines. A particularly interesting initiative of the Misima Mineworkers Union has been to establish a joint venture with Placements Ltd (an Australia-based recruitment agency) to find employment for Misima workers.⁷⁵ Its rate of success is not yet clear; initiatives of this kind may also be restricted by local procurement policies.

In summary, efforts to assist retrenched workers will be of limited success if initiated only when retrenchment is a reality. Some companies are now finding that the best approach is to discuss these issues frankly and openly with their employees and others in the local community, as this allows all the actors to use their knowledge and judgement to make the best decisions they can, which may ease the shock of closure and retrenchment. Skills development and savings schemes should be geared to maximizing the possibilities of workers finding alternative sources of employment or returning to their previous employment. Workers should also be involved in designing assistance schemes relevant to their needs.

Conflict and Dispute Resolution

Disputes and conflict between communities and mining companies, government, or other actors, as well as within communities, can be largely avoided if the

interactions between the mine and community start on the right basis and are managed appropriately.

Conflicts and tensions may arise and they should preferably be resolved through open dialogue among all stakeholders. In some cases, not all the parties are willing to enter into dialogue, or the dialogue is perceived to be conducted under unreasonable conditions. When the situation reaches an impasse, it may require the intervention of a third party to avoid escalation, such as a lengthy legal action or possibly violent confrontation.⁷⁶

An example of third-party intervention is provided by the Oxfam Community Aid Abroad Mining Ombudsman, established in February 2000.

Its aims include assisting communities in developing countries where basic human rights are threatened by the actions of Australia-based mining companies, by raising their cases directly with the companies concerned in Australia to get a fair, negotiated resolution; assisting communities to understand their rights; and helping ensure that the Australian mining industry operates in a way that protects the basic rights of landowners and affected communities.⁷⁷ The Ombudsman receives complaints from communities and landowners through the organization's networks in Asia, the Pacific, Africa, and Latin America. All claims are validated through on-site investigations and then taken to the company concerned, for initial response and resolution. The Mining Ombudsman may or may not mediate the negotiation process leading to resolution.

Although each case is unique, the grievances of landowners and affected communities can be loosely grouped into four areas: loss of land, loss of individual and collective sustainable livelihoods, degradation of the environmental and natural resources, and human rights abuses. In nearly all cases, the root problem lies in the denial of some basic economic, social, or civil rights of the affected groups or individuals. This is particularly so where government does not adequately respect these rights.⁷⁸ (See Chapter 14 on dispute resolution.)

Disputes may also arise within or between communities as a result of the changes brought about by mining, such as the changing balance of wealth and power of individuals or subgroups. A recent study at the Porgera mine in PNG suggests resolving

Photograph not shown

community conflict through increasing intergroup cohesion and trust. When 'connections' are reinforced – such as shared values and aspirations or membership of groups, like churches and youth groups – people find ways of tolerating differences and working together on common problems. It also suggests how impacts from mines can be managed to encourage rather than discourage community cohesion, through, for example, the development of cross-community enterprises that depend on each other for success or the investment of revenues in services, and funds that benefit the community as a whole.⁷⁹ Finally, the study demonstrates that improving understanding and the ability to identify how mining activities affect conflict dynamics will help everyone recognize appropriate options to reinforce community stability.

Community Health Initiatives

Traditionally, companies have provided health services to employees and their families, such as hospitals and health care centres with modern equipment and professional, often expatriate, staff. Particularly in poor communities, such infrastructure has generally reflected an inadequate understanding of local needs and expectations, as well as a lack of consideration for its ability to be sustained after the mine closes.

Furthermore, beyond work-related diseases, there have been few endeavours to prevent diseases that affect the wider community, such as sexually transmitted diseases or malaria, or to consider the broader well-being of the community. On the whole, company involvement in community health issues has been reactive rather than pre-emptive.

Although traditional approaches still prevail, a number of companies are taking steps to reflect better the needs of local communities in the design of health care and to assist in the provision of health services to local communities more broadly. In October 2001, for example, Anglo American won the Commonwealth Award in recognition of its exemplary work in prevention and management strategies in relation to HIV and malaria in South Africa.⁸⁰ Such approaches are essential to addressing sustainable development in a comprehensive manner. This is particularly so where mining may contribute to the spread of a disease or where a disease is prevalent among mine workers and the local community, as in the case of HIV/AIDS in Southern Africa.⁸¹ In addition to accidents or the spread of diseases, the effect of the mining operation on broader community well-being needs to be addressed – including its psychological impacts as well as changes in diets and lifestyle brought about by mining.

Communities, too, can take the initiative. One example of local community-initiated action, concerning the harmful effects of the manufacture of a mineral product, is a study of blood lead levels of Nicaraguan children living near a battery factory. In response to requests by parents in Managua, whose neighbourhood bordered this plant, 97 children were tested for blood lead, as were 30 children in a neighbourhood without an obvious source of environmental lead. Children living near the battery factory were found to be at increased risk of lead poisoning, and this enabled the parents to petition the government to control the factory emissions and to improve appropriate health services, with the resultant closure of the factory.⁸²

For companies, there is a strong business case for more of a pre-emptive approach; not only can this enhance reputation and improve relations with the local community, it can also save money. For example, the benefits of implementing child survival services at a private mining company in Peru were described in one study. Despite considerable outlays for medical services, few children under age 5 were vaccinated and half of their illnesses went untreated. Following a study demonstrating these shortcomings, the company hired additional staff to provide integrated maternal-child preventive health care and family planning, and contracted for intensive training and periodic on-site supervision. In less than two years, vaccination coverage reached 75% and virtually all children under age 1 were enrolled in growth monitoring.

Prescriptions were reduced by 24%, including a 67% drop in anti-microbials.⁸³

Similar changes have occurred in the way in which the mining industry, with other actors, approaches the problem of HIV/AIDS in Southern Africa. Rather than discriminating against workers with the disease, proactive attempts are being made to prevent its spread and to support employees and family members with the disease. (See Box 9–4.)

For companies, useful lessons can be learned from the oil and gas sector. In June 2000, the International Association of Oil & Gas Producers issued ‘Strategic Health Management: Principles and Guidelines for the Oil & Gas Industry’ (SHM). Its purpose is to ‘provide a basis for incorporating work force and community health considerations systematically into project planning and management’.⁸⁴ The guidelines describe the main elements necessary to develop, implement,

Box 9–4. A Change in Direction: HIV/AIDS Initiatives in Southern Africa

In 1985 the Chamber of Mines of South Africa introduced an HIV/AIDS test for foreign workers, and those who were HIV-positive were sent back to their countries of origin. Following this, an agreement was signed between the Chamber and the National Union of Mineworkers (NUM) of South Africa to solve the problem of discrimination in testing. NUM’s approach was to call for changes allowing miners to stay with their families, as well as promoting awareness of the risks that miners face in the working environment. In particular, the following recommendations were made:

- to develop housing, thereby improving the living conditions of miners and their families;
- to reduce the number of sex workers in the working environment;
- to inform the mining community of the different risks they face; and
- to combine forces in addressing HIV/AIDS rather than allow the current competition among companies to be seen as the most efficient way to tackle the problem.

Despite these improvements, more needs to be done to tackle the spread of the disease and to develop effective means of caring for those infected. For example, there is a need for improved collaboration between mining companies and other actors as well as other sectors to avoid duplication and to encourage an exchange of ideas.

Source: Ndubula (2001).

and maintain a strategic health management system. SHM is intended to facilitate cooperative interaction among industry groups, host governments, the local health care system, community representatives, and other stakeholders. Its key messages are that industry cooperation on health is beneficial, that industry can help host governments fulfil their responsibilities, that primary health care can have the greatest impact, and that lasting improvements can be achieved through early stakeholder involvement and consultation. The success of this initiative to date is difficult to measure. Some mining companies are now taking on a broader role in community health programmes by working in partnership with other stakeholders. One example of this is the World Alliance for Community Health, formed in 1999 by five mining companies to promote the development and implementation of community health projects and the World Health Organization (WHO).⁸⁵ To facilitate and to earn recognition for its projects, the World Alliance entered into a Cooperation Agreement with WHO under which members could seek to have a community health project designated as 'WHO-approved', based on meeting certain criteria. The agreement provided a list of issues to be addressed in project plans. The emphasis is on partnerships, capacity building, and programme sustainability. The latter was not seen as an absolute requirement, but each project had to be seen to be working towards that goal, with communities or governments eventually taking over the programmes.

While the World Alliance has attracted genuine interest from health professionals and corporate sustainability personnel, only four projects have been developed for approval by WHO to date, and no new members have been found. One limiting factor may be the strict focus on the very high standards of partnership and sustainability. Moreover, in the absence of industry policies and best-practice guidelines in this area, no measures exist to drive progress in the implementation of community health policies and programmes.

Although still in the early stages of formation, the Global Health Initiative of the World Economic Forum (WEF) may provide an opportunity for stimulating large-scale action by mining companies on broader health concerns. It was announced in January 2001 with the objective of stimulating large-scale corporate action in the fight against TB, malaria, and HIV/AIDS. Member companies were invited to participate in an initial meeting in Geneva in March,

when working groups were set up on best practices, resource opportunities, and advocacy. In July 2001, WEF staff and a task force with representatives from the mining, aluminium, and oil and gas industries defined the overall objectives and a work programme. For the Global Health Initiative to succeed, it was agreed that private-sector CEOs would have to be engaged in a meaningful way, so that they would provide active support for the participation of their business units in community health programmes.⁸⁶

WHO is the leader in initiatives such as the Lymphatic Filariasis Alliance, Roll Back Malaria, STOP TB, and UNAIDS. Each of these is based on partnerships with other organizations and seeks to promote projects around the world. There are a few examples of companies working with these global programmes at individual mining locations, but the opportunity exists for many more sites to become involved in a mutually advantageous manner in the future.⁸⁷

Several ways to move forward on community health are clear from experiences to date:

- In areas where diseases such as HIV/AIDS or malaria are rife, the project assessment process should consider these issues at an early stage, and be oriented to recommending measures to deal with any problems. These should consist of education measures for the affected population, which includes but cannot be limited to workers.
- Industry policy and best-practice guidelines should be developed to drive progress in the implementation of community health policies and programmes.
- The planning and delivery of health programmes around mine sites should be based on a partnership approach, with a strong role for the local community in their design and implementation.
- Programmes should include capacity-building as a short-term objective.
- Particularly in the longer term, government should take lead responsibility for the continuation of health programmes. Where government capacity is lacking, independent trust funds may be developed and managed by local institutions or other independent organizations to ensure the sustainability of the programme.
- At a company level, comprehensive health policies and programmes for employees and dependents should be put in place.

Mine Closure

When a mine closes, the impact is often more dramatic than it would be for other kinds of industrial plants, as mines frequently constitute a larger proportion of the local economy. In the classic remote mining town, closing the mine often meant closing the town as well. The remoteness of many mining operations often means that there are few or no alternative employment opportunities. In the past, the environmental dimensions of mine closure were given priority. (See Chapter 10.) It is increasingly realized that the social and economic dimensions of closure planning are equally important.

In richer societies, where employment levels and resources are relatively abundant, recently there have been efforts to mitigate these effects. Government or company-sponsored retraining programmes, union contracts calling for retraining, severance pay and relocation benefits, and targeted efforts at development of alternative employment bases have all become more frequent. Even in the richest countries, while there are examples of former mining communities succeeding in new endeavours such as tourism, it is not uncommon to find depressed former mining towns or even 'ghost towns'.

In societies with less wealth and fewer alternative forms of employment, mine closure can be very traumatic. And when the problem affects a whole mining region – perhaps because of a fall in commodity prices – it can have serious political repercussions, as seen in tin mine closures in Bolivia, coal mine closures in parts of the former Soviet Union, and retrenchment in the South African gold industry, to name but three of many examples. A government that is highly dependent on its minerals economy is likely to face resource shortages just when the demand for its assistance is at the highest level.

From this perspective, mine closure planning needs to include a plan for the transition to the post-mining economy. In concept, it is clear what needs to be done: the planning and development of any mining project needs to be aimed at creating durable benefits on a number of scales.

- The infrastructure in place needs to be useful for something besides mining. During the mine's life, the capacity to maintain that infrastructure needs to be developed in the local community, along with an enduring base of economic resources to pay for

maintenance. This means not only the physical infrastructure of roads, water supply, electricity, and telecommunications, but the social infrastructure of health care providers, teachers, and government. The health, education, skills levels, and employability of local people must be greater than when the project started.

- There needs to be development of other economic bases besides mining. Although it may not be possible to match the best years of mine operation, it is realistic to aim for sustainable on-going economic activity at levels that substantially exceed those in place before the project – ideally, diversified and providing a broad range of employment opportunities.
- The capacity of the local community to understand and manage residual environmental concerns needs to be in place when the physical closure plan for the mine is implemented.
- For some communities, the ability to continue previous subsistence activities to some extent while the mine is in operation could reduce the detrimental impact of closure.

These are achievable objectives. What is required is a clear understanding of the roles and responsibilities of various actors and the right process for cooperation among them. The mining company has a major responsibility for achieving these results, but it cannot achieve them alone. Communities need to own this process and organize themselves accordingly.

The mineral wealth that government captures during the mine life must be managed in ways that develop long-term benefits for the community. Among other things, it needs to be used to develop government and local capacity to manage infrastructure, education, health, and other systems. A major challenge is the limited capacity for this kind of planning and financial assurance, particularly in smaller companies and in government. A clear theme that emerged from the Mine Closure Workshop hosted by the World Bank Group in March 2000 was the universally reported difficulty for local authorities to take on responsibility for social services and infrastructure when mines close or are privatized.⁸⁸

Currently operating mines may be influenced by decisions taken decades ago. In general, the longer a mine has operated, the more difficult it may be to make dramatic changes. In existing mines, the issue of

sustaining benefits often only becomes a major concern when mine closure approaches. The greatest degree of flexibility is with new mines, which can explore all options fully with minimum constraints, even though comprehensive planning for mine closure is not always part of pre-mine planning for many new and proposed mines. Government policies, where they exist, are often restricted to the physical environmental aspects of mine closure.

There are examples of companies working with district and local administrations or institutions to develop plans to plot out viable long-term sustainable socio-economic development. An example of this is the Porgera District Plan in PNG. The company aims to provide additional resources and capacity for local administrative structures and to establish durable economic, social, and administrative institutions and activities. A Porgera Management Team will be responsible for developing and implementing the plan, in addition to communicating with local stakeholder groups. A series of rolling five-year sectoral plans cover health, education, infrastructure, justice, primary industry, and services. Each of these will be developed with local community input, including specific goals for the period. Internal and external monitoring, auditing, and evaluation will be central to the plan. This case has the advantage of working through existing frameworks, as District Plans are meant to be prepared in any case. What is new is the formal structure, the management team, and the resources of the mining company.⁸⁹

At both Ramu and Ok Tedi in PNG, companies have decided to promote similar objectives through foundations. Both seek to direct funding from mine benefits, government sources, and possibly external donors through an independent institution that is jointly managed by the mining company and various local, provincial, and national government agencies. The aim is for coordinated local-level development planning, with a specific focus on the delivery of long-term sustainable benefits. These foundations seek to work around the lack of capacity at local and provincial level, introducing new institutions (in contrast to the Porgera Plan).⁹⁰ Trust funds are also increasingly being used for the up-keep of infrastructure post-mine.

The Sullivan Mine in Kimberley, British Columbia, in Canada provides a good case of planning for mine

closure. The mine is fortunate in its location in a relatively prosperous area of outstanding natural beauty with reasonably strong economic linkages. Kimberley also has a well-organized and stable community with good local representative structures. While the challenges faced are thus far less than may be found in other areas, the process and the lessons learned are useful. (See Box 9–5.)⁹¹

In conclusion, a strategy for mine closure needs to be an integral part of mine development and operational planning. It will need to be revised throughout the life of the mine to reflect, among other things, changes in community expectations, economic activities, and the increasing capacity and changing responsibilities of certain actors. Planning for closure will be particularly difficult at the beginning of a mine's life, but at a minimum consideration needs to be given to ensuring that the mechanisms, institutions, and processes created to distribute benefits will be sustainable in the long term. For example, economic alternatives need to be considered at the outset, as does the ownership of processes and outcomes. The following elements are essential to any strategy:

- leadership and commitment on the part of all actors;
- capacity-building;
- identification and establishment of economic activities for communities post-mine, including pre-existing activities and those related to the mining activity as well as non-mineral-related activities such as tourism and agricultural services; and
- mechanisms to ensure essential services can be sustained post-closure.

Fly-in, Fly-out Operations

The discussion of fly-in, fly-out operations is perhaps most relevant in relation to mine closure. Fly-in, fly-out operations were first set up in Canada at Asbestos Hill, Quebec, in 1972 and now exist in a number of countries, such as Australia and Canada. Under this system, remote mineral deposits are mined without developing traditional mining towns, and workers are brought in from outside. This invariably means that communities near the mine gain relatively little in terms of jobs, business opportunities, and the multiplier effect, and the system may place a strain on the families of mine workers. Yet communities are also protected from some of the negative consequences of mining, such as exposure to the problems of a 'boom town' environment, a mass influx of people, or environmental

Box 9–5. Sullivan Mine in Kimberley, British Columbia, Canada

The settlement around the Kimberley mine was originally established as a mining camp and developed over 90 years into a city with a population of 7000. A great deal of infrastructure and recreational and social development occurred because of the mine. On average, the mine has employed around 1000 people, although the work force was considerably smaller at the time of closure, in December 2001.

The community established an Economic Development Office to consider post-mine economic sustainability strategies and began looking for industrial partners to develop the area. Planning began 20 years before closure. Economic diversification was undertaken through various initiatives: development of an industrial site, a plan for developing tourism, one resort golf course and a second one under construction on lands acquired from the mining company, and a residential development plan done with the hope that taxes from it would cover revenue loss from the mine.

About 400 people lost their jobs when the mine closed. A transition committee has been established to assist workers. The lessons learned from this experience are that preparing workers for redundancy cannot start too early but is likely to be met with general apathy at first. When a mine has been operating for a long time, it may be difficult for the workers and community to come to terms with the fact that it may actually close.

The experience demonstrates that when planning for sustaining economic benefits, the community must be aware of the need to plan for closure and be willing to sustain itself, and the local political will to do so must exist. In this case, the role of individual leadership has been key.

It has also underlined the important role of government, particularly in providing supportive policies and regulations and in assisting with the implementation of programmes. Although the government was largely supportive, some policies and regulations were found to be counter-productive, leading to difficulties in implementing some programmes. For example, around the mine, 'brownfield sites' were no longer available due to provisions in contaminated sites regulations, agricultural land reserves were off-limits to development, the environmental assessment process was lengthy, taxes were high relative to competing jurisdictions, and the economic rents received by the government were not invested locally.

The company was also seen to play an important role in providing financial support for certain projects and providing land at a reduced rate. However, the company has been criticized for its past resistance to other forms of industrial activities and the resultant missed opportunities.

The involvement of community groups was considered particularly important, given that they are remaining in Kimberley now that the mine has closed. What remains to be seen is how well the community is able to adapt from being a mining community to one based on service industries.

Source: Based on presentation by Dave Parker, Teck-Cominco, at the Managing Mineral Wealth Workshop, August 2001, and on discussion at Sullivan Roundtable Workshop co-hosted by Teck-Cominco and the World Bank, Kimberley, November 2001.

concerns. Moreover, it could be argued that fly-in, fly-out operations are less disruptive as no new mining settlements are created. Without doubt, fly-in, fly-out operations have the potential to decrease conflict arising over the use of resources or interactions between the community and 'outsiders', and to lessen the likelihood of abandoned post-mine communities.⁹²

In some cases, residential communities may resist the proposal of a fly-in, fly-out operation if they feel it will reduce opportunities for community members to be employed or to provide services to the mining operation and mining town.

Community Participation in Decision-making

Historically, governments have formulated mineral development policies without consultation with communities, and companies have negotiated directly with central government. Yet some examples of effective community participation are beginning to emerge, such as the extensive community consultation involved in the drafting of the recent minerals policy in South Africa.⁹³ At the local level, public consultation has traditionally been limited to communicating certain aspects of projects to affected communities or dealing with complaints. Only recently has it been applied by regulation as a formal process to integrate public input into a social impact assessment (SIA) process and to identify public concerns.

Practical experience has demonstrated to companies that there are significant benefits to good consultation at the local level. Perhaps the most important for a mining project is that the process helps foster genuine

relationships with mutual respect, shared concerns, and shared objectives among the community, company, and other actors.

Decision-making needs to recognize the rights of communities to representation and engagement in processes that affect them, and bases the interaction between the mining project and the community on the values, goals, and aspirations of the community affected. For example, the community may be less concerned with traditional measures of benefits such as income and employment and more concerned with social well-being and the impact of mining on cultural values and local institutions. An absence of community decision-making is likely to result in ineffective or inappropriate arrangements for the distribution of benefits, or in institutions that are not able to sustain the benefits after mining ceases.

The control over their own futures that such participation in decision-making engenders is particularly crucial to the sustainability and survival of indigenous communities. (See Box 9–6.) Much needs to be done to ensure this at both the local and national level. For example, one attendee at the MMSD Indigenous Peoples Workshop in Quito explained that in Ecuador, to mobilize themselves effectively around issues, indigenous people have had to organize at all levels, particularly nationally. While the Ecuadorian Constitution may appear to uphold and respect their collective rights, decisions are continually made on their behalf without their involvement.

Box 9–6. Participation in Decision-making in Indigenous Communities

MMSD held a preparatory workshop in Quito that was designed to address a range of issues associated with the relationship of indigenous peoples to the mining, minerals, and metals sector. This workshop was convened to provide a forum for indigenous people and those working with indigenous communities in an advocacy capacity to discuss issues of trust, relationships, and capacity building in preparation for a multistakeholder workshop on these issues in Perth, Australia. The Quito meeting was attended by indigenous participants from South America, North America, Australia, the Philippines, and Kyrgyzstan.

Two main themes emerged from the workshop. First, indigenous communities have different levels of interest, ability, and preparation in terms of negotiations with those wanting to mine on their lands. Second, there was considerable discussion of

the need to establish an international body run by and for indigenous people that would assess corporate and project performance with respect to the treatment of and negotiation with indigenous communities. This was seen as a positive approach to recognizing best practice where it is identified and making such information available to indigenous communities considering mining projects.

The multistakeholder follow-up workshop in Perth was attended by indigenous people and those working on these issues from government, industry, and civil society. Three themes provided a focus for discussions: the challenges faced in building rights, the capacity of indigenous communities and others, and the essential components of building relationships between indigenous peoples and other stakeholders.

The indigenous attendees recognized that indigenous rights to land and empowerment must be respected by all stakeholders if there is to be progress towards a sustainable future. At present, indigenous rights in most jurisdictions convey limited rights upon the affected communities and traditional landowners. Many attendees felt that indigenous rights had a low priority. It was also clearly stated that ‘talking the talk’ with respect to indigenous rights is commendable at the CEO and ministerial levels, but ways must be found to translate this into tangible advances at the local level.

Harmonized international standards for dealing with indigenous peoples across the entire spectrum of mining operations was seen as essential. Equally, communities need to develop leadership and capacity internally, while governments need to provide the necessary education opportunities so that both this and future generations can fully assess the challenges and opportunities provided by mining and the exploitation of minerals and metals.

At a session attended solely by indigenous peoples, participants recommended that an international, regionally representative indigenous peoples body be established as part of the immediate MMSD standard-setting process. This group could monitor the elaboration of international standards and ensure the effective participation of indigenous peoples in standard setting and implementation. Participants also urged the international mining industry and governments to acknowledge and accept that necessary financial and other resources will be required by this body, and to make a commitment to identifying funding for this work.

Source: MMSD Preparatory Workshop on ‘Legacy Issues, Indigenous Peoples Rights, Exploration and Mining on Indigenous Lands, Impacts and Benefits Agreements’, 27–28 September 2001, Quito, Ecuador; Multistakeholder Indigenous Peoples Workshop, 4–6 February 2002, Perth, Australia.

Companies that wish to foster genuine participatory relationships with the community need to do so with understanding and sensitivity. Communities often feel powerless in the face of large mining corporations and may have heard enough negative stories to be cynical regarding what they can achieve through participation.

To overcome such difficulties, the mining company needs to be willing to have a genuine two-way dialogue with the community. It needs to be transparent in its communications from the outset and throughout the life of the mine, and to listen to and respond appropriately to the issues raised by the community. Communities should be updated at regular intervals or whenever there is a change, such as an expansion or contraction of mining activities. The process of communication needs to be established in such a way that it does not intimidate local people. (Overuse of technical language, for instance, can form an instant barrier to communication.) Different forms of participation should be acknowledged and valued. Issues such as availability of transport, child care, and the timing and location of meetings are also critically important to enable a cross-section of the community to participate.⁹⁴ Access to information about the project is key. (See also Chapter 12.)

The community itself may need help in building the capacity required for full participation in decision-making. Programmes aimed at capacity building need to be planned jointly with local leaders. Funds for such programmes should be controlled locally wherever possible: local control of finances encourages organizations to develop administrative and managerial skills. In order to encourage participation, which can be very time-consuming on the part of individual members of the community, people need to know that they are acquiring skills that can be integrated into the economy after the project is complete.⁹⁵

Currently one of the biggest areas of debate is the extent to which consultation implies some degree of shared decision-making. While mining companies increasingly recognize that communities and NGOs should be involved in defining mitigation measures or social development projects, sharing decision-making on core management issues is not easily accepted. Regardless of the comfort level in companies, however, communities and interest groups will question the validity of consultation processes unless and until their concerns are seen to affect decisions about projects.⁹⁶

Moving towards participation rather than consultation will ultimately mean that local communities are directly involved in the decision-making process through, for instance, representation on the Board of Directors. This may not be an immediate possibility, but it should be a longer-term goal.

At the local level, developing the democratic process through multistakeholder forums can provide an effective means of facilitating community awareness, capacity-building, and community involvement.⁹⁷ Inclusive, multistakeholder processes run by independent parties will reduce the power differential and avoid the sense of helplessness felt by many communities. The Development Forum in PNG described earlier provides a useful example at the national level. At the local level, Community Development Forums provide a good model.⁹⁸ They require democracy to work most effectively, but companies with the assistance of NGOs and other actors should try to implement them even in the absence of a democratic government. The underlying assumption, however, must be that there is explicit commitment to the process on the part of all actors such that they have joint ownership. (See Table 9–2.)

Improved Social Impact Assessment

Social impact assessment is currently the most widely applied tool used to address the impact and mitigation of social issues associated with mine development.⁹⁹ Developed originally in the 1970s in response to the requirements of environmental regulations, it did not

Community	Own the process
Company	Commit to process and contribute funds
Government	Establish regulatory framework and requirements for process, and contribute funds
Local government	Help companies in region to develop common strategies for interventions Request community participation Ensure national-level framework reflects expectations of community
Donors	Assist in funding where national government is not supportive

emerge as a significant component within environmental impact assessment (EIA) until the 1990s. Until then, it was part of an EIA process that served to evaluate whether a project met the test of ‘do-no-harm/acceptable impacts’.¹⁰⁰

Since SIA introduces knowledge about the social implications of an activity into the planning, decision-making, and management process associated with it, it has unofficially become the mechanism for predicting and interpreting the implications of development for communities. Recently, as community issues have received increasing attention, SIA has become more significant and certainly more necessary, if not always more effective.

An underlying tension that cuts across all of the issues associated with SIA is the difference between its potential (currently realized in a small percentage of projects) and its general use. The difference can be extreme. At one end, SIA is a dynamic, inclusive, ongoing process of integrating knowledge on potential social impacts into decision-making and management practices; at the other, it is a static, one-shot technocratic assessment undertaken to gain project approval or financing, with little or no follow-through.

The important issue is to understand how SIA might assist companies and other actors in meeting the challenges of sustainable development. This tool is so far rarely used in its wider capacity to aid the management of the social impacts of mining on an ongoing basis through the life of a project and to help plan for closure and beyond. The potential exists for SIA to provide information and understanding that can be applied to achieve durable net benefits for people affected by mining operations.

A particular challenge to conducting SIA is the need to incorporate cultural norms, realities, and subjective perceptions into what is otherwise (in terms of the overall EIA process) considered a logical, technical, and scientific process. The findings of the landmark Berger Inquiry in Alberta in 1974–78 were repeated recently at the Voisey’s Bay Hearings.¹⁰¹ The potential for SIA to contribute to sustainable development goals is there. The question is how to frame the decision-making process once the facts are available:

The implication for the inquiry, and for SIA, was that the proposed pipeline project had to be

evaluated...in terms of the vision of the people whose communities it would affect. The question was better cast in terms of whether the project would help or hinder the realization of that vision. Where the technical model of SIA focused on economic well-being as measured by income and employment, the political model emphasized social well-being, self-determination, and the centrality of cultural values and social institutions.¹⁰²

Industry best practice continues to evolve, and the current model, used by a few companies, is to engage in a process of continuous dialogue and consultation with the community and other stakeholders as plans for the project advance and the SIA is prepared. A high level of interaction is maintained; community needs and concerns are discussed and, wherever possible, built into the mine development plan. Despite the effectiveness of this approach, it is not uniformly popular with the industry because of a perceived loss of control over timing and costs.

Other constraints hold SIA back from realizing its full potential. First and foremost, in spite of the existence of a number of good guidelines on SIA, there is no widely recognized standard that is referred to and used consistently. One of the most persistent problems is that none of the parties to the process are necessarily aware of what should be done for a responsible SIA in a given situation. Low expectations on the part of one party (government regulators, company, community, or consultants) can result in reduced quality.

Under current procedures for conducting SIA, there are real and perceived difficulties with achieving objectivity. SIAs are normally carried out by consultants who work on behalf of, and by implication act in the interests of, their client – the company proposing the project. The company prepares studies to support its proposal for a mine development, and the state, responsible for assessing the report, is in conflict by being the owner of the resource, the proponent and beneficiary of resource development, and also the regulator. The challenge is to ensure that SIAs accurately reflect the views of all stakeholders, particularly of local people. Ideally, the SIA should be endorsed by the community and by government.

Due diligence investigations on the outcomes of SIA are few and far between. It is essentially unknown for the state to review projects after giving approvals based

on SIA. With the exception of the World Bank Group, few financial institutions requesting SIA, social management, and development plans have any social staff. They often depend on outside consultants to carry out audits and reviews.

It is also extremely rare for monitoring programmes to be set up to assess social impacts in communities. If developed effectively, social monitoring programmes can significantly enhance the ability of all stakeholders to contribute more effectively to sustainable development. At the moment, there is a lack of data on the flows of costs and benefits from mining to local communities. Some mines contain a requirement for social monitoring, but this is rarely done effectively.

Social monitoring programmes should be developed directly from social impact assessments, and should put in place the systematic management systems to implement the process, with responsibilities, budgets, monitoring schedules, implementation plans, and so on. Local people should be involved in defining and monitoring their key social indicators. An independent professional should be appointed to oversee the monitoring process. (See also Chapter 7.)

In conclusion, there is urgent need for common, standard, best-practice SIA guidelines for use in the mining industry. The experience of applied practitioners, with input from stakeholder groups, is possibly the most credible base for developing such guidance. The absence of standard guidelines gives the mining industry a chance to show leadership in developing and adopting SIA standards, which might become accepted in the various regulatory regimes where the companies are active.

More generally, SIA provides an opportunity to plan how a minerals development project can best support sustainable development and the community's vision of the future:

- Sustainable development calls for appropriate methodologies of information acquisition and presentation and a move from SIA to integrated impact assessment (IIA).
- SIA should become a dynamic, ongoing process of integrating knowledge on potential social impacts into decision-making and management practices and should lay the foundation for a Community Sustainable Development Plan.

- A community-level resource inventory could be compiled as part of the SIA process, including data on demographics, land-carrying capacity, water availability, and so on. This would help mining companies inform communities of the potential impacts of minerals development.
- Communities should be involved in continuous dialogue during the preparation of an SIA. Meeting legal requirements for public participation and information is necessary, but where these are inadequate to develop a shared vision, other processes should be considered.
- SIAs should be endorsed by the local community as well as by government.
- Social monitoring needs to become an integral part of SIA and to involve local communities as well as independent experts.

The Way Forward

Few areas present a greater challenge than the relationship between mining companies and local communities. Many stakeholders are directly involved – local management, employees and their families, other local inhabitants, local government, labour unions, and so on. Others are indirectly involved – for example, acting on behalf of local community interests with varying degrees of local representation. Issues of 'who represents whom' arise and disparities in the capacity of actors are key. Each operation, be it a mine or a plant, and the community around it are unique. The priorities and approaches taken will differ. What is good practice in one case may not be applicable elsewhere. As in other areas, the best is good and the worst is appalling. The legacy of abuse and mistrust is clear. Mining and local communities has to be an area of particular focus.

The approach taken here is to discuss a series of steps in the relationship between a community and a minerals project, culminating in the establishment of a Community Sustainable Development Plan (CSDP) at each mine.

Company-Community Engagement

The first contact between the community and a company is critical, and there are many factors to consider. The time frame for decision-making in communities is different from that in companies. Many communities operate by building a high degree of

consensus, which may take time. If ‘gatekeepers’ are needed, for reasons of language or local knowledge, there should at least be several of them with ties to different parts of the community. An outside interest seeking to engage the community, such as a company, should develop multiple and diverse entry points to ensure that all elements are approached and consulted.

Integrated Impact Assessment for Sustainable Development

SIA should be coupled with EIA to enable a transition to integrated impact assessment. IIA should be universal for new projects and should include a community-level resource inventory as well as examine the whole spectrum of sustainable development issues, in addition to those required by legislation. IIA should become an inclusive, dynamic, ongoing process of integrating knowledge on potential impacts into decision-making and management practices. It should be endorsed by the local community and government, and entail independent monitoring of impacts. Ideally, the IIA should lay the foundation for a CSDP.

Community Sustainable Development Plan

MMSD suggests that based on the findings of IIAs, companies should ensure that, where appropriate, a CSDP is put in place at individual mines. CSDPs will not be appropriate for all mining operations, particularly where they are operating on a very small scale or where mining constitutes only a small proportion of local economic activity. Moreover, at the many sites where community plans already exist, this suggestion may involve reviewing and improving existing plans rather than developing new ones. The CSDP should provide the fundamental framework for relationships among the company, the community, the government, and any other relevant parties throughout the project life and into post-closure. MMSD suggests it be designed through consultation that begins during the IIA. Experience suggests that a multistakeholder forum administered by an independent party can help ensure the effective involvement of all actors. This must at a minimum include the community (through its local government or some other legitimate body), the national government, and the company. The CSDP should be based on the community’s concept of how its interactions with the mine can best contribute to achieving its social, environmental, and economic goals, and should be grounded in the willingness and ability of the company and national government to contribute to and support those goals.

The roles and responsibilities of each actor should be specified, as well as the most appropriate means of achieving the community’s goals. These include consideration of a range of issues, such as:

- the redistribution of revenue from central government;
- tax credit schemes, funds, and foundations;
- disparities, such the impact on women and families;
- skills development;
- institution strengthening;
- preferential procurement policies towards local suppliers and distributors;
- conflict or dispute resolution;
- social and cultural values; and
- mine closure.

The plan will need to evolve and be amended over the life of the mine. Short-, medium-, and long-term approaches may be adopted. In the short term, for example, with insufficient government capacity to distribute revenue, the best option may be to take a collaborative approach, where companies and NGOs work with government while building local administrative capacity. In the long term, the aim should be for a local administrative structure to take over implementation of the plan.

Independent mechanisms for monitoring and evaluation, including clear and agreed indicators of performance, need to be incorporated into the CSDP. Ideally, it should be backed up by a memorandum of understanding signed by all participants, including national and local government, so that responsibilities are formally recognized and delivered.

Photograph not shown

Roles and Responsibilities

Many factors need to be in place for mining to contribute to sustainable development at the community level. As a starting point, all actors need to have:

- a commitment to sustainable development at the local level;
- a commitment to effective community participation in decision-making;
- a belief in open communication among actors;
- a commitment to proactive rather than reactive approaches;
- respect for independent evaluation and monitoring systems; and
- a willingness to share responsibility and collaborate with others.

Working out the boundaries of rights and responsibilities is the challenge; the precise roles of the various actors will depend on local circumstances.

Companies

Companies should not have to assume the role of government at the local level. Much of the responsibility should lie with government; in some cases they are already taking on this agenda, but in others they clearly are not. It may be difficult for a company to avoid taking a leadership role in establishing a Community Sustainable Development Plan. In the long term, however, companies should focus attention on ensuring that the project works constructively alongside national and local government development programmes and helping the community work towards sustainable development. A phased approach may be necessary. Where government capacity is insufficient, it may be better to work with NGOs, churches, or other institutions than for a company to try to do everything itself.

Government

Governments have the primary responsibility in the national context for ensuring that the rights of all citizens are respected. Equally, they are charged with ensuring that the nation prospers while communities gain from development that takes place on their land or in their local vicinity. Governments should take the lead in setting policy and standards to ensure sustainable development takes place at the local level, including developing systems for project monitoring and evaluation, and to protect citizens from any kind of abuse. Local authorities need to be capable of

formulating and executing plans for the development of social and physical infrastructure.

Non-governmental and Other Independent Organizations

NGOs, particularly international ones, should further develop internal policies to provide guidance for community engagement. Often the interests of communities may be different from those engaged in advocacy around development and environment issues. Experience suggests that the different roles NGOs play – be it in community development or advocacy and dispute reconciliation around community issues – need to be differentiated and clear. NGOs that get involved directly in community issues should endeavour to respect different community perspectives towards proposed development, including those not in support of their agenda, and to communicate with all elements in the community. At the local level, NGOs should work on building the capacity to articulate local perspectives and to determine that the full range of development options are available to communities.

International and Bilateral Development Agencies

International agencies such as the World Bank, the United Nations Development Programme, and the bilateral development agencies have a unique position of influence and responsibility, particularly in harmonizing the standards by which communities are treated and in bringing influence to bear on public- and private-sector concerns with these standards.

These agencies could well move towards integrated impact assessment for sustainable development in projects in which they are involved, and develop broadly applicable guidelines for such processes. They could also consolidate their experience and assist in the development of Community Sustainable Development Plans, including integrated mine closure plans, particularly in countries where they have experience and projects. They could also continue to fund capacity-building exercises for communities and state institutions.

Endnotes

- ¹ InterPress Service (1994).
- ² Howard (1988) p.258.
- ³ Joyce and MacFarlane (2001).
- ⁴ See Thomson and Joyce (1997).
- ⁵ Emsley (2001).
- ⁶ See Freeport-McMoRan Copper Gold Inc. website, at <http://www.fcx.com/mr/fast-facts/ff-econimpact.htm>.
- ⁷ Pasco-Font (2001).
- ⁸ Van der Veen (2001).
- ⁹ Labat-Anderson Inc. (1997).
- ¹⁰ MMSD (2001c).
- ¹¹ Fraser (2001).
- ¹² Loayza et al. (2001) p.12.
- ¹³ McMahan (1997) emphasizes the fact that many of the problems would have been greatly reduced if the federal government has not given fiscal and credit incentives to induce in-migration.
- ¹⁴ Banks (2001) p.43.
- ¹⁵ McMahan (1997).
- ¹⁶ See <http://www.icem.org/update/upd2002/upd02-02.html> for more information.
- ¹⁷ Banks (2001).
- ¹⁸ Inti Raymi in International Development Research Council (2001) Chapter 2, Part 2, p.12.
- ¹⁹ See Kenny (2000).
- ²⁰ McMahan (1997).
- ²¹ Musvoto (2001).
- ²² Conference organized by MiningWatch in 1999.
- ²³ UNDP (1999b).
- ²⁴ Ranchod (2001). According to the South African Medical Research Council, there is no information to support the need for a blanket ban. There appears to be little documented information available about the real risks involved in women working underground.
- ²⁵ South Africa National Union of Mineworkers Gender Policy (1998).
- ²⁶ Scheyvens and Lagisa (1998).
- ²⁷ Earlier data adapted from figures in Lahiri-Dutt (1998).
- ²⁸ ILO Conventions quoted in Lahiri-Dutt (2000) p.7.
- ²⁹ Scheyvens and Lagisa (1998) p.61.
- ³⁰ Emberson-Bain (1994).
- ³¹ Dodd (2000).
- ³² Rio Tinto, personal communication (2002).
- ³³ Musvoto (2001).
- ³⁴ Norwatch (1999).
- ³⁵ Prospectors and Developers Association of Canada, personal communication (2002).
- ³⁶ Oxfam Community Aid Abroad (2001).
- ³⁷ Heathcote (undated).
- ³⁸ Horswill et al. (1999).
- ³⁹ Vargas et al. (2001), cited in Stephens and Ahern (2001).
- ⁴⁰ Castilla (1983).
- ⁴¹ Applied Geology Associates (1989).
- ⁴² International University of Kyrgyzstan (1999).
- ⁴³ Coumans (1999b).
- ⁴⁴ For more information, see <http://www.bpdweb.org>.
- ⁴⁵ Ramos (2001).
- ⁴⁶ Choshi (2001).
- ⁴⁷ Ibid.
- ⁴⁸ Aste (2001).
- ⁴⁹ Hannesson (2001b).
- ⁵⁰ O'Faircheallaigh (1995) pp.2-5.
- ⁵¹ Banks (2001).
- ⁵² O'Faircheallaigh (1996).
- ⁵³ Holden and O'Faircheallaigh (1995).
- ⁵⁴ Banks (2001) p.42.
- ⁵⁵ Musvoto (2001).
- ⁵⁶ Southern African Development Community (1997).
- ⁵⁷ See <http://www.mbendi.co.za/orgs/cp7d.htm/>.
- ⁵⁸ Kangwa (2001).
- ⁵⁹ Musvoto (2001).
- ⁶⁰ Placer Dorne Asia Pacific (1999).
- ⁶¹ Botts (2001).
- ⁶² McPhail (2001).
- ⁶³ Rio Tinto (2001).
- ⁶⁴ Ibid.
- ⁶⁵ Anglogold (1998) cited in Choshi (2001).
- ⁶⁶ See IDRC website at <http://www.idrc.ca/mpri/>.
- ⁶⁷ Choshi (2001) p.24.
- ⁶⁸ Horswill (2001).
- ⁶⁹ Ibid.
- ⁷⁰ Choshi (2001).
- ⁷¹ See <http://www.escondida.cl>.
- ⁷² Government of South Africa, Department of Minerals and Energy (2001).
- ⁷³ Dunn (2001); Choshi (2001).
- ⁷⁴ Ibid.
- ⁷⁵ See <http://forests.org/archive/png/onmoremo.htm/>.
- ⁷⁶ Oxfam Community Aid Abroad (2001).
- ⁷⁷ Ibid.
- ⁷⁸ Ibid.
- ⁷⁹ Anderson et al. (2001).
- ⁸⁰ See also Appendix of Brehaut (2001) for examples of community health programmes undertaken by companies in partnership with other actors.
- ⁸¹ Ndubula (2001).
- ⁸² Morales et al. (1998) cited in Stephens and Ahern (2001).
- ⁸³ Foreit et al. (1991) cited in Stephens and Ahern (2001).
- ⁸⁴ Brehaut (2001).
- ⁸⁵ Extracted from Brehaut (2001). For more information see <http://www.wacommunityhealth.org>.
- ⁸⁶ Brehaut (2001).
- ⁸⁷ Ibid.
- ⁸⁸ Khanna (2000).
- ⁸⁹ Banks (2001) p.45.
- ⁹⁰ Ibid., p.73.
- ⁹¹ The mine has only recently closed, so the full effects of closure are not yet known.
- ⁹² See also Storey and Shrimpton (1995).
- ⁹³ See Mineral and Energy Policy Centre (2001).
- ⁹⁴ CSIRO Minerals (2001).
- ⁹⁵ Gibson (2001a).
- ⁹⁶ Joyce and MacFarlane (2001).

⁹⁷ This suggestion is based on the report back from a breakout group at the MMSD Managing Mineral Wealth Workshop, London, 15–17 August 2001.

⁹⁸ Ibid.

⁹⁹ This section is based on Joyce and MacFarlane (2001).

¹⁰⁰ Gibson (2000) cited in Joyce and MacFarlane (2001).

¹⁰¹ A landmark event in the establishment of SIA was the inquiry by Chief Justice Thomas Berger into the proposed MacKenzie Valley gas pipeline, from the Beaufort Sea, Yukon Territory, to Edmonton, Alberta (1974–78). This was the first time that social impacts had been formally considered in project decision-making and led to the recommendation that the project be postponed for at least 10 years to allow sufficient time for land claims to be settled and programmes and institutions set up to support the native population. See Berger (1983) and Gamble (1978) for more information, both cited in Joyce and McFarlane (2001).

¹⁰² Cited in Joyce and McFarlane (2001) (references in the original omitted).