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Part III: Challenges

Chapter 9
Local Communities
and Mines

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Chapter 9: Local Communities and Mines

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 that have experienced little or no development, and traditional cultures may have difficulty coping with vast industrial operations and the influx of outsiders. A growing international understanding of the intrinsic value of traditional cultures has raised the sensitivity to and the prominence of these issues. 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. 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 the direct benefits they bring to communities in terms of wages and improved welfare are unlikely to be sustained after mine closure. Communities are particularly vulnerable where linkages with other sectors of the economy are weak. The infrastructure that develops with a mine – including schools, clinics, and roads – may be scaled down or neglected when the mine closes unless provision has been made for their maintenance and upkeep well in advance.

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 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. A mine in any locality will obviously change the relationships that existed before it opened. The challenge is to see that the effect of interactions between a mine and a local community are positive as seen by those affected locally as well as by the promoters of the project. Does it help the communities in ways that are consistent with their own envisioned future?

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.) 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 and credit

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

   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

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

- 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 are confronted by 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. Putting mechanisms 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. (See also Chapter 14.)

Implicit in the notion of effective roles in decision-making is the assumption that all the actors involved accept the decisions reached. This is not an easy challenge if decision-making has to include an understanding of the possibilities and opportunities brought by minerals development as well as the boundaries of responsibility among companies, government, and civil society.

Whatever is agreed to (or not, as the case may be), mining activities must ensure that the basic rights of the individual and communities affected are upheld and not infringed on. These may include the right to control and use land; the right to clean water, a safe environment, and a livelihood; the right to be free from intimidation and violence; and the right to be fairly compensated for loss. Such rights may be enshrined in the national law, but many are also 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 and to the satisfaction of all concerned is perhaps one of the most difficult challenges addressed in this report.

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 and cultural needs, in many countries of the world 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 often gone unacknowledged, is often closely associated with natural resources that have social, economic, and spiritual significance integral to cultural continuity. Many of the differences between indigenous cultures and wider society have often been poorly understood. Moreover, development involving minerals and other natural resources has often 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 among many indigenous communities of outsiders – in this case, governments and mining companies.[2]

The goals of sustainable development are more difficult to define for indigenous communities. For some it may mean that their attachment to their land and culture survives the upheavals caused by mineral development. But 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, and that they have access to the information and the necessary means to participate effectively in negotiations to ensure that development will take place in a manner considered most beneficial to the long-term sustainability of their community and identity.

The nature of the mining operation will also influence the interactions between mining and the community and the means available for working towards sustainable development. Multinational companies with large operations, for example, are likely to have more experience to draw on than smaller companies. However, the negative effects of larger operations are also likely to be greater. Companies from industrial countries are likely to be better prepared to meet social and environmental standards than those from developing countries or the former Eastern bloc (although there are, of course, important exceptions to this). And the more recent the operation, the more likely it is that the technologies used are environmentally friendly and sensitive to social concerns, and that a smaller area is affected.

The characteristics of mining operations tend to differ regionally. In Eastern Europe and the former Soviet Union, for example, the move from state-owned to private, often foreign-owned ventures and the closure of a significant number of plants presents its own set of challenges. Developing countries tend to contain higher proportions of medium- and small-sized operations, as well as significant informal sectors. (See Chapter 13.) Mining operations in industrial countries are generally run by domestically owned large companies that face high levels of scrutiny by civil society and high levels of national regulation.

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

- The exploration stage is of comparatively low social and economic impact, but is critical in forming expectations on all sides.

- 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, important sources of income and social infrastructure, but also negative and often unintended repercussions.

- The impact of the closure phase depends largely on the degree of forward planning and on the means available to communities to sustain benefits, such as institutional capacity and financial resources.

The actual impacts experienced and the way in which these are perceived by the community will also depend on the pre-existing situation, the process of community engagement and capacity-building, the role of governments, and the other processes of social change already under way or that may develop during the life of the mine. 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] Of course, the relationship between the mine and community can be altered dramatically at any stage of the mining life cycle due to unintended events such as environmental or physical accidents and social conflict, or due to changes external to the mining operation.

This chapter focuses mainly on the production and closure phases.

An Economic Perspective

Communities can receive substantial flows of revenue when a large mine is established. For areas previously peripheral to the cash economy, these monetary flows can transform the economic and social basis of communities. In other areas, they can act as an important catalyst for change and growth. The types of payments and the uses to which the money is put 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, though 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 when the loss of informal, subsistence, or non-cash values is compensated in cash, the outcomes are often poor. Cash for people who had little prior experience of cash economies may not leave them better off in the long run. It may lead to social tension and a lack of long-term investment considerations in spending. Experience shows that any social tensions resulting from compensation agreements made at the beginning of an operation are likely to continue throughout the life of the mine; they may be exacerbated if expansion of the mine means losses to more individuals.

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, as royalties flow away from the local communities to central government. 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. A key challenge is to ensure that a proportion of royalties is redistributed locally. This is particularly problematic where governments lack the capacity or political will to arrange this.

Mining will, of course, often provide local communities with jobs. It may enable people who previously lived as subsistence farmers to join the cash economy. Others who already had paid work may find themselves better off, since in many countries mining pays better wages than other activities. Particularly in developing countries, wages may increase through time due to localization schemes and the movement of local employees into higher positions within a company through corporate training. Counter to this, however, modern mines tend to have much higher levels of productivity than older mines, employing small work forces with a high level of skills rather than large ones with a relatively low level of skills. 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% then for other sectors).[4]

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 there is estimated at 75,000.[5] With the exception of the construction phase, however, many mines no longer generate significant numbers of jobs locally. In Peru, for instance, a GRADE study showed that the local possibilities for employment are very limited, and that much of the labour is imported.[6] This has had a profound effect on the benefits that local communities derive from mining. A smaller number of employees also means that the multiplier effect has declined relative to historical levels. Low levels of employment can result in unfulfilled expectations and resentment.

Retrenchment is a current concern for mines all over the world. Some regions have been hit particularly severely. For example, in Romania mines were government-owned until recently and received huge subsidies. In conjunction with the opening up and liberalization of the economy, the government decided to close uneconomic mines – 178 mines have been shut and 83,000 miners forced to leave the industry. This has resulted in a sharp economic decline in mining regions.[7] Some workers who lose their jobs are able to find work in different mines, but this may involve uprooting themselves and their families. Others seek employment in alternative activities, as mine workers often receive education and training and develop skills they can put to use elsewhere.

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 being required to assist local business development, to outsource services, and to give preference to local businesses.

At the same time, 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 means that the community depends heavily on the mining operation, making it vulnerable to downsizing or other changes and exacerbating the power imbalance between the mine and the community. 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. If a new mine raises people's incomes, that should put them in a better position to feed and clothe their families. Many social problems are a direct consequence 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 for some people – 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 new revenues from mining are not equitably shared, this aggravates inequalities within communities. For example, a social audit of the PT Freeport mine in Indonesia 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 in the process.[8] If people in a community perceive the revenues of mining to be unfairly shared, this can result in social tension within the area as well as between the community and the mining company or government.

Relocation

The displacement of settled communities is a significant cause of resentment and conflict associated with large-scale mineral development. Entire communities may be uprooted and forced to shift elsewhere, often into purpose-built settlements not necessarily of their own choosing. Besides losing their homes, communities may also lose their land, and thus their livelihoods. Community institutions and power relations may also be disrupted. Displaced communities are often settled in areas without adequate resources or are left near the mine, where they may bear the brunt of pollution and contamination. Forced resettlement can be particularly disastrous for indigenous communities who have strong cultural and spiritual ties to the lands of their ancestors and who may find it difficult to survive when these are broken. (The resettlement of communities is discussed in more detail in Chapter 7, as are the difficulties faced by communities who do not have 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, and 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 in remote parts of developing countries where the mine represents the single most important economic activity. For example, at the Grasberg mine in Indonesia the local population increased from less than 1000 in 1973 to between 100,000 and 110,000 in 1999.[9] Similarly, the population of the squatter settlements around Porgera in PNG, which opened in 1990, has grown from 4000 to over 18,000.[10] This influx of newcomers can have a profound impact on the original inhabitants, and disputes may arise over land and the way benefits have been shared. (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.[11] And population increases create difficulties in determining the level of facilities required,

particularly when households or communities are being resettled and the population increases substantially after the initial resettlement planning.

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 effectively dilute the value of benefits provided to the host communities.[12]

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]

Infrastructure Improvements

There can be significant infrastructure improvements with the construction of a large mine.[14] 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 to the community 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. Moreover, employment opportunities and increased living standards can bring important nutritional and psychological benefits, and hence better health standards. But these may not necessarily translate into overall improvements in community health if the introduction of new diseases and health risks associated with the mine are taken into account. Communities, including indigenous peoples, that have been relatively isolated prior to mining may be particularly vulnerable to diseases brought in by miners, such as influenza and malaria. Abandoning traditional subsistence lifestyles of hunting and fishing, and instead buying food from outside, usually leads to a nutritionally poorer diet.

There is a long way to go before agreement is reached on the overall health effects of mining. One constraint is the relative dearth of long-term comprehensive studies. Where they exist, statistics indicate an overall improvement in health. At the Ok Tedi mine in PNG, for instance, life expectancy increased from around 30 to 50 years and infant mortality dropped from 27% to 2%.[15]

A key issue is sustaining health benefits in the community after mine closure. This 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.)

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 in 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 et al. (2001); Ndubula (2001).

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 closed.[16]

Education

As with health, access to educational services and facilities can improve dramatically for communities close to large mines, and often communities elsewhere in the region. Again, this is particularly so for mines in remote areas of developing countries. This occurs in a number of ways. 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] On the negative side, however, the opportunity to receive income through direct or indirect employment in the mine can act as a disincentive for schooling. Despite this, education is likely to be one of the most significant and lasting benefits that a community can derive from the presence of a large mine.

For several different reasons – including the recent trend towards streamlining of mining operations for improved efficiency and companies' recognition that they could not provide long-term funding – there has been a tendency to move away from the provision of 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 are often accompanied by the widespread availability and consumption of alcohol, an increase in gambling, the introduction of or significant increase in prostitution, and a widely perceived breakdown in law and order. Violence, alcohol-induced and domestic, increases. And, as at the Porgera mine, migrants often encourage traditional forms of violence such as tribal fighting. Of course, many of these processes of social change may be under way already. But whatever the cause of the problems, communities tend to have far less control over them than they had in the past.

These problems are not restricted to pre-existing communities. Historically, living conditions in many mining camps have been far from satisfactory. 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, improvements in mine accommodation are being implemented. In South Africa, for instance, in areas where the work force can be drawn locally, there is a trend away from single-sex hostels to family accommodation.[21]

A major trend at most mine sites in remote areas of developing countries is the shift from a predominantly subsistence lifestyle to a cash-based one. This happens with many forms of new development, of course, but the fact that mines may only provide a short-term basis for this shift aggravates the problem, particularly when children are not being skilled in subsistence farming methods.

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 in

general.[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. Given the important role that women often play in reducing poverty at the household and community level, as well as their right to equality in the context of sustainable development, this problem deserves special attention.

In occupational communities, women are rarely workers but more often spouses of mine employees, and therefore the passive recipients of benefits. There are few job opportunities for women in mining communities. Despite the more recent development of proactive policies on the part of some labour unions, governments, and companies, mining remains a male-dominated sector. This is in part due to legislation in many countries 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 the skilled and semi-skilled 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 as a result of 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 who are involved in mining are well placed to enhance their social position through the employment and business opportunities to which they have access. 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 become less highly regarded in a new cash economy.[29]

Particular attention needs to be paid to the erosion of women's land rights that have accompanied mining developments, often due to a lack of cultural understanding on the part of companies. In Bougainville, PNG, for example, matrilineal principles of land inheritance gave women positions of importance within traditional society.[30] But mining

development resulted in an increasing contradiction between the traditionally dominant matrilineal system of the Naisioi-speaking people and the patrilineal values embedded in the mining company.[31] In some situations this contradiction has been institutionalized when land is registered under men's names despite the tradition of matrilineal inheritance.[32] In Lihir, PNG, where families have been relocated and land awarded in the men's names, women have been effectively stripped of their status, identity, and assets and have become financially dependent on their husbands.[33]

The lack of job opportunities for women in mines is aggravated by factors limiting their involvement in other activities, including the relative isolation of many mine sites and 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 male assistance in this task, as the men go to the mines.[34]

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. In some cases, they run the risk of picking up sexually transmitted diseases from partners home on leave. With men spending large amounts of time away from home, the social fabric is disrupted. Increased incidences of domestic violence and marital breakups can result from the greater stress on family life. In some areas, the changed circumstances have forced women to turn to prostitution to earn a living, and this too can lead to an increase in the incidence of sexually transmitted diseases. Cases of sexual abuse of indigenous women and girls linked to mining operations are common, though often not discussed or highlighted. For instance, an independent inquiry into employees at a Rio Tinto mine in Borneo found 'numerous cases where local Dayak women and girls had been raped or coerced into having sex'.[35]

This is not to say that women do not benefit from mining. The provision of services such as water and electricity in occupational communities ultimately reduces the time spent on chores. Women and their families also benefit from improved nutrition and access to medical services. In countries such as South Africa, there has been a move away from the provision of single-sex hostels and towards family dwelling units – with facilities such as schools and hospitals being the norm in many mining settlements. 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 these are planned with consideration of gender issues, 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.[36] 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, widows, and other landless classes. 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

The rapid, profound, complex, and unevenly distributed changes that accompany mine development often bring about changes in the power of different individuals within communities. This can be particularly exacerbated by mining companies being unaware of or choosing to ignore traditional decision-making bodies and negotiating instead with individuals who do not have the trust or support of their own community. Mining companies have been criticized for operating 'divide and rule' tactics in such instances. This practice can seriously undermine the social cohesion of indigenous and other communities.[37]

Large flows of money at the local level can encourage bribery and other forms of corruption, which undermines the potential for communities to receive a fair share of the revenues from mining and for these to be used in a way that encourages longer-term investment. Clearly the potential for this to lead to conflict is of concern. (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 and the sharing of mineral revenues and benefits are non-existent or perceived to be unjust or unfair among different groups, or where the community is totally opposed 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, again potentially fuelling conflict and disputes.

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 concerning Australian companies operating in various developing countries involve people having been forced from their land or homes – sometimes violently – and in some instances their houses, mining equipment, or other assets have been destroyed.[38]

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. Some of the 'western' values that are imported by the mining company and its workers may be admirable and welcome, but 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, one of the likely outcomes of the construction of the

infrastructure for the proposed Voisey's Bay project in northern Labrador is a threat to the migration of caribou. Caribou cows with their calves tend to avoid noisy areas and structures such as roads and pipelines. The herds are therefore likely to be cut off from some of the best habitat for food and growth, resulting in potential damage to 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.[39]

Some local cultural traditions and practices decline, or their significance is altered. This may be particularly lamented by older members of communities. In many cases such practices 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. In other instances, as in the case of 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, and a Subsistence Committee plays an important role in environmental protection. One of the committee's first tasks was to select a route for the 52-mile road from the mine site to the port that would largely avoid important caribou migration paths, fish spawning areas, and waterfowl nesting sites.[40]

In indigenous or tribal groups, identity may change or be more strongly contested. As the recognized land-owning groups receive economic benefits, for example, more and more individuals are likely to want to identify with them. Generally, individuals within the community often begin to develop a sense of identity as members of the affected community, whereas before their identity may have been more closely linked to kinship or tribal groups.

A related cultural issue is that of geographic boundaries between groups. Borders that may have been somewhat 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, rather than an economic impact, especially if a mine is established in an uninhabited area. More often than not, however, any land taken for mineral operations will have previously provided some benefits to local people that are now lost. Farmers may lose cultivated land or pasture for their livestock. The combination of all these factors may affect land used by indigenous people for hunting and gathering or shifting cultivation, or it may 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 that fostered traditional herbal and medicinal plants can also serve to weaken indigenous people's autonomy and identity, not to mention their health.

Noise from mining operations can be a problem for nearby settlements. In some areas, people in towns or villages can hear and feel the vibrations from every blast. 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 modern dust suppression methods are not rigorously applied, fine particles can easily be inhaled or settle on everything. A common complaint is clothes getting covered with dust while they dry. In extreme cases, the dust is a large enough problem to cause respiratory distress. At times the dust may contain deleterious substances, such as metals.

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 who were attending three primary schools and living 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.[41]

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 the region's biodiversity, water depletion may also destroy or reduce fish stock and thus deprive local people of a vital source of food and possibly of livelihood. Mining operations can also 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.) The contamination of water may contribute to the build-up of toxic chemicals in fish and in those who eat them. Domestic uses of contaminated water for cooking, drinking, swimming, and washing can also have health impacts.

Other changes in water systems can greatly affect communities, particularly when large amounts of waste are dumped in rivers or along shorelines. Rivers can be altered – they 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.[42] And in Bougainville, local communities believe that an increase in malaria throughout the province was caused by an increase in the area of marshland that was created by mine tailings blocking river tributaries.[43]

Another environmental impact of mining is an unintentional one: mine-related accidents of various kinds. Such accidents can have very real consequences for communities. For

example, in 1999 a truck in Kyrgyzstan spilled two tonnes of sodium cyanide into the Barskoon River. It is alleged that more than 1000 people who drank the affected water were hospitalized.[44] The company claims that the numbers are inaccurate and that ill effects were caused by the chemicals used by the government to treat the spill. One of the most well 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.[45]

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 involved in establishing and running the operations so that potential problems are avoided or at least minimized. 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 to be 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 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, often bear a disproportionate share of the costs of mineral development without being adequately compensated, 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. One challenge is making sure that the goals and means of achieving sustainable development are defined by the community. But perhaps the greatest challenge of all is determining who is responsible and accountable for realizing developmental choices and outcomes at the community level and how this accountability is best administered. This challenge is made greater by the prevailing power imbalances between communities and other actors.

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 derived from mining and that equitable and sustainable use is made of them. In many areas the law provides no guidance; 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 is a real challenge, and not one that can realistically be met by individual companies acting alone.

Matters are made more difficult in the short term by decentralization that is occurring in some countries. Local governments are particularly important for ensuring that sustainable development goals are met as they take on many of the distribution roles previously left to central government. Yet in many developing countries local governments are weak and ineffective; many are unrepresentative. Any agreement 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 at the community level, in such situations communities often turn to the operating companies, which have found themselves having to provide development services in order to obtain and maintain their social licence to operate. Traditionally, such 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 the recognition of the rights of communities and indeed 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 play an important role 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 informal local governance structures. The opportunities with a high level of sustainability, with community support, and within the resource capacity of participating stakeholders should form the core of interactions between mining companies and communities.

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 more investment of time in proactive processes, but often less on physical investments. Mistakes will be made along the way, and these 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 national to 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 within communities and diversifying the economic base, resolving conflicts, planning for mine closure, and ensuring that the community is able to play an effective role in decision-making.

Revenue Distribution and Use

Traditionally, all taxes and royalties from mining operations have gone straight to the central government. 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 are increasingly including communities and regional or local authorities in the sharing of taxes and royalties. In Australia, for example, 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.[46] (See also Chapter 8.)

More recently, a number of attempts have been made to redistribute 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, prior to 1995 mineral royalties 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.[47] These changes 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.[48]

Even where policy is explicit, bureaucracy may hamper reform where, for example, numerous government ministries remain responsible for decisions. Such is the case in South Africa. Although the government has made considerable progress in policy and legal reform, weak local governance and complex fiscal disbursement mechanisms at the national level make it difficult for communities to gain access to 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.[49]

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 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.[50]

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). However, not all of this is for the community. 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 also 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 more of the fund 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); Sarpong (2001).

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.[51] Needless to say, this fund is extremely popular.

A particular challenge is determining how the revenues from mining should be shared among national, regional, and local levels. Ideally, this should be decided on through equitable decision-making structures involving representatives of all the affected

stakeholder groups. A successful example of this 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 such issues 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 been successful in securing a greater level of community support for mine development. Further refinement of the focus of the memoranda could provide a greater degree of sustainable development for local communities.[52]

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. Some individuals and communities receive royalties and others do not; some individuals are employed by the mine and others are not, and so on.

Ultimately, past experience has shown that there may be winners and losers within communities, as described earlier. Even traditional decision-making procedures, such as public negotiations between kinfolk, may be ill equipped to deal with large sums of money. New structures and guidelines may be required to handle the distribution and sustainable use of compensation and other monies. Communities themselves can bear some responsibility as to whether inequalities are strengthened or weakened. For instance, Aboriginal organizations have sought changes to Queensland's Aboriginal Land Act 1991, which, by creating a hierarchy among different categories of people in terms of the nature of their affiliation to land, increases the possibility that royalty payments will add to inequalities in indigenous communities affected by mining.[53] At the same time, members of the Marpuna community on Cape York have sought to develop structures that would ensure that royalty income from a new mine on their land would be distributed equitably, regardless of the provisions of the Aboriginal Land Act.[54]

In many respects, the central issue is less about how much is received than about how it is used. The key question is, how should this revenue best be spent to contribute to sustainable development? In PNG, for example, the bulk of compensation monies is paid in cash, and there is ample evidence suggesting that much of the revenue is spent or invested outside the area. Researchers looking at Porgera estimated that just 5–10% of compensation payments was put into investments, 20–25% went into business developments (most of which quickly failed), and 65–75% had been consumed (or redistributed and then consumed) within Porgera or had been distributed to people outside the area.[55] Much of the cash flowing to individuals in the community is distributed widely among community members. This has the positive effect of spreading the economic benefits of the mine among most in the community, but given that smaller amounts of cash are likely to be consumed quickly, it does work 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 should be incorporated into initial agreements between governments and mining companies. The design of policy, regulations, and agreements must reflect the capacity to implement them. Short-, medium-, and long-term approaches may be adopted. 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 greatly influenced 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 put on consulting with and channelling information to community leaders, who are invariably male.

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.[56]

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.'[57] 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.[58] The challenge, however, is to translate policy into practice.

In some cases, conscious efforts are also being made by companies to address the needs of women. For example, in Zambia companies are providing neo-natal health care for women in occupational communities.[59] In La Oroya, Peru, the *mineras* (miners' wives) managed to break the cycle of unemployment and poverty by starting small businesses, following the establishment of a community bank that lends money to these women.[60] Efforts like these need to be replicated where possible.

To conclude, the potential is there for mining 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 in the community 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 land ownership 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. Such strategies 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 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. The inclusion of women in employment at all levels can assist in this, as can the sensitization of male employees to gender issues. 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 a number of programmes whose aim is to ensure that mining communities share the benefits of mineral development. In some cases, these have been set up prior to the opening of a mine; in others, they have been a reaction to dissent and unrest among affected communities or to criticism from NGOs and others.

At Porgera, for instance, the company employs more than 100 community development workers.[61] And at the Antamina mine in Peru, the company has developed a Sustainable Development Plan with the UN Development Programme.[62] It is thought to be the first project of its kind within the mining industry. The plan is still in its early stages, and there is 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 for ensuring that revenue benefits local communities. The Bolivia Mining Code, for example, permits companies to invest in community infrastructure and to offset this against tax liabilities.[63] At the MMSD workshop on managing mineral wealth, concern was expressed that infrastructure tax credits may undermine government capacity and may not an ideal long-term solution.

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

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 agreement 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 by a national company, 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: McMahon (1998).

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.

- Mechanisms should be designed in a way that bolsters rather than undermines government capacity.

- 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.[64]

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.[65]

Similarly, in an effort to promote local economic development, AngloGold has implemented a programme for small enterprise development in South Africa. It involves the company sourcing a substantial proportion of purchases from small firms, with tenders awarded 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.[66]

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, however, there is a concern that the opportunity for a large number of semi-skilled jobs may further decrease, with yet fewer employment opportunities for local people . But it is still possible to hire and train these individuals, and it may take some hard targets to which managers are held accountable for slowly increasing the percentage of local labour as training programmes qualify them for work . At Escondida mine, 80% of the 2000 permanent staff have been hired locally.[67] 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.[68]

The Red Dog mine in Alaska provides another example of this. 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.[69]

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.[70]

As in this case, employment of local people is often constrained by a shortage of skills within a community. However, the presence of large mining operations should be seen as providing significant opportunities for workers and other members of local communities to develop skills. Indeed, in many countries, legislative provisions also govern requirements for skills development in companies. Although skills development initiatives may be based on existing demand in the mine project and related enterprises, ideally they should be an integral part of any community development plan.

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.[71] 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.[72]

A number of recommendations can be made. 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. Cultural awareness programmes may need to be exchanged, not just for mine managers but 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 South Africa. Between 1990 and 2000, 360,000 mineworkers lost their jobs.[73] 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.[74]

Traditionally, mining companies in this area 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. So 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. The project provides skills and vocational training. At the same time it seeks to enhance the institutional capacity of the Mineworkers Development Agency and The Employment Bureau of Africa. The geographic coverage of the Care Project includes rural communities in Mozambique, Lesotho, and Eastern Cape Province in South Africa, where most workers and retrenchees live.[75]

Though it may be too early to assess the impact of the Care Project, the challenges facing it are not unique in rural development. The process enabling 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) in an attempt to find employment for Misima workers.[76] Its rate of success is not yet clear, and initiatives of this kind may be complicated or restricted by local procurement policies.

In summary, efforts to assist retrenched workers will inevitably 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 to ensure that they are 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. Most important, communities need to be involved in decision-making on issues that affect them, and their power and rights need to be respected by companies in all cases, regardless of the attitude of the central and local government.

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.[77]

A useful 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 being threatened by the actions of Australian-based mining companies, by raising their cases directly with the companies concerned in Australia in order 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.[78]

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.[79]

Disputes may also arise within or between communities as a result of the changes brought about by mining, such as in the balance of wealth and power of individuals or subgroups and general social change. A recent study at the Porgera mine in PNG suggests resolving community conflict through increasing intergroup cohesion and trust. It argues that when 'connections' are reinforced – such as shared values and aspirations or membership of community groups, like churches and youth groups – people find ways of living side by side, tolerating differences, and joining together to work on common problems. It also suggests how impacts from mines can be managed to encourage rather than discourage community cohesion, such as through 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.[80] Finally, the study demonstrates that an increased

understanding and ability to identify how mining activities affect conflict dynamics within communities will help everyone recognize appropriate options to reinforce community stability.

Community Health Initiatives

Traditionally, companies have provided health services, 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 communities in the design of health care and to assist in the provision of health services to local communities more broadly. In many cases, communities, government, and labour unions are encouraging industry to take greater responsibility. 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 the spread of diseases or occurrence of accidents, the effect of the mining operation on broader community well-being needs to be addressed. This should include its psychological impacts as well as changes in diets and lifestyle brought about by mining.

An example of local community-initiated action, concerning 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 pre-emptive approaches; 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.)

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).

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, 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. This was formed in 1999 by five mining companies with the objective of promoting the development and implementation of community health projects in cooperation with the World Health Organization (WHO).[85]

To facilitate and 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 matters that had 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, to date only four projects have been developed for approval by WHO, and no new members have been found. One factor that may be limiting the success of the World Alliance is 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 promote and 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, at which time 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. It was agreed that for the Global Health Initiative to succeed, it would have to engage private-sector CEOs in a meaningful way, such 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 include consideration of these issues at an early stage, and be oriented to recommending measures to deal with any problems. These should include 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. This should include comprehensive and priority objectives for individual diseases covering treatment, prevention, control, and eradication as well as for community well-being more generally.

- 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, 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 much more dramatic than it would be for other kinds of industrial plants, as mines frequently constitute a larger proportion of the local economy. Moreover, 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 at least as important.

In the classic remote mining town, closing the mine often meant closing the town as well. This has dramatic social effects – family and personal ties are severed as people move, local businesses are no longer viable, property values fall, and the dislocation triggers a series of impacts for displaced workers and their families.

In richer societies, where employment levels and resources are relatively abundant, at least 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 truly traumatic. And when the problem is not limited to one mine but 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 some sort of 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 when the mining operation is over 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 some other economic base besides mining. It may not be possible in the years after closure to match the economic activity levels of the best years of mine operation, but it is realistic to think of 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 indigenous communities, the ability of the community to continue its 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 themselves 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 that there is 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 that local authorities have in taking 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. The greatest degree of flexibility is with new mines, which can explore all options fully with minimum constraints. In existing mines, the issue of sustaining benefits often becomes of major concern only when mine closure approaches. But even for many new and proposed mines, comprehensive planning for mine closure is not always part of pre-mine planning. Where government policies exist, they are often restricted to the physical environmental aspects of mine closure.

There are isolated examples of companies beginning to work 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 establish what will hopefully become durable economic, social, and administrative institutions and activities. A Porgera Management Team will be responsible for development and implementation of 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 and include specific goals for the period. Internal and external monitoring, auditing, and evaluation will be central to the plan. In this case, the advantage is that it seeks to work 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, Canada provides a good case of planning for mine closure. The mine is fortunate in being located in a relatively prosperous area of outstanding natural beauty with reasonably strong economic linkages. Moreover, Kimberley has a well-organized and stable community with good local representative structures. The challenges faced are thus far less than may be found in other areas, but the process it has conducted and lessons learned are useful. (See Box 9–5.)[91]

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

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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 MMW Workshop, August 2001, and on discussion at Sullivan Roundtable Workshop co-hosted by Teck-Cominco and the World Bank, Kimberley, November 2001.

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 concerns. Moreover, it could be argued that fly-in, fly-out operations are less disruptive in the sense that 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.

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 reference to or consultation with communities, and companies have negotiated directly with central government about royalties and taxes. Yet some good examples of community participation are beginning to emerge, such as the extensive community consultation involved in the drafting of the recent minerals policy in South Africa.[92]

At the local level, public consultation has traditionally been limited to communicating certain aspects of projects to affected communities or dealing with community complaints about the absence of tangible benefits. Only recently has it been applied by regulation as a formal process of integrating public input into a social impact assessment (SIA) process and identifying 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 objectives among the community, company, and other actors.

In the context of sustainable development, the key points about community participation in decision-making are that it recognizes the rights of communities to representation and engagement in processes that affect them, and that it bases the interaction between the mining project and the community on the values, goals, and aspirations of the community affected. The project is best cast in terms of whether it will help or hinder the realization of these aspirations. 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, self-determination, 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 and the mitigation of costs, and a lack of systems or institutions able to ensure that benefits can be sustained 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 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

This preparatory workshop provided a forum for indigenous people and those working on indigenous issues to meet among themselves and share perspectives on the problems and benefits of mining. The meeting was attended by indigenous community members from South America, Australia, the Philippines, and Kyrgyzstan. (Others who had planned to participate were unfortunately unable to travel in the post–September 11th period.) It was held in preparation for a later workshop in Australia that would be attended by members of other stakeholder groups, including industry and governments.

After hearing from attendees about their experiences with respect to mining and land use, the workshop moved towards a discussion of potential ways to build better relationships, including mechanisms for ensuring a stronger voice for indigenous people in their discussions with mining companies and others.

Two main themes surfaced from the workshop. First, indigenous communities are in very different states of preparedness, ability, and desire to participate in 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 by recognizing best practice where it is identified and making such information available to indigenous communities considering mining projects.

The multistakeholder follow-up workshop was held in Perth, Western Australia, and 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, capacity for indigenous communities and others, and the essential components of building relationships between indigenous peoples and others.

What came through most clearly from the indigenous attendees was that the recognition of 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. In the hierarchy of rights, many 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 this and future generations can fully assess the challenges and opportunities provided by mining, minerals, and metals exploitation.

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 as developed during the MMSD process and ensure the effective participation of indigenous peoples in standard setting. It could also monitor the implementation of agreed standards once they are recommended by the MMSD process. Participants also urged the international mining industry to acknowledge and accept that necessary financial and other resources will be required by this body, and to make a commitment to secure funding for the work of this body.

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.

As a study of community perspectives of mining in Victoria, Australia, indicates, companies that do 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 of a project and to listen to and respond appropriately to the issues raised by the community. 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.[93] Access to adequate and accessible information about the project is also key. (See 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.[94]

Currently one of the biggest areas of debate is the extent to which consultation implies some degree of shared decision-making. While mining companies are increasingly recognizing 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 not see consultation processes as valid unless and until they see that their concerns affect decisions about projects.[95] 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.[96] Inclusive, multistakeholder processes run by independent parties will reduce the power differential between the community and company and similarly 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.[97] 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.)

Table 9–2. Roles and Responsibilities in Community Development Forums	
Community	Own the process
Company	Commit to process and provide funding
Government	Establish regulatory framework and requirements for process
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

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.[98] Developed originally in the 1970s in response to the requirements of environmental regulations, it did not 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'.[99]

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, through multiple social and political change processes at work, 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, 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 manage the social impacts of mining on an ongoing basis through the life of a project, from exploration to closure and beyond. Furthermore, 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 human experience, cultural norms and realities, and subjective perceptions into what is otherwise (in terms of the overall EIA process) usually 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.[100] 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 (Usher 1978). 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 (Usher 1993: 112).[101]

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 well known, referred to, and used consistently. One of the most persistent problems this gives rise to 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, 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.

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 that are asking for 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 more generally. 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 management 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 own key social indicators.

In conclusion, there is urgent need for common, standard, best-practice SIA guidelines for use in the mining industry. The experience of applied practitioners is possibly the most credible base for the development of such guidance. The absence of standard guidelines gives the mining industry a chance to show leadership in developing and adopting SIA standards, which might then 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 their future:

- Sustainable development calls for appropriate methodologies of information acquisition and presentation and a move from SIA to sustainable development assessment.

- SIA should become a dynamic, ongoing process of integrating knowledge on potential social impacts into decision-making and management practices.

- Social monitoring needs to become an integral part of SIA.

The Way Forward

Each mine and community is unique, and the priorities and approaches taken will differ. The solution is not to attempt a laundry list of best-practice recommendations on every issue. What is best practice in one case may not be applicable elsewhere. 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.

The first contact between the community and a company is critical, and there are many factors to consider. The timeframe for decision-making in communities is different from that in companies. In addition, 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 into the community and ensure that all elements are approached and consulted.

Integrated Impact Assessment for Sustainable Development

Impact assessment should be a universal process for new projects. The goal is to put in place a process to examine the whole spectrum of sustainable development issues, in addition to those required by legislation. Environmental impact assessment, usually required by law, should be coupled with social impact assessment, which is less often legally required. To this mix should be added assessment of other sustainable development issues identified as important during any of the proposed phases of the project: construction, operation, or post-operational. These may include community health, infrastructure, or conflict impacts.

In order to surface important issues for the community's future path of development, effective participation by the community should be ensured. Again, meeting legal requirements for public participation and information is necessary, but where these are inadequate to create the kind of broad participation necessary for developing a shared vision, other processes should be considered. If the community wishes to proceed, these processes of effective participation would lay the foundation for a Community Sustainable Development Plan.

Community Sustainable Development Plans

MMSD suggests that based on the findings of the impact assessments, companies should ensure that a Community Sustainable Development Plan is put in place at each mine. The plan 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. It should also be grounded in the reality of the willingness and ability of the company and national government to contribute to and support those goals. The CSDP should provide the fundamental framework for relationships among the company, the community, the government (and any other parties) through the project life and into post-closure. MMSD suggests it should be designed through a process of consultation that begins during the integrated impacts assessment.

Experience suggests that a multistakeholder forum administered by an independent party is a good mechanism to 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 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;
• skills development;
• institution strengthening;

- preferential procurement policies towards local suppliers and distributors;
- conflict or dispute resolution;
- social and cultural values;
- gender; and
- integrated 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, if there is insufficient government capacity to distribute revenue, the best option may be to take a collaborative approach, where companies and NGOs work with government and at the same time build local administrative capacity. The work undertaken by Business Partners for Development (BPD) provides useful lessons on local tri-sector 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.[102]

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.

Roles and Responsibilities

Many factors need to be in place for mining to contribute to sustainable development at the community level. Many of these are the shared responsibility of different actors:
- a commitment to sustainable development at the local level;
- a commitment to effective community participation in decision-making;
- mechanisms for open communication among communities, mining companies, and other actors;
- a commitment to proactive rather than reactive approaches;
- independent evaluation and monitoring systems;
- consideration of capacity requirements at all levels and of ways to increase capacity;
- differentiation among short-, medium-, and long-term considerations; and
- systems for coordination and integration of roles and mechanisms;

The precise roles of the various actors in the mining sector in assisting communities to work towards sustainable development 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, and in some cases governments are already taking on this agenda. In other cases and in the short term, 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 on helping the community itself become more sustainable. 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.

Companies need to:
- respect the rights of communities, including the right to information, to representation and engagement in processes, and to development and self-determination – particularly in countries where policies and practices are not always consistent with the respect of citizens' rights;
- understand and respect the culture and customs of the local community, which cultural awareness training for employees can help;
- examine the way employee performance is measured and rewarded to focus more on the quality of the relationships built in communities and less on immediate objectives; and
- commit resources and be willing to make changes.

Government

Governments have 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 standards to ensure sustainable development takes place at the local level and to protect its 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.

Governments should:
- make any legal or procedural changes necessary to allow it to be a full and active participant in the processes of integrated impact assessment and formulation of a Community Sustainable Development Plan;
- strengthen policy and regulations to address the sector's local impact;
- broaden regulatory and legal frameworks for impact assessment to ensure proper treatment of not only environmental issues but also social and economic issues;
- develop systems for project monitoring and evaluation; and
- ensure that rights of communities and particularly of indigenous people or minorities are protected.

Non-governmental and Other Independent Organizations

Often NGOs have a unique relationship with communities, are well versed in community problems and concerns, and can be enormously helpful in developing truly representative approaches that include all social elements. At the same time, NGOs with specific agendas, like companies, also have the potential to polarize communities and cause conflict. NGOs – particularly international ones – should further develop internal policies to provide guidance for responsible behaviour in community engagement.

Best practice in NGOs suggests that with respect to communities, NGOs should endeavour to:

- build systems to ensure that the same standards of transparency, legitimacy, and accountability to which other stakeholders are held are maintained in the NGO community;
- respect different community perspectives towards proposed development, including those who do not support their agenda, and develop communication with all elements in the community;
- at the local level, work on building the capacity to ensure that their perspectives are articulated and to determine that the full range of development options are available to communities close to potential mining projects;
- continue to lobby at international, regional, and local levels for community representation in the decision-making processes that surround mining developments; and
- act as independent arbitrators or monitors.

International Agencies

International agencies such as the World Bank and the UN have a unique position of influence and responsibility, particularly with respect to harmonizing the standards by which communities are treated during development and bringing influence to bear on public- and private-sector concerns with regard to these standards. International institutions also have the ability to propose standards based on transnational experiences and therefore have a role to play in ensuring a flow of information about best practice and highest achievable standards.

- International organizations 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;
- move towards requiring Community Sustainable Development Plans in projects they are involved in, which involves developing guidelines and ensuring that there is an integrated mine closure plan;
- fund capacity-building exercises for communities and state institutions;
- synthesize cross-sectoral and transnational learning on community issues for public dissemination;
- develop national and international networks for communities to share experiences and to assist them in strengthening their negotiating power; and
- continue to establish improved systems to ensure the highest standards of accountability, verifiability, and legitimacy for assessments of community needs and aspirations prior to funding mining-related projects.

Endnotes

[1] InterPress Service (1994).
[2] Howard (1988) p.258.
[3] Joyce and MacFarlane (2001).
[4] Emsley (2001).
[5] [[Reference to come]].
[6] Pasco-Font (2001).
[7] Van der Veen (2001).
[8] Labat-Anderson Inc. (1997).
[9] MMSD (2001e).
[10] Fraser (2001).
[11] Loayza et al. (2001) p.12.
[12] Banks (2001) p.43.
[13] McMahon (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] McMahon (1997).
[15] Christmann (2001).
[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] McMahon (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] Scheyven and Lagisa (1998).
[27] Earlier data adapted from figures in Lahiri-Dutt (1998).
28 ILO (1988), ILO (1996), ILO (1997) and ILO (1999c) quoted in Lahiri-Dutt (2000) p.7.
[29] Scheyven and Lagisa (1998) p.61.
[30] Wesley-Smith and Ogan (1991) p.11.
[31] Filer (2000) pp.92-93.
[32] Scheyvens and Lagisa (1998) p.60.
[33] Scheyvens and Lagisa (1998) p.62.
[34] Emberson-Bain (1994).
[35] Dodd (2000).
[36] Musvoto (2001).
[37] Norwatch (1999).
[38] Oxfam Community Aid Abroad (2001).
[39] Heathcote (undated).
[40] Horswill et al. (1999).
[41] Stephens and Ahern (2001).
[42] Castilla (1983).
[43] [[Source to be identified]].
[44] International University of Kyrgyzstan (1999).
[45] Coumans (1999).
[46] O'Faircheallaigh (1995) pp.2-5.
[47] Ramos (2001).
[48] Choshi (2001).
[49] Ibid.
[50] Aste (2001).
[51] Hannesson (2001b).
[52] Banks (2001).
[53] O'Faircheallaigh (1996).
[54] Holden and O'Faircheallaigh (1995b).
[55] Banks (2001) p.42.

[56] Musvoto (2001).

[57] South African Development Community, Heads of Government Declaration on Gender (1997).

[58] http://www.mbendi.co.za/orgs/cp7d.htm/

[59] Kangwa (2001).

[60] Musvoto (2001).

[61] Porgera Mine (1998).

[62] Botts (2001).

[63] McPhail (2001).

[64] Rio Tinto (2001).

[65] Ibid.

[66] Anglogold (1998) cited in Choshi (2001).

[67] See IDRC website at http://www.idrc.ca/mpri/

[68] Choshi (2001) p.24.

[69] Horswill (2001).

[70] Ibid.

[71] Choshi (2001).

[72] http://www.escondida.cl

[73] Government of South Africa (1999/2000).

[74] Dunn (2001); Choshi (2001).

[75] Ibid.

[76] http://forests.org/archive/png/onmoremo.htm/

[77] Oxfam Community Aid Abroad (2001).

[78] Ibid.

[79] Oxfam Community Aid Abroad (2001).

[80] Anderson et al. (2001).

[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] Brehaut (2001).

[88] Khanna (2000).

[89] Banks (2001) p.45.

[90] Banks (2001) p.73.

[91] The mine has only recently closed, so the full effects of closure are not yet known.

[92] See Mineral and Energy Policy Centre (2001).

[93] CSIRO Minerals (2001).

[94] Gibson (2001b).

[95] Joyce and MacFarlane (2001).

[96] This suggestion is based on the report back from a break away group at the MMSD Managing Mineral Wealth Workshop, August 2001, London, 15-17 August.

[97] Ibid.

[98] This section is based on Joyce and MacFarlane (2001).

[99] Gibson (2000) cited in Joyce and MacFarlane (2001).

[100] 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, cited in Joyce and McFarlane (2001).

[101] Cited in Joyce and McFarlane (2001) (references in the original).

[102] For more information see http://www.bpdweb.org.