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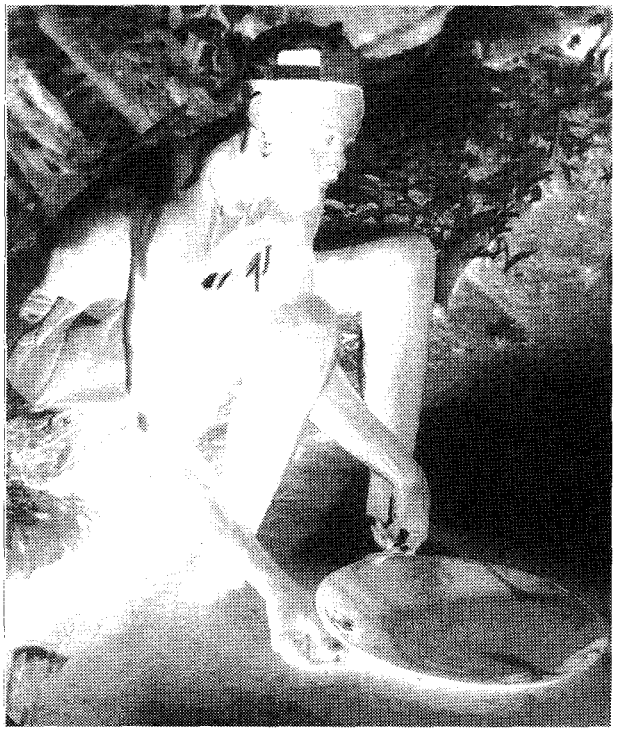
6 Regularizing Informal Mining

A Summary of the Proceedings of the International Roundtable on Artisanal Mining

Mamadou Barry, editor



Industry and Energy Department
Occasional Paper No. 6

Regularizing Informal Mining

A Summary of the Proceedings of the International Roundtable on Artisanal Mining

Organized by the World Bank,
Washington, D.C., May 17–19, 1995

Mamadou Barry, editor

April 1996

The World Bank

Industry and Energy Department

Cover: Madhia, Guyana. "Porknocker" panning for gold in a stream made turgid by high-pressure hydraulic mining operations upstream. Photo: Laurier Jalbert.

Contents

Abbreviations and Acronyms iv

1. Introduction 1

2. Opening Remarks 2

3. Keynote Address 3

4. First Session: Environmental, Health, and Safety Issues 5

5. Second Session: Organizational, Social, and Women's Participation Issues 7

6. Third Session: Technical and Financial Issues 9

7. Fourth Session: Legal and Regulatory Issues 10

8. Elements of a Solution 12

9. Agenda for Action 12

10. Conclusions 13

Annex: List of Participants 15

Abbreviations and Acronyms

CENDA	Centro de Desarrollo Comutario y Conservation Ambiental
COTESU	Coopération Technique Suisse
CVG	Corporation Venezuelana de Guyana
ITDG	Intermediate Technology Group
NGO	Nongovernmental organization
Plan ECO+	Estudio de Impacto Ambiental Collectivo
UNIFEM	United Nations Development Fund for Women

1

INTRODUCTION

In May 1995, the World Bank convened an international roundtable to discuss the problems and potential of the growing number of small-scale—informal—miners worldwide. The meeting was called to facilitate an exchange of views and experiences among those associated with the sector in different parts of the world, to assist delegates in developing strategies for dealing with problems and policies affecting small-scale and artisanal mining in their own countries, and to provide input to the World Bank to formulate its own policy for the sector.

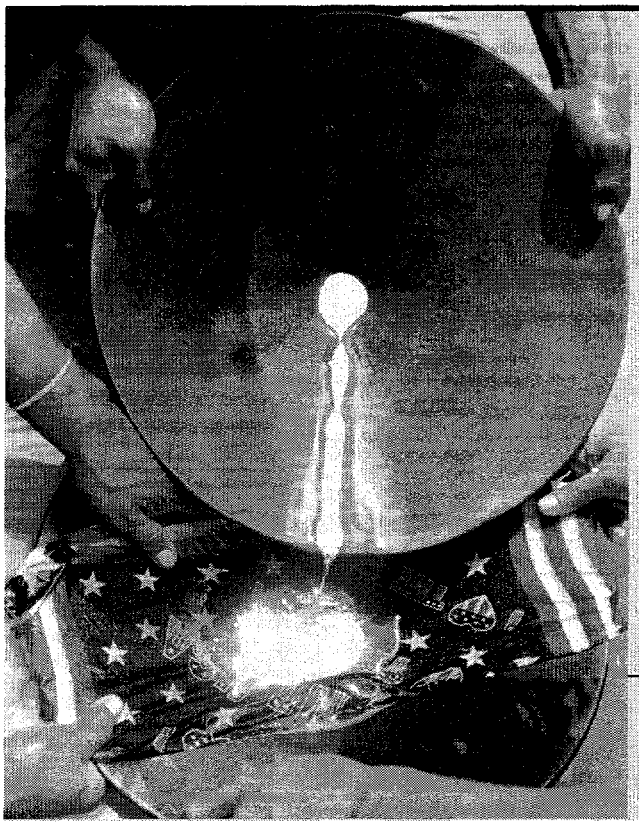
The World Bank has an interest in informal mining because part of the organization's mandate is to alleviate poverty, and small-scale, informal miners—although they may be better off than many of their compatriots—are poor. In fact, to a large extent, informal mining is a poverty-driven activity.

Some 80 invited delegates from 25 countries attended the roundtable. The gathering included representatives from the full spectrum of interested parties—multinational agencies, governments, nongovernmental organizations (NGOs), international mining companies, and the small-scale mining community itself.

Although previous international conferences have considered artisanal mining within the broader scope of a small mines sector, the May roundtable was the first to discuss purely the problems of the artisanal mining sector. *Artisanal mining* was defined for the purposes of discussion as the most primitive type of informal, small-scale mining, characterized by individuals or groups of individuals exploiting deposits—usually illegally—with the simplest equipment.

- *Artisanal mining is the most primitive type of mining, characterized by individuals or groups exploiting deposits—usually illegally—with the simplest equipment.*
- *Although it provides an important source of income, artisanal mining engenders a host of problems: environmental, health, and safety concerns; labor and gender issues; and technical, financial, regulatory, and legal issues.*
- *A key conclusion: No real solutions are possible unless artisanal miners are given full legal and transferable mining titles to their claims.*

Peter van der Veen, chief of the Industry and Mining Division in the Industry and Energy Department of the World Bank opened the conference and introduced a welcoming speech by Jean-François Rischard, vice president for Finance and Private Sector Development of the World Bank. Then, Richard Noetstaller of Leoben University, Austria, presented a keynote speech that set out the situation and the issues to be discussed. The different aspects and problems of artisanal mining were then discussed in four sessions:



Some key questions:

- *How can artisanal mining be carried out safely and in an environmentally acceptable manner?*
- *How can the sector contribute to economic progress?*
- *What technical, financial, and regulatory measures will be required to achieve progress?*

Madhia, Guyana: Amalgam being strained before drying. This step is being carried out within the stream channel, which allows pollution of the stream with mercury from the amalgam. Photo: Laurier Jalbert.

- Environmental, Health, and Safety Issues
- Organizational, Social, and Women's Issues
- Technical and Financial Issues
- Regulatory and Legal Issues.

Each session began with a series of short formal presentations followed by active discussions. At the end of the conference, the delegates broke up into smaller working groups to discuss the four groups of issues and draw conclusions. As the discussions progressed, it became apparent that the four groupings had many aspects in common. These interrelationships emphasized the need for an integrated approach to the issues and problems in the sector.

At the end of three days of discussions, at least one salient conclusion emerged: *no real solutions are possible unless artisanal miners are given full legal and transferable mining titles to their claims.* The group members added, however, that legalization of artisanal mining, although an essential precondition for reform of the sector, can only be considered a start. The problems are so wide ranging that a flexible and integrated approach tackling regulatory, social, environmental, and other issues will be necessary.

2

Opening Remarks

The roundtable was opened by the chief of the Industry and Mining Division in the Industry and Energy Department of the World Bank, Mr. Peter van der Veen, who put the key questions as follows:

- How can artisanal mining be carried out safely and in an environmentally acceptable manner?
- How can the sector contribute to economic progress?
- What technical, financial, and regulatory measures will be required to achieve progress?

In brief, he suggested, the problem is to find out

what can be done to help the informal mining sector make the jump from a subsistence activity to an economically viable small-scale enterprise.

Next, Mr. Jean-François Rischard, vice president for Finance and Private Sector Development of the World Bank, took the podium to welcome the delegates and to place the topics of the meeting in the context of the World Bank's work.

Mr. Rischard pointed out that the World Bank's fundamental objective is to alleviate poverty and improve living standards through sustainable growth and investment in people. Part of this strategy is the promotion of labor-intensive activities such as informal, small-scale mining, which requires neither large investments nor sophisticated equipment; has considerably more potential for creating jobs than does highly mechanized mining; and, if promoted in an orderly fashion, has the potential to develop into an indigenous mining industry.

The Bank is also interested in the sector because artisanal mining provides employment for large numbers of women, who are usually the most disadvantaged and vulnerable group among the poor.

Mr. Rischard pointed out that several million people worldwide depend on artisanal mining for their livelihood. Informal, small-scale miners, he reminded the group, account for 20 percent of the gold, 40 percent of the diamonds, and nearly all the gemstones mined in Africa. Not long ago they accounted for 70 percent of Brazilian gold production (now less than 50 percent but still worth about $1 billion a year). Copper, gold, silver, tin, and zinc are also produced by informal miners.

Although informal mining has the potential to be a beneficial economic activity, in many countries it is constrained by numerous factors, including the following:

- A high degree of health, safety, and environmental risk
- A get-rich-quick mentality and the social problems typical of transient mining settlements
- Limited access to credit and a lack of equipment and appropriate technology
- Disorganization, which often means illegal activity, and sometimes a source of conflicts with international mining companies.

If informal mining is to develop into a sustainable activity, these individual issues must be addressed, Mr. Rischard said. At the same time, he noted that the World Bank does not see artisanal mining as strictly a mining problem "but rather as a poverty issue which must be addressed by a comprehensive approach."

Mr. Rischard closed by thanking the cosponsors of the conference for funding the participation of speakers and delegates from the developing countries. He also expressed the hope that the roundtable would provide opportunities to forge partnerships among multilateral and bilateral agencies, NGOs, government institutions, and international mining companies; to share experiences and explore strategies; and to define an agenda for action on the issues and constraints of small-scale mining.

3

KEYNOTE ADDRESS

Mr. Richard Noetstaller, of Leoben University, Austria, pointed out that until the beginnings of the industrial revolution, artisanal mining was the only form of mining and that it continues to play a significant role in many parts of the developing world. Increasingly, however, artisanal mining has become a controversial activity—regarded by some as dirty, destructive, and illegal and by others as productive, profitable, and often the means of survival in times of need.

According to Mr. Noetstaller, the low barrier to entry in terms of skills, capital, and infrastructure is the principal attribute of artisanal mining. As such, the activity is labor intensive and employs about 6 million people worldwide. Their activities generate substantial purchasing power in artisanal mining districts, which in turn fosters regional development. However, uncontrolled artisanal mining has several negative effects: unacceptable environmental practices, poor social, health, and safety conditions, illegal mining and marketing, and waste of resources. Most of these harmful effects are directly related to technical and financial limitations.

The problem is that both the informal miners and the governments are caught in negative circles of cause and effect. The use of inadequate mining and processing techniques and equipment leads to low productivity of operations and low recovery of valuable minerals, which in turn results in low revenues and the inability to accumulate funds for investment. The lack of funds to improve methods and acquire appropriate equipment traps artisanal miners in crude, inefficient mining and processing, closing the first negative circle, shown in Figure 1.

Mining authorities are also caught in a similar cycle of causality that limits their ability to control artisanal mining activities effectively. Mining authorities are often unable to control artisanal mining because they lack adequate operational resources to enforce existing regulations. This in turn results in illegal operations; poor environmental, health, and safety standards; and a loss of fiscal revenues. The lack of funds from fiscal revenues limits the ability of the government to perform its regulatory function and perpetuates uncontrolled artisanal mining. The resulting negative circle is shown in Figure 2.

In closing, Mr. Noetstaller stressed that both negative cycles must be broken to overcome constraints on artisanal mining. The key features of change are the strengthening of the mining authorities and the use of more efficient mining and processing techniques. The introduction and dissemination of appropriate equipment and technology, along with adequate training, will improve productivity and recovery and lead to rising incomes. However obvious this may seem, Noetstaller said, the implementation is difficult because of the large numbers of people involved, the remote location of much artisanal mining, and the reluctance of miners to change their ways. Also, miners are unlikely to wish to become licensed operators unless the benefits can be shown to outweigh the costs.

Figure 1 Negative Circle Affecting Artisanal Miners

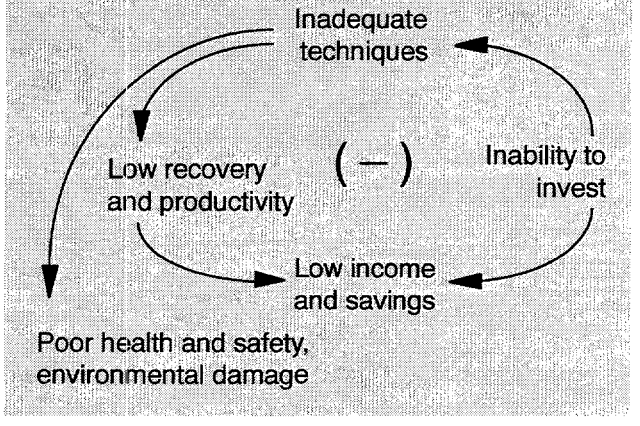
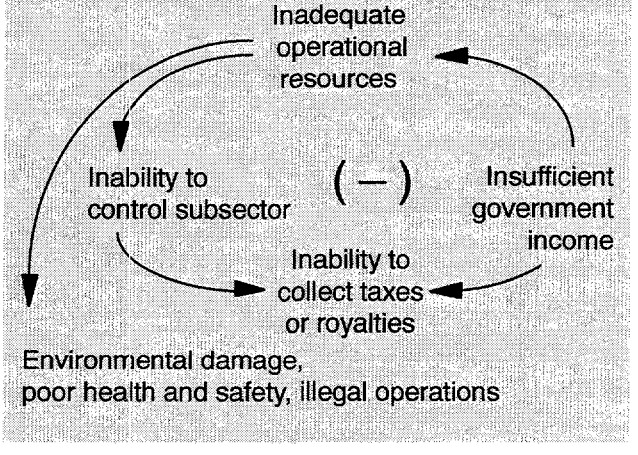


Figure 2 Negative Circle Affecting Mining Authorities



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First Session: Environmental, Health, and Safety Issues

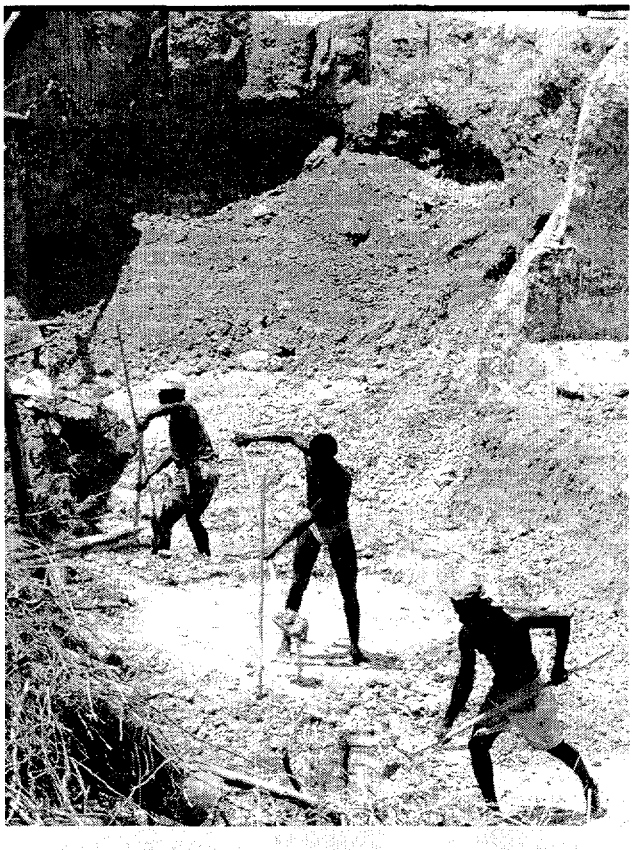
Presentations

The speakers of this session dealt with the environmental aspects of artisanal mining and the health and safety conditions in the mining sites. Mercury contamination, destruction of the vegetal cover, land degradation, and health and safety hazards are key issues in the sector that were addressed through three presentations.

Mr. Thomas Hentschel gave the first presentation. A project leader in an environmental management program for Bolivian small-scale mining, Mr. Hentschel described the problems of mercury contamination by artisanal mining activities and how his institution—Projekt Consult, financed by a Swiss technical cooperation agreement (COTESU)—had developed several pieces of equipment to eliminate or reduce the release of mercury to the environment. The inexpensive and simple-to-operate equipment included traps for improving amalgamation, retorts for distilling amalgam, and a battery-operated mercury activator. Mr. Hentschel emphasized that it was essential that such equipment be fully tested before being introduced, and equally vital to train the miners in its use. Furthermore, for successful introduction it is necessary to maintain a concentrated effort in this regard through demonstrations and dissemination of literature and photographs.

Mr. Douglas Arantes then gave a brief history of *garimpo,* or artisanal, mining in Brazil, which once accounted for 75 percent of Brazilian gold production and has now dropped to about 50 percent because of the exhaustion of easily worked deposits, increases in fuel prices, and rise of mechanized production. Mr. Arantes, the chief geologist of Western Mining Corporation Mineraçào Ltda. (Brazil), told the group that although less than 1 percent of the Amazon basin had been affected by garimpo activity, the local environmental impacts have been high. A further problem has been that the garimpeiros' inefficient exploitation of the oxide caps, with a recovery of 25 to 55 percent, was effectively destroying resources that might be economic to exploit by formal mechanized mining. Mr. Arantes also addressed the changing legal status of garimpo mining in Brazil. Under the old regime, garimpeiros were permitted a garimpo license, but under the new constitution only cooperatives are recognized—not individuals. Also, all mining must conform to strict environmental standards, which the garimpos do not meet. Their activities are therefore effectively outside the law.

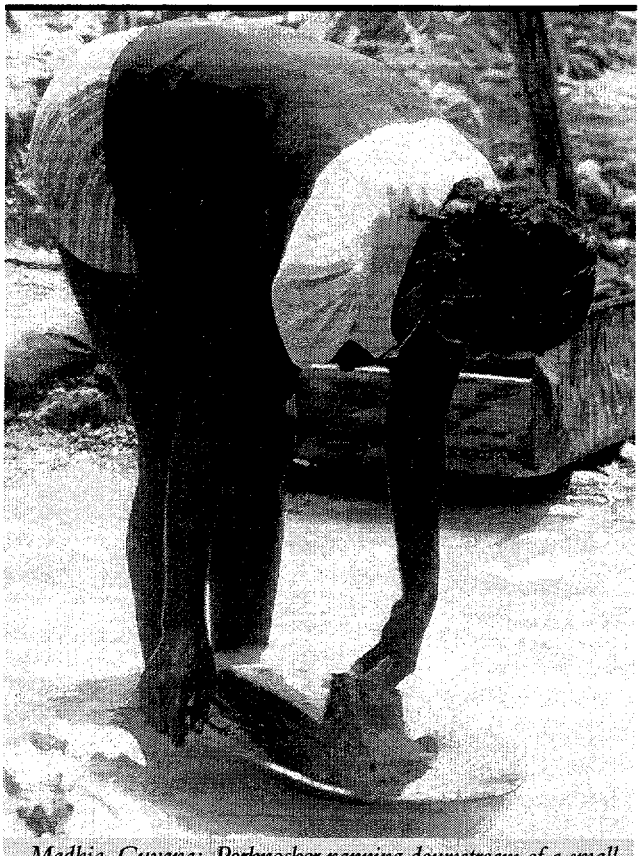
In the final presentation, Mr. Fabian Rodriguez, executive director of Fundación CENDA (Ecuador), described the activities of CENDA, a nonprofit



Kaburi, Guyana: Group of "porknockers" digging gold-bearing gravels. Photo: Laurier Jalbert.

NGO, in improving the lot of the 100,000 or so artisanal miners in southern Ecuador. CENDA is managing a unique rural development program of 63 environmental management projects. This program, Plan ECO+, is based on a collective environmental impact assessment study that forges a partnership between a government agency, an NGO, and a group of artisanal miners. The program is aimed at reducing the environmental impact of mining activities, raising environmental consciousness among the population at all levels, and promoting the production and use of equipment that protects the environment.

Mr. Rodriguez explained that Plan ECO+ began with an intensive campaign to make miners aware of the environmental and health hazards of their activities. The Plan is managed by a private entity to overcome local suspicions of official political or economic agendas. A key factor and a major success in the publicity campaign has been the publication of a monthly newspaper, *Boletin Minero,* which is distributed to all involved parties and keeps them abreast of the project's activities. In addition to technical assistance to miners, the Plan's activities include a host of social programs that build its own institutional credibility and contribute to the well-being of the mining community, providing meals for miners' children, improving potable water sources, arranging for garbage collection and disposal, and promoting small industries as alternative sources of work.



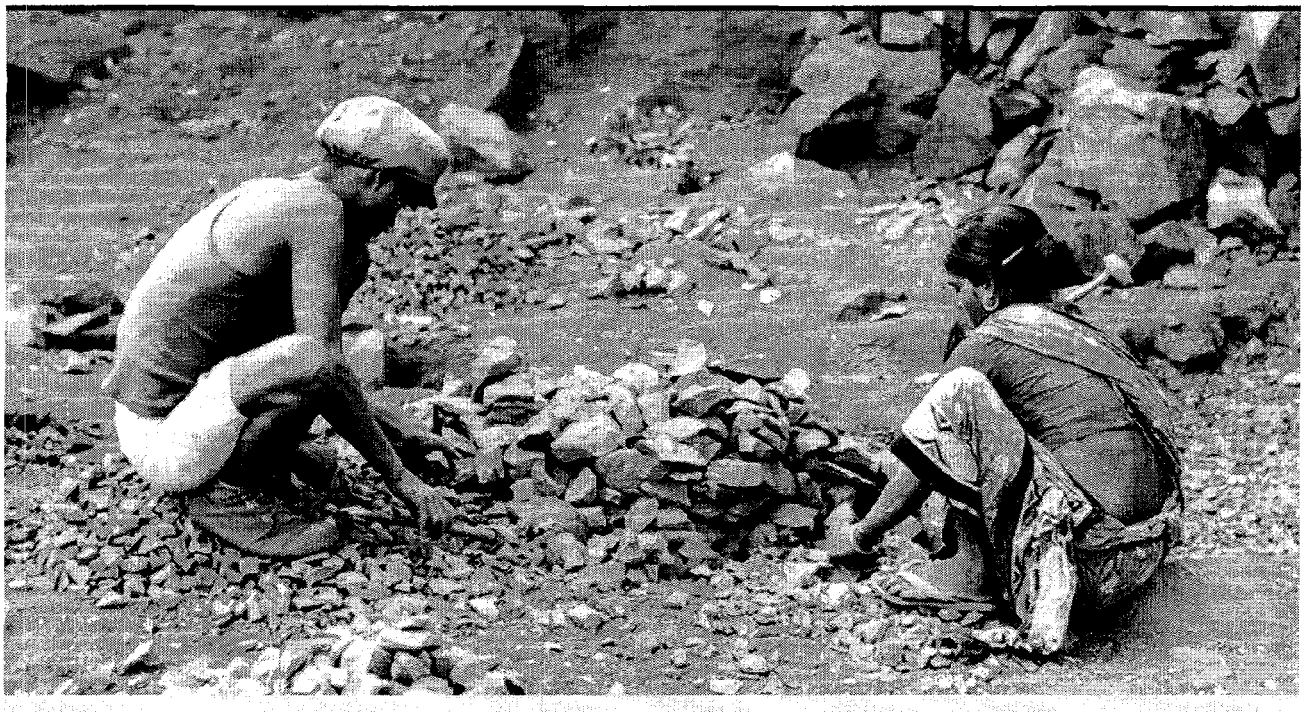
Madhia, Guyana: Porknocker panning downstream of a small, semi-mechanized operation that has used pressure jets to wash sediments into stream, which has become extremely turgid. Photo: Laurier Jalbert.

Panel Discussions and Recommendations

The panel discussed how governments can set appropriate regulatory regimes for environmental protection; what has been learned from the activities of NGOs in environmental management; what can be done to improve environmental, health, and safety conditions; and what role, if any, can governments and NGOs play.

Environmental destructiveness is the single most visible aspect of artisanal mining, the group agreed. The problems include acid mine drainage; deforestation; soil erosion and river silting; and, for gold mining, pollution of river systems with mercury. Mercury is also a health hazard to the miners through the common practice of burning amalgam in the open air. Other health hazards include occupational diseases, lack of worker protection, and the lack of support in underground workings.

The panel concluded that ideally all mining, including artisanal mining, should be subject to the same environmental health and safety laws but recognized the special circumstances of the informal sector. But to bring artisanal miners into the system, regulations and technical standards need to be realistic and achievable. Enforcement will often be difficult, so incentives to comply will also be needed. Ministries of mines and environment, along with local governments, will need to become actively involved in these efforts. Nongovernmental organizations and private companies could also play a role in environmental management.



Noamundi, India. Family members crushing iron ore. Photo: Jeffrey Davidson.

The panel agreed that education and the communication of information were the keys in making all interested parties, miners, governments, and the local communities, aware of the situation and encouraging them to improve it. This can be done through newsletters, comics, seminars, videos, and radio and television campaigns.

5

SECOND SESSION: ORGANIZATIONAL, SOCIAL, AND WOMEN'S PARTICIPATION ISSUES

Presentations

This session addressed the introduction of formal business structures in artisanal mining and provided an overview of the socioeconomic aspects of the sector through a baseline survey of miners in Tanzania and Burkina Faso. Recognizing that informal mining employs a large percentage of women, especially in downstream activities, this session also dealt with the sociocultural and economic constraints affecting the effective participation of women in artisanal mining.

The first presentation was made by Mr. S. L. Chakravorty, honorary secretary of the National Institute of Small Mines (India). Mr. Chakravorty described a mining project that had the objective of creating employment. The project, in which he was involved, pursued two approaches: (a) individual private mines working without any initial guidance and support; and (b) a cluster of private mines operating under initial control, guidance, and support from a mining agency. The latter approach has been successful to some degree. Educated, unemployed middle-class youths were encouraged to become entrepreneurial miners by granting them areas to mine basalt for construction. They, in turn, provided employment for unskilled villagers in the area. The supervising state agency purchased all production and provided technical help. Over time, the agency's material support was withdrawn, and many of the

small-scale operations continued to operate satisfactorily as independent businesses.

The socioeconomic aspects of artisanal mining were covered by Mr. Rogers Cezinga, managing director of TAN Discovery, a Tanzanian consulting firm, and Dr. Boubakar Zanga of the Department of Mines of Burkina Faso. Mr. Cezinga described a baseline survey carried out on the socioeconomic, organizational, and environmental aspects of artisanal mining in Tanzania. The country has about 100 gold-mining areas and 300,000 people involved in the activity. The presentation covered organizational structures in registered and unregistered claims, the government's past efforts to organize the miners and how to tackle the organization problems in future. In Tanzania, small cooperative societies were the preferred organizational structures for artisanal miners.

- *Voluntary collaborations between miners sharing common goals are more promising than loosely organized cooperatives.*
- *Artisanal miners need to be encouraged to become entrepreneurs and look upon mining as a business.*
- *Governments should recognize the significance of women's involvement in artisanal mining and promote their involvement as mine owners and operators.*

Burkina Faso has about 200 gold-mining sites and more than 100,000 people involved in mining. Dr. Zanga described a survey of the three main sites, the conditions of work, and the diverse and complex relationships between those involved in the different phases of mining. Artisanal mining in Burkina Faso is an important factor in preventing migration to the towns and the major constraints on the activity is the uncertain duration of the discoveries, and the difficulties in organizing the miners. Self-selected groups seem to work better in Burkina Faso, but character, discipline and trust come before friendship, family, or ethnic relationships in forming groups.

The issues affecting women's participation were discussed by Mrs. Ofei-Aboagye of the Ghana Institute of Management and Public Administration and Ms. Marilyn Carr of the UNIFEM. Mrs. Ofei-Aboagye discussed the low level of women's participation in artisanal mining in Ghana, despite the regularization of the activity under the Small Scale Gold Mining Law of 1989. She identified the constraints to effective participation as a result of legal and social taboos; widespread illiteracy; and organizational, technical, and financial constraints. She proposed a gender-sensitive approach for creating a supportive environment for increasing women's involvement as concession holders, financiers, equipment owners, and traders. She emphasized awareness programs; exchange of experience; consultation, education, and training; and small business development as the actions needed to be undertaken to lower the barriers to women's participation in the sector.

Ms. Carr gave a broader perspective of women in mining and identified the social, cultural, technical and financial factors preventing women from successfully participating in artisanal and small-scale mining as mine owners, operators, and investors.

Panel Discussions and Recommendations

The panel analyzed what past group-formation initiatives have worked in the informal mining sector and discussed methods to promote orderly development of the activity, including the roles that governments, NGOs, and donor agencies can play.

Essentially, the group felt, bottom-up initiatives based on participation and cooperation between miners and nongovernmental agencies have worked much better than top-down government initiatives. For example, attempts to form cooperatives have usually failed. Most "cooperatives" are in fact legal

conveniences, in which each miner works for him- or herself, rather than true revenue-sharing arrangements. Nevertheless, appropriate organizational structures are necessary to improve accountability and effectively introduce modern technology. Experience shows that group-formation initiatives arising from voluntary collaboration between miners sharing common goals and interests are more likely to succeed than loosely organized cooperatives. Once a viable organizational structure is put in place, artisanal miners need to be encouraged to become entrepreneurs and look upon mining as a business.

The panel recognized the significance of women's involvement in artisanal mining and urged all participating organizations to advocate women's participation at all levels and to support training, image-building, and technical assistance. In its reform programs, the government should recognize the contribution of women and initiate awareness programs to promote their effective involvement as mine owners and operators.

- *Introduction of modern mining and processing techniques can increase productivity, mineral recovery, and revenues.*
- *Model mines and training centers could help artisanal miners make the transition to modern mining.*
- *Financing could be mobilized from entrepreneurs, through no-collateral loans, or by creative arrangements such as solidarity groups and third-party guarantees.*

THIRD SESSION: TECHNICAL AND FINANCIAL ISSUES

Presentations

This session featured three presentations about the technical and financial constraints to the development and transformation of artisanal mining.

The first presentation was made by Mr. Edmund Bugnosen, a small-scale mining expert affiliated with the Intermediate Technology Group (ITDG), a charity group based in Rugby, England, and specialized in bringing appropriate technology to developing countries. Mr. Bugnosen suggested the foundation of self-sustaining mining service centers as an approach to providing long term help to small-scale miners. He described the involvement of the ITDG with the Small-Scale Miners Association of Zimbabwe and the *Asociación Minera Aurífera de la Region Grau* in Peru. The Zimbabwe project included the use of a mobile mill to assist small miners to generate income, and the foundation of the Shamva Mining Center. Demand for services from the center has increased substantially over the past three years. Although its financial performance is not yet satisfactory, the center is able to sustain its operations out of its earnings while providing essential services to small-scale miners.

Mr. John Hollaway, a consultant from Zimbabwe who has wide experience of artisanal mining throughout Africa, emphasized that none of the problems of lack of technology and financial support could be tackled effectively until the prime need of having the right to mineral title was met. Governments thus should recognize the actual contribution of the artisanal mining sector to their economies and its potential. In most countries there is a large void between the small miner on his illegally held patch and modern large-scale mining. Governments should encourage development of small formal mines by making the mining law common for all sizes of mining. Subjecting artisanal miners to special regulations or treating them as

unwelcome and as a marginal activity to industrial mining operations—as so many countries do—only aggravates the problem.

Mr. Jean-Jacques Deschamps, of the Africa Technical Department of the World Bank, dealt with the credit aspects of micro-enterprises such as artisanal mining. He emphasized that in order to overcome the credit constraints of artisanal mining, options to finance without collateral, including the formation of solidarity groups and third-party guarantees, should be explored. Mutual guarantee funds and special financing cooperatives can help reduce the transaction costs and improve access to credit. Also, artisanal miners should be encouraged to save and invest in equipment. The donor community could be a catalyst in this process by helping shape government policies toward a conducive environment for the supply of financial services to the sector and by supporting training and other interventions to strengthen local microfinance institutions.

Panel Discussions and Recommendations

The panel was asked to consider whether artisanal mining was a viable long-term activity and, if so, what could be done to support its development.

Delegates felt that the introduction of modern mining and processing techniques and equipment is the key to increasing productivity and mineral recovery and hence revenues. It is one point at which the negative circle can be broken.

The establishment of model mines and mining centers for demonstration and training purposes was also seen as having a role here. Financial constraints could be overcome by encouraging entrepreneurs to branch out into small-scale mining and encouraging miners to invest their own savings and those of family and friends. It was also considered that options for finance without collateral should be explored, including the formation of solidarity groups and third-party guarantees.

7

Fourth Session: Legal and Regulatory Issues

Presentations

This session addressed the legal and regulatory constraints of artisanal mining—in particular the formalization of artisanal and small-scale mining operations; the regulatory impediments to the transition from informal mining to formal, sustainable enterprises; and the management of relationships between artisanal miners and international mining companies. The first part of the session dealt with the regulation of small-scale mining, emphasizing the role of government agencies. The second featured private-sector speakers from international mining companies and focused on the interface between private mining companies and artisanal miners.

The first presentation was made by Mr. Jeffrey Davidson of Small Mining International, a Canadian-based NGO specializing in small-scale and artisanal mining. Mr. Davidson described what he called a "legal roller coaster" in Venezuela as an example of how artisanal mining has been marginalized. From 1945 to 1977, informal mining was legal, but it came to be seen as a threat to social stability, the environment, and indigenous tribes. In 1977, all minerals were reserved to the state, and a licensing system was set up that effectively made artisanal mining illegal. In 1986, legal authority for gold and diamonds in the Guayana region was transferred to the *Corporacion Venezuelana de Guayana* (CVG), and a general ban on the use of mercury was enforced by monitoring of operations. To execute its mandate, CVG set up a small-mines management scheme that included plans to organize miners into legally accountable bodies and to designate small-mining areas. However, CVG lacks the human and financial resources to administer small-scale mining effectively, and no other governmental organizations presently address the needs of the subsector.

Mr. Davidson concluded by emphasizing that the government's role in creating enabling conditions for orderly development includes collecting detailed information about the subsector, drafting laws and regulations that reflect the realities of the subsector, identifying and demarcating indigenous-use areas, and streamlining administrative procedures.

- *Legalization of artisanal mining is the essential first step toward its transformation into a sustainable activity.*
- *Discoverers of deposits should be able to establish and transfer title, which will ensure their rights and enhance the creditworthiness of the mining enterprise.*
- *Regulation of mining activity should protect both the environment and the rights of indigenous miners.*

Mr. Edward Nyamekye, director of the Small-Scale Mining at the Minerals Commission of Ghana, summarized the success of legislative measures in Ghana to regularize the informal sector. The effort involved a two-pronged approach: creating a simple licensing system and liberalizing marketing arrangments. Successful reforms included creation of eight district offices to make it easier for informal miners to register and entry of formal private sector buyers to increase competition. Since 1989, $1.4 million has been spent on implementing the measures. Eight small-scale mining centers were created in the major production areas. These were staffed by mining engineers and adequately equipped to monitor small-scale mining operations and ensure compliance with the mining code. Up to 425 licenses have been granted to groups of 1 to 10 miners, cooperatives, and companies. As a result of these reforms, the quantity of reported gold and diamond exports increased by 61 percent and 142 percent, respectively, between 1991 and 1994.

Many international mining companies have managed to strike up good working relationships with the artisanal miners on their properties. James Askew, the managing director of Golden Shamrock Mines, described how his company permitted informal miners to operate on unworked parts of the company's concession at Iduapriem, Ghana, and on alluvial portions of their property in Siguiri, Guinea. He also said they are excellent workers for exploration programs but most were too individualistic to adapt well to the disciplines of day-to-day mining operations.

Philip Morriss, the general manager of Operations at Placer Dome Latin America, described a socioeconomic study of the miners' life-style, living conditions, and expectations that his company is using at its Las Cristinas project as a basis for a strategic plan to manage its relationship with artisanal miners. The plan involves the implementation of a wide-ranging program aimed at improving public services, maximizing direct local employment through basic skill acquisition and training, supporting local mining associations, and increasing purchases of local products.

Panel Discussions and Recommendations

The legal and regulatory framework has an impact on most other issues and is the point at which the negative circle of artisanal mining can be broken. Legalization of artisanal miners, it was agreed, is an essential first step toward the transformation of artisanal mining into a sustainable activity. The discoverer of a deposit should have the right to a mining title, and mechanisms should be established to facilitate transfer of title. If the miner is able to transfer or negotiate title, it could be possible to transform some of the artisanal discoveries into efficiently run small mines. Legal status also

improves the creditworthiness of artisanal miners and their willingness to invest. To encourage registration, licensing of informal miners should be done on a regional rather than a national basis, as is the case in Ghana. District buying stations using competitive pricing and marketing arrangements will also help eliminate illegal trading and smuggling.

8

ELEMENTS OF A SOLUTION

The problems of environmental degradation, waste of mineral resources, and poor health and safety in the practice of artisanal mining will not disappear by themselves. However, if governments take the basic steps to regularize their informal mining sectors, they should at least prevent the situation from worsening, and in favorable circumstances artisanal miners could begin to make a positive contribution to the national wealth.

The roundtable identified some specific actions that can be initiated in conjunction with economy-wide and sectoral reforms to alleviate the key constraints of artisanal mining and to break its negative circles. These actions specifically aim at (a) establishing enabling legal and institutional conditions for artisanal mining; (b) reducing technical and financial constraints; and (c) improving environmental, living, and working conditions in mining sites.

Establishing enabling conditions entails setting clear rules and effectively monitoring compliance. In order to make the entry process orderly, governments must move toward legalizing artisanal mining and streamlining registration and licensing procedures. Further actions are needed to give legal recognition to security of tenure and to ensure the transferability or mortgageability of mining titles. Other incentives to regularization include liberalizing pricing and marketing arrangements, establishing an appropriate taxation regime, and strengthening small-scale mining institutions.

Because artisanal miners lack the technical and financial resources needed for building small formal mines, they are often better at finding deposits than at developing them. However, their ability to finance small mining development can be improved if they form groups and establish microfinance mechanisms. A market for properties can also be established to allow owners of artisanal mines to sell their properties to—or enter into joint ventures with—people who have the resources and skills to develop them. Technical assistance, advice, and demonstrations can be used to improve productivity and to enhance the financial attractiveness of artisanal mining.

Living and working conditions in mining sites can be improved by strengthening the miners' ability to organize and to operate in a safe and healthy environment. Mining extension services can be used to demonstrate sound mining and processing techniques and to sensitize miners about the potential health and safety hazards of their activities. In addition, existing operations must be constantly monitored to ensure the adoption of good practices. Finally, social conditions are improved by establishing authority structures in mining camps and by providing basic social infrastructure and services.

9

AGENDA FOR ACTION

From the discussions of the roundtable, it appears that a holistic approach is the key to a long-term solution for transforming artisanal mining into sustainable small mining. Such an approach requires a partnership between governments, NGOs, artisanal miners' associations, international donor agencies, and international mining companies. Governments are primarily responsible for improving the legal and regulatory conditions of artisanal mining and for ensuring that appropriate institutions are established and adequately financed. NGOs and small-scale miners' associations can

support the transformation effort by helping organize and train miners to mobilize financial resources and to protect the environment. Organizations such as the World Bank can play a catalytic role by disseminating best practices and experiences, financing policy reforms and targeted actions, and supporting microfinance programs. International mining companies can and should support the transformation of artisanal mining, as this provides opportunities for reducing social tensions with local miners and indigenous people.

The success of the comprehensive approach hinges on the availability of good prospects, modern management skills from miners, and adequate institutional capacities from governments. In cases where artisanal mining is driven by the get-rich-quick mentality of transient peasant-miners, negative social and environmental side effects will exceed any benefits and assistance and will contribute more to exacerbating the problems than to addressing the rural poverty issues that force people to engage in informal mining. On the other hand, when there is a well-established mining tradition and a potential for a positive contribution to poverty alleviation, socioeconomic benefits will not be fully realized unless comprehensive reforms are initiated to improve the conditions of miners and to transform artisanal mining into orderly, safe, technically sound and environmentally sustainable small-scale mining.

Merelani, near Arusha, Tanzania. Tanzanite miners returning from working in a 100-meter deep shaft. Photo: L. Maraboli.

10

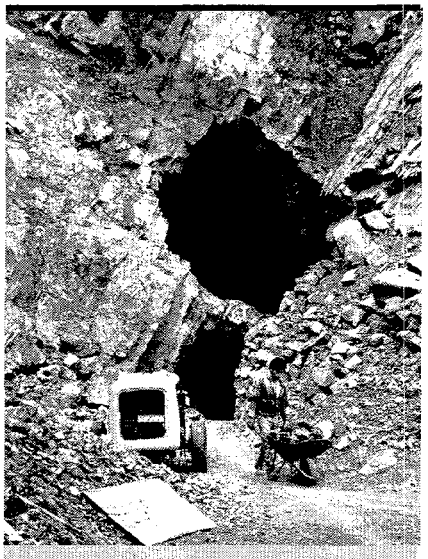
CONCLUSIONS

Through 15 formal presentations and nearly 10 hours of discussions, supported by video footage highlighting the living and working conditions of miners and the environmental risks of artisanal mining, the roundtable addressed an array of complex and sometimes controversial issues. It appeared from the discussions that sustainable development of artisanal mining is constrained by three key factors:

- Lack of appropriate legal, regulatory, and institutional framework to support and monitor the activity
- Inefficient methods and equipment
- Environmental, health, and safety problems arising from the practice of haphazard mining.

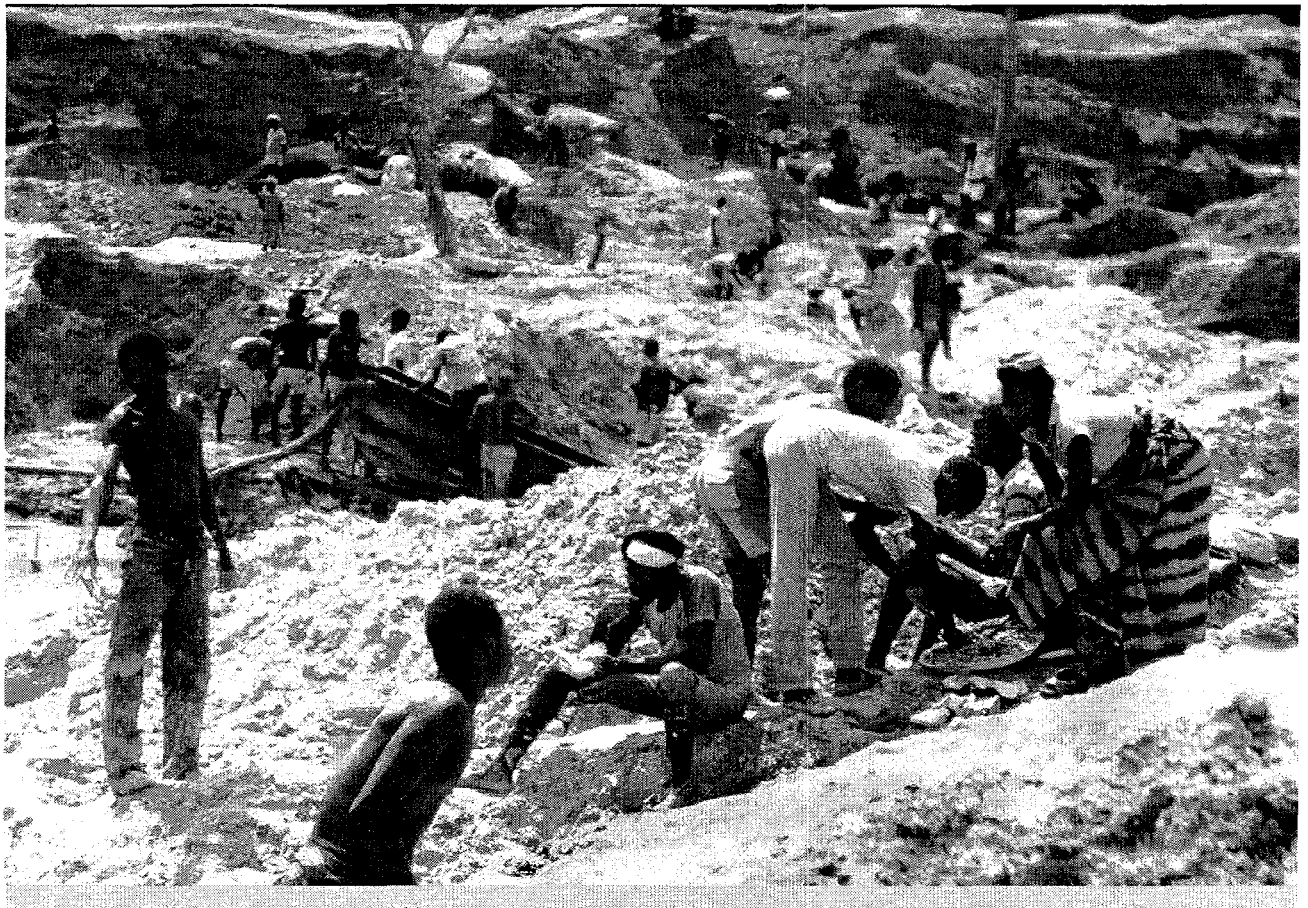
From the cross-section of opinions and ideas presented, it is notable that the relatively successful stories recounted at the roundtable were founded to different degrees on a flexible legal framework designed to regularize the activities of the informal sector. This is a key step, but other aspects—such as access to finance and technical expertise and general education of miners—must be addressed at the same time. One alternative is to set up model mines that can be used to give small-scale miners access to basic equipment, technology, and know-how.

The roundtable also emphasized that partnerships must be formed between all those involved in the sector, governments, NGOs, international development agencies, international mining companies, and the artisanal mining community itself, in order to reach long-term solutions to the problems of this activity.



Chile. Small mechanized copper mining. Photo: L. Maraboli.

The problems of environmental degradation, waste of mineral resources, and poor health and safety in artisanal mining will not disappear by themselves. However, if governments take the basic steps to regularize their informal mining sectors, they should at least prevent the situation from worsening, and in favorable circumstances artisanal miners could begin to make a positive contribution to national wealth. An integrated rather than a piecemeal approach and a strong partnership among all parties represented at the roundtable are required to achieve this objective.



Near Yako, Burkina Faso. Artisanal gold mining site. Nearly 20,000 miners worked here at the peak of activity during 1993. Photo: L. Maraboli.

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Ghana. Use of gravity classifiers to wash gold-bearing gravels. Photo: L. Maraboli.

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