CHILDREN WORKING

IN SMALL-SCALE TRADITIONAL

GOLD MINING IN PERU

National base-line study for the Project
for Prevention and Progressive Elimination
of Child Labor in Small-Scale Traditional Gold Mining
in South America

IPEC / ILO

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Foreword

This study was done as part of the Project for Prevention and Progressive Elimination of Child Labor in Small-Scale Gold Mining in South America, an initiative of the ILO's IPEC Program - the International Program for Eradication of Child Labor. The ILO, with financial support from the United States Department of Labor, has identified the need to intervene in the area of small-scale mining in three Andean sub-region countries (Bolivia, Ecuador and Peru) because this has been prioritized as a high-risk activity in various Latin American countries.

Child labor is a widespread phenomenon worldwide, and Latin America is no exception. It is estimated that there are at least 18 million working children between ages 10 and 14 in Latin American countries. The majority of working children labor in the informal sector, working long hours for wages that are significantly lower than those paid to adults for equivalent work. Moreover, there are indications that a growing number of children are involved in dangerous or exploitative work.

In Peru, existing statistics regarding child and adolescent labor can only be used as a reference, since there is a lack of methodologically rigorous and technically reliable instruments. National censuses and surveys do not reflect information from the 10-year intervals between surveys or gather data about the contribution of child labor to family income, and there are contradictions between socio-economic and educational statistics. In addition, dangerous and so-called "invisible" occupations do not appear in official figures because the work is clandestine and because of the geographical location and mobility of the families themselves. Nevertheless, it is estimated that about 2 million children and adolescents, both male and female, are involved in some kind of work.

During the past decade, mining activity has expanded significantly, not only in countries where mining has traditionally played an important role in the economy, such as Bolivia and Peru, but also in other countries where its role is less significant, such as Ecuador. Approximately 55% of gold production from small-scale traditional mining is concentrated in Latin America, where informal mining accounts for 30% of the region's total gold output

Worldwide, it is estimated that nearly 13 million people work in small-scale traditional mining. A substantial number are women and, unfortunately, children. The survival of 80 million to 100 million people worldwide could depend on this activity. Small mines are estimated to represent between 15% and 20% of the world's non-fuel mineral production. Small-scale mining has a great impact on national economies in developing countries, especially mining-oriented countries that produce valuable minerals like gold and diamonds.

Because small-scale traditional mining takes place in the informal sector, there are few statistical studies. In Peru, the Ministry of Energy and Mines reports that 200,000 people could be involved in such activity. The Swiss Agency for Development Cooperation has recorded 40,000 small-scale miners in various parts of the country.

This national study has been conducted to provide precise and reliable information about the magnitude of small-scale traditional mining in Peru and children's participation in this sector, with the goal of refining intervention strategies for achieving the progressive elimination of child and adolescent labor from this field. The study has emphasized two aspects of small-scale traditional mining in the country: socio-cultural and economic aspects of communities dedicated to small-scale traditional mining, and aspects related to children, particularly the work they perform in this and other sectors. The study has gathered information from the four principal regions where small-scale traditional gold mining takes place: Madre de Dios (the jungle area bordering Bolivia and Brazil), Ananea in Puno, Pataz in Trujillo, and the Nazca-Ocoña area that includes parts of the departments of Ica, Ayacucho and Arequipa, in south-central Peru.

Introduction

The objective of ILO's Project for the Prevention and Progressive Elimination of Child Labor in Small-Scale Traditional Gold Mining in South America is to contribute to the eradication of child labor in this type of mining and improvement of the quality of life of the (former) working children. The task is particularly difficult because of both economic and cultural factors related to child labor. As a result, in order to achieve their goals and objectives in a sustainable manner, projects for eradication of this activity from high-risk sectors like mining must pay special attention to families' beliefs and attitudes regarding children.

Nationwide, 30,000 families dedicate themselves full time to small-scale traditional gold mining. Two of every three families make their children under age 18 participate in the extraction and processing of ore; these families include 61,000 children under age 17, of whom 50,000 are currently working. About 11,000 are still young but will begin working when they are 6 or 7 years old.

Besides poverty and the lack of adequate adult employment, the early age at which children go to work is related to the peasant tradition by which the entire family unit participates in the agricultural tasks that are the basis for survival in rural areas. Transferring this model to harmful work like small-scale traditional mining, however, results in health and educational development problems for children and adolescents to a considerably greater degree than that observed in other types of economic activity.

This study aims to contribute to the achievement of two objectives:

1) To provide public and private institutions with information about the real magnitude and situation of child labor in small-scale mines throughout the country, for development of national policies oriented toward eradicating high-risk child labor from small-scale traditional mining.

2) To provide a base line before beginning project interventions so results can later be evaluated.

To meet these objectives, a national study has been done of the situation of the children and their families, taking into consideration demographic, social, cultural, economic and occupational variables. The study has examined in greater

detail the mining activities performed by children and the most significant causal relationships that explain child labor in small-scale traditional mining, in order to provide analytical elements for achieving the objectives of eradicating high-risk child labor in small-scale traditional mining and raising awareness in families and communities of the dangers inherent in this activity.

This report consists of six chapters. The first describes the importance of small-scale traditional gold mining and analyzes policies and the legal framework related to small-scale traditional mining and child labor. The second chapter presents the characteristics of each mining community with the detail necessary for a base-line study for an intervention program of the breadth of that planned by IPEC/ILO. The third chapter analyzes principal family characteristics in hopes of contributing, along with the first two chapters, to an analysis of the explanatory variables for child labor. Chapter 4 explores the characteristics of child labor and its consequences, and Chapter 5 examines families' expectations for their progress and their children's future. Chapter 6 presents the conclusions of the study and some recommendations for carrying out the program.

The study has been coordinated by sociologist María del Carmen Piazza (who was responsible for the study in Puno), with the participation of sociologist Chary Arcia, lawyer Violeta Barrientos and psychologist Isabel Bardalez, who were responsible for the studies in the South-Central area, Madre de Dios and Pataz, respectively. Other participants included Iván Camasca, a specialist in survey processing, and a team of 8 interviewers consisting of local professionals or people with knowledge of the mining areas.

The study received broad support from those responsible for the program, psychologist Rocío Valencia, Project Coordinator in Peru, and Dr. César Mosquera, Regional Project Director, with whom the work was closely coordinated from the time of the study design phase.

Study methodology

Selected zones

This study has been carried out in the country's four principal areas of small-scale traditional gold mining:

- Nazca-Ocoña or the South-Central zone, which includes about 40 mining communities in the departments of Ica, Ayacucho and Arequipa;
- The department of Puno (Ananea and La Rinconada)
- The department of Madre de Dios (Huaypetuhe and the banks of the Madre de Dios River)
- The district of Pataz in the department of La Libertad.

Units of analysis

The study has been based on 5 units of analysis:

- For analysis of the causes of child labor and related economic and socio-cultural dynamics:
  - ✓ The families
  - ✓ The communities
  - ✓ The national and sectoral legislative and policy framework
- For analysis of the incidence and consequences of child labor in small-scale traditional gold mining:
  - ✓ The children who work in small-scale traditional mining
  - ✓ The work place and labor process

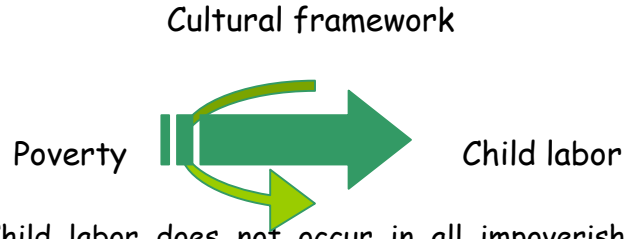
Study hypotheses

The National Base-Line Study has taken into account the following hypotheses:

1. Child labor mainly affects children from households living in poverty or extreme poverty — such as those dedicated to small-scale traditional gold mining — because these families' low income makes it impossible for them to meet their children's basic needs, such as food and education, expenses that the children help cover with their income. If small-scale traditional mining could be done under formal conditions, the labor exploitation to which the heads of households are subjected would be eliminated, as would other factors that increase costs of the activity, such as the black market for supplies and inputs.

2. Child labor in mining generally occurs within the family; children's labor is not considered work but rather a "help." This perception, which tends to make child labor in mining invisible, is also reflected in public institutions and is shared by parents. The same is true in other areas of activity, creating a permissive attitude that blinds those involved to the activities' harmful effects.

3. There is a significant cultural causative factor in child labor that affects the relationship that could automatically be established between a family's poverty and income from working children.



Child labor does not occur in all impoverished households. Also, when children begin to work, it is rarely for just a short time. Parents see work as a stage in child-rearing and the child's development of a sense of responsibility and discipline, without distinguishing between work that can contribute to the child's formation and harmful labor that must be avoided.[1].

[1] Walter Alarcón has made this important distinction between formative and harmful work. Op. Cit. 1996.

Units of analysis, variables and instruments utilized.

Units of analysis and variables: Instruments utilized

Unit of analysis / Variables	Instruments
Working children and adolescents	
Number of children, age, educational level and health situation.	Survey of mothers Interview and review of school and medical records.
Specific labor in mining, type of work, visibility, dedication, motivations; School attendance/ educational problems; health risks and problems; roles and rights.	Workshop with children Survey of mothers
Home and family	
Family type and size, family members' income, other economic activities and productive possessions. Expectations regarding improvement of situation of family and children.	Survey of mothers
Roles and distribution of activities in the family, Perception of and value placed on child labor and education; perception of children's exposure to occupational risks and risks from contaminants; expectations regarding improvement of situation of family and children.	Workshop with women's organization, mining leaders, authorities and key persons Survey of mothers
Community	
Population size, migration and mobility; environment, housing and sanitation; local economy.	Workshop with women's organization, mining leaders, authorities and key persons. Observation guide.
Degree of organization, conflicts, progress and limitations. Health/mortality situation, characteristics of education (cost, quality, infrastructure) and other services available.	Interviews with community and union leaders, school, health center, NGOs.
Work place and process	
Mining production process, degree of formalization of small-scale traditional mining, rights, legal situation of the mine, relations among stakeholders, technology, expectations. Environment, occupational hazards and characteristics of the work environment.	Interviews with Ministry of Energy and Mines, leaders of unions or workers' associations, and community leaders. Observation guide.
Legislative and policy framework	
Legislative framework regarding child labor and small-scale traditional mining. Government programs in the study zones (Foncodes, Pronaa, other), mining policy	Review of legislation and regulations Interviews with Ministry of Energy and Mines, NGOs and local unions or

and formalization processes, projects by NGOs and international agencies	workers' associations.

Techniques used for gathering information and establishing the sample

To carry out this study, a survey was applied to a random sample of 420 mothers in mining families that include minor children. The surveys were applied in a total of 7 selected localities in the 4 zones, based on their larger population:

In the Nazca-Ocoña area:
- Santa Filomena
- Mollehuaca

In Puno:
- Town of Ananea
- La Rinconada

In Madre de Dios:
- Huaypetuhe
- Communities along the Madre de Dios River;

In La Libertad
- Pataz

In determining the sample size, it was considered important to gather information with a margin of error no greater than the generally accepted level of 5%. A sample of 400 families was chosen to ensure a 95% reliability level for the distribution universe, for a margin of error of +- 5%[2].

Sixty questionnaires were applied in each community. The results are presented in aggregate form when there are no significant differences among the mining zones. When data show significant variations among communities in the same department, the results from each are presented.

[2] Arkin y Colton, Tables for Statisticians. Cited by Antonio Pulido in Estadística y Técnicas de Investigation Social. Ediciones Pirámide, Madrid 1984. Given the margin of error chosen, the sample size is sufficient for universes of more than 10,000 units, which is more than sufficient for the case of small-scale mining families. For a universe of this size, a sample with a 10% margin of error – a very high margin - would have included only 100 families, while samples with a margin of error of +-4% and +-3% would have required applying the survey to 625 and 1,111 families, respectively.

There is no recent census information showing population size or distribution in each area. This is a limitation for random studies. It has been assumed that the mining communities are homogeneous with regard to levels of poverty and principal economic activity. As a result, the decision was made to interview families in all neighborhoods of the community using a route sample (of blocks and houses); done rigorously, this practically constitutes a random sample (Pulido; 174). The sample selection excluded families without minor children and those not working in small-scale traditional mining.

No difficulties were encountered in the sampling, except in the Madre de Dios area, where it was more difficult to travel among the communities that constituted the sample. Some of these communities are far from one another and even inaccessible to authorities, which results in higher crime rates, and lack roads, which often makes it necessary to walk long distances. Others have very few families. In this zone the sample includes the majority of communities located between Puerto Maldonado and the San Juan camp, the largest small-scale traditional mining settlement accessible by a one-day boat trip.

The mining areas are distant and there is a lack of adequate roads and public transportation for reaching them. Travel to Pataz and Huaypetuhe was done by commercial flights on small planes from the cities of Trujillo and Cusco, respectively. Travel by land would have taken 18 to 24 hours form those cities, with the risk that roads would be blocked because the rainy season had begun. The trip to communities along the Madre de Dios River was made by land from Puerto Maldonado to Laberinto, and from there by boat, hiring an express service. For travel to the Nazca-Ocoña area and Puno, pickup trucks were hired in Lima and Juliaca, respectively, in order to reach the selected communities within the established time frame.

The mothers' interest in collaborating with the study, responding to a survey that takes approximately 45 minutes, was noteworthy, especially considering that communications media have denounced exploitation of children in mining in Puno and Madre de Dios, areas where adolescents are working for third parties. It should be noted that there were no "self-selection" errors, which occur when some segments of the population refuse to respond to a questionnaire. The lack of this type of error, which is frequent in research done with surveys, demonstrates the willingness of mothers of mining families to contribute to a study of their living conditions and their principal needs in order to be considered for intervention programs sponsored by the ILO IPEC Program.

One of the ILO's priorities was to do a quantitative and qualitative study. To develop a deeper understanding of the causative factors and the complex world of beliefs and values regarding children, participatory workshops were carried out with key adult informants (local government authorities, teachers, medical personnel, representatives of unions or workers' associations) and mining children in the indicated communities. These techniques were also applied to 2 additional communities, Relave and Huanca, which are located in the South-Central zone, because in-depth base-line studies were planned for Santa Filomena and Mollehuaca. In each zone, one workshop was done with adults and another with children. The adult workshops, planned as one-day sessions, had to be reduced to half days at the participants' request because of their other daily obligations. Greater availability of participants will be more feasible during the project intervention itself. Despite this limitation, however, various participatory survey techniques were carried out in a total of 12 workshops.

Techniques used with adults:

- ✓ *Seasonal diagram of mining activity,*
- ✓ *24-hour clock for adults and children*
- ✓ *Brainstorming about family relationships*
- ✓ *Diagram of causes and effects of child labor*.

Techniques used with children:

- ✓ *Diagram of the mining process*
- ✓ *24-hour clock for adults and children*
- ✓ *Brainstorming about positive and negative aspects of families*

A total of 92 in-depth interviews were carried out with representatives of mining associations, women leaders of community organizations, local government

authorities, teachers and directors of health-care establishments, as well as the few nongovernmental organizations (NGOs) dedicated to the issue of child labor in these areas (see appendix of interviewees). The interviews applied in schools and health centers included examination of records available in these establishments. These were found to be limited, as they do not include specific information about family occupations or children's working conditions; as a result, they do not provide information about the specific situation of children working in mining.

Finally, an observation guide was used in each community to record information about access to the community, housing and available public and social services.

1 The legislative and policy framework for small-scale traditional mining and child labor

Small-scale traditional gold mining has been growing considerably since the 1980s. The high levels of poverty that affect more than half the country's total population, increasing poverty in rural areas and unemployment have caused many families to move to mining areas for a source of income that is, in the miners' words, "regular and secure." This is paradoxical, given the illegality that characterizes small-scale traditional mining.

While daily life for people living in poverty revolves around survival, the logic of small-scale traditional mining takes on a perverse connotation, as miners face daily proof of their own physical deterioration, the risk of job-related accidents and a decreased life expectancy of about 50 years, compared to the national average of 68 years. In mining, unlike other economic activities, there is the possibility of a "stroke of luck," a hope that is generalized among the families even though they see it is really a dream. The possibility of hitting such a "lottery" or the hope of achieving significant savings if the price of gold goes up makes them pin their expectations for development on the search for and processing of gold by all family members, in placer mining or underground mines.

1.1 Importance of small-scale traditional gold mining

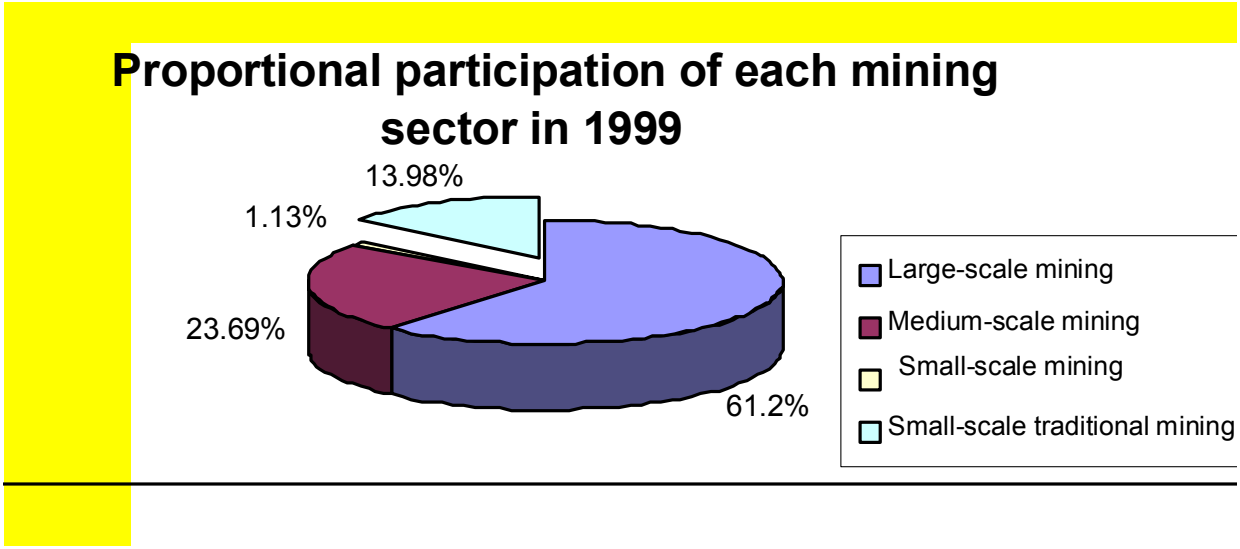
Peru has traditionally been a producer of minerals and raw materials, a role accentuated during the 1990s as a result of policies that liberalized the economy. There has been a resurgence in mining, especially on a large scale, as a result of policies that encourage foreign investment.

Half the country's national export earnings come from mining, and since 1998 gold has been the principal export product, with production increasing from 22 tons in 1991 to 128 tons in 1999. Large-scale mining accounts for 61% of total gold production and medium-scale mining for 24% (MAPEM 2000). These sectors do not create a significant number of jobs, however, as small-scale mining does.

The Ministry of Energy and Mines divides small-scale mining into two categories: conventional and small-scale traditional. Small-scale traditional mining is based on intensive physical effort and the use of rudimentary tools. It is also an informal activity. Conventional small-scale mining, on the other hand, is characterized by the use of appropriate intermediate technology. It is also characterized by

elements of formality, such as compliance with norms regarding labor relations, mine safety and hygiene, and the environment, payment of taxes, and compliance with accounting requirements and reports for the Ministry of Energy and Mines. In the case of gold, almost all small-scale mining is done the traditional way; 92.5% of gold production in small-scale mining is of this type.

According to statistics from the Ministry of Energy and Mines, small-scale traditional mining accounts for 14% of the country's total gold production (18 tons).



Source: MAPEM Program. Ministry of Energy and Mines.

1.2 Mining policy and legislation

Despite the volume of production and the large number of jobs it creates, small-scale traditional mining is not subject to legislation. Unlike conventional small-scale mining — which, according to the Ministry of Energy and Mines is that done by concession, with rights clearly granted to those carrying out the work or to third parties who authorize exploitation — this sector is generally characterized by informality. It occurs in three types of situations: 1) in mining areas that traditionally have been exploited using small-scale traditional methods; 2) in mines that have been abandoned by mining companies (since the 1950s), many of which were exploited during the following decades by small-scale traditional miners and have been granted in concession to other companies since the 1980s (this is the case in the majority of the South-Central mining areas), and 3) in new deposits that are not of economic interest to medium-size and large companies.

In most localities, small-scale traditional miners have mainly been the ones who have identified new mineral veins to which companies have later gained concession rights. This occurs because of the informal miners' lack of knowledge of legislation and because of policies that limit their possibility of gaining the rights to exploit the zone. As a result, in order to continue working, small-scale traditional miners in all zones have been forced to negotiate with companies and individual contractors, who in turn have negotiated with the new title-holders recognized by the government.

In Pataz (La Libertad), for example, rights granted to small-scale traditional miners have later been granted to medium-size companies, demonstrating the lack of government protection for small-scale miners. This has created conflicts among the miners, their association and the company. In the community of Ananea (Puno), only 4 of a total of 8 cooperatives have gained recognition of their rights to the areas where they work; in this zone, the rights belong to a state-owned company that is no longer operating.

Because the relationship between title-holders and small-scale traditional miners is based on informal arrangements, various forms of exploitation result, such as the *"enganche"* found in Huaypetuhe, a form of bonded labor in which a contractor takes away the worker's identity documents, placing the worker in a situation of dependence that forces him to accept appalling working conditions and pay, which often are worse than the terms of the initial agreement. Another form of abuse is that found in La Rinconada, known as *"cachorreo,"* by which miners working for contractors are allowed, as compensation, to look for gold two or three days a month, often in deposits that have already been overworked.

This does not even represent payment in kind, because the miners themselves must search for the gold that constitutes their income. These conditions have worsened recently, as workers are not allowed to search for gold individually until two or three months after they have begun working. This system of exploitation, similar to the practice known as "*yanaconaje*," which used to be found on large Andean farms, has existed for several years because of an excess of labor in the area (COSUDE 1999).

In the Nazca-Ocoña zone, there is a chain of dependence in which small-scale traditional miners depend on the owners of the *quimbaletes*, or grindstones, and mills used in amalgamation, who in turn are dependent on companies. As a result, the miners' labor ends up benefiting other parties who retain the mine waste, which has a high value in this area.

This informality in production-related relationships is accompanied by legal insecurity and the possibility that the small-scale traditional miners may be subject to persecution and extortion, as well as the existence of a black market for mining inputs (COSUDE 1999). At the individual level, informality blocks miners' access to loans and the possibility of increasing their working capital. At the community level, it makes it difficult to create a more organized system for extracting ore that could lead to social and economic development.

In places where some kind of association has been formed, during its early years it plays a role in negotiating with mining companies in the area, rather than in demanding legal and social rights from the government. This is the case of contractors' associations in La Rinconada (Puno) and the Association of Free Miners of Pataz *(Asociación de Extractores Libres Mineros de Pataz)*. Organizations that have made significant progress in gaining recognition of their rights from the government are the cooperatives of miners in Ananea and contractors in La Rinconada (Puno), and the mining societies and companies in the Nazca-Ocoña area (Santa Filomena, Relave, Huanca). Nevertheless, the miners do not always work in areas that they own and must establish agreements with companies or individual title-holders of other zones.

The small-scale traditional nature of the mining leads to particularly difficult working conditions, because in both phases of the mining process (extraction and processing) productivity depends on physical effort. This activity is done with rudimentary tools and technical processes, as well as extraction methods that include inappropriate use of explosives and, during the recovery phase, use of mercury and cyanide without compliance with established norms for the use of these products. This creates conditions of high occupational risk and

environmental practices that are extremely harmful to the ecosystem and the population.

Lack of regulation of small-scale traditional mining implies a lack of social security systems (health care and retirement) and other welfare norms included in mining law with which employers are obligated to comply, such as providing adequate housing, schools, recreational facilities and medical assistance for workers. As one recent study indicates, "all these norms are inapplicable to small-scale traditional mining, where each worker works for himself" (COSUDE 1999). This makes it necessary to design specific programs for this sector.

Mining policy still does not sufficiently and adequately recognize the significance that small-scale traditional mining has acquired in production volume and job creation. Nor does it recognize that this is, in its own right, a valid mode of work because "there are deposits whose exploitation is only profitable using small-scale traditional mining techniques … making this an alternative that is valid in itself and necessary for taking advantage of mineral resources" (COSUDE 1999). Because it does not fall within mining policy priorities, efforts by the Ministry of Energy and Mines have been limited to the aspect of mercury contamination (through introduction of retorts) and formalization within a legal framework that is inappropriate for the reality and characteristics of small-scale traditional mining in such aspects as the size of the area being exploited and the volume of production.

The limitations of the legal and policy framework perpetuate the informality and poverty of small-scale traditional miners; as a result, in many families the women and children work.

1.3 Legislation and policy regarding child labor

According to official statistics and projections, there are currently approximately 2 million working children in the country[3]. Official statistics on child and adolescent labor can only be used as a general reference, as no National Census has been done since 1993. National surveys provide estimates on the basis of various samples, meaning that their results differ among themselves, as shown in the following table. Censuses and surveys also present problems of under-reporting the work of women and especially children, because they lack

[3] El Trabajo Infantil en el Perú: ¿Qué está pasando? ILO / Global March against Child Labor / CONFIEP / The Network for a Future Without Child Labor.

appropriate instruments for recording occupational activities carried out as part of the unremunerated family labor — characterized by informality — that predominates in the country.

Economically Active Population between ages 6 and 17
According to different sources

1993 National Census	497,032
1993 School Census	1,024,127
1994 National Survey of Living Standards	1.237,480
Household Survey, First Quarter 1995	1,412,518
Household Survey, Third Quarter 1995	834,275
Household Survey, First Quarter 1996	1,359,000
1997 National Survey of Living Standards	1,932,000

Source: Taken from Isaac Ruiz Sánchez. Trabajo infantil en el Perú: Contexto. CESIP.

The International Convention on the Rights of the Child, ratified by Peru in 1990, establishes that signatory states recognize the right of children to protection against economic exploitation and any work that might be dangerous, interfere with their education or jeopardize their health or physical, mental, spiritual, moral or social development. Adoption of the Convention is fundamental, as it corrects the irregular situation in which working children were placed for a century under the doctrine of integral protection of children's rights. This has constituted a shift from a compassionate and protectionist view that repressed child labor toward a perception of children as persons who are fully subject to rights.

It is worth noting that Peru has not yet ratified ILO Convention 138, which sets the minimum working age at 14, and Convention 182, on the urgent elimination of the worst forms of child labor[4]. In Latin America, 16 countries have signed Convention 138 and 14 have signed Convention 182. Only Peru has failed to ratify either of them.

Within the framework of the International Convention on the Rights of the Child, the Peruvian government in 1992 implemented the first Children's and Adolescents' Code, which was modified in August 2000. The new Children's and Adolescents' Code establishes that the minimum age for child labor in mining is 16 years (Art. 51), up from 15 years in the previous code. It also repeats the

[4] The Peruvian Congress recently approved raising the minimum working age from 12 to 15 years, in accordance with ILO Convention 138, but this norm has not yet been ratified by the Executive Branch.

prohibition against adolescents working underground, in tasks requiring heavy lifting or in activities in which they are responsible for their own safety or that of others (Art. 58). This includes surface mining, which involves carrying excessive weight and activities that jeopardize the safety of the adolescent or other people. If there were compliance with this norm, there would not be 50,000 children working in small-scale traditional gold mining.

There is also non-compliance with other legal norms already established in the 1992 code. These relate to the length of the work day, facilities for ensuring school attendance, and the right to a periodic medical exam and social security, at least with in the area of health care. In the case of unremunerated family labor, Art. 63 of the current code establishes that children have the right to 12 continuous hours of rest a day, and that employers, overseers, parents or relatives are obligated to provide them with all facilities to ensure that they attend school regularly.

Public efforts related to compliance with child labor norms are still incipient. Because most child labor in mining occurs within the family, it is not considered work, which tends to conceal the fact that children are doing it as a daily, obligatory responsibility during long work days, and performing tasks that require great physical effort and are especially harmful, such as hauling the ore and crushing it in grindstones or *quimbaletes*, the tasks that most often fall to adolescents.

More than in other economic activities, the informality of small-scale traditional mining limits the possibilities of demanding that the government and families comply with the fundamental rights of children and adolescents, such as the rights to health, nutrition, education and recreation. Because of this, it is necessary for the Ministries of Labor, Energy and Mines, and PROMUDEH to join forces with government agencies, the Ombudsman's Office for Children and Adolescents, schools and health establishments to make progress in compliance with existing norms and prevent the harmful effects that small-scale traditional mining has on children. In some communities, there are also NGOs and community organizations that can contribute to this effort.

It is important to note that Peru signed a Memorandum of Understanding with the ILO in July 1996. Within this framework, since August 1997 there has been a National Commission for the Eradication of Child Labor, which is now called the Inter-Sectoral Working Group on Child Labor (*Mesa Intersectorial sobre Trabajo Infantil*). This working group is a technical-consultative body led by PROMUDEH and made up of the ILO, UNICEF, the Ministries of Labor, Health and Education, the National Institute of Statistics (INEI), National Police,

National Institute of Family Welfare (INABIF), representatives of employers and workers, CESIP (representing civil society) and working children. This working group must develop a character that enables it to make decisions, establish links and carry out actions to ensure its members' commitment and decision-making capacity in formulating legal proposals, policies and strategies for discouraging child labor, preventive and assistance programs, and follow-up systems. The National Commission's mission is to serve as the country's organic nucleus for defining operational proposals and design a National Plan. A draft National Plan drawn up by the commission in 1997 is still awaiting approval.

In the legal area, it is recommended that Peru ratify the fundamental international accords, ILO Conventions 138 and 182, particularly since it is the only country in Latin America that has not ratified either. Another central point is to make legislation consistent with international norms. The Children's and Adolescents' Code (on which we have commented) must be modified and made consistent with other legislation to develop a set of reforms in such areas as:

1. Increasing the minimum working age to no less than 14 years.
2. Setting a minimum age of 18 years for dangerous tasks
3. Drawing up a list of dangerous tasks (based on activities, not conditions)
4. Conditions for night work
5. Work authorization
6. Rest for domestic workers
7. Eliminating the concept of the "right to work" (Art. 22 CAC), which has no reference or basis in international regulation.
8. Seeking decentralization of and local government authority over child labor and regulation of street labor, guidelines for national and/or municipal police, judges and district attorneys, ombudsmen for minors, etc.
9. A proposal for educational reform that corresponds with labor norms, seeking consistency between ages for obligatory school attendance and minimum working age. The proposal should obviously focus on sectors, zones or families in which there is evidence of child labor.
10. In the area of health, identifying mechanisms for direct primary care, health-care promotion and medicines for low-income groups in which the greatest volume of child labor is concentrated.
11. Social programs aimed at this group of beneficiaries.
12. Creation of a regulatory technical subcommission of the National Commission to systematically analyze and propose reforms in various areas. This subcommission must be in constant contact with the Labor and Family commissions of Congress.

2 Mining Communities

2.1 Location and population

In Peru there are at least 30,000 families that work year-round in small-scale traditional gold mining and for whom this is their principal activity. This means that about 150,000 people — adult males and often their wives and children under age 18 — are permanently involved in this activity. The departments with the greatest population dedicated to this work are Puno and Madre de Dios. It is worth noting that there may be small-scale traditional miners in new communities in the Nazca-Ocoña zone and in the department of Cajamarca, which means that the population of miners may be greater than that recorded in this study.

Small-scale traditional mining families in Peru 2000

Zone	# Families
Puno	14,000
Madre de Dios	9,500
Nazca-Ocoña	6,000
Pataz	830
Total	30,330

Source: Interviews with union leaders, mayors and NGOs in Puno and Nazca-Ocoña. Ministry of Energy and Mines for Pataz and Madre de Dios[5].

The 1993 National Census did not adequately record mining families because many returned to their birthplaces for the census. For example, in the district

[5] Statistics from the Ministry of Energy and Mines indicate that there are 22,000 miners in these zones, but it must be kept in mind that the informal nature of small-scale traditional mining makes counting difficult. The difference between this figure and the estimates we present is explained by the greater number of miners in Puno, according to earlier studies, local authorities and miners' associations, while the Ministry records 7,000. The same is true in the Nazca-Ocoña zone. In Madre de Dios, it is indicated that there may be a greater number of miners, but there is a lack of recent, reliable figures.

of Ananea the Census registered 8,452 people, while a 1995 study by IDESI found that in La Rinconada and Cerro Lunar alone, communities that are part of the district of Ananea, there were 11,000 miners working, often with their families. Another limitation of the Census, besides being outdated and presenting problems in reflecting aspects related to labor, is that it provides aggregate data at the departmental and provincial levels for principal variables, while the majority of mining families live in communities whose political jurisdiction is smaller. Some communities have gained recognition as minor municipalities, while others are simply annexes of districts.

There is also a contingent of people who, although they have another principal occupation, migrate seasonally to mining zones to supplement their income. The communities that attract the largest volume of seasonal miners are Huaypetuhe (Madre de Dios) and La Rinconada-Cerro Lunar (Puno), which register the greatest levels of mining activity. There are no statistics regarding the number of seasonal miners; current estimates by workers' associations and local authorities indicate that there could be at least 6,000 or 8,000 seasonal miners, many of whom move to these areas with part of their family in the expectation of earning an income that will allow them to invest in their principal economic activities and/or education.

In recent years, a slight decrease may have been noted in the number of small-scale traditional gold miners in some areas of the country because of the decrease in gold prices on the international market. One area is the banks of the Madre de Dios River, where 16% to 20% of the department's small-scale miners are located. Because there has been severe depletion of gold in this zone, fewer and fewer families can make a living from mining there. As a result, some youths and adults move seasonally to the area of Huaypetuhe, in the same department, while others remain in a situation of extreme poverty, surviving on agriculture, which is just beginning in this area. Another area in which the mining population has decreased is La Rinconada and Cerro Lunar (Puno), because of the drop in income and worsening of contracting conditions, which has led to a decrease from 11,000 adult miners recorded by IDESI in 1995 to about 8,000 today[6].

Despite this decrease, a large number of mining families live in Puno (especially in La Rinconada and Cerro Lunar), Madre de Dios (especially in Huaypetuhe) and the Nazca-Ocoña zone, in living and working conditions that require special attention.

[6] To this population must be added, in the Department of Puno, according to our estimates, 800 miners in Ananea and at least 5,000 who probably live between Sandia and the area of the Inambari River. Some people consulted in this area indicate that there could be as many as 16,000 miners.

The majority are permanent residents of these communities, contradicting the myth that they are seasonal migrants.

2.2 Puno

The department's most important mining area is in the district of Ananea, in the province of San Antonio de Putina, located in the eastern mountains bordering Bolivia. This district includes the town of Ananea and the camps of La Rinconada, Cerro Lunar and Ancoccala. Another mining zone in the department extends from the province of Sandia toward the Inambari River area, a zone that is more difficult to reach, whose largest communities are Sandia, Patambuco, Phara, Ayapata and San Gabán. The following map, provided by the Ministry of Energy and Mines' MAPEM Project, shows the department of Puno and highlights the zone selected for the study.

Fuente: Provecto

LEGEND

Departmental capital
Provincial capital
Map sector
Official mine registry
National reserve
Peru
Province
Principal rivers
National road
Boundary
Neighboring countries
Lake Titicaca
Pacific Ocean
National Territory

Kilometers
Source: Provecto
General Directorate of Mining - Perú Digital 2000

The town of Ananea is located 7 hours (170 kilometers) from Juliaca, at an altitude of 4,800 meters above sea level. The other mining communities are 30 minutes to one hour away, near Mount Ananea, at an altitude of 5,200 meters above sea level. There is public transportation to this area only once a day. For the most part, the road is passable by vehicle.

Two types of extractive activities are done here: from alluvial deposits in Ananea and from ore veins in La Rinconada and Cerro Lunar. Average monthly productivity in Ananea is 15 grams, while in La Rinconada it is estimated at 35 grams (IDESI 1995); as in all the other communities, the small-scale traditional procedures used result in losses during the gold refining process.

a. Ananea

Population

Ananea is a small mountain town where approximately 800 families live. The district is composed of 7 communities, as well as the principal town, to which people from more distant communities travel by foot or motorcycle (most are 1 to 4 hours away; one community is 18 hours from the main town).

Housing

Most of the houses in the town are made of adobe and stone, with plastic-covered zinc roofs for protection against the cold. There is potable water, and electric service was installed in 2000. There is no sewer system; the houses have pit latrines or cesspools.

Environmental problems

The mining center is located just a few meters from the town, and the rivers have been polluted by mine waste.

Educational services

There is a pre-school (CEI), a primary school and a secondary school, all state-run. The school-age population includes 290 primary and 170 secondary students. An estimate of educational coverage, considering only one school-age child per family, indicates that only 57.5% families use this service. The percentage is actually lower because many families have more than one school-age child. The primary school has 10 teachers and 9 classrooms, 6 built by FONCODES and 3 of adobe that are in precarious condition. The secondary school has 5 classrooms and 10 teachers and lacks bathrooms. Both the primary and secondary school are reducing extracurricular activities, such as festivities, in to avoid increasing families' expenses.

The educational establishments operate until 1 p.m. because a large number of children (50% of those in primary school and 90% in secondary school) later go to work in mining. There is a school breakfast program, which is fundamental, because many children go directly to the mine without eating lunch. The primary and secondary schools mainly serve children from the town, along with some who come from surrounding communities and live stay Monday through Friday in rented rooms in town. There are primary schools in only 3 of the 7 district's communities.

Health services

Ananea has a health center that serves the town and, through sporadic visits, the alpaca-raising communities in the district. The staff consists of a doctor, an obstetrician and a nursing technician. The center attends the PACFO program of supplementary nutrition for children at high risk. It should be noted that the health system does not provide specialized programs for occupational health activities (preventive and primary care) that correspond to the local situation. As a result, there are no specific programs linked to the health effects of mining in this area or any of the other mining zones.

Local economy

The population in rural communities in the district of Ananea is dedicated to raising alpacas, while mining is the principal economic activity for residents of the town. Some families keep alpacas in the highlands, which provides them an additional source of income. In these cases, which do not constitute the majority, the family splits up and the mother and smallest children leave to care for the livestock.

There are few economic establishments in the town: a few shops and small restaurants and just one lodging place. Commerce and services are concentrated in La Rinconada.

Work place and process

The mining zone is located just a few meters from the town. While mining in Ananea is not subterranean, explosives (nitrate, kerosene and percussion caps) are used to open small tunnels and extract blocks of earth and rock. After the ore is extracted, it is pounded with a sledgehammer or pick to break it up, then taken to the place where it will be washed. The ore is washed in sluices through which water is forced with hoses equipped with pressure nozzles until the gold is concentrated in a screen at the end of the chute. It is then removed, washed in buckets and a sieve, and finally amalgamated with mercury in *quimbaletes*., wrung out in a cloth and smelted with a blowtorch.

The most active mining season is from December to April because of the rains. Adolescents help carry blocks of earth and rock in hand carts or on their backs. Some also participate in the extraction process. Women and children scavenge for gold in the residue left by cooperatives or in small "*caños*," places where independent mining is done. They then wash the ore ("*chichiquea*") with trays and

rugs, using a loose-woven jute cloth as strainer, or in the river or sluices. Washing in sluices requires standing with the legs submerged for several hours. Workers must pay the association for use of the sluices. They complain about the payment and sometimes use the sluices clandestinely.

Small children are often seen with their mothers around the mines because there are no child-care centers. Family income from this specific activity, independently from the income earned by the male head of household, is US$15 or $20 a month, which the mother uses to buy bread, cocoa and other basic foods. The following photo shows a boy who works in the afternoons washing ore in a sluice along with his mother and youngest brother.

The miners in Ananea are organized in cooperatives, with title to 4 concessions that have been transferred to the Central Organization of Mining Cooperatives of San Antonio de Poto (CECOMSAP) by the Minero Perú company since 1993. This company has stopped operating because it is in the process of being privatized. There are currently 6 established and 2 new cooperatives, which have joined together in a central organization; the members wash and sell the mineral collectively. Payment is made according to each member's work.

A member or aspiring member must pay 1,000 soles (US$300) to be accepted. Those interested in membership must first work as laborers in La Rinconada. Pay for day labor in this area is 10 or 12 soles (between $2.80 and $3.50 a day), which, while very low, is more than they would receive as farm laborers.

Some members are critical of cooperative leaders, especially because of the low pay they receive. At the time the study was done (a time of limited activity because of lack of rain), the estimated monthly income was $200, of which the member received $120 and $80 was retained by the cooperative for mining costs (shipment, water), as well as coca and liquor for collective labor and "*challada*"[7].

b. La Rinconada

Population

La Rinconada and Cerro Lunar are contiguous, overcrowded communities that have grown up around mining. Approximately 8,000 families live there, 5,000 in

[7] A ritual of "payment" to the earth before prospecting for gold, which is also done in the other localities.

La Rinconada, in an area of 10 hectares, and 3,000 in Cerro Lunar, in similarly overcrowded conditions.

Housing

The families' precarious living conditions are reflected in their houses, which consist of one or two rooms, with zinc walls and roofs lined with lake reeds or plastic to protect against low temperatures, which can reach 26 degrees below zero Celsius. There is usually a dirt floor.

Because the families lack potable water, they buy chlorinated water that health workers consider inadequate or use polluted water from snow melt. Electric service was installed in 2000. Some public telephones have also been installed recently, and there are small radio stations and antennae for TV reception.

Environmental problems

This community was established in the late 1970s in a haphazard way that led to overcrowding. The serious environmental problems in La Rinconada are visible at a glance, because mining processes make intensive use of coal, gasoline, petroleum, kerosene, propane gas and mercury. There is also a lack of basic services, garbage collection and sewage service. Houses do not even have pit latrines, so people use open places for their bodily needs. At the entrance to the town (beside the health post) there is an enormous pile of waste and trash over which buzzards circle constantly.

Residents of La Rinconada must walk in mud formed by snow melt from the mountains and mine waste dumped in streets and water channels. They also breathe smoke from trash being burned in the town. The only thing that saves the town from epidemics is its location at 5,200 meters above sea level, where there are no insects or other vectors for disease transmission.

Educational services

There are two PRONOEIs (140 children) and one CEI (60 children), a state-run primary school and a state-run secondary school. These are built of stone and zinc sheets, which do not protect against the cold in La Rinconada. The primary school has 6 classrooms and serves 500 children in two shifts, with a high number of children per classroom (between 40 and 50). It is estimated that the

state-run primary school alone needs 24 classrooms, which would allow it to serve about 1,600 children in two shifts, with an average of 35 children per classroom[8].

The public secondary school serves only 170 children; some adolescents go to Ananea or Putina, the provincial capital, to study, but it is estimated that this number is low because of the high cost to the family of supporting a student living away from home. The lack of sufficient classrooms for the resident population of 5,000 families and the poor quality of teaching are factors in the families' decision to have their children work.

There is also a private school that serves 82 primary and 30 secondary students, and two other private elementary schools with a total of 140 students. The students at these schools are mainly children of contractors and merchants, as well as laborers whose economic situation is better, who have their own homes and a small business to supplement their income.

Health services

There is a health post with qualified personnel, but it lacks equipment for specialized analysis. This center handles the CRED program, for follow-up of children's growth, and the PACFO supplementary nutrition program, which provides food for children ages 6 months to 3 years in coordination with Mothers Clubs in La Rinconada's 14 neighborhoods.

Local economy

This is a very dynamic camp in terms of commerce and services, with several small dry-goods stores, pharmacies, radio stations, tailor shops, barber shops, repair services, small hotels and restaurants. The following photo shows the downtown area, where some solidly constructed commercial establishments can be seen. Street vendors selling packaged foods, electrical appliances and clothes have proliferated, as have bars and nightclubs.

[8] The former school director made a request to the National Compensation and Social Development Fund (Fondo Nacional de Compensation and Desarrollo Social - FONCODES) for construction of 18 classrooms and replacement of the 6 existing rooms. The request was denied because it was erroneously believed that the population was transient.

In this town there are serious problems with alcoholism, crime, street violence and prostitution of adolescent girls in bars. People disappear relatively frequently, and rapes and deaths from assaults and street and bar fights are relatively common.

Work place and process

In La Rinconada, tunnels are opened when mineral veins or oxide deposits are observed (IDESI 1995). Workers use explosives and break up the rock with picks. Some miners have mechanized extraction techniques using compressors, but processing is still done in the small-scale, traditional manner, using *quimbaletes* and making intensive use of petroleum, gasoline, gas, kerosene and mercury.

The Ananea Mining Company (Empresa Minero-Ananea) and between 150 and 200 individual contractors work in the area. The company rents some areas to contractors who in turn hire miners using the *cachorreo* system, under which the workers are allowed to extract ore for themselves two or three days a month in exchange for their labor. In fact, they extract only a minimal amount of gold, because the quantity depends on the amount left in areas that generally have been exploited previously. Miners work 4-hour shifts, and most work for 2 or 3 contractors. In the season of greater mining activity, when new tunnels are opened, a miner can earn an average of 600 soles ($170) a month for one shift; during times of little activity, they may go for months with no income.

Because of this contracting system, women and children participate daily in mining to contribute to the family income. They scavenge for gold in the waste left outside the tunnel (called *pallaqueo* or *llampeo*), wash the mineral (*chichiqueo*) and later process it in *quimbaletes*. From these activities, a family receives US$8.00 per gram of gold, which represents approximately one week of continuous work. This helps them buy food. Many mothers and children also have small businesses preparing and selling food or selling dry goods or other products.

Children also help their fathers, extracting ore from the tunnels, which are small galleries about 90 centimeters high, and crushing the rock with a hammer or in the *quimbalete*. Some families have a *quimbalete* in their homes; others must rent at prices ranging from 5 to 10 soles a day.

In Cerro Lunar there is an Association of Small-Scale Miners (*Asociación de Pequeños Mineros*). In La Rinconada, an Association de *Pallaqueras* and *Llamperos* has recently been formed, made up of a total of 800 women and some adult men

who can no longer work as laborers. The purpose of the association is to gain permission from contractors for the members to work. They currently pay between 6 and 8 soles to be allowed to scavenge for gold in the mine waste (*pallaqueras*). The *llamperos*, who extract the mine waste from the mine shaft using brushes, also face daily problems because they are not allowed to enter. A similar association exists in the Gavilán de Oro camp. There are also contractors' associations in La Rinconada.

In this area, explosives are obtained illegally, but with relative ease. According to recent studies, this fact and the low value of the mine waste makes the small-scale miners less likely to become dependent on companies or *quimbalete* owners in the production process because the process is self-contained (COSUDE 1999). The mineral is sold to companies that buy and re-sell gold in both La Rinconada and the city of Juliaca.

2.3 Madre de Dios

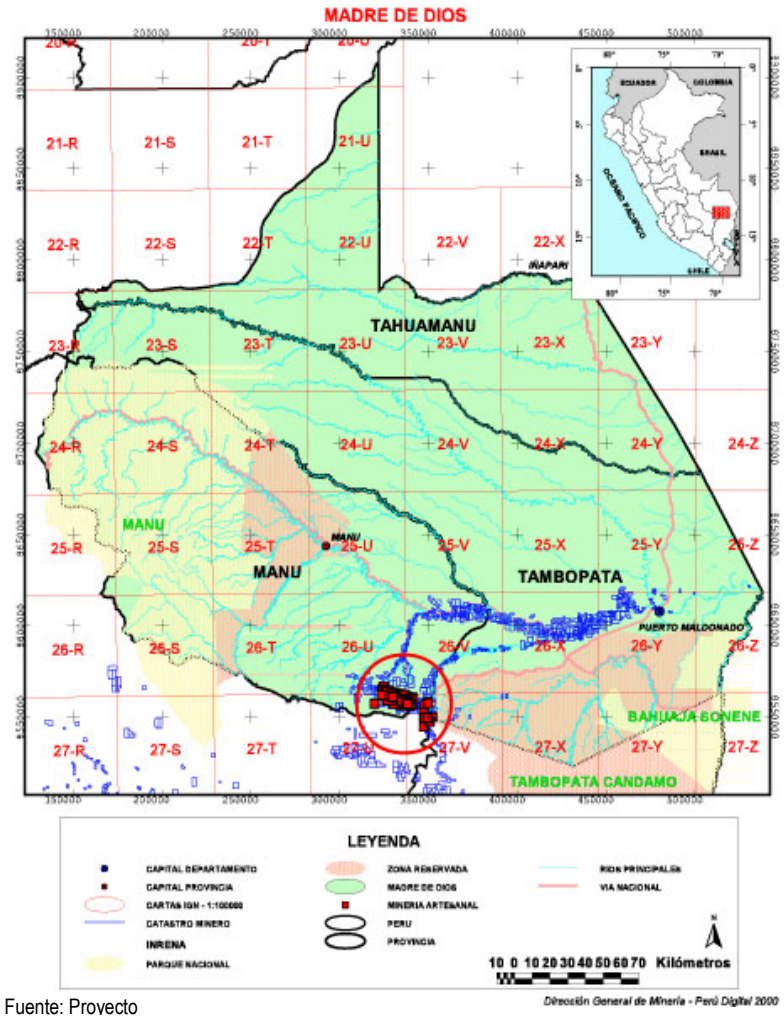
There are two mining zones in the department: Huaypetuhe, an area of Piedmont terraces where 80% of the department's population and mining production are concentrated, and communities located along the Madre de Dios River, an alluvial plain that includes Tres Islas, La Pastora, Laberinto and Colorado. The following map shows the department's mining areas: Huaypetuhe and the banks of the Madre de Dios River.

Departmental capital
Provincial capital
Map sector
Mining registry
INRENA
National park
Reserved zone
Madre de Dios
Small-scale traditional mining
Peru
Province
Principal rivers
National road

Kilometers

Source: Provecto

General Directorate of Mining - Perú Digital 2000



Fuente: Provecto

In the department, 1,056 mining operations have been recorded (MAPEM). Exploitation is done in alluvial deposits or small-scale placers, where costs are low. The method used depends on the location of the deposit: woodland, rivers, terraces or beach (GRADE 1994). La Madre de Dios River area is plain and the Huaypetuhe area is terrace.

Huaypetuhe is reached from Puerto Maldonado by traveling one day or more, or from Cusco by small plane. Traveling from Cusco by land can take one to three days; local people generally travel by cargo truck.

a. Huaypetuhe

Population

The district of Huaypetuhe includes four minor municipalidies: Choque, Huaypetuhe, Nueva and Caychiwe. In all, 15,000 families live in the district. Some 5,000 families live in the town of Huaypetuhe, in an area of 60 hectares, and residents of mining camps in the ravines arrive for the weekends.

The principal ravines in this zone are: Puno, Santa Elena, 9 de setiembre, Violeta, Mahuay, Aguajal, Seca, Nueva, 4 Amigos, Santa Inés, Padilla, Buena Fortuna, Huayruruchayoq, Unión and Libertad, which are located along the Caychiwe, Chancamayo and Huaypetuhe rivers.

In Huaypetuhe, there are 6 neighborhoods: 3 de mayo, Pueblo Unido, 5 de junio, Parque Industrial, 12 de enero and Camino a la paz.

Housing

Houses are made of wood with zinc roofs, built on wooden stilts because the town has twice been swept away by the river. This precariousness stems from the miners' mindset that they are "just passing through," even when they actually end up spending many years or the rest of their lives there in hopes of a lucky strike that will enable them to save enough to be able to go into a different line of work.

There is electricity for four hours a day, from 6 p.m. to 10 p.m. There are several parabolic antennae and limited telephone service.

Environmental problems

This locality shows serious environmental problems and lacks garbage collection, potable water and sewer services. People buy water stored in tanks and take care of bodily functions in public places. As a result, the streets are constantly flooded and emit a foul odor that is exacerbated by temperatures that reach 40 degrees Celsius. There is a high incidence of disease, to which insects and rats, high temperatures and torrential rains contribute.

Educational services

There are only one CEI, 2 primary schools and one secondary school for the entire area. The primary school in Choque has three multi-grade classrooms and three teachers. Forty percent of the enrolled students work in mining on weekends and during the rainy season. According to the school director, these children have higher absenteeism rates and poorer performance, although they show an interest in their studies. In addition, because of the high rate of alcoholism among parents, children drop out early to help support their families.

The secondary school has only 6 classrooms and 180 students. It has 9 teachers. Only 30% of the students are children of miners, and all work to help their parents. The rest are children of merchants.

Health services

There are only two health posts for the entire zone,. in Huaypetuhe and Nueva. As in the other mining areas, they lack diagnostic and other equipment appropriate for cases involving job-related accidents.

Local economy

Huaypetuhe is a very dynamic community. There are several small restaurants, some precarious lodging places that lack bathrooms, and various commercial establishments selling clothing, electrical appliances, wood for building houses, machinery and tools for mining. There are also high rates of crime and street violence. According to the Huaypetuhe district attorney's office, the most frequent crimes are rape of women and minors (there are 6 to 8 complaints a

year of cases involving children between ages 5 and 12), domestic violence, robbery and usurpation. Many mine laborers are have police records. Bars have proliferated, with a consequent increase in adolescent prostitution. This is abetted by abuse of children in the home, which many try to escape by entering into marginal activities or marrying or entering into common-law relationships at an early age.

In the ravines there are camps that can only by reached by paths that are actually just vehicle tracks, sometimes impassable and lost in the undergrowth. Houses are made of wood and zinc sheets, or are simply one-room shacks of palm branches covered with plastic, without walls. There is no water or sewer service and electricity comes from generators at a cost of up to 120 soles ($35) a month. The camps are far from one another. Transportation is scarce and many children must walk several hours to reach their school. There are schools and health facilities only in the communities of Choque, Santa Inés and Huaypetuhe. Unlike the permanence that characterizes small-scale traditional miners in other regions of the country, these camps are temporary, and when the miners move, they leave behind desolate, barren lands.

There are insufficient police in this area, and police and labor authorities do not enter the camps where the greatest risk exists, mainly those located in the area between Pukiri and Colorado.

Work place and process

Work places are close to the houses. There are frequent landslides of muddy earth in which miners are injured. Another risk is from lightning strikes during the rainy season, the time of greatest mining activity.

In Huaypetuhe, there are 304 mining concessions, of which 233 are located in distant ravines. Of these, 20% are informal, worked by squatters who occupy lands until the owners (new or old) assert their rights and evict them. The rest are under the control of landowners or authorized "guests" who work the land in exchange for a fixed sum or a percentage of the gold extracted. While progress has been made in titling, informality persists with regard to compliance with norms related to safety, mining hygiene and the environment.

There are no mine unions or associations. Only in Caychiwe is there an association of small landowners. Laborers work for concession-holders or "guests" and live in camps in extremely precarious conditions. They face daily labor conflicts because they are not paid on time or do not receive the agreed-upon amount. The predominant contracting practice is a bonded-labor system called "*enganche*,"

which is done from Cusco, Puerto Maldonado, Puno or in Huaypetuhe. The need for labor increases with the start of the rainy season in January, which coincides with school vacations, and adolescents and youths come from Puno and Cusco. The "contracts" are for three-month periods. The contractor covers travel costs and pays the worker at the end of the period. Meanwhile, he keeps the workers' identity documents and gives them an advance on their pay every weekend, part of which is spent in bars. As a result, many workers are still in debt at the end of the quarter and enter into a new contract on the same terms.

The technology used in the mining process is semi-traditional. Exploration in this part of the Piedmont does not require picks or more modern tools, because the gravel containing the gold is easily visible. Exploration on beaches is done at times of low water, when the gold can be easily seen (GRADE 1999).

For extraction, front-loaders and carts are used to transport the ore to sluices where it is washed with streams of water. Another method is "dragging," in which the ore is eroded away with hoses equipped with pressure nozzles and diverted through a channel to the recovery sluice. Some years ago, "machinery fever" struck the area and many miners acquired modern machinery for ore extraction[9]; contractors no longer use child and adolescent labor in this phase.

There are poor miners, occupying land illegally, who use an improvised methods, placing the ore in streams with shovels and picks to be carried to a recovery sluice. Others look for gold in the residue from mechanized mining operations. In both cases, it is family labor in which children participate.

Although progress has been made in mechanizing extraction in this zone, processing is still done in a small-scale, traditional manner. There is currently a tendency to think that the gold deposits have been seriously depleted, but according to Ministry of Energy and Mines officials, more gold could be extracted if mining, especially gold recovery, techniques were improved.

Informality predominates even in mechanized mining. Of 600 mining companies and commercial establishments in Huaypetuhe, only 37 are formally constituted, paying taxes and maintaining payrolls and employee records. Because local authorities are usually large-scale miners, they are unlikely to represent the population and the workers.

There are some conflicts between miners and farmers because authorities of the respective ministries do not properly coordinate titling of land and handling of complaints and lack resources for carrying out their duties. Mining has caused

[9] Many went into debt for as much as $10,000, although not all complied with payments.

damage, such as the loss of the Huaypetuhe River[10], and is reducing the productivity of the already poor land on which coffee and vegetables are produced.

b. The Madre de Dios River

Population

The population is scattered in small communities that are accessible by river from Laberinto, a town one hour from Puerto Maldonado, where government agencies and services are centralized. River transportation costs are high, and it is possible to travel by land to only a few communities. Reaching the most distant communities, such as San Juan, the largest mining town in the area, requires a day-long river trip. Other communities with significant populations are Tres Islas, Boca Unión, Boca Inambari, Horacio Zevallos, Tumi, Boca Amigo, Cinco Islas and Lagarto.

In the extensive Madre de Dios River zone, there are 43 native communities with an estimated population of 6,000 people. They have come into conflict with the miners, who believe that the amount of land granted to the indigenous communities is excessive in relation to their population. Another significant social conflict is between miners and farmers.

Housing

Houses are built of wood and rustic materials. In Laberinto and San Juan, roofs are made of zinc sheets. In Tres Islas and other communities, roofs are made of palm thatch. Only Laberinto and San Juan have electricity. In some communities there are electric generators that sell services for a few hours. These communities have neither potable water nor sewer service. People draw water from the rivers, which are contaminated with mercury, petroleum and waste.

[10] The ore-bearing sand that covered the river also covered the first town of Huaypetuhe to a depth of up to 6 meters.

Educational services

There are primary schools in these communities, but there is only one secondary school for the entire Laberinto basin; none of the students at that school work in mining because those who work do not attend school.

Health services

There is a health center in Laberinto and health posts in Tres Islas, Boca Inambari, Boca Unión, Lagarto, Tumi and San Juan.

Local economy

Bars have proliferated in Laberinto, where there are sometimes as many as 10 in one square block. The isolation and lack of adequate government services contribute to marginalization. The situation of the mining communities was even more dramatic when there was less government presence. It was a sort of "no-man's land" where there was flagrant exploitation of adults and minors in mining. This has resulted in a tendency to close in and cut off outside relationships, reinforcing machismo, ignorance, amorality and a breakdown of the social system. Prostitution and rape are part of this, and minors are the most frequent victims.

As in Huaypetuhe, police and labor authorities do not visit some communities because they lack human and material resources and because the areas are high-risk zones with frequent assaults and murders. That is the case in the most distant communities, such as San Juan, the largest mining camp (with both small-scale traditional and mechanized mining), where there is no police station, even though there is a high rate of alcoholism and street violence, as well as adolescent prostitution.

Work place and process

The system of *enganche* or bonded labor predominates, almost always involving adults, and in the months of lowest output the miners practically go unpaid. Cases in which minors work for third parties have diminished because of greater control by authorities in some communities and more generalized use of machinery in the extraction phase. Adolescents participate in extraction in small-scale traditional mining, transporting ore in hand carts.

There are no mining companies in this zone, although there are some medium-scale individual miners who have machinery, mainly because the state-owned

company, Centromin Peru, which worked in the area between Boca Inambari and Amigos, did not meet its payroll and some workers kept machinery. The dredges belong to them. There are no powerful miners along the Madre de Dios River; miners there do not get rich. Both the price and volume of gold extracted have decreased.

There are small-scale miners up to the community of Cinco Islas. It is difficult to estimate the number of families dedicated to small-scale traditional mining because the work is itinerant and seasonal and sometimes done in inaccessible places. There are no associations of small-scale traditional miners in the zone.

The "guests," who own machinery and are authorized to be on the land, contract laborers whom they pay, as a group, a percentage of the output, generally 21% for work with *chupaderas* (where the gold is suctioned and broken up with hoses equipped with pressure nozzles, in areas where there is water), *carrancheras* (a machine that performs a similar task, but is motor-driven, with a suction hose manipulated by a diver), and rafts or suction dredges, which are anchored at a certain point to suction the material to be sampled. The laborers divide up the tasks among themselves.

Mining on land uses picks to locate the places where there is gravel containing gold. These are then opened up with picks, and the mineral is extracted with the help of shovels to sample it.

The mining process continues with the search for gold flakes, beating the material until sand is left and washing it with water, then setting up a hopper and a plastic mat. The owner watches the workers place the ore in the hopper and shake it in the mat. Others use recovery sluices. The owner later transfers the ore to a drum and adds mercury. This mixture is stamped with the feet using a trough and a kind of plate called a *cuya*. The owner or laborers then "beat" the ore and wring it out in a cloth. Finally, it is heated in small tins, a task usually performed by the owner.

2.4 Pataz

Located in the department of La Libertad, this mining town is 18 hours by land from the city of Trujillo. It can also be reached by small planes that serve medium-size companies in the area. The district has a population of 1,300 families.

Population

Pataz is home to 1,350 families. It consists of a town and 13 annexes. Small-scale mining is the principal economic activity in the town and 3 annexes: Campamento, Pueblo Nuevo and Zarumilla, which include a total of 830 families.

Housing

Houses are mainly built of adobe with dirt floors and tile roofs, although there are houses with roofs made of zinc sheets or some composition material. There is a public non-potable water system, and sewer system coverage is very limited. Electric service is being installed. Currently, the La Poderosa mining company provides electricity to 30% of households for 4 hours a day. Public telephone service has recently been installed.

Educational services

There is one CEI (20 children) and one primary school (6 classrooms), both of which are state-run. There is one private secondary school (5 classrooms) and a post-secondary mining technical school.

Health services

There is one health center that provides general medical service, obstetrics, nursing, a pharmacy and a laboratory. It has a vehicle and an electric generator.

Local economy

Small-scale mining is the principal economic activity with which households in Pataz and neighboring towns support themselves. There are several establishments in town that sell dry goods and electrical appliances and there is a weekend market that draws the farming population from the annexes. Radio

stations have also been installed (one municipal, one at the health center and one commercial) and there are some companies that buy and re-sell gold.

For the past 8 years, the town of Pataz has not been overcrowded. Before, there were more companies and an influx of migrants. The company is not currently hiring local residents, because it believes there is a risk that local workers will steal the mineral because they know the rock type. Outsiders are hired through a system in which they work for 28 days straight in exchange for 14 rest days, when they return to their home communities. As a result, they do not set up households in the zone.

Work place and mining process

The work places are just a few meters from the town, on the sides of the hills surrounding the community, making it dangerous to reach them and work there. The proximity of housing to the mines leads to constant environmental contamination.

Since 1983, the La Poderosa Mining Company has been working in the Vijus annex, and since 1993 in the Santa María annex, both of which belong to the district of Pataz. The company's second incursion led to serious problems because these lands legally belonged to Minero Pataz, a shared-property company that assigned tasks to each family. The property was later transferred to the La Poderosa mining company. According to local residents, leaders of the shared-property company sold the land to Minero Pataz as though it were private property. Because of protests from local residents, the company agreed to let them work the land that they had already exploited and that was unprofitable because of the low grade of ore, on the condition that they sell the company the mineral they extracted.

Miners are currently working in these areas and selling the mineral they extract to the company. The price for providing the service of concentrating and purifying the gold is $160. The small-scale miners are critical of the process by which company employees determine the gold content and believe they are not being paid according to the amount of gold they provide. Teachers at the post-secondary Technological Institute of Mines in Pataz indicate that the miners probably receive 50% of the amount they should be paid. Many miners end up in debt to the company because they lack the technical mechanisms to ensure the profitability of the mineral they produce. As a result, about 80% of the small-scale traditional miners are processing gold independently, with cyanide or mercury.

There are also areas of land belonging to the company that are not being exploited. In these areas, local residents extract gold and sell it to the resale companies. The company does not consider this a problem, since the technology used by small-scale traditional miners makes it impossible to open tunnels of more than 100 meters because they would run out of oxygen. The company will exploit these areas later with heavy equipment.

Some small-scale miners have complaints pending over land that they acquired as leaders of the shared-property company, Minero Pataz, as part of the agreement with the La Poderosa mining company. These landholders work their property directly or hire laborers, paying them between 11 and 15 soles a day.

Miners who are not members have formed the Association of Free Mining Extractors (ADELMI). Some independent miners contract laborers, paying them 5 soles a day plus food. They are only paid when they dig and find ore. In the poorest families, the women and children work scavenging in waste from the company mine.

In the extraction phase, the miners extract "*paco*" (soft, oxidized ore) or "*pirita*" (hard ore), which creates dust, whether they use manual methods (hammer and drill) or explosives. Breathing the dust causes lung problems and the dust also causes lesions on the hands and in the eyes. Because they are small, the shafts are poor ventilated. Miners sometimes spend several days in the tunnel. The process continues with hauling the ore, a task known as *capacheo,* and *chancado*, which involves carrying the ore to the mouth of the mine and using a sledgehammer to break up the rocks until they are small enough to be transported to the place where they will be processed.

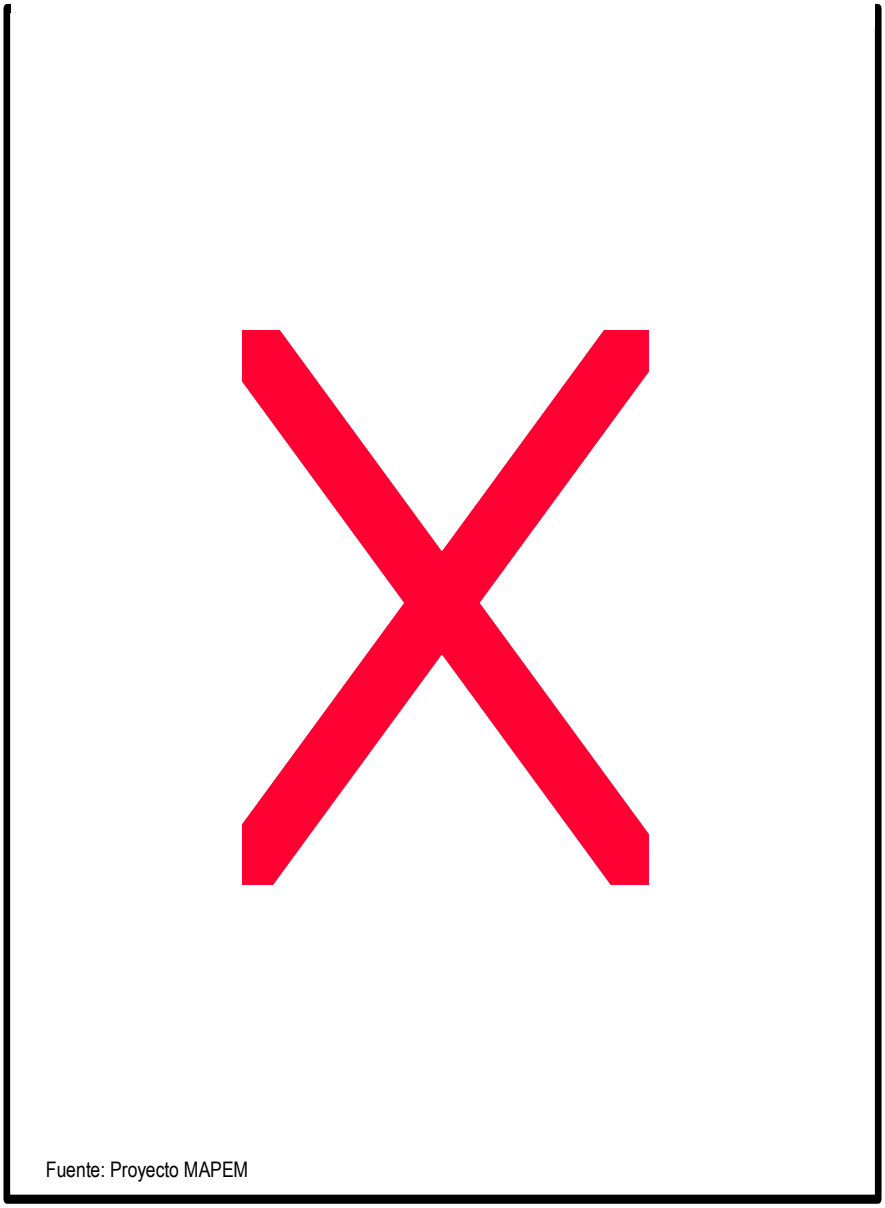
In the refining phase, acids are used to separate the minerals (gold and silver). Exposing them to heat increases emission of toxic fumes. This task is sometimes done in houses[11]. For amalgamation, the "*pirita*" is processed in a mill using mercury, water and detergent. Because the "*pirita*" is harder than the "*paca*," small-scale traditional miners tend to sell it to the company. Another process involves the use of cyanide. Cyanide is less harmful than mercury and allows an increase in productivity; nevertheless, the cyanide pits are exposed to the environment for 2 or 3 days and emit fumes that cause dizziness, vomiting and headaches. They are later drained to be reused. Workers do not wear gloves or masks when handling cyanide.

[11] The municipality has issued an ordinance requiring that this be done outside the urban area.

Once any of these processes is finished, the waste is abandoned. Rains wash it into the rivers, polluting the water that is used for irrigating crops and watering livestock.

2.5 Nazca-Ocoña

This zone extends along the Panamerican Highway south of Lima from Nazca (6 hours from Lima) to Chala (3.5 hours from Nazca), covering an area of approximately 50,000 square kilometers. It includes desert-like mining areas located at more than 1,500 meters above sea level in the departments of Ica, Ayacucho and Arequipa, which can be reached in 3 or 4 hours from turnoffs from the highway.



Fuente: Proyecto MAPEM

LEGEND
Departmental capital
Provincial capital
Map sector
Mining registry
INRENA
National reserve
Small-scale traditional mining
Peru
Province
Principal rivers
National road
Kilometers
Source: MAPEM Project
General Directorate of Mining - Perú Digital 2000

Earlier studies have identified 40 small-scale mining communities scattered throughout this zone (COSUDE: 1999), which currently are home to at least about 6,000 families. The most important communities, because of the number of small-scale miners, are in Ica: Saramarca (province of Palpa) and Tulín (province of Nazca); in Ayacucho: Huanca (province of Lucanas), Santa Filomena, San Luis (Jaquí) and Relave; and in Arequipa: Mollehuaca, Eugenia, Cerro Rico (province of Caravelí). Huanca, Santa Filomena, Relave and Mollehuaca were selected for this study.

In these communities, most houses are made of straw mats, even though the temperature fluctuates between extreme heat during the day and low temperatures at night. Most communities do not have water, electricity, sewer or garbage collection services.

They also lack sufficient and adequate health and educational services. One of the principal deficiencies is the lack of a secondary school in important communities like Mollehuaca and Huanca. Primary schools generally begin classes 1 or 2 months after the official starting date because of delays by Ministry of Education administrative offices in arranging for teachers. This considerably decreases the number of effective class hours per year and in some cases has hampered students' access to student insurance, because they were not signed up for the program on time. Both schools and health centers are marked by a lack of personnel, infrastructure and equipment, factors that tend to decrease teachers' and medical personnel's interest in and real possibility of providing quality service to local people.

Some communities, such as Mollehuaca, are relatively far from the mine. Others, like Santa Filomena, have been established in the area where extraction is done. In all the towns, housing is located in the area where ore is processed, leading to serious health problems, especially those related to mercury contamination.

It must be noted that these communities have been growing haphazardly around the mining areas, from an initial stage of land occupation that lasted just a few days because of the total lack of living conditions, to the stage at which miners began building their houses and some precarious structures where schools and health centers could operate, once they decided to stay. Since the second half of the 1980s, people displaced from areas affected by political violence, mainly the rural areas of the departments of Arequipa, Ayacucho, Ica and Huancavelica, were attracted by mining areas that had been abandoned by companies because of incursions by terrorist movements like the Shining Path, as well as the Army. When the political violence began to subside, owners of registered claims began

to return. Some tried to evict the small-scale miners, while others chose to negotiate with them, agreeing to let the miners extract ore and acquire dynamite, since small-scale traditional miners are not licensed to obtain and use explosives, in exchange for turning over the mine waste (Eprodica 1994:43).

Other landowners have negotiated with owners of *quimbaletes* and mills, who in turn establish agreements with the small-scale traditional miners. The miners turn over their mine waste in exchange for explosives, water and sometimes credit. The *quimbalete* and mill owners, in turn, are subject to conditions set by mine owners or owners of cyanide processing plants, who pay them 10% of the value of the mineral obtained. In this area, mine waste has high commercial value, as 50% to 60% of the gold is not recovered by the miners (COSUDE 1999), unlike Puno or Pataz, where the waste is abandoned or dumped into rivers and streams.

The mining process involves a total of 11 specific tasks: drilling, blasting, hauling, hoisting the ore in sacks on the back, scavenging for gold in mine waste (*pallaqueo*), breaking up the ore (*chancado*), transportation, crushing or refining in a mill, amalgamation in the *quimbalete*, liquefying or wringing out the amalgam, and heating the gold with a blowtorch. These last three steps result in mercury pollution of the water, soil and overall environment, respectively[12].

As in Pataz, companies have begun providing the service of processing ore with cyanide for a fee, usually withheld from the gold obtained. This system is criticized by the miners. "Miners of the Jaquí area say they often left the Laytaruma plant in debt to the owner because the material they had taken there was supposedly very impure, even though their own sampling showed a higher gold content and greater purity" (Zevallos 1994:76).

[12] ISAT diagram: Small-scale traditional gold mining and its environmental impact.

a. Huanca

Population

This is an annex of the district of Santa Lucía (province of Puquio, Ayacucho), located 850 meters above sea level. Huanca is reached by a turnoff from Nazca. It has a population of 250 families.

Housing

In the agricultural area, the houses are made of adobe and stone with straw mat roofs covered with plastic. In the mining zone, they are made of straw mats. Electric service reaches 80% of households and water service 30%. There are no latrines or garbage collection service.

Educational services

There is a PRONOEI (17 children), a CEI (20 children) and a primary school (108 children enrolled in grades 1 through 6). The primary school has been built by the community and has 4 teachers, 2 permanently assigned and 2 contracted. Of the students, 95% are children of miners; the rest are children of merchants or farmers. The teachers estimate that 80% of the students work in mining, services (mechanic shops, restaurants), agricultural labor and caring for animals.

Health services

There is one health post, which was initially constructed by the miners and later rebuilt after an earthquake struck the area. As in other communities, the health post lacks sufficient medicines and equipment for treating emergencies and other health problems.

Environmental problems

The fumes emitted when mercury is heated permeate the community. The Health and Labor Institute (ISAT), which implements occupational health promotion programs in the zone, has performed validation of improved retorts from the Ministry of Energy and Mines and installed a recovery oven for communal use to reduce emission of gases.

Local economy

While 90% of families work regularly in mining, they also raise some livestock and engage in small-scale agriculture, raising potatoes, fruit and bananas. They also produce alfalfa and flowers and have the possibility of producing trout and shrimp. Because mine waste is sold, it does not pollute the river, making it feasible for Huanca to develop through these other activities.

Work process

Until 1999 there was a Civil Association of Small-Scale Miners of Huanca, one of whose functions was to negotiate with the owner of 5 registered mining claims who demanded that the miners pay him 10% of the mineral extracted daily. With the support of ISAT, this was reduced to 5%. This association broke up after a series of accusations about usurpation of functions and misuse of funds, in which the claim owner played a role. In the last months of 2000, restructuring has begun as the Huanca Mining Company (Huanca Empresa Minera S.A.).

Mining is done in 4 zones where approximately 50 families live: El Arenal and Huajuma Alta and Baja, located 2 and 3 hours from town, which include 25 and 10 families, respectively. These people travel down every 15 days to perform the tasks of breaking up the ore and selling the mineral, as well as the Wednesday market. The other two are Casco Verde and El Alizo, located half an hour away, which are home to 3 and 10 families, respectively. In the "La Lechera" mining camp, the INACOR company provides processing services and buys mine waste from the miners.

There are some conflicts between rural communities and the mining population. Farmers see the miners as invaders; they recognize, however, that small-scale traditional mining is the activity that brings commerce to the area and there has been some successful negotiation between miners and farmers. For example, in the case of a land takeover by about 50 people (supposedly ex-convicts) who arrived at an excavation threatening to loot and rape children, a negotiating commission was formed that forced the invaders to withdraw. Women played a central role in this process.

b. Santa Filomena

Population

This community is located in the province of Lucanas (Ayacucho), near the border with the department of Arequipa. It is home to 500 families who live in a total of 11 neighborhoods or "*bases*", 5 of which are located in the center of the camp and 6 of which are more distant. Santa Filomena is 2,400 meters above sea level and a 4-hour trip from Yauca, a town located at Kilometer 574 of the Panamerican Highway south of Lima.

Housing

Houses are located around the mine entrance. They have been built of straw mats and wooden poles, with dirt floors and plastic-covered roofs, providing little protection against the low nighttime temperatures. Non-potable water is provided by industrial processing plants to owners of *quimbaletes* and mills, who in turn distribute it to the miners in exchange for mine waste. Only miners obtain water through this "chain of dependence." Some residents also purchase electricity by the hour provided by an electrical generator.

Environmental problems

The fundamental problems are those related to mercury contamination and the lack of sewer systems, bathrooms and garbage collection. Waste and excrement are dumped in the open. Because this is a desert area, the temperature rises considerably during the day, aggravating the problem.

Educational services

There is one CEI and one primary school. Secondary school classes have recently begun.

The school has 4 classrooms built in 1998 with ILO and 3 precarious structures built in 1992 by the community. In 1998 the NGO CooperAcción began a program for eradication of child labor under an agreement with the ILO, AECI and Cáritas of Holland. One action has been expansion of educational infrastructure, furniture and material, and coverage has increased by 55% (in 1998, 60 students were enrolled, representing 44% of children ages 6 to 11 years). Besides supporting the Parents' Association (approximately $7 per year), parents pay 10 soles a month ($3) for educational materials, cleaning supplies and rental of the

teachers' residence. This indicates the level of commitment that the community is reaching with regard to the school, as part of the integral program being carried out by CooperAcción, which sets Santa Filomena apart from other mining communities. As one parent pointed out, while education is free, "the people must make it comfortable for the teachers; otherwise they won't have the will to teach."

Secondary education began in 2000, and this year the first and second years of secondary school will be offered. There are 3 teachers, and 2 classrooms have been built with support from the ILO. Figures from 1998 show that there are approximately 100 children between 12 and 17 years of age in Santa Filomena who need secondary education[13].

Health services

There is a health post built by the community with assistance from ILO, and with ILO support it has been provided with basic equipment and is considered the key point of a network, so arrangements are being made to install a laboratory. Previously, medical attention was restricted to a monthly visit by medical personnel from a health post 4 hours away.

Local economy

In this community, small bakeries, barber shops, dry-goods shops, restaurants, juice stands, lodging and other commercial and productive enterprises have been established. The CooperAcción program has supported 15 income-generating projects, including these small businesses, workshops manufacturing sweatsuits, quail farms, etc. Others are private businesses established previously by local residents with excess income from mining. All these services and establishments allow residents to purchase basic items at a lower cost than if the products had to be transported to the camp from the coast. Santa Filomena lacks vegetation and rain is scarce, making the land of no agricultural use[14].

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[13] Population census carried out by CooperAcción in March 1998. Program of Eradication of Child Labor in the Small-Scale Mining Community of Santa Filomena. CooperAcción, ILO, AECI. Vol. I.

[14] For a detailed description see: Program of Eradication of Trabajo Infantil in the Small-Scale Traditional Mining Community of Santa Filomena, Vols. I and II. CooperAcción, ILO, AECI.

Work process

This community has made significant progress in organization of workers. Toward the end of the 1980s a Defense Committee was formed with the main objective of making it possible for the miners to stay in the area. In 1991 the SOTRAMI company, with 235 members, was formed to obtain a concession. It gained recognition of ownership of 1,000 hectares of land. There were 350 members in 1999, but the number has now dropped to 260 (50% of the total number of miners) because of a decrease in its social capital.

The members of SOTRAMI have obtained a license to use explosives and comply with environmental evaluation procedures. The company provides them labor stability in exchange for which the members pay 10 soles a month (US$3). It also complies with government requirements even when the miner has had no luck in the mines.

The company does not intervene in planning of the work. The miners set up partnerships based on relationships of trust and family ties, in groups ranging from 2 to 25 people, and mark off the area they will exploit. Gold is sold to processing plants or processed in *quimbaletes* that are rented in exchange for mine waste.

According to the miners, one current point of conflict is water, which is provided by the Laytaruma company in exchange for ore. The water ration for domestic use and mining activities that require it, such as using the *quimbalete*, has been reduced because the volume of mineral extracted has decreased.

Despite severe pollution problems from the vaporizing of mercury, the miners are giving up use of the retorts provided by the Ministry of Energy and Mines. The miners say they do not use them because the gold turns green and they receive a lower price for it. In addition, they say, use of the retorts takes longer than traditional amalgamation procedures.

It is worth noting that the population of Santa Filomena has carried out a strategic planning process as part of a project coordinated by CooperAcción, which has also been supporting the strengthening of community organizations.

c. Mollehuaca

Population

This community is located in Arequipa, about 3 hours from a turnoff at Kilometer 650 of the Panamerican Highway south of Lima. It has a population of 500 families. This community is an annex of the district of Huanu-Huanu in Arequipa. It is in the process of presenting its registry plan so it can be legally registered by the Ministry of Public Records.

In 1996, an earthquake destroyed 85% of the houses. The area was later seriously affected by the El Niño phenomenon. As a recent study indicates, Mollehuaca "is on the banks or the bed itself of a narrowing dry gully. Apart from expansion physically being impossible, the town is contaminated by mercury. … Natural disasters accentuated the poverty of the inhabitants who were advised to relocate but were not given the resources to do so" (ILO 1999).

Housing

The houses are made of straw mats and wood with plastic-covered roofs. The NGO AIDECA, with support from the ILO, has installed water networks that benefit 70% of the families. The other 30% send their children to draw water from the river. There is electricity from 5 p.m. to 10 p.m., because the miners' association purchased a generator and a parabolic antenna. The electricity powers two light bulbs per house and a TV or radio. Previously, only 30% of the population could purchase electricity produced by portable generators.

Environmental problems

Besides mercury pollution, there is a lack of sanitation services and a landfill; waste is dumped in the open.

Educational services

In 1990, at the community's initiative, a primary school was built, which is attended by 152 children, and a pre-school was constructed. The community also got the government to assign to the community a teacher for pre-school education outside the regular school system. Counting only one enrolled child per family, primary education covers only 30% of the families. As there is no secondary school, the children migrate to other places to continue their studies or simply begin working in the mines. A small percentage of children walk to the secondary school in Relave, 6 kilometers away.

Health services

There is a health post constructed at the community's initiative, which has been equipped with support form the Prelature of Caravelí and the ILO. In addition, to improve the children's diet, a "children's kitchen" has been implemented with support from ILO and a recent commitment from PRONAA, providing food for an average of 150 beneficiaries.

Local economy

In this community, there are small shops, a pool hall, barber shops and small restaurants. Projects supported by the ILO helped establish dressmaking, knitting and goldsmithing workshops, as well as a bakery. Small areas of land are also being rehabilitated for small-scale agriculture.

Work process

In this community, the mining concession belongs to the Caravelí company, which bought the rights from the former owner. Small-scale traditional miners turn over the mine waste to the company in exchange for permission to excavate for gold on the property. According to the miners, it is increasingly difficult to reach the area because the company has build roads and guard posts that hamper free transit. In addition, economic income has been decreasing because the company "is abusive in the price it pays for mine waste"[15].

Approximately 30% of the miners work for the Caravelí company and live on the mountain. During school vacations, their wives and children join them. This is not an attractive alternative, however, because their remuneration does not allow them to cover basic needs and the agreement with the company does not give them the right to medical insurance. There have been several cases of miners whose contracts with the company were severed after it was discovered that they had contracted tuberculosis.

In the community, there are *quimbalete* owners who invest in finding ore veins and also provide mining inputs in exchange for mine waste. They hire laborers (known as "*lateros*" or "*chacales*") to clean the vein and haul away debris, set

[15] According to the miners: "If the material has a value of 500 soles per metric ton, they pay 150 soles." "The Caravelí company buys the waste for approximately US$20 per metric ton, when they used to pay as much as five times that amount."

dynamite charges and prepare and transport food, as well as workers to haul sacks of ore, carry water and crush the ore. Profits are distributed proportionally according to the investment made by each member of the investment group, which consists of approximately 5 members. Investment groups are formed on the basis of friendships, family ties and places of origin. This social structure, however, is not rigid. The "*chacales*," who do the work that is considered "dirty," charge US$10 for a day's labor. While this is not a permanent job, some have managed to save and later invest in exploitation of an ore vein.

The productivity or efficiency of the process is calculated at 40% to 50%. The tools used are picks, shovels, diamond drills[16], hand drills, sledgehammers, chisels, trowels and *quimbaletes*.

A 1992 study by the Ministry of Health found that 79% of the population suffered from the effects of mercury contamination. In 1994, the Mollehuaca Mining Company (Empresa Minera Mollehuaca S.A.) was formed by small-scale traditional miners as an alternative model of formalization. With support from the Peru-Canada Fund, an ore treatment plant was installed. Despite its significant potential for reducing pollution, the plant is not operational because of problems related to the entity that was to manage it.

In 1998 the NGO Ekamolle, with support from the ILO, began an intervention aimed at improving the quality of life of the people of Mollehuaca. This intervention planned to improve health and educational services, raise community awareness about the negative impact of child labor in small-scale traditional mining, and create viable alternative economic and productive models to increase family income. These strategies were continued and expanded by the NGO AIDECA, which carried out principal actions in the area in 1999 and early 2000.

[16] Only 2% of the miners own *chicharras*, or electric drills, which replace hand drills and allow the miner to quadruple his daily output in this phase of the process. The cost, including the generator and bit, is $4,000.

d. Relave

Population

This community, which neighbors Mollehuaca, is an annex of Pucllo, Parinacochas (Ayacucho), and is home to approximately 500 families.

Housing

The majority of houses are made of straw mats, with plastic-covered roofs of the same material. There are also some adobe and cement houses with zinc roofs. All have dirt floors. Eighty percent of households have piped water.

Environmental problems

The principal problems are contamination from the mercury vaporization and the lack of latrines and garbage collection service.

Educational services

Relave has a primary and a secondary school, with 156 and 84 children enrolled, respectively.

Health services

There is a health post that provides sporadic attention.

Work process

In 1997, the Aurelsa company was formed, made up of 86 members, approximately 40% of the total number of miners. This company has the concession to the mining areas where it works. Other small-scale traditional miners work on the concession, paying the company 15% of the mineral extracted.

In the company organization, specialties include foreman, mine captain and supervisor. Ore extraction and processing is similar to that done in other communities visited in this zone.

2.6 Local institutions

Mining communities are production and living spaces that have been settled gradually and where a multiplicity of commercial and service business have been established that, although precarious, create jobs and lead to formation of towns that tend to be permanent[17]. Gradually, too, they have established schools and health facilities, although these are insufficient for the number of residents and provide inadequate care. Some new communities have gained recognition as small towns, which allows them to have their own minor municipalities and arrange for installation of some public services. Nevertheless, many communities still have not gained recognition as political jurisdictions.

But while they are very dynamic communities that seek recognition of their right to better working and living conditions, neither the government nor local community organizations have addressed the issue of the rights of children and the problem of child labor.

State entities

Very few government agencies are present in mining communities. Health and educational services are insufficient for the number of residents and they suffer from inadequate quality of attention, lack of equipment and inadequate infrastructure, and high personnel turnover. In addition, administrative offices for these services are located in provincial capitals that generally are far from the mining centers. This creates obstacles even for such administrative processes as the assignment of personnel to the schools or health posts. The greatest consequence of the state's distance from the mining communities is the neglect of these families, which authorities erroneously believe are "just passing through."

Local governments

Local governments in the mining communities have a poorly developed technical capacity and very limited financial resources. Because government centralization increased during the 1990s, local governments in Peru receive only 4% of public resources. In addition, at times distribution of mining tax revenue to provincial governments has been suspended, which has blocked use of these funds for local development.

In general terms, local government authorities in these areas have little awareness of the risks to which children working in mining are exposed. Like the

[17] The only exception would be camps set up for periods of time in ravines near Huaypetuhe, which are moved when there is no more possibility of extracting ore.

children's fathers, authorities tend to conceal the children's labor, considering it, at best, an occasional help. Added to this is the connotation of illegality attached to small-scale traditional mining and denunciation by communications media and international organizations of exploitative child labor, especially in La Rinconada and placer mining in Madre de Dios.

Nevertheless, local government officials seem willing to engage in projects to help improve the situation of the children and their families. They are aware of the various needs they face, but have made little progress in identifying their opportunities and drawing up development plans. According to interviews, their principal expectations are urban sanitation and waste treatment, road improvement, income-generating projects or small business alternatives that increase families' incomes, expansion of educational opportunities and improvement of educational services.

The problem of environmental pollution was mentioned in survey workshops and interviews. The Pataz district government has been playing an important role in prevention of environmental contamination, in coordination with the post-secondary Technological Institute of Mines and the health center, but its evaluation indicates that public education efforts are very slow to show results., This local government has been engaged in various actions to benefit the local population, having done a survey of families' socio-economic situation in 1999.

The other local governments have no such surveys. Many mining communities do not even have municipal authorities because they are part of district annexes, and there are no recent statistics showing evidence of the need to grant them recognition at least as minor municipalities. Many communities, like those of the South-Central zone, have been fighting for a number of years to be recognized as political jurisdictions. Some, like La Rinconada and Cerro Lunar, would need to be districts because of the size of their population, which would allow them to have their own municipal resources and obtain funds from the central government.

It is worth noting that some local government authorities have conflicts with the population and are even facing recalls. Others are mining contractors or medium-size miners, which leads them to prioritize their own interests and daily income-producing activities. Because of this, it is necessary that intervention programs convoke the various institutions that exist in each community, as well as community and workers' or business organizations, beginning with the phase of raising awareness and setting action priorities.

Community organizations

Community and grassroots organizations, whether organized according to geography or function, are poorly developed in mining communities. Where Mothers Clubs or community kitchens exist, they have scant resources and do not always operate. Small-scale traditional miners have not benefited from government social aid in a sustained manner because they are seen as temporary populations, even though they live in these areas permanently. Besides the lack of minimal operational resources, another weakness of these organizations is their limited capacity to make proposals regarding local development or environmental management (GAMA Project, p. 39).

One factor is the persistence of the belief, in the miners' collective mentality, that they are "just passing through," even when they have already been living for many years in these communities and have achieved installation of some government services and established income-generating and commercial enterprises. Nevertheless, as can be seen in Santa Filomena and Huanca, when community organizations get involved in making development proposals, they become more dynamic; these are the organizations that make social services sustainable, taking responsibility for their operation and maintaining the places where they function.

Other organizations that exist in mining communities include Parents' Associations (APAFAS), whose action is generally limited to demanding the right to free education. The relationship between the school and the community in these zones is complex. On the one hand, the school is criticized for the fees it charges and the lack of class time. Classes are usually held from Tuesday to Thursday, because many teachers travel to cities for the weekend to visit their families or handle personal matters, sometimes leaving at noon on Thursday[18]. On the other hand, like grassroots and community organizations, the APAFAs still have a short-term vision and parents generally show little commitment to their children's education.

Some mining communities have formed very active unions or workers' associations that have achieved progressively better conditions for mineral exploitation. The most dynamic organizations are the miners' unions of Nazca-Ocoña and the cooperatives in Ananea, as well as the association of women *pallaqueras* in La Rinconada. The latter is significant because of the number of members and because women generally have little opportunity for participation in public life in mining communities. Except for communities where there are NGO interventions,

[18] In Santa Filomena, the organization plays an important role in motivating teachers and ensuring that they fulfill their duties.

unions and workers' associations have little awareness of the issues of child labor and children's rights. There is a tendency to conceal the fact that children work, because even they do not consider it work, as such, but see it as a "help."

In the face of this lack of progress by local institutions regarding concern for the situation of children, mothers show a greater awareness. It is necessary to engage in efforts that involve them, as well as union leaders, health personnel, school directors and local government authorities, based on development plans in which they participate actively. Local plans to eradicate child labor in mining will provide an opportunity for airing demands for technology, microenterprises and improvement of health and educational services, as well as gaining the commitment of families, organizations and institutions in the communities.

NGOs and international programs

Some NGOs are carrying out projects in the areas of Nazca-Ocoña and Madre de Dios. In the former, three institutions are working with small-scale traditional miners: CooperAcción, CESIP and ISAT. The first two address the problem of child labor in mining and the third works on issues involving occupational health and the environment. In Huaypetuhe the NGO Huarayo is working in the area of children's rights.

Since 1998 in Santa Filomena, the NGO CooperAcción - Action in Solidarity for Development (*Acción solidaria para el desarrollo*) has been working under an agreement with IPEC/ILO on a program for eradication of child labor that includes several areas of intervention:

- ✓ Raising awareness about the harmful effects of mining work on children. This has led SOTRAMI, the small-scale traditional miners' company, to adopt regulations that prohibit children from working in the mine.
- ✓ Transformation of the production process (installation of an electric winch for extracting ore, which eliminates the task of children hauling 30 to 60 kilograms of ore on their backs; strengthening of SOTRAMI);
- ✓ Strengthening of the educational system (infrastructure, furnishings and educational equipment, and formal requests for increasing the number of teachers and improving the children's nutritional level).
- ✓ Strengthening of the local health system (support for materials for building a health post and various actions in coordination with the Ministry of Health);
- ✓ Generating family income through support for women's economic initiatives: bakeries, lodging, quail farms, juice stands and sewing sweatsuits;
- ✓ Strengthening community organizations.

In Mollehuaca, Ekamolle, followed by AIDECA and now CESIP, with support from IPEC/ILO, have engaged in projects aimed at eradication of child labor from mining, with several areas of intervention:

- ✓ Support for community organization
- ✓ Expansion of land dedicated to agriculture
- ✓ Providing potable water
- ✓ Income-generating activities (bakery and knitting workshops, dressmaking, goldsmithing)
- ✓ Improvement of living conditions (health, education, housing)
- ✓ Creative vacation program for children, with sports activities, dance, theater, remedial education, etc.
- ✓ Strengthening of community organization

In Huanca, ISAT has been engaged in health and environmental projects and is currently carrying out a participatory study to address the issue of child labor. Its principal areas of intervention are:

- ✓ Job-related health and safety
- ✓ Strengthening of mining and other community organizations
- ✓ Environmental contamination
- ✓ Income-generating projects

An important step in addressing the issue of children's rights in mining communities is the recent formation of the Network of Ombudsman's Offices for Children and Adolescents in Huaypetuhe, with support from UNICEF. The project is being coordinated by the NGO Huarayo, which is based in Mazuco and whose areas of intervention include the problem of child labor. Such ombudsman's offices do not yet exist in other mining communities.

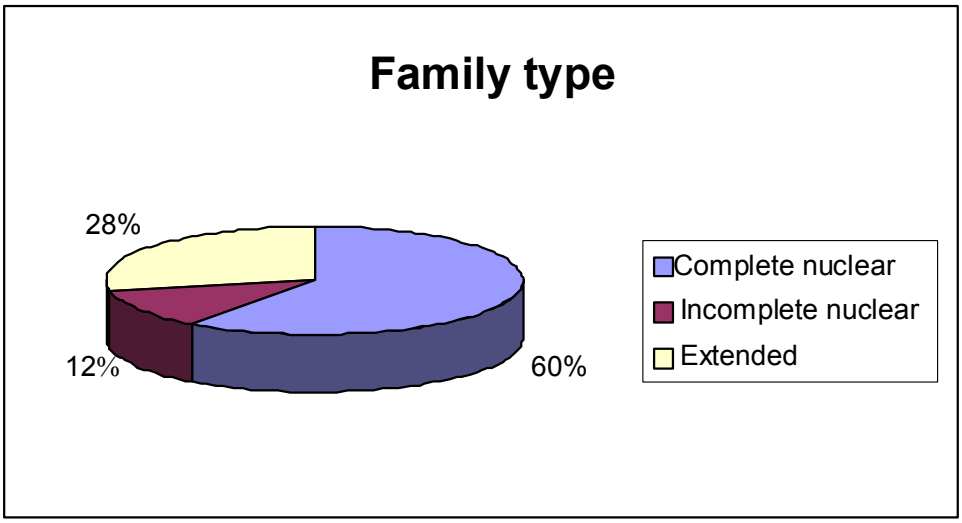
3 MINING FAMILIES

Small-scale traditional mining is a family activity; because of the families' precarious economic situation, income depends considerably on the participation of women and children. Children and adolescents take part in such tasks as hauling ore and processing it with mercury in *quimbaletes*. They also work with their mothers, scavenging for gold in the mine waste *(llampeo,* in which they go into the mine shaft, and *pallaqueo*) and processing it using low-cost, manual methods, such as *chichiqueo,* which involves washing the ore in a wooden or metal trough so the gold settles out at the bottom, a system resulting in an extremely low yield (IDESI 19995:68).

Miners who work independently prospect for and process gold along with their spouses and children. These families generally go to areas that are unproductive or have been overexploited, such as the banks of the Madre de Dios River, or miners who do not belong to the associations that exist in some communities and work on small independent plots of land, as in Ananea. When the husband has been hired as a bonded laborer under the systems known as *enganche* and *cachorreo*, the income obtained by wives and children is essential to the family's survival during periods of little mining activity.

3.1 Family size and composition

The majority of mining families are complete nuclear families, but there is a significant proportion of extended families that, besides parents and children, include other relatives. There is also a significant percentage of incomplete nuclear families, the majority of which are headed by women, since in most cases a widower or man whose wife has left him takes another partner.



Nine percent of households include people outside the family who work at family chores. Counting them, the proportion of mining households that include people outside the nuclear family increases to 37%, with an average of 2.3 people who are not part of the nuclear family. This is more frequently, and therefore more significant, in communities along the Madre de Dios River, because these are households in which children are more exposed to abuse, including rape. According to the interviews, other households exposed to this type of social phenomenon are those in which there is a stepfather, a problem mentioned in communities in the South-Central zone.

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The average number of persons per household is 5.74, but this varies considerably among the mining zones. It is lowest in the Nazca-Ocoña zone, moderate in Puno and Pataz, and higher in Madre de Dios. As the following table shows, the average number of living children per woman is 3.5, although it is higher in Madre de Dios and the highland towns of Pataz and Ananea. In Santa Filomena and Mollehuaca, as well as La Rinconada, this figure is 3 or fewer.

Family demographic data

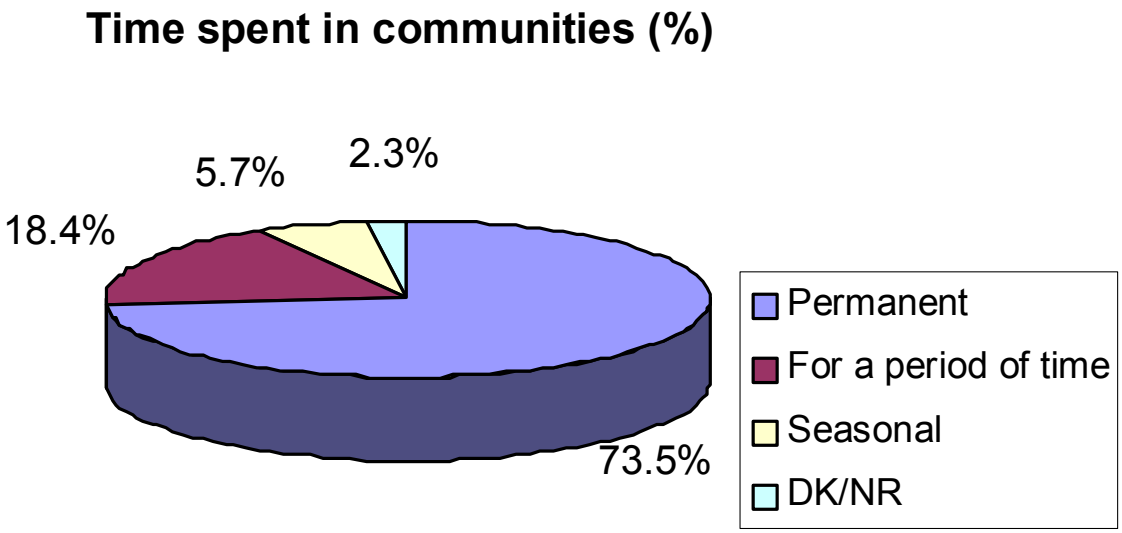
Community	Average members per household	Deviation	Average children per family	Deviation
Sta Filomena	4.3	1.27	2.7	1.14
Mollehuaca	4.7	1.47	2.9	1.2
Ananea	5.6	2.07	3.6	1.8
Rinconada	5.6	2.45	3.0	1.65
Huaypetue	6.8	2.77	4.5	2.15
M. Dios River	7.7	3.51	4.1	2.14
Pataz	5.6	1.50	3.5	1.82
Total	5.7	2.49	3.5	1.82

Although these are families in which most children are under age 18, one of every 3 has at least one child who no longer lives at home. When asked about the main reason for this, 44% of the families said it was for education, 32% because they have migrated in search of employment and 24% because they have started their own families. The majority of cases involve adolescents who migrate to nearby cities for secondary school and/or to look for work, or adolescent girls who marry young. It is difficult for families to send their children away to study because of the cost of supporting them. The adolescents who migrate must also begin working for third parties. Some who migrate move in with relatives, which also exposes them to abuse.

3.2 Migration

The greatest number of migrants are concentrated in the mining zones of the South-Central zone and Madre de Dios. In the former, mining communities have mainly been established by people from other provinces of the departments in the zone: Ica, Arequipa and Ayacucho (80%). In the case of Madre de Dios (particularly Huaypetuhe), 75% of the families are from other departments, mainly Cusco and Puno. However only 20% of miners who live in Puno year-round are from other departments of the country[19]. In Pataz, all of the small-scale traditional miners were born in the department of La Libertad[20].

Contrary to popular belief, the majority of families live year-round in these communities, which means that their demands for public services, roads and productive investment require urgent attention.



Families that consider themselves temporary represent 20% of those in Ananea, 25% in Huaypetuhe, 35.6% in La Rinconada and 42.6% along the Madre de Dios

[19] La Rinconada tends to receive seasonal migrants from various departments in zones of greater activity; the study was done before this season began.

[20] The only migrants are workers in the medium-size companies, who represent 15% of the families in the district. Data from the 1999 Census by the Pataz district government.

River. This may reflect the families' desires rather than reality, however, since 60% of those who consider themselves temporary have lived in the community for 4 years or more. In Pataz and the South-Central zone, all the families indicate that they are permanent residents.

The proportion of families that say they migrate seasonally to the mining communities is significant only in La Rinconada and Madre de Dios (15% of the total number of families interviewed in each zone before the rainy season started).

3.3 Parents' educational level

The miners have a low educational level. Although on average both women and men have completed primary school, mothers generally have less formal education than their husbands: 37% of mothers did not even finish primary school, compared to 20% of fathers. This educational deficit, which is exacerbated by illiteracy because of lack of practice, limits their ability to help their children with school work and poses challenges for development and alternative income-generating projects for mothers, especially in the areas of training in cost control, administration and other business skills.

Parents' educational level

	Father %	Mother %
None	1.3	6.5
Primary incomplete	19.2	30.6
Primary complete	30.1	29.4
Secondary incomplete	17.1	18.2
Secondary complete	19.2	9.9
Technical or post-secondary	7.5	4.4
Don't know/NR	5.6	1.0
Total	100.0	100.0

3.4 Family income and spending

Sixty percent of the families depend entirely on mining for subsistence. The rest also engage in agriculture or small-scale commercial activity. Greater dependence on mining was found in Puno (70%) and Pataz (62%); in both the South-Central zone and Madre de Dios, 55% of the families depend exclusively on mining.

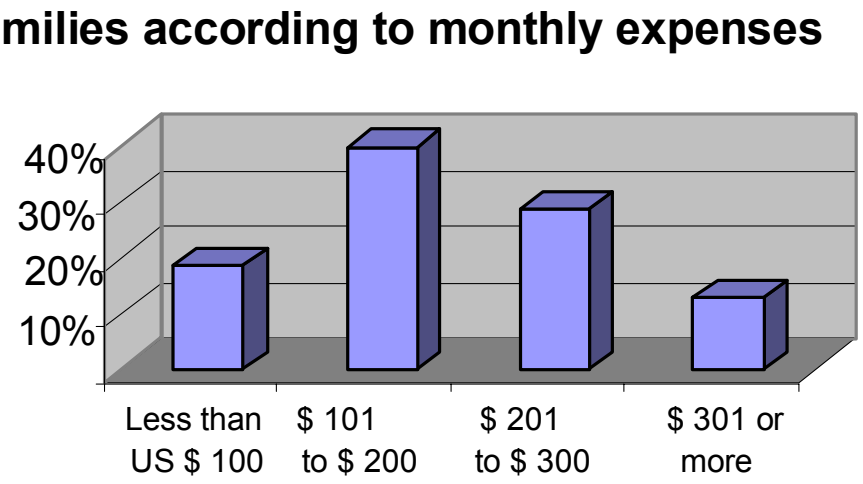
Families were asked to reconstruct their expenses during the month before the study. On the basis of this information, it can be estimated that family expenses average 609 soles a month (US$174)[21]. That means that half the mining population lives below the level of extreme poverty, according to government figures that use as a reference a family income of less than $170 a month to identify families that can only purchase food. In a 5-member household, this means that each person lives on only US$1.16 a day, which is insufficient for adequate nutrition. These families must also pay at least $10 to $20 a year for each child's education (registration and Parents' Association fees), pay for water, electricity and transportation, and meet health-care expenses, although this is done only sporadically, in emergency situations.

Considering that 40% of mining families are able to supplement their income from other sources, mainly small businesses and, to a lesser degree, farming and raising animals, income from small-scale traditional gold mining is quite low. It must be remembered, however, that men keep some of the income for themselves and to meet other work-related expenses (tools, inputs, association fees). Given this, the information gathered tells more about the family's standard of living than the total income of adult male miners. The fact that men keep part of their income and spend it on liquor or similar items exacerbates the families' poverty, communication problems and domestic violence, and forces adolescents and children to work at more dangerous tasks. As a result, it is necessary to do awareness-raising from a gender-equity perspective to help improve couple relationships and gain the commitment of both partners to their children's upbringing.

As the following graph shows, approximately 18% of families (nearly 5,400) live on an income of less than $100 a month. This includes 37% of the families in Ananea and Pataz and 28% of the families in La Rinconada. These families only survive. They include households headed by women who have been widowed or abandoned, or families in which the fathers contribute little, sometimes because of an occupational health problem and often because of alcoholism. About 40% of

[21] This has allowed us to avoid the distortion caused by asking about income, in this case especially because of the illegal nature of small-scale traditional mining.

mining families live on an income of between $100 and $200 a month; some 12,000 families fall into this category.



As the following table shows, in Ananea, La Rinconada, Pataz and the Madre de Dios River zone, the majority of families have a monthly spending level of between $100 and $200. Not coincidentally, these are the areas in which parents enroll their children in school in "shifts," meaning that they send one or two, and the rest wait until the following year to enroll. In addition, families only seek help from health-care facilities in cases of advanced illness, because they must pay for office visits and medicines. The Madre de Dios River zone exhibits another poverty factor: the high cost of food, most of which is transported from the highlands or the coast. This helps explain the high levels of malnutrition that exist in this area.

Better standards of living are found in Santa Filomena and Mollehuaca (where 58% and 55% of the families, respectively, live on $201 to $300 a month) and particularly Huaypetuhe (where half the families have an income of more than $300 a month). The latter case includes some who have small claims and hire some laborers.

Level of family spending

Income (US$)	Santa Filomena	Molle-huaca	Ananea	Rinco-nada	Huay-petue	Madre Dios River	Pataz
Less than $100	1.80%	3.90%	36.70%	27.60%	2.10%	18.90%	32.70%
$101 to $200	24.60%	31.40%	50.00%	56.90%	27.70%	43.40%	41.80%
$201 to 300	57.90%	54.90%	10.00%	12.10%	23.40%	30.20%	16.40%
$301 or more	15.80%	9.80%	3.30%	3.40%	46.80%	7.50%	9.10%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

3.5 Family possessions

Families that work small claims independently represent 35% of the total: 41% in Madre de Dios, 50% in Nazca, 56.4% in Pataz and only 6% in Puno, because the great majority of miners there are members of cooperatives (Ananea) or laborers (La Rinconada). These claims are not individual concessions but areas that are worked informally; the miners contract assistants or laborers to help with the work.

According to interviews, 95% of the families in Ananea, 91% in Pataz, 81% in Sta. Filomena, 61% in Mollehuaca, 61% in La Rinconada and only 35% in Huaypetuhe and 35% along the Madre de Dios River said they owned all the tools they need. In Madre de Dios, there is a high expectation that the extraction phase can be further mechanized.

Only 32% of families have *quimbaletes* (a set of 2 large rocks used to crush the ore) or mills. As the following table shows, there is great variation from zone to zone, which is strongly associated with the predominant type of relationships and methods of processing ore. Those who do not have this equipment rent it (La Rinconada), borrow it in exchange for mine waste (Nazca-Ocoña) or sell ore to companies that process it (Pataz and also Nazca-Ocoña).

Families that own *quimbaletes* or mills

Community	%
La Rinconada	61.0
Mollehuaca	52.0
Santa Filomena	44.0
Madre de Dios R.	41.0
Pataz	16.0
Ananea	0.0
Huaypetuhe	0.0

3.6 Family relationships and perceptions of children

Children's labor within the family framework

Children work full time in mining on weekends and during their school vacation; in several zones this coincides with the rainy season, which is the time of increased mining activity. Nevertheless, many children go to the mines when they leave school in the afternoon. While parents tend to see this as sporadic or seasonal participation, and especially an aid to the family, the children and their teachers agree that at least 60% of children over age 6 years work year-round. According to teachers, the proportion is higher in Puno; 80% or more of children enrolled in the school work every day. The same is true in Relave, where parents tend to ask the teachers, during class hours, to allow their children to accompany them to work.

Many children under age 5 accompany their mothers and siblings to the work areas because there is no other adult relative to care for them and there are no child-care centers in these communities. They begin to work when they are 6 or 7 years old, looking for and washing gold, tasks that they perform alone or with their mothers. At age 10 or 11, they begin to take on more difficult tasks, such as hauling ore, crushing it and using the *quimbalete*, which expose them to contamination, injury from tools or falling rock, accidents and muscle damage.

While this study has not included a quantitative investigation of women's work in mining, it is worth noting that according to interviews and observations in communities, in many families the mothers contribute significantly to family survival by dedicating themselves to this activity. Those who have been able to save are setting up small businesses that help support the family; this has

allowed them to stop working in mining. When the mother is a miner, the smallest children work with her in activities that are less difficult than those of older boys and men, but that take time and physical effort and expose them to illnesses because of the appalling conditions in which they must work.

Mothers' daily activities
Huaypetuhe (Madre de Dios)

Mothers of small-scale traditional mining families living in town

03:00 a.m.: cook breakfast and lunch 06:00 a.m.: leave to work in the camps; dedicate themselves to mining activities: looking for and washing ore, caring for small children who accompany them. 12:00 –1 p.m.: Eat lunch in the place where they are working 1 p.m. a 6 p.m.: Children leave school and go to work with their mothers 6 p.m.: Gather up the mats and gold-bearing sand 7 p.m. : Return to town. Cook and wash up, ensure that children do their homework. Watch their favorite soap opera. 11 p.m.: Sleep.

Mothers who live in the camps

04 a.m.: Cook for the laborers. Do shopping at market. Send children to school. 07 a.m.-11 a.m.: Work in mining. 11 a.m.: Prepare lunch. 12:00 Children leave school. Eat lunch. 1.30 p.m.: Mother and children go to the mining area. 3.30 p.m.: Return from the mine. Straighten up house. Wash clothes. Bathe children. 4.30- 7 p.m.: Prepare supper. Help children with homework. See to spouses' needs. 7 p.m.: Supper. Watch television if there is electricity. 9 p.m.: Sleep.

Adolescents work with their fathers, helping them in their independent work or their tasks as laborers or members of associations. It is important to note that the fact that this is primarily family labor does not mean children are exempt from risks and responsibilities. "Family labor imposes obligations and can lead to abuses. … The value of family protection is relative when work is done in bad weather; nor is it very effective against job-related illnesses and accidents, even when working in a covered area, if the dangerous parts of machinery or tools do

not have protective devices or if substances must be used that are hazardous to health. On the contrary, in the latter situation risks to the child may increase if the home is also the work place, as is often the case, because he or she will be exposed to such substances during work hours as well as during meals and rest time"[22].

Cultural framework

There is an important cultural causative factor in child labor, related to the relationship that is often drawn automatically between poverty and children's income from work. For this reason not all children and adolescents from low-income households work (one-third of mining families do not make their children work), nor do children work only during periods of reduced family income. Rather, in many households work is a stage of growing up.

This cultural component comes from the Andean tradition, which, while it has developed values such as reciprocity and support for collective effort, also includes a particular notion of the child as a worker and a "small adult" who has multiple family obligations and few rights. This is far from modern theories of child development that give precedence to the role of stimulation, play and respect for the child's rights in the child's emotional development. The interviews show that adults expect children to be basically "obedient" and "respectful," and resort to daily punishment as part of child-rearing.

This pre-modern conception of the child and the individual in general implies a fatalistic vision by which each person's place in the world is determined by external forces. According to this view, people expect a "stroke of luck" and lack a vision of the future that allows them to transcend worries about survival. For example, it has been found that many mothers criticize teachers for giving their children homework or having them stay at school some afternoons for remedial work or recreation. This confirms that one of the main challenges for projects involving children's development is the prevalent framework of culture and values.

Analyzing their vision of the present and of children's labor, mothers say that work allows them to develop responsibility and discipline and learn to "enjoy working."

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[22] Bossio Rotondo, Juan Carlos. "El trabajo infantil en el Perú: análisis y perspectivas". ILO, El trabajo infantil en el Perú. 1993; pg. 5.

Family relationships

Among the families whose children work, 54.5% of mothers said that if their children did not work, the family's standard of living would decline, and 17.6% said the family would not be able to survive. The remaining 28% said there would be little change because the children's contribution is not significant; the majority of these responses were from families whose children are still very small and work scavenging for gold in the mine waste or performing complementary tasks, such as guarding tools or carrying food.

The weight the mothers place on their children's economic contribution does not contradict the importance of cultural mindsets that see children's labor as formative; the two factors work together to create a situation that, because of its complexity, is difficult to change.

The fact that mothers consider their children's contribution to be very significant to the family income is noteworthy because their contributions in other areas are not greatly valued, in economic terns, when done in the context of unremunerated family labor. One variable contributing to the analysis of these results is the precariousness of couple relationships in mining communities, which is reflected in frequent conflicts and arguments between spouses or partners.

In the children's opinion, the most frequent reason for arguments is that fathers tend to withhold part of their income, a situation that can be strongly associated with alcoholism. As the director of a primary school in Huaypetuhe said, "The fathers have a drinking problem and the children have to quit school to support their families." Besides limiting the family's possibility of saving and reinvesting, this phenomenon also interferes with the miners' real possibility of hearing messages and proposals aimed at eradicating child labor in mining; as a result, it must be taken into account in projects involving these populations.

Other concurrent factors are adultery and abandonment of the family, which are notable in La Rinconada, Huaypetuhe and some departments of the South-Central zone. Mothers and children in this situation must support themselves.

While the proportion of incomplete families is similar to the national average (12%), in most cases because of separation or abandonment and to a lesser extent from widowhood (women whose husbands who have died in landslides or cave-ins and explosions), the proportion of incomplete families is very high in Pataz (18%), Huaypetuhe (17%), Mollehuaca (15%) and La Rinconada (13.6%). It is lower in Santa Filomena (12%), Ananea (8%) and along the Madre de Dios River (5.6%). Many female heads of households resort to taking in relatives or laborers

who help search for gold in the small "*caños*" or plots where independent mining is done; others take in boarders who pay rent. These families are more vulnerable and their survival places a greater burden of responsibility on the children.

In Huaypetuhe and the communities of the South-Central zone, women tend to have 2 or 3 marital relationships during their lives. The presence of a stepfather or stepmother is an additional factor in mistreatment of children. Because of the instability that results when a father abandons the family and the mother takes a new partner, adolescents tend to leave home at an early age. In Huaypetuhe, for example, they choose to live independently and travel to the ravines, where the standard of living is lower.

Child rearing places priority on children's participation in mining and domestic chores. Little value is placed on their rights to education and recreation. Boys and girls share with their mothers domestic chores like cooking and heating food, gathering firewood, carrying water and caring for smaller siblings, all of which reduce the time the children can spend studying, participating in sports or playing.

The situation of these families is very difficult because minimal conditions do not exist for the women to do household chores more efficiently. (The lack of water in the house represents an additional task for mothers and children, as does the lack of child-care centers or pre-schools.) The husband's work requires intense physical effort under harsh conditions, and he returns home tired and does not participate in domestic tasks. This is aggravated by *machismo*, which places all household responsibilities, including those related to child care and child rearing, on the woman's shoulders.

In mining communities there is little communication between parents and children. In meetings with the children, the things they said were most important in their families were affection from their mothers and a close relationship with their siblings. The results of a workshop with children in Mollehuaca illustrate the children's positive image of their mothers:

- She's a hard worker.
- She talks with them more.
- She spends time with her children.
- She's nicer.
- She's more concerned.
- She gives them a little money.

They had more trouble identifying positive traits in their fathers. Instead, the children's evaluation of their fathers was very negative. They summed up their images of their fathers as follows:

- He's lazy.
- He drinks a lot.
- He argues too much with the mother.
- He hits them with his hand, or a rubber hose, belt or three-pointed whip, and even hits them over the head with pots or other objects.

Many adult males have a limited ability to communicate appropriately with family members and show affection. This is a product of unequal gender socialization that assigns them the role of family provider while hindering their development of skills in other fundamental dimensions of daily life, such as showing their feelings and caring for the family. If they find that they are not even really the sole income providers, because women and children also play productive roles, it is not difficult to imagine their daily frustration, which translates into aggressiveness and consumption of alcohol or other drugs. The image of the father as "lazy" has not been sufficiently explored in this study and is contradicted by the intense physical effort required of the miners. In other workshops, the children said their fathers arrive home from work very tired; to them, this exhaustion explains why the men are violent and contribute little to household tasks. One hypothesis is that the child considered the father to be lazy or not a hard worker if he did not have a job that allowed him to cover the family's expenses. As long as small-scale traditional mining continues to be done informally, that is unlikely to happen.

The workshops attempted to explore the issue of mistreatment. The children's answers to the question, "Why do you think they hit you?" were as follows: "Because we don't obey," "Because we don't listen to them," "They're mean," "He came home drunk," "We weren't respectful." Mistreatment diminishes the children's self-esteem, and as various studies show, many of them will repeat the pattern. When asked if they agreed with these punishments, one boy responded, "They have the right (to hit me), but not too much." The perception of the child as the parents' "property" and that he or she must fulfill a series of responsibilities or tasks — that is, "be obedient" — is still widespread in Peruvian society, especially in low-income sectors of Andean extraction.

In the various workshops held with children, the participants identified as problems in their families:

- ✓ Daily arguments between parents, indicating that the most frequent disagreements involve economic problems.
- ✓ That the father decides how money will be spent and does not contribute his entire income to supporting the family.
- ✓ Lack of communication between parents and children
- ✓ Mistreatment of children
- ✓ That children work

It should be noted that for the children, working is a problem. Among adults, mothers and some teachers and doctors are most sensitive to the various consequences of child labor in mining. Except for miners' unions or associations that had ties with NGOs, interviews with mine workers' leaders and local authorities show that it is more difficult for men to recognize that children work and, as a result, to identify the harm to which they are exposed. Because of this, in order to raise awareness, information must be targeted at them and work must be done to deepen their understanding of the problem, using participatory techniques so they internalize the magnitude of the situation.

Finally, families in mining communities lack stimuli, such as cultural or recreational centers, that allow them to break out of the confines of their harsh living and working conditions. The only distractions are national radio and television stations, which reinforce harmful behavior patterns and anti-values associated with consumerism and violence. In some communities, such as La Rinconada and Pataz, there are small commercial and municipal stations that transmit alternative messages.

4 CHILDREN: CHILD LABOR AND THE EFFECTS OF MINING

4.1 Children who work in gold mines

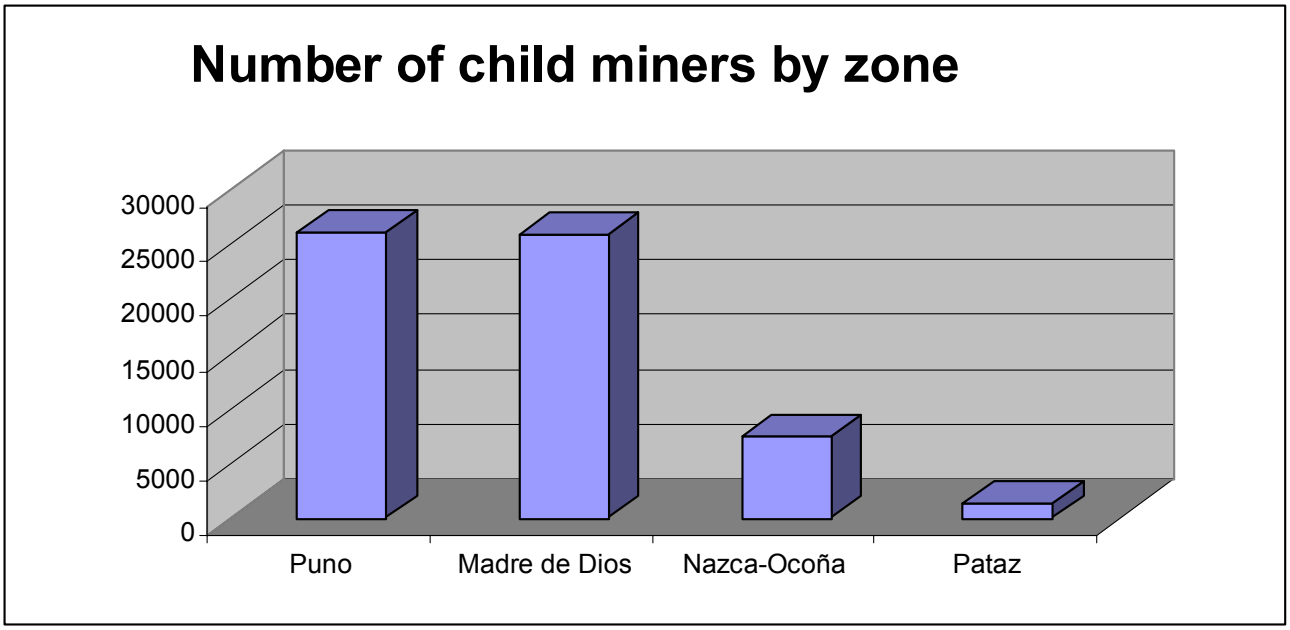
According to a survey of mothers, in two out of every three families that devote themselves full time to small-scale traditional mining — approximately 20,000 families — the children work. The percentage of children's participation is somewhat lower in communities in Nazca-Ocoña (52%), the only areas where there has been intervention by NGOs, and higher in Pataz (62%), Puno (67%) and Madre de Dios (72%). While ore extraction in Madre de Dios has been mechanized, children work in two areas: processing activities that are not the tasks of adult laborers, to avoid having the laborers take some of the gold, and various tasks in the cases of the poorest families[23].

There are approximately 61,000 children and adolescents in these families. Excluding the youngest (those under age 6), approximately 50,000 children in the country currently work in high-risk mining activities; because these are families in which the children work, the other 11,000, who are still quite young, will begin working in the next few years.

Number of child miners in each zone

Community	Mining families	Families with child labor %	Families with child labor Number	Avg. no. of minor children per family	Total no. of minors in these families
Nazca-Ocoña	6,000	52	3,120	2.4	7,488
Puno	14,000	67	9,380	2.8	26,264
M Dios	9,500	72	6,840	3.8	25,992
Pataz	830	62	515	2.6	1,338
Total	30,330	63	19,855		61,082

[23] The survey has recorded a similar proportion of families whose children work in Huaypetuhe and the banks of the Madre de Dios River (70.8% and 72.2% respectively.



There are no statistics showing the number of children who work in mining outside the family. Those in this situation generally are adolescents ages 15 to 17 who migrate seasonally to the places of greatest activity, La Rinconada and Huaypetuhe, where they work for contractors under appalling conditions. In these areas, however, local residents have seen a decrease in the contracting of adolescents as laborers, mostly because of recent media campaigns on exploitation of children in the two localities. In addition, in Madre de Dios the introduction of machinery in the extraction phase implies the contracting of adult laborers.

Some projects have shown that in some activities, such as hauling ore, child labor can be eliminated if appropriate machinery is introduced (electric winches for transporting ore from inside the mine to the surface, which must be operated by adults). This is the case in Santa Filomena, a community being supported by the NGO CooperAcción and the ILO. This does not mean that children stop participating in mining, however, because they continue to perform other tasks.

This is true even when family income increases and mothers establish small productive or commercial projects, because mining is perceived as less unstable. In households with working children, 10% of mothers said that if they had the opportunity to start a complementary small business, their children would

continue to help support the family by working in mining, and a significant 11% did not know or did not respond. In 59% of the families that did not depend exclusively on mining but also had small businesses, the parents continued to make their children work in this activity.

Children's participation in mining	**Families that depend on mining**	**Families that also have other income**
Children work	66%	59%
Children do not work	34%	41%

4.2 Tasks performed by children

Children work in different phases of the mining process. The three most common are hauling ore, processing it with mercury or cyanide in *quimbaletes* or mills for amalgamation, and *pallaqueo,* or scavenging for gold in mine residue.

Mining tasks performed by children
(multiple responses)

Task	% of families	Number of families whose children perform the task
Hauling ore	28.8	8,640
Using *quimbalete* or mill	19.0	5,700
Pallaqueo	17.7	5,310
Breaking up ore	15.1	4,530
Washing ore	11.9	3,570
Extraction	10.1	3,030
Sluicing in chutes	6.8	2,040
Carrying water	3.9	1,170
Preparing/carrying food	3.6	1,080
Other[24]	4.7	1,410

Hauling ore is one of the hardest jobs because of the weight of the rocks and blocks of earth that must be carried on the back or in a hand cart to the place

[24] *Llampear* or sweep the excess ore from the tunnel to look for stones with gold flakes in them, a task sometimes followed by *pallaqueo,* looking through mine waste for ore, releasing water into the chutes/monitorear the water and preparing the pits for processing with cyanide in Pataz.

where the mineral will be processed. The following view of Pataz shows an adolescent unloading the ore he has hauled.

Using the *quimbalete* (and the "*molino*" or mill in Pataz and Madre de Dios) exposes the children to highly toxic substances. According to the children, the most difficult part is placing the mineral in the *quimbalete* (a set of two large grindstones) because they must lift the large stone used for crushing the ore.

Pallaqueo, or scavenging for gold residue, is a task generally carried out only by mothers and children, independently of the father's work. They use the income to buy food when the fathers do not generate sufficient income, spend their money on activities outside the home or are subject to exploitative labor conditions. This is the task the children prefer because it requires the least physical effort. Its difficulty lies in the fact that it must be done with the hands and the children are exposed to sun or rain for hours on end.

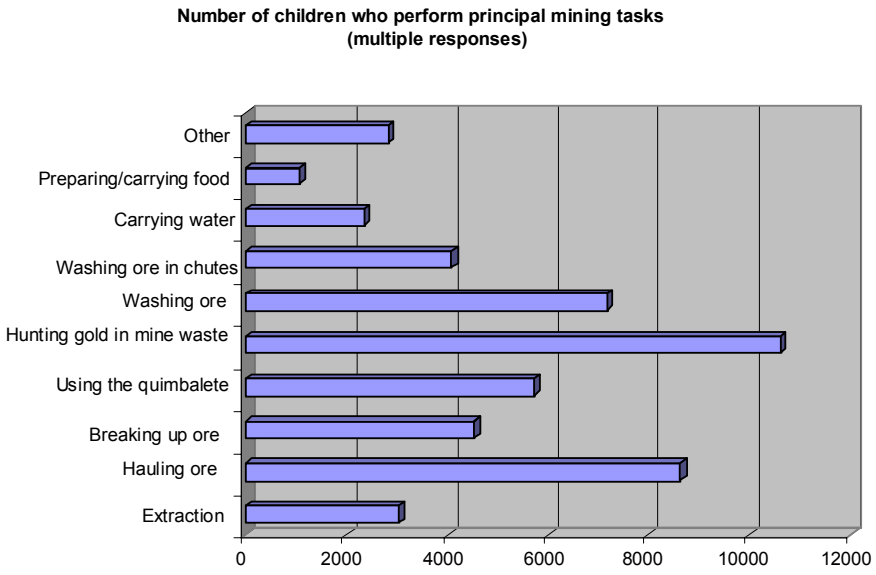
In approximately 5,600 families, the children "wash" the gold, either in buckets or cloth rugs or by standing in sluices like those used in Ananea and Madre de Dios. Among the effects are bone problems, fungi and respiratory illnesses.

Two other frequent activities are extraction and crushing of the ore. Adolescents participate in the extraction phase, transporting the ore from inside to the mouth of the mine shaft after adults have placed the explosive charges. In this phase, there is a high rate of landslides and cave-ins, the workers inhale fumes and dust, and muscle injuries and cuts result from lifting rocks. To protect themselves, adults and children run from the place where the charge has been placed and wait for the explosion, which occurs about 10 minutes later.

In breaking up the ore, they run the risk of cuts and accidents from using picks or similar tools. In some cases, they say they use dynamite to break up larger rocks so they can be washed. The following view of Pataz shows children working at these tasks on dangerous slopes.

As the following graph shows, children's participation in tasks that can be considered "supportive," such as fetching water or preparing and carrying food to the workers, is much less frequent than in those directly related to mining. Nevertheless, adults generally do not perceive the children's activities as work.

The following graph shows the estimated number of children who perform each task. It is based on information provided by the mothers, taking into account that three tasks are performed only by adolescents between ages 12 and 17 (extraction, hauling and breaking up the ore), who usually average one per family, and the rest by younger children, on average two per family. The tasks performed by the youngest children are scavenging for gold in mine waste (*pallaqueo*) and *chichiqueo,* or washing the ore (beginning at age 6), and use of *quimbaletes* (beginning at age 9 or 10). Children and adolescents perform various mining tasks, so the graph includes the number of children involved in each, so as to contribute to the design of intervention projects that allow eradication of the most harmful.



It is interesting to examine the results of a workshop carried out with children in the district of Huaypetuhe, an area where there is a myth that child labor is progressively disappearing because of mechanization of mining. The workshop identified the tasks in which children participate even when the family is able to contract laborers and has machinery for some phases of the mining process.

Tasks of the mining process
Huaypetuhe (Madre de Dios)

Task 1: 'Prospecting' **Tool used:** Shovel
Agent: Father or entire family **Time:** During the day

Task 2: Break up and haul material **Tool used:** Wheelbarrow
Agent: Laborer **Time:** During the day

Task 3: *Huaychulear* (run water through a sluice using a hose or bucket)
Tool used: Hose or bucket
Agent: Father and children (children never start the motor) **Time:** During the day

Task 4: Remove the gold-bearing sand from the rugs to a a plastic tray, dump the gold obtained into a bucket **Tool used:** rug, plastic tray, bucket
Agent: Laborers **Time:** During the day; the task lasts two to three hours.

Task 5: Beat (mix with mercury without heating) **Tool used:** A tin
Agent: The owner or adolescent children **Time:** During the day

Task 6: Heating the amalgam (the gold turns yellow and pure) **Instrument:** A tin
Agent: Father **Time:** During the day or night

Task 7: Selling gold
Agent: Father

Workshop carried out in Choque with child miners from the primary school

In this workshop with children, it was found that if their families could hire laborers, the laborers performed the tasks requiring the most intensive physical effort. The father and children engaged in activities that required monitoring the amount of gold obtained, to avoid theft, even when these were high-risk tasks. The children said their preferred tasks were running water through the sluice ("*huaychulear*") and washing the ore ("*chichiquear*"). Among the risks and health hazards identified were: slipping in the drainage ditches and dropping the material while using the sluice*;* andcontracting a fungus while washing the ore.

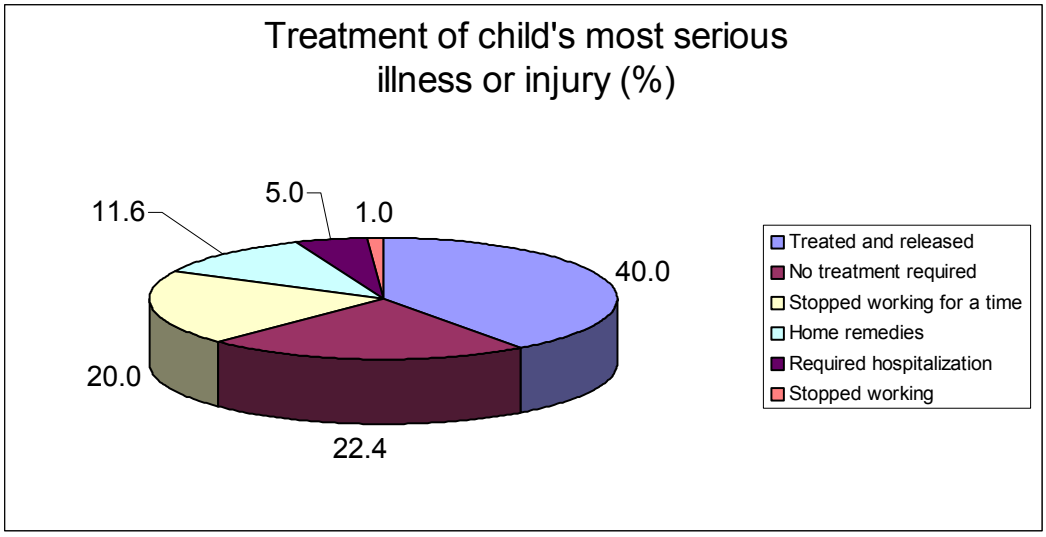
The children also help prepare food for the group of laborers. They receive as a "tip" one sol (US$0.30) a day for work in mining or food preparation.

4.3 Risks and damage to health

A mother in Ananea said that if her family could dedicate itself to another activity, they would "live free from the danger of death." Because of the number of jobs it creates and the families' permanence in the communities, it is necessary to improve the legal and technical conditions for small-scale traditional mining so the families do not face the risks and harm that currently affect them.

Ninety-four percent of families whose children work and 93% of those in which the children do not work believe that working in mining causes health problems for the children. In extraction and hauling, which require intense physical effort, they suffer muscle pain, injuries from being struck by rocks and fatigue. Processing and refining exposes them to other health problems, mainly as a consequence of direct contact with mercury or cyanide and fumes. Chronic mercury poisoning produces irritability, nervousness or excitability, insomnia, drowsiness during the day and tremors. Acute poisoning causes dizziness, vomiting and headaches. Prolonged exposure can even cause personality disorders. Health risks also include silicosis or "miner's disease."

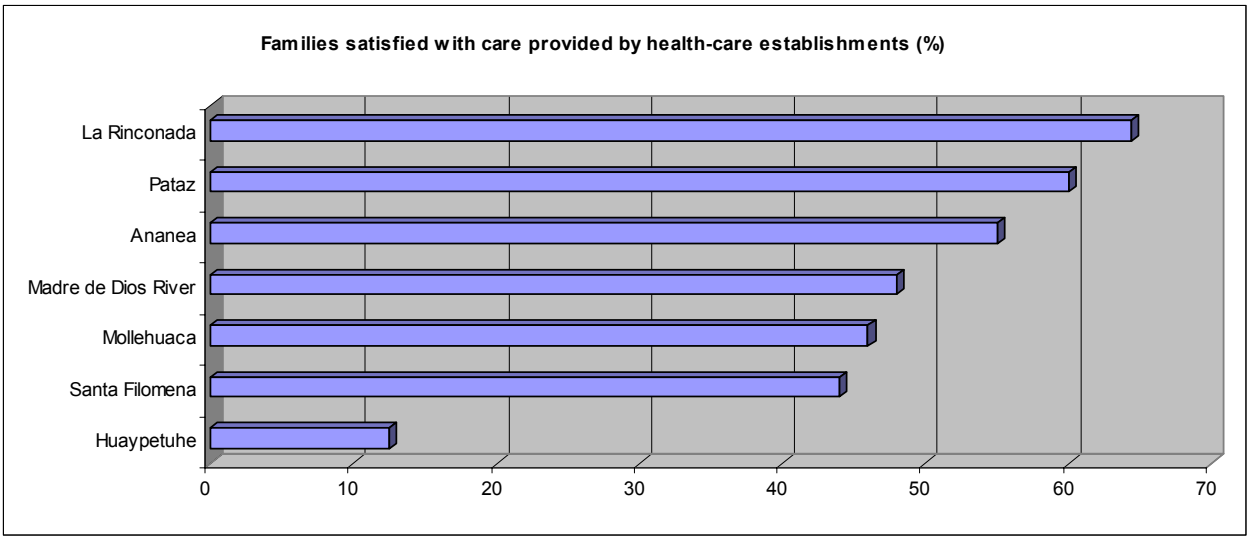
Fifty-three percent of mothers said their children had suffered an illness or injury from mining: 12% frequently, 37% occasionally and 51% a few times. With regard to the most serious injury or illness, 20% of the families said the child had to stop working temporarily (about 6,000 children) and 5% that the child was admitted to a clinic or hospital (approximately 1,500 children).



According to health-care personnel, the most frequent illnesses affecting children in mining communities are acute respiratory infections (ARI), acute diarrheal illnesses and skin problems. Malnutrition and anemia underlie all these problems, but the majority of health-care establishments do not follow up these cases; when records are kept, they do not include the parents' or children's occupations, so it is impossible to obtain more detailed information about the health situation of child miners. The health-care establishments also lack the resources and equipment necessary for specialized analyses and examinations.

Only 48% of mothers are satisfied with the care their families receive in the local health post or center. There is great variation among communities.

Families satisfied with care provided by health-care establishments (%)



The most frequent complaints are the lack of medicines, lack of experienced personnel, fair to poor treatment of patients, lack of full-time attention and the fact that they sell the medicines. As in other areas of the country, mothers tend to resort to home remedies and only go to health-care establishments in the most serious cases, meaning cases are actually under-reported.

In Pataz, of 199 visits to the health center in 2000 by children between ages 6 and 17, 48% were for acute respiratory infections, 8.5% for ascariosis, 7.5% for dermatitis or skin infections, 5.5% for acute diarrheal illnesses and 5% for wounds and dislocations. Follow-up of children of mining families in the schools indicates that in this year 5% were suffering from acute malnutrition (low weight-to-age ratio) and 90% from chronic malnutrition (low height-to-age ratio).

In La Rinconada in the first half of 2000, the health post handled 4,714 cases, of which 58% were children (83% under age 4). Among those between ages 5 and 17, the prevalent illnesses were acute respiratory infections, acute diarrheal illnesses, stomach problems, dislocations and contusions. One hundred percent of the cases of acute respiratory infections handled by the health post during this period involved minors. Of the cases of diarrheal illnesses, 70% were in minors. It was noted that children suffered fewer health problems than expected because there are no vectors for disease transmission and because the children return to their home (agricultural) communities for a time, which allows them to recover from the malnutrition they suffer in the mining camps. In Ananea, the most prevalent illnesses in children are acute diarrhea (especially watery diarrhea, although not dysentery) and skin diseases. In highland areas like Puno, there is a high rate of rheumatism and arthritis because of the low

temperatures, and the miners also have vision problems (41% of workers and 52% of contractors) (IDESI 1995).

In Madre de Dios, malnutrition, anemia and parasitosis are very common, as is tuberculosis. As a recent study of the situation of miners in Bolivia notes, "tuberculosis is still endemic in mining districts. The many workers with silicosos form the breeding ground for the Koch bacilli (the bacterium that causes tuberculosis), which spread rapidly among families who are poor and suffer from malnutrition and poor housing" (CEPROMIN 1999). The cost of food is high; in Huaypetuhe this is aggravated because there is no agriculture, and tubers, beef and fish are transported from Cusco, which raises prices. The lack of potable water and sanitation systems is a factor in the high level of diarrheal illnesses (the main reason for visits to health centers). Work in the tropical climate leads to dehydration. Existing records reflect only the most evident problems of children who were taken to the health post.

In the Laberinto health center, the only one in the Madre de Dios River zone, of 168 cases in 2000 involving children and adolescents between ages 6 and 17, the most frequent complaints were acute respiratory illnesses (28%), skin diseases (24.4%), diarrheal illnesses (21%) and wounds and fractures (15%). The greatest number of visits occurred between December and February, the rainy season, which is the time of greatest mining activity.

In 2000 in Huanca, a mining community in the Nazca-Ocoña zone, cases involving children between ages 5 and 17 included acute respiratory illnesses (37%), skin diseases (28%) and intestinal ailments (26%). There were also wounds (4%), burns (2%) and tuberculosis (1%). In Mollehuaca, 60% of the cases handled in health-care establishments involved children and adolescents. The majority were acute respiratory infections, accidents and acute diarrhea.

In Santa Filomena, a 1998 occupational study of children and adults showed that "the levels of mercury absorption in children are as alarming as in adults, mainly because of their exposure to fumes produced by heating the amalgam and contact with contaminated waste from amalgamation. This leads to symptoms including headaches, weakness and nervousness. There also are ergonomic complaints, such as pain in the back, waist and knees, mainly caused by carrying the ore and the long work days spent using the *quimbaletes.*" In this study, 54.5% of children between ages 2 and 12 showed a mercury concentration of 40-90 ug/L, which rose to 60% in those between ages 13 and 23. Among ergonomic complaints, 66% of adults and children had lower back problems, 47% had knee problems, 30% had pain in the shoulders, elbows, wrists and hands, and 20% had foot and ankle problems.

In all the communities, the children begin to consume coca at an early age to "have strength" and "not get hungry," "so the dust doesn't get in" and "so I don't get sleepy." They also indicate that they sometimes become ill from "*susto del cerro*", a sort of evil eye of the mountain, which is marked by fever and headache, and which they say occurs because they went to the mine "without coca" or "afraid."

4.4 Effects on educational development

As the following table shows, the dropout rate and incidence of students who are behind their grade level are higher among children and adolescents who work.

Children's educational situation

Population	% of students who are behind	% dropout rate
6 to 14 years		
Non-working	39.0%	8.1%
Working	60.8%	46.8%
12 to 19 years		
Non-working	40.9%	13.0%
Working	71.1%	63.3%

Source: Walter Alarcón. "Mejores escuelas y menos trabajo infantil". UNICEF, 1996[25].

The ILO has proven that "there is a direct relationship between social marginalization and child labor. While some people believe that child labor is a solution to poverty, most studies show that child labor is one of the factors that reproduces poverty. A boy or girl who, because of work, sacrifices study time now is at a disadvantage when the time comes to compete in the job market as an adult"[26].

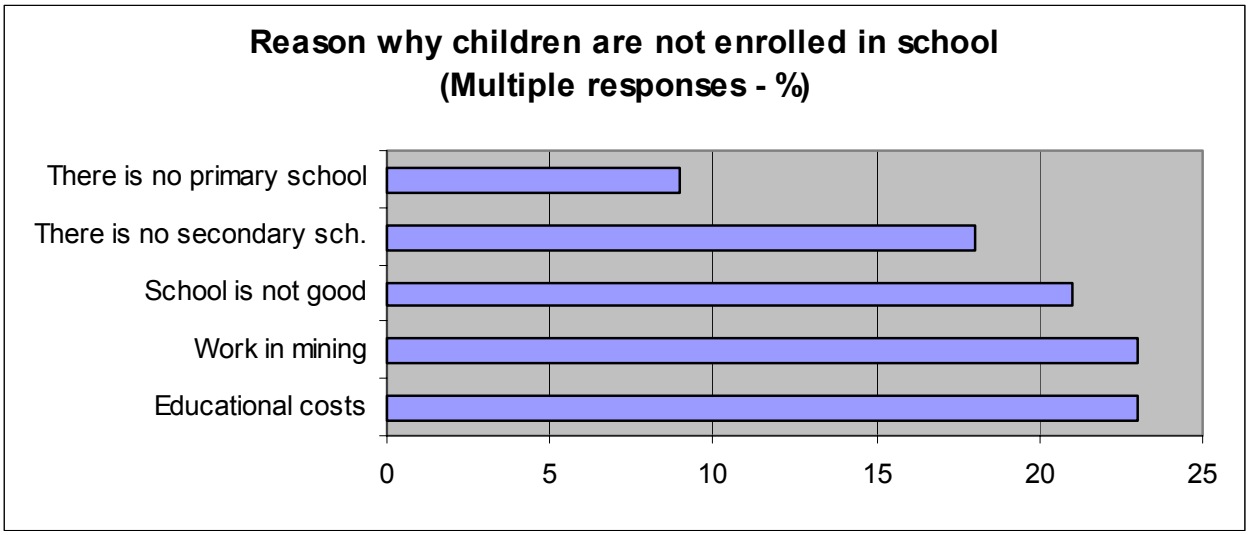
According to this study, 18% of mining families (some 5,400 families) have school-age children who are not enrolled in school. The average number of

[25] Cited in ILO and others, Ibid.

[26] Latinoamérica: ¿Cuán grande es el problema? En: El trabajo infantil en el Perú ¿Qué está pasando? ILO/IPEC / Global March against Child Labor / CONFIEP / The Network for a Future Without Child Labor.

unenrolled children in these families is 1.5, meaning that approximately 8,000 child miners are not in the educational system. According to teachers, mining families enroll their children "in shifts." Several factors enter into this problem, which increases the number of years they spend in school and may increase the dropout rate. When mothers are asked (multiple responses), they say the main reasons are the cost of education and the family's decision that some of their children must work all day at mining tasks.

As the following graph shows, the opinion that education in these zones is of low quality is also significant, although education in general is valued as a vehicle for progress. The opinion that the education provided in these communities is of poor quality contributes to the families' decision to have their children work. It is also important to mention the lack of secondary schools and, to a lesser extent, primary schools; the lack of the latter is noted in Madre de Dios, although there is reduced primary school coverage in all areas.



Where there is a secondary school, however, the number of child miners enrolled is not proportional to the number in primary school. In Laberinto, for example, children of miners enrolled in secondary school constitute 27% of the total, while in primary school they represent 55% of the total. In Pataz, between 35 and 40 students enroll in the first year of secondary school and only 12 finish school.

Overall, only 43% of mining families have a positive opinion of the educational system, 40% are dissatisfied and 17% say they don't know or do not respond. The majority of families who are dissatisfied with primary and secondary schools

mention the problem of poor-quality education: in this category the responses were that the teachers do not teach well and the children do not understand them. The second most frequent response concerned the teacher's constant absenteeism, which results in a low number of annual classroom hours. The following graph shows the reasons for dissatisfaction.

Only 49% of mothers believe that their children are making good progress in school (good performance, interest). The other half said their children are not doing well; the most frequent responses are that the children's performance is poor, they are uninterested, they do not understand the teacher's explanations and they get distracted. This means that half of all mining families have low expectations with regard to their investment in education, which makes them more likely to have their children skip school in order to work or drop out when the family's economic situation worsens. One hypothesis is that malnutrition, exposure to mercury (because of its effects on the nervous system) and the time devoted to work are key factors in understanding why there is such a high proportion of children with intellectual development difficulties[27]. All of these factors are part of the fatigue the children feel.

Positive and negative aspects of families
Workshop with children in Huaypetuhe

Positive
- Our parents live together

Negative
- Working a lot because there is no money/we get tired
- We live far from school/we get tired

In an open-ended question about their children's main problems with studies, the most frequent responses were that they miss school regularly because they go to the mine (12%) and family difficulties (6%); among the latter, the lack of

[27] Studies carried out in the United States have found that the development of 50,000 children a year is affected by trace emissions of mercury from thermoelectric plants, broken thermometers or fluorescent tubes, among other causes — emissions that are infinitesimal compared to the tons of mercury used in small-scale traditional mining centers. Information provided by Félix Hruschka. GAMA-COSUDE Project.

parental support for homework and, to a lesser extent, the father's alcoholism were emphasized. Eighteen percent said they were not well informed. The other mothers indicated problems related to teaching, which have already been mentioned.

In survey workshops with children, one area the participants said should be improved in their families was that the children should study more. They said work is the factor that interferes most with their studies. According to the children, their work in mining causes:

Consequences of child labor
Workshop with children in Ananea

- ✓ fatigue, which hampers their ability to study and review school material,
- ✓ lack of time for school work and homework,
- ✓ accidents with rocks and tools
- ✓ frequent bouts of fever, cough and colds that affect school performance.

It should be noted that in these communities little is known of the importance of early stimulation. There are at least 10,000 children who need to attend child care centers and PRONOEIs, but these facilities only exist in certain areas and the number is insufficient. As a result, mothers take their youngest children to the mines. In the coldest areas, the establishment of child-care centers and educational facilities for the youngest children could be a well-accepted alternative because mothers worry about the children being exposed to low temperatures. In warmer areas, such as the South-Central zone and Madre de Dios, families must be made aware of the importance of early stimulation because it is not considered important. According to a leader interviewed in Mollehuaca, a pre-school would "be a big expense; children should start studying when they're 6 years old."

4.5 Development of responsibilities and values

During the school year, the distribution of time in mining households during a normal 24-hour day shows that the children have little time for homework or rest and recreation. The results of a participatory workshop with children illustrate this situation.

Distribution of household chores and children's work

Hour	Father	Mother	Boy	Girl
4 a.m.	Gets up and goes to the mine (cooperative)			
5 a.m.	Breakfast in the mine	Gets up and prepares breakfast		Gets up and helps prepare breakfast
6 a.m.	" "	Cleans house	Gets up/ breakfast	Breakfast
8 a.m.	" "	Washes clothes	Goes to school	Goes to school
9 a.m.	" "	Prepares lunch	" "	" "
10 a.m.	" "	Works in small business or looking for and washing ore	" "	" "
1 p.m.	Returns home for lunch		Heats, serves and eats lunch	Heats, serves and eats lunch
2 p.m.	Goes to work on "his" claim and chews coca		Does homework	Does homework
3 p.m.	" "	Chews coca Goes to mine	Goes to the mine	Goes to the mine
6 p.m.	Goes out with friends	Returns home and rests	Prepares supper	Prepares supper
7 p.m.	" "	Eats supper and washes dishes	Eats supper and washes dishes	Eats supper and washes dishes
8 p.m.	Returns / eats supper	Serves supper to husband	Sleeps	Sleeps
9 p.m.	Sleeps	Sleeps		

Workshop with children in Ananea.

During school vacations, child labor increases and tends to begin in the morning.

Child labor during school vacations

7.30 a.m.: Go to the mine. Carry tools (pick or pointed tool, sledgehammer, drill, compressors), lamp, sacks and explosives. 8.30 a.m. Arrive at the mountain. 8.30 p.m. – 1 p. m.

- Father: drills.
- Boy: carries lamp to enter the mine.
- Father, Mother, boys: remove rock with shovel and wheelbarrow.
- Father: removes ore in sacks.
- Father: removes loose rock and ore from the roof and walls of the mine shaft after blasting, using a pick or pointed tool.
- Father, children and mother: break up ore and measure it in tins to fill the sack.
- Mother and children: discard waste, look for ore amid waste, break up ore and load it into sacks.

1 p.m. – 3 p.m. lunch and rest

3 p.m. – 6 p.m.

- Men: return to the mine
- Women and children: return home and cook supper

Workshop with children in Mollehuaca.

Child miners demonstrate great solidarity with their mothers and siblings, which is why they assume domestic tasks and work in mining. In this environment of poverty, family communication problems and even mistreatment of children, they develop the need to support their mothers and siblings with their work.

Teachers and some mothers say that the risk is that the children will "become accustomed" to earning money and not want to continue their schooling. Because their income is minimal, they spend it quickly in bars and on prostitution, reproducing their situation of poverty, low self-esteem and violence toward others. This occurs in overcrowded communities where bars have proliferated (Huaypetuhe, La Rinconada), and also in the extreme case of isolated highland towns (Ananea and Pataz). In Pataz, teachers and mothers say that one illness affecting adolescents is the hangover.

Male adolescents are in a more difficult situation because they combine supporting their mothers in household chores with efforts to generate income by performing mining tasks that are more strenuous than those that their mothers and sisters can assume. Meanwhile, in homes where the father is violent toward the mother, male adolescents are at greater risk of leaving home at an early age because they do not tolerate the situation; various studies show that these adolescents prefer to live alone or as "street children."

Adolescent girls take responsibility for domestic chores, support their mothers in small businesses and work at tasks related to looking for and washing gold. Adolescent girls show a high rate of early marriage and migration in search of

jobs, generally as domestic workers, with the risks of abuse that this labor implies when the girl is young and does not have family support.

Because mining perpetuates a short-term mentality, long-term investments like education are not among the family's priorities. Another contributing factor is poor-quality education; nevertheless, improvement in the education offered does not guarantee that parents will value it more. To achieve this, awareness-raising programs are needed that involve parents and teachers, in which agreements are established between families and schools.

Although child labor in small-scale traditional mining generally occurs within the context of the family, in Huaypetuhe adolescents are hired as laborers beginning at age 16. Their work day consists of transporting 100 wheelbarrow loads. Some adolescents go alone to La Rinconada seasonally to work. An undetermined number of adolescents work for third parties; those interviewed for the survey agreed that the number of adolescents in mining has decreased while the number working in services, businesses and bars has increased. These adolescents are at very great risk because they come from households with high rates of violence, arrive alone at the mining community and are exposed to labor abuse and violence, including rape.

Adolescents who migrate to mining zones to work for third parties have even less possibility of getting ahead and ensuring their own well-being. In Huaypetue and La Rinconada, the adolescents who arrive alone to seek work do so for the following reasons:

- ✓ Family's extreme poverty
- ✓ Lack of jobs in Andean regions
- ✓ Deception or bad advice from friends
- ✓ They are fleeing family problems and want to start a new life
- ✓ They feel they are failing in school and believe they cannot get a better job or continue their studies.

Adults say that the consequences for these adolescents of living alone are:

- ✓ They begin to develop anti-social attitudes and lack behavioral norms
- ✓ They stop studying
- ✓ They enter at an early age into marriages or common-law relationships that generally are unstable
- ✓ Their psychological and health conditions deteriorate
- ✓ Alcoholism

- ✓ They are not paid for their work and turn to crime
- ✓ Aggressive behavior

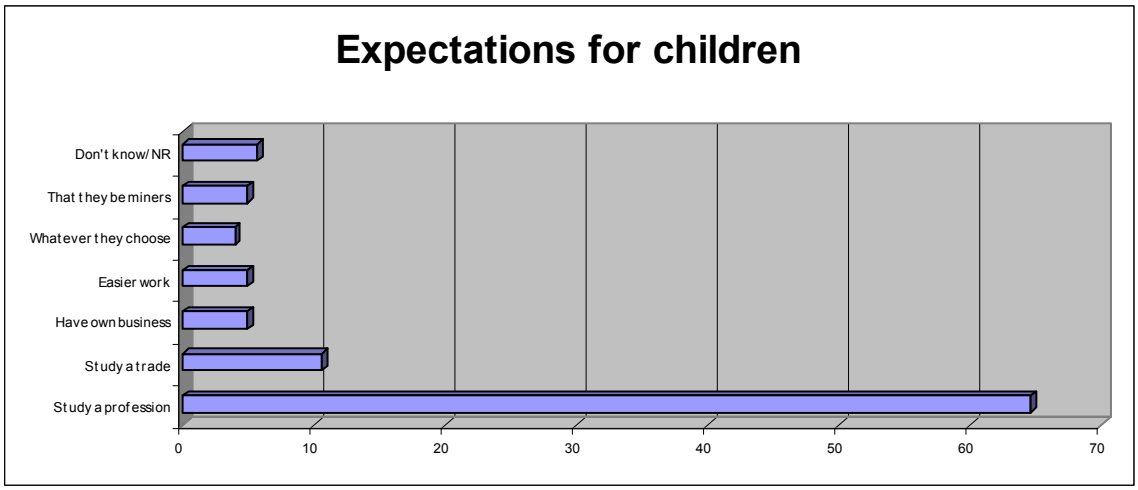
In the Madre de Dios River region, some adolescents who work in mining during their vacations are hired to work in bars in the mining camps during the school term. According to DEMUNA, there have been reports in these camps of laborers raping minors.

5 FAMILY EXPECTATIONS

The results of workshops with adults underscore the following consequences of child labor in mining:

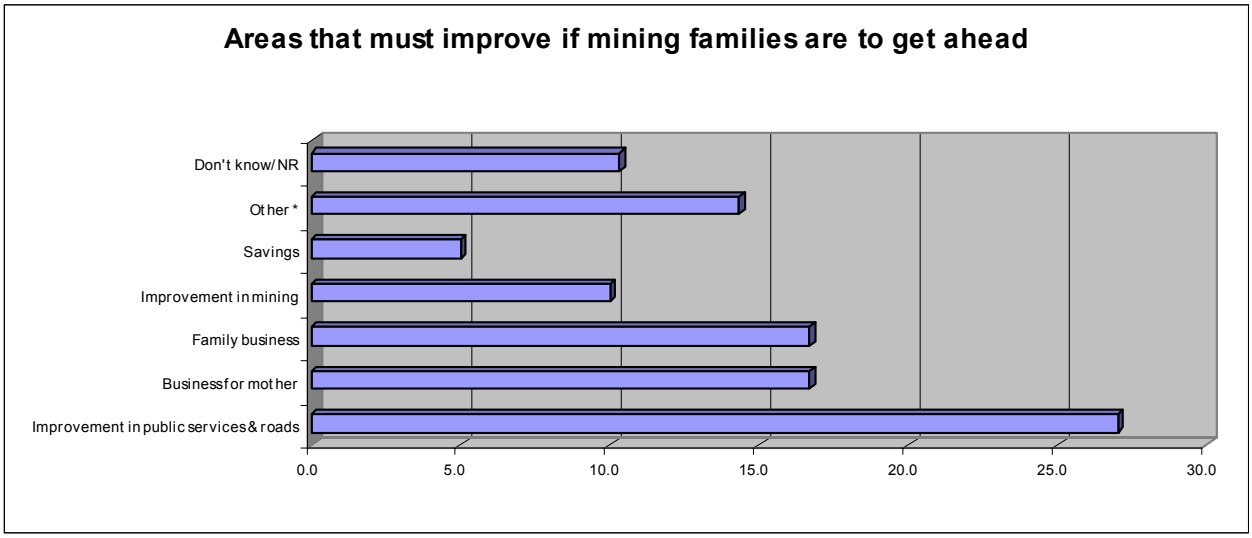
- √ They do not have clear and consistent expectations for their future.
- √ They get tired and become ill
- √ Premature adulthood because of obligations and responsibilities
- √ They neglect their schooling
- √ They marry or enter common-law relationships at an early age
- √ Social discrimination on the part of teachers, health-care personnel and authorities

The multiple consequences of child labor in small-scale traditional gold mining mean that the children have lower expectations for their individual development, end their studies and seek an alternative occupation, which exacerbates their poverty. Despite this and the lack of secondary schools in the majority of the zones, mothers hope their children will become professionals or, to a lesser degree, study a trade.



The survey of mothers shows that their expectations for their family's progress involve improvement of public services and occupational alternatives. Only 10% of

families hope that mining activity improves and 5% believe they will be able to save for the future (multiple responses). About 10% of mothers indicate no expectations.



(*) Others: Relocation of communities that are far from work places, in the case of Nazca-Ocoña; creation of community and workers' organizations; improvement of other types of activity, such as agriculture, in the case of families who own land in their home communities.

6 CONCLUSIONS AND RECOMMENDATIONS

Since the 1980s, small-scale traditional mining has taken on critical importance because of the number of jobs it creates. Some 30,000 families work permanently in this activity. In two of every three households the children work; that means some 50,000 children participate in mining tasks and another 11,000, who are still very young, will do so soon. They generally perform difficult tasks such as hauling large quantities of ore and processing it in *quimbaletes* or mills, using mercury, with no protective gear.

Because child labor occurs within the framework of the family, the children are considered to be "helping" rather than working. Nevertheless, in families whose children work, this is an obligatory daily activity to which they dedicate weekends and several hours after school during the week, with work time increasing even more during school vacations.

The effects of small-scale traditional mining activity on children's health are evident. Mercury contamination causes irritability, nervousness and insomnia that affect emotional and intellectual development. Hauling ore and using the *quimbaletes* causes back, waist and knee pain. Other direct consequences are cuts and various accidents. Parents know about the occupational hazards and health damage caused by mining, but daily life is ruled by the need for daily survival as well as a perception that children's work is traditional and teaches them responsibility and discipline.

The weight carried by this view must be understood in developing eradication projects because it explains why child labor does not occur in all households or only at times when family income decreases, but tends to be a permanent part in child-rearing. This cultural component is rooted in Andean tradition, which, while it has developed values such as reciprocity and support for collective effort, also includes a peculiar notion in which the child is seen as a source of labor and a "small" adult who must be given family tasks and obligations. This mentality is far from modern notions of child development that emphasize play, freedom and emotional development.

Family problems, particularly bad relationships between couples and fathers' neglect of their families, are fundamental in understanding the persistence of this notion. Children feel a great commitment to their mothers and siblings, which forces them to work in mining and also assume household chores. Added to this are authoritarianism and mistreatment by many fathers, which the children

attribute to the fact that their fathers are tired when they return home and to widespread alcoholism among miners.

With regard to perceptions of health, in this context of day-to-day survival there is a tendency to believe that children will get sick "later;" mothers hope to avoid this through a "lucky strike" that will allow them to improve their standard of living and hire other people or change to a different kind of work. Because of this, an integral project must include a component for raising awareness and providing follow-up based on precise surveys of the children's current health situation. There is a lack of qualified personnel and adequate equipment for this in local health-care establishments.

Mining activity also has harmful effects on the children's possibilities of educational development. They are tired, ill and malnourished. They also have little time to devote to school work. Other negative conditions affecting the education of child miners is insufficient number of classrooms and teachers, deficit of secondary schools and the families' lack of commitment to schooling. Another factor is the fact that the majority of teachers show a lack of interest in improving the quality of education; as a result, they are frequently absent and are unwilling to remain in these communities, which are distant and characterized by difficult living conditions. Because of all these factors, families have few expectations with regard to the benefits of local schools, even when they dream that their children may be able to study a profession or trade and change to a different line of work.

Intervention in the area of education poses several challenges: improving infrastructure and equipment so it is more attractive to families; ensuring that education is free, to break with the current tendency for parents to have their children "take turns" enrolling in school; raising the awareness of school directors and teachers and involving them in consensus-building efforts and development plans; incorporating work-related education through practical training in diverse trades; designing activities with parents to raise their awareness of the importance of education, stages of children's growth and emotional development; and the relationship between families and the schools. This will require adapting to the little time available and promoting creative actions that provide stimulation and cultural and recreational opportunities that do not currently exist. In some families in which mistreatment and parental neglect are evident, psychological support and follow-up will be necessary.

At the same time, there is a need to foster establishment of child-care centers or "*wawa-wasis*" in mining communities because mothers take their small children

to their work places so as not to leave them home alone. These centers would allow the possibility of addressing the issue of early stimulation.

Another need in the communities is for DEMUNAs, such as those recently established in Madre de Dios. In the other mining communities there is a lack of such agencies, which would give mothers and children an alternative in the face of domestic violence and other failures to comply with the rights of children and adolescents.

An important element for projects aimed at eradicating child labor in mining is the existence of organizations of small-scale traditional miners in some communities in Puno and Nazca-Ocoña, with which public and private institutions can establish these kinds of programs as part of an intervention that benefits the entire family; examples could include support for improvement of public services and alternative income-generating activities for the entire family or for mothers, as these are mining families' greatest expectations. Significant groundwork has been laid by projects being carried out by NGOs in the Nazca-Ocoña mining communities. It must be noted that in the case of income-generating projects begun with women, eradication of child labor from mining would be a medium-range goal because mothers believe their small businesses are less stable or the income less certain.

The majority of mining communities are not temporary or seasonal. They are new communities that have gradually been gaining their right to work in a situation of regulatory adversity in which there has been no legislation regarding small-scale traditional mining, which exposes them to informality and situations of abuse and exploitation. They also have achieved installation of some basic services, but these are insufficient because government agencies consider the miners a seasonal population. As a result, the communities also have grown haphazardly and have serious pollution problems that require urgent attention in such areas as waste disposal, potable water and sanitation services.

Children labor with their parents when the parents work for themselves, extracting and processing the ore. They also work with their mothers, scavenging for gold in the waste produced by the small-scale traditional mining activities, washing and processing it to obtain an income that, while very minimal, allows them to acquire food and pay some educational expenses. The experience of CooperAcción in the community of Santa Filomena demonstrates that child labor can be eliminated from the task of hauling ore through the introduction of more productive technology (electric winches). Similarly, in Madre de Dios the use of more modern technology has eliminated child labor in the extraction stage; as in the other zones, however, processing continues to be done the traditional way,

which involves exposure to highly toxic substances. Alternative technology, such as retorts, that has been promoted by the Ministry of Energy and Mines is not being used; the reasons indicated include the green color taken on by the gold and the greater time required to use the technology. When cyanide is substituted for mercury, this is not done appropriately, indicating a need for more training in the benefits and techniques of this method.

The complexity of the problem of child labor in this activity, which is informal and in which there is non-compliance with child labor regulations regarding minimum working age, work hours and working conditions, indicates the need for joint efforts with the ministries of Labor, Energy and Mines, Health and Education, as well as local governments, NGOs, miners' unions or associations and community and grassroots organizations. Only an integral strategy that also involves the government will produce a greater impact and change the idea that these communities are still a "no-man's land."

The intervention must begin with local planning processes that allow residents to reflect on the causes and consequences of child labor and commit themselves to the priority activities they identify. This will also make it possible to progress in establishing regulations that prohibit the hiring of adolescents by third parties, an area of work that tends to be hidden but that involves children who migrate alone to areas of greater activity, such as Huaypetuhe and La Rinconada, where they are exposed to the worst conditions of exploitation after being forced from home by family problems.

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Appendix: Instruments used

Participatory workshops

Workshop with adults

Introduction:
(15 minutes)

- Thanks for attendance
- Presentation of workshop objective: learning about the community, process of work in small-scale traditional mining and development needs of children in the community
- Expectations: that the workshop allows them to express their common needs and expectations for progress and welfare
- Presentation of facilitators and participants: their names and the work they do

First exercise:
2 commissions are formed:
(60 minutes)

Commission 1: *Map of the community (real and ideal)*

Participants are invited to draw on a large sheet of paper the community's resources: existing public services, existing institutions, economic and productive resources (water, agriculture, other), roads or access paths to other communities and cities, zones of mining work, zones that pose a risk to children, poorest zones. Do not use black markers. Ask that they identify resources by name (rivers, the road to …, crops, etc.)

They are then asked to use a black marker to write or draw their expectations: For their children's welfare, how would they like their community/neighborhood to look within 5 years? Have them draw the goods or services they consider necessary, as well as the qualitative changes (relationships): for example, less violence in the home, teachers who are better qualified/more interested in the children, that children do not work or support adults.

Commission 2: *Seasonal diagram of mining activity*

Names of the months (from January to December) are written on papers placed sequentially in a row. Under each month, note the mining activities performed that are specific to certain periods. Both the activities and the processes are described (if at those times there is migration to other communities or new workers migrate), changes in the manner of hiring labor, etc.

Plenary: presentation of results of commission work and necessary adjustments
(30 minutes)
Break
(15 minutes)

<u>Second exercise:</u>

2 commissions are formed:
(60 minutes)

Commission 1: *24-hour clock for adults (men and women)*

On a large sheet of paper: indicate one column for the mother's activities and another for the fathers (the target segment is mining families). They are asked what they do each hour, from early morning until night. What time does the husband get up? the wife? What tasks does each do at each hour? (domestic, productive, rest, union or association and community activities)

Commission 2: *24-hour clock for children (boys and girls)*

On a large sheet of paper: indicate one column for activities of girls in mining families and another for those of boys. They are asked what they do at each hour, from early morning until night. What time does the boy get up? the girl? What tasks does each perform at each hour?

Plenary: presentation of results of commission work and necessary adjustments

(30 minutes) Time during the morning: 3 hours and 30 minutes

Break/snack

(1 hour) Total time: 4 hours and 30 minutes (9 a.m. to 1:30 p.m.)

Third exercise:

(60 minutes)

Commission 1: *Diagram of family relationships*

In two columns, list the positive and negative aspects of family relationships.

After identifying the negative aspects, ask about the reasons for each and their consequences; these are listed on additional pieces of paper. It is important to ask about the rights of children. Which are recognized by the family and which are not?

Commission 2: *Diagram of causes and effects of child labor*

The problem is written at the center (children's work/assistance in mining tasks), then each cause and effect identified by the participants, using arrows to indicate cause-effect relationships. This technique permits the illustration of more relationships than the "tree of problems" dynamic.

Break

(15 minutes)

Plenary: Presentation of results of commission work and necessary adjustments

Thanks and end of workshop

(60 minutes)

Time in afternoon: 2 hours and 15 minutes (2:30 to 4:15 p.m.). Total length of workshop: 6 hours and 45 minutes

Workshop with children

Introduction:

(15 minutes)

- Thanks for attendance
- Presentation of workshop objective: to learn about the community, the process of work in small-scale traditional mining and the development needs of children in the community
- Expectations: that the workshop provide an opportunity to talk about their needs and desires for progress and well-being
- Presentation of facilitators and children

First exercise:

(90 minutes)

In plenary: *Diagram of the mining process*

On several large sheets of papers, taped together, write the sequence of specific tasks. Motivational question: If we, who know nothing about mining work, wanted to extract and process gold, what would we have to do?

Once finished, write under each activity:

Who performs these tasks (father/mother/boy/girl)

In which activities do you never participate?

It is important to determine the tasks performed by children and ask: How do you do these?

With what tools?
At what time?
Have they become ill or had an accident because of these tasks?
What are the tasks they most like to do?
What are the tasks they least like to do and why?
Why do they do these tasks? (motivations, how they explain it)
Do their parents recognize (value) their work?

Break/snack
(15 minutes)

Total: 2 hours

Second exercise:
(45 minutes)

2 commissions are formed:

Commission 1: *24-hour clock for parents (mother/father)*
Commission 2: *24-hour clock for children (boy/girl)*

Break
(15 minutes)

Third exercise:
(60 minutes)

In plenary : *Diagram of family relationships*

In two columns, list the positive and negative aspects of family relationships (this should be motivated as the conclusion of the preceding exercises). It is important to ask about their rights as children and adolescents: Which are recognized by the family and which are not?

After identifying negative aspects of family relationships, ask about the causes of each and their consequences; these are listed on additional pieces of paper.

Thanks and end of workshop

Time for sequence: 2 hours

Total workshop time: 4 hours

In-depth interviews

Interview with local organizations and key informants: teachers, Parents' Association, head of health-care facility, union or workers' association, women's organization, local government if applicable.

Interviews are done using a semi-structured guide that is flexible but includes basic questions for all interview subjects. The object is to gain a deeper understanding of the characteristics and mining processes in each community, possible conflicts that exist, causes of child labor, adults' values and attitudes, expectations for children's development and that of mining families in general.

Interview guide

1. Characteristics of mining activity:
   Number of families involved, where they are from, how long they have been there,
   Is it a year-round or seasonal activity for the majority of families?
   Principal risks and benefits of small-scale traditional mining: for adults? for children? do the children cover some of their expenses? is their income distinguished from that of the family?
   Specific tasks performed by women and tasks performed by children (indicate in detail what the task consists of, tools used, time dedicated to the task, health risks and harm associated with the activity)

Importance to the family's financial situation (what percentage of the family's income comes from mining? Forms of payment: are there differences in income among families? Why?

2. Degree of organization of the activity
   Degree of formalization, rights, legal situation of the mine
   Labor conditions (number of contractors, independent miners, bosses)
   Relationships among stakeholders, characteristics of contracting among owners of plant, company, miners, *quimbalete* owners (see chain of relationships) and conflicts.
   Technology used: modern and traditional.
   Expectations of association: union or workers' association, and with regard to development of the mine.

3. Recent significant social processes: immigration/emigration (adults/youth), decrease/increase in mining activity, whether or not there is formal or modern mining in the zone (how does this affect small-scale traditional mining and relationships?). Increase in basic services, existence of public programs and projects of NGOs or international agencies.

4. Perception of child labor: because of family poverty? because of cultural tradition? because risks are not perceived? Value placed on and expectations regarding education and children.

5. Education:
   Proportion of children working in mining who are enrolled in primary and secondary school, as a percentage of total children enrolled.
   Is it possible to estimate how many children working in mining are not enrolled in school? Why?
   Number of teachers and level of interest in their work
   Number of classrooms
   Costs of education per child (Parents' Association fees, monthly fees, school supplies)
   Community's evaluation of the teachers' performance

Teachers' evaluation of children who work in mining (attendance level, performance, more-developed and less-developed abilities, attitude toward their studies)
Perception of mining families' expectations

6. Health:
   Existing records of children's principal illnesses and injuries
   Development of children of mining families (height and weight records)
   Birth rates in mining families
   Most frequent illnesses among adults/parents
   Mental health evaluation of mining families: effects of stress, cultural uprootedness, labor conflicts, other phenomena.
   What preventive programs related to the risks of mining are carried out with adults? with children?