



“We Cannot Just Speak About Things That Are Pretty”

- Mario Lazo, former mayor of La Libertad, Nicaragua

The Legacy of Greenstone Resources in Nicaragua

by Anneli Tolvanen

Published by MiningWatch Canada

March, 2003

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(all photographs by Anneli Tolvanen)	

Front cover: parrot resting on fence made of flattened sodium cyanide barrels – “downtown”
Bonanza, Nicaragua.

About This Document:

In August, 2001, Anneli Tolvanen, a Canadian who has lived and worked in Nicaragua for many years, travelled to the mining communities of Bonanza and La Libertad with the support of the Alexander von Humboldt Foundation of Nicaragua, MiningWatch Canada, and the Primate's World Relief and Development Fund of the Anglican Church of Canada. She interviewed men, women, and youth, community members, small-scale miners, local officials, and mining company representatives. She took extensive notes and many wonderful photographs. After a considerable delay in translation and production, we are pleased to present these two articles. The full text of the translated interview transcripts is also available on request, as are the rest of the photographs.

Foreword:

As the global reach of Canadian mining companies has been enhanced by neoliberal economic policies pushed by international financial institutions like the International Monetary Fund (IMF) and the World Bank, as well as the US and Canadian governments, the social, economic, and environmental effects of their activities have caused a great deal of controversy. The case of now-defunct Greenstone Resources is an interesting one. A small Toronto-based company, Greenstone operated gold mines in Honduras, Panama, and Nicaragua in its heyday. All were controversial, with difficult relations with host communities and aboriginal groups, spills, and environmental contamination. Some problems were inherited but never properly dealt with, like the environmental contamination and the outdated and delapidated equipment and infrastructure. Other problems were of Greenstone's own making, like the conflict with local small-scale miners when the company unilaterally restricted their access to ore and processing facilities. Greenstone tried to portray these situations in a positive light without really putting resources into resolving them, and was extensively supported by Canadian government representatives. It is not clear what caused Greenstone's demise: some combination of mismanagement (as alleged by some of the local people), legal obligations, demands from workers and communities, and low gold prices.

Yet the mines still exist, and so do the communities. When it bought the mining properties in Nicaragua, in La Libertad and Bonanza, Greenstone provided no financial assurance that it would meet its environmental and community development obligations. Nicaragua is a poor country, poor enough to qualify for the IMF/World Bank "Heavily Indebted Poor Countries" initiative (HIPC) – the gross domestic product (GDP) per capita was \$446 in 1998, with 48% of the population below the poverty line and 17% living in extreme poverty. When the Sandinistas lost the 1990 election, the way was open for the new right-wing government to privatise the mines that the Sandinistas had nationalised.

Unfortunately, under severe pressure from international lenders to make good on the debt that Nicaragua had inherited from the Somoza dictatorship, very few restrictions were placed on the new owners. The company promised to modernise the facilities and make them safer for workers and the environment, replacing decades-old equipment and fixing unstable tailings facilities – but there were no guarantees, and no money was put aside. As a result, with Greenstone's eventual collapse, there is no-one to pick up the environmental and social liabilities. The rôle of Save the Children Canada ended when money promised by the company didn't materialise. The Canadian government, although happy to support Canadian investment when times are good, has done nothing for these communities now that the company has disappeared. Nor has it indicated any willingness to impose restrictions on the activities of Canadian companies overseas, preferring to trust in self-regulation and voluntary "codes of conduct". To make matters worse, even if the communities had any recourse in Nicaraguan or international law, there is no one to prosecute or to sue.

We felt it was important to document this history, partly as a cautionary tale for communities and governments alike, and partly to help illuminate the way forward. Communities affected by mining must have the ability to establish their own goals and negotiate for their own interests. Governments must respond to community development needs, not just the demands of international capital. The Canadian government cannot continue to support Canadian investment (and broader neoliberal economic policies of privatisation and deregulation) without taking into account the humanitarian and development needs of affected communities – not to mention the protection of their basic human rights. It is our hope that agencies and organisations interested in supporting community development, appropriate technology, and technology exchange will be able to contribute to the economic, social, and environmental recovery of Bonanza and La Libertad. While mistakes have been made and people have suffered the consequences, it is important to recognise the resilience and determination of the Nicaraguan people. This story shows that despite all the setbacks they have not given up, and that they are full of ideas and plans to make the mining industry work for them according to their own needs and priorities. It is up to us to take up the challenge and help them.

– Jamie Kneen, Communications Coordinator, MiningWatch Canada

Acknowledgements:

This article is based upon the information, reflections and opinions contained in a series of interviews carried out in the mining community, Bonanza, Nicaragua in August 2001. This work was carried out with the support of the Humboldt Foundation, MiningWatch Canada, and the Primate's World Relief and Development Fund of the Anglican Church of

Canada.

I'm grateful for the generosity and sincerity of each person that was interviewed and while I'm sure that I've not done justice to all that was shared with me, I hope that I have been fair and that this will in some way contribute to a greater awareness of and response to, the situation in Bonanza. I am especially thankful to Eugenio Pao, who provided invaluable assistance during my visit.

– Anneli Tolvanen

Bonanza, Nicaragua: A Gold-Mining Company Town

“With a Whistle but no Water”

Bonanza is located at the end of the road. The last thirty-kilometre leg that branches from the main road that is its connection to distant, more populated areas of the country takes a full two hours to travel in the back of a truck that's the only form of public transportation – unless you're one of the very few who can afford to fly. The soil here is poor for anything but subsistence agriculture. The wealth that lies below the surface makes mining, in its many variations, the economic backbone of the municipality. One is reminded of this daily as the rhythm of life is paced and shaped by the whistle of the gold mine on the northern edge of town.

As the history is told, gold was first discovered in this remote, rain-forested area of northeastern Nicaragua around 1880. This eventually gave rise to the three communities of Siuna, La Rosita and Bonanza that define the “mining triangle” in the Autonomous Region of the North Atlantic (RAAN). Of the three, Bonanza, a community of 12,000, is the only mining centre that has been productive in the last twenty years. It started out as a mining camp when it was first carved out of the lush rainforest in 1934 by the Rosario Mining Company of Canada. If gold mining brings development, then Bonanza is a study of the quality of that development.

The town of Bonanza hangs on the slopes of the hills close to the mine. Its circular main road encloses the central part of the town and contains criss-crossing paths that connect the different neighbourhoods. There is no sewage system, and a walk through town provides a view of many homes that back onto small streams that would be picturesque – except for the latrines that empty into them and the other wastes that are dumped directly into them. The majority of homes are in serious need of repair, and there is not a single park where children can play. In a 1996 study carried out by AMUNIC (Municipal Association of Nicaragua), 31% of the children were assessed as being malnourished or at risk of malnourishment. It's a town that has remained provisional in many ways – a camp meant to temporarily house a mine's workforce. Reflecting on the living conditions that are their inheritance after a long history of gold mining, one member of the Civil Coordination Committee said, “We carry an inherited weight of poverty that began with our ancestors who were the first miners.”

While foreign gold-mining companies have been in Bonanza since 1934, the history related by community members generally begins with the Canadian Neptune Mining Company that was active during the 1970s. Community

members generally have positive memories of that time, remembering a good relationship between the owners and the workers, despite the fact that there were no unions. They especially remember the security of the basic services and the quality of the hospital care provided by the company.

Since the 1980s:

The mine was nationalized in the 1980s under the Sandinista government and it was then at its peak as an employer with about 1,000 workers. The workers became organized during this period. The mine was run in cooperation with the community, on a model of shared responsibility. This meant, amongst other things, that the community provided armed defence of the processing plant and other infrastructure during the Contra war, repairing the destruction that resulted from attacks and losing lives in the process. This history contributes to the passion heard in the accounts of what this mine has meant in people's lives. Community members recounted the Contra attacks that destroyed the mine's processing plant on three different occasions. The municipal office was also burned to the ground, destroying with it all of the community's records.

During the 1980s there were still only a few *guiriseros*, or small-scale miners, as this activity had been prohibited. Ore-crushing machines (*bateria de mazo*) were just being introduced from other gold-mining areas of Nicaragua, so most small-scale mining was done by panning river sediments. A group of twenty-five small-scale miners formed a cooperative during this period and began extracting and selling ore to the State company for processing, thus opening up new possibilities for this sector. With the electoral defeat of the Sandinistas in 1990 and the ensuing privatization of the mines, this initial group of organized small-scale miners purchased their own concession, with a loan from an NGO, and now operates the micro-enterprise Small-Scale Mining Development (DPM). DPM enjoys a good business relationship with HemcoNic, the present mine owners.

DPM is located 15 km from Bonanza at the Vesuvius site that was earlier mined by the Neptune Mining Company. HemcoNic currently purchases DPM's tailings of processed ore as they still contain 0.4 ounces of gold per tonne. Many look to this example to illustrate the development – with the needed resources and financing – that's possible with the small-scale mining sector, which now represents a significant population. DPM employs 24 workers at their plant and provides milling services to 55 collectives of

small-scale miners, with 4 members each. However, the new Mining Law is not favourable to small-scale miners. Under it, all concessionaries are treated equally, and DPM is currently concerned that they might lose their concession as they lack the necessary investment to work more than 30% of it.

In the transition years, after the 1990 elections up until 1994, the ownership of the three mines – Siuna, La Rosita and Bonanza – was in the process of changing hands but community accounts are unclear about whether it was Hemco or Greenstone that was the key player. The manager in this emerging configuration was Walter Smith, a Canadian, who was familiar to the community, having also worked for the Neptune Mining Company in the 1970s. Community members talk about strained relations, as Smith proceeded to organize the mine as it had been run during the years of the Neptune Mining Company and signalled his intention to get rid of the small-scale miners. After their experience in the '80s, however, the community was unwilling to go back to that situation, and, in terms of employment, there was now a greater percentage of the population earning a living from small-scale mining than from working directly for the company.

In Bonanza, as in La Libertad, there is considerable support for the small-scale miners, as they are considered to be the motor that generates movement in the local economy. Gladys Cruz Martinez, a former delegate of the Regional Government recounted her experience of participating in a commission concerned about the new Mining Law being drafted. They made a presentation to then-President Aleman; “We told him that if they wanted to get rid of the small-scale miners from where they are working or to stop their activity, there would be social disorder because in Bonanza there are thousands of families that subsist on that income.” In such a climate, Walter Smith’s plans had little hope of gaining the community’s approval.

In 1994 a Canadian company, Greenstone Resources, became the owners of the mine, reportedly having made the purchase for US\$9 million. Structures in Siuna and La Rosita that were still functional were brought to Bonanza. A Canadian, Tom McGrail, appeared as the manager of the company, and a non-governmental organization, Save the Children, also began to play a rôle, appearing together with Greenstone representatives at community consultations. With a funding formula involving the Canadian Consulate and Greenstone, Save the Children began to set up community projects focused on youth as well as water projects. While these projects were welcomed, many expressed the opinion in retrospect that one of the most important functions of Save the Children’s involvement was to improve Greenstone’s image. And restoring the company’s image was important after the clumsy entrance made by Walter Smith.

As with Greenstone’s operations in La Libertad, operations in Bonanza also shut down in 1998, affected by the drop in the price of gold but, more significantly, as a result of poor administration and out-of-control expenses, which were especially notable at the mine in La Libertad. In

Bonanza, the company left an obsolete plant in much the same condition that it was in when they arrived, requiring a capital investment of approximately US\$4 million to modernize it. An investment made by the Swedish in 1991 was the base upon which production had been possible in Bonanza. Greenstone never made the investments that were promised, although some environmental protection measures were taken.

HemcoNic purchased the mine from Greenstone in 1998. Tom McGrail remained as the mine manager, strategist, negotiator, and trouble-shooter. He seems to wield considerable respect and influence in this community, as well as in La Libertad, where he also manages the DESAMINIC mine. When talking about recent Canadian company ownership of the mine, local residents blur the distinction between Greenstone and HemcoNic, as they see the consistent involvement of the same people (such as Tom McGrail) despite the changes. The same is true in La Libertad, when talking about Greenstone and DESAMINIC. HemcoNic and DESAMINIC reportedly represent a mixture of foreign and Nicaraguan investment, but along with Greenstone, they may all have many more connections than their distinct legal names would indicate, as the blurred distinctions suggest.

Struggle for Basic Services:

Since Bonanza was declared a municipality in 1989, during the Sandinista period, the legal argument has existed – although not the resources – for the municipality to provide its own basic services and to cut their dependence for these services on the successive foreign mining companies. HemcoNic has established a micro-enterprise, which already has an office in town, to commercialize the hydroelectric energy that’s produced by the company. Historically, the mining companies have freely tapped the local rivers to harness the energy and water needed for their operations, and have provided these services free of charge to the community. The present proposal to commercialize this resource is being promoted by the company, along with local leaders – whom some suspect may have business interests of their own – with the idea that the town would then sell the energy to the community at a slightly higher rate, thereby generating much-needed funds for various development projects. Electricity meters are already appearing throughout Bonanza and arousing a very vocal opposition.

Electricity was a particularly important issue on everyone’s minds in August 2001, when interviews were being conducted, as the community had already been without power for a week. There had been an unusually heavy rainy season, which had caused landslides bringing down 100 tonnes of earth and blocking the turbines at the two dam sites of Salto Grande and Siempre Viva. About 130 mine workers were assigned to do the difficult cleanup work and other community volunteers were being encouraged to join the effort. Being without electricity also meant that most of the homes in Bonanza were without running water. Only about 20% of the houses in urban Bonanza receive gravity-fed water; the rest are dependent on electricity for pumping.

The Civil Coordination Committee, composed of repre-

representatives of various community organizations, is adamantly opposed to the proposal to commercialize basic services, arguing that receiving these services is the only benefit that the community has enjoyed from the foreign companies that have come to Bonanza. They say that the company generates electricity for its own use, freely using the community's river and that the use of this electricity is a historic right that the community has earned at the cost of lives lost defending the mine during the Contra war – as well as to deaths caused by silicosis from working in the mine. One of the committee members expressed the shared sentiment in this way, "My grandfather gave his lungs to the mine where he worked for 40 years. My mother lost her youth to the mine and worked there for 40 years. I claim this right, as we all do. We are suffering from extreme poverty here. Although they want to privatize the electrical system, this service cannot be paid for. Perhaps this is the first place in the world where it will be said that the community must be given electricity." Whether a community that runs on the rhythm of a foreign company's whistles and where fences are made from flattened sodium cyanide barrels should be considered the same as any other municipality is also part of the debate.

In the history of gold mining in Bonanza, it is calculated that over US\$900 million has been generated, with little visible benefit to the community. While the various foreign mining companies since 1934 have paid taxes to the central government, very little of this has ever returned to the municipality. What have been left instead are serious social and ecological problems. In the face of this history, a 1995 treaty, signed by the Ministry of Economy and Development (MEDE) and the governments of the Autonomous Regions, states that 50% of the taxes paid by concessionaries should be returned to the municipalities. Community representatives are calling for a review of these ministerial agreements, and an assessment of whether the company is living up to its social responsibilities. Although Bonanza is a municipality strapped for funds, it would seem that the present proposal to sell electricity to the community does little to address a history and pattern of neglected responsibility and may, in fact, perpetuate it.

"Guiriseros" and Small-Scale Mining:

There are 45 communities included within the municipality of Bonanza, many of which are Sumu or Miskito indigenous communities. Adding to the pressures placed on the municipality are the populations that migrate to the zone from areas such as the Rio Coco, Prinzapolka or Rio Blanco where rural families carrying out subsistence agriculture have been brutally hit by alternating floods and droughts that have brought them to the brink of famine conditions with meagre assistance, if any, from the government or NGOs. These people migrate to Bonanza to carry out the most rustic form of gold mining, as guiriseros, excavating small quantities of ore from hillsides or river silt and extracting the gold using mercury. These migrations of desperation also result in vast areas of deforestation, clearly visible from the air, in the areas where people resettle temporarily, establishing their homes and small areas for cultivation.

One woman interviewed had come from Rio Blanco four years ago with her seven children. She processed a few bucket-loads of ore per day, using a simple mortar-and-pestle style molinete to grind the ore into a fine powder, which she then mixed with water and mercury to draw out the gold. The processing station where she does this has about a dozen of these molinetes and is a project conceived by an NGO to help a cooperative of women small-scale miners. Administrative difficulties made it difficult for the project to develop fully, but nonetheless the facility appeared to be used by a good number of people, mostly women. The woman from Rio Blanco paid the equivalent of US\$.75 to rent a molinete to grind her ore and would extract, on average, gold worth US\$1.50. She and her family survived on the 75 cents profit. She said that she'd left worse conditions in Rio Blanco and with that, she painted a picture of the desperate poverty that is suffered in the surrounding region.

This woman is one of the approximately 3,000 that are active in some type of small-scale or guirisero mining in the Bonanza area. This is an economic activity that has grown and continues, as many explained, out of necessity. They are criticized for the dangerous contamination that can result from the use of mercury. Successive mining companies, with the support of MARENA (Ministry of the Environment and Natural Resources), have presented this argument to justify and encourage shutting them down. The community, on the other hand, explains that the mercury is recycled and reused, and argues against what they see as the "extreme line of environmental conservation taken by some environmental groups. We are a community with hunger and we have to work in one way or another to maintain our families. We don't want to convert our community into a forest. We are against extremist measures that think first about a tree and don't care about our hunger." They pose the rhetorical question of whether the government will feed them, if they're no longer allowed to mine.

Environmental Concerns and Responses:

The more organized groups of small-scale miners, however, have taken measures to lessen their impact on the environment. For example, each of the traditional ore-processing rastras have been given a retort, developed by an organization working in the Bosawas Biosphere Reserve. The retort captures the mercury vapour when the gold is being purified and returns it to its liquid state so that it can be reused. At the DPM site they use a series of traps for the waste fluid that empties from the processing plant and also use detergents and bleach on the tailings to break down any remaining mercury. When HemcoNic analyzed the tailings purchased from DPM, they found them to be free of mercury contamination. Small-scale miners complain that due to financial limitations, they are unable to implement better practices or even to afford travel to other mining communities in Nicaragua to learn about innovations being developed by other groups of small-scale miners.

Though the community now is nostalgic for the security of basic services in the past, environmental controls then were practically nonexistent. A tragic example of the con-

tamination during that period is an incident that occurred in 1978 when cyanide was discharged into the Bambana River and at the location of a Miskito community 48km downstream the concentration was still 78ppm. Thirteen children in that community died as a result.

In the area of environmental protection there have been undeniable advances made in the years since 1994, both by HemcoNic and Greenstone. This has likely been encouraged by the significant environmental focus in this zone by several environmental NGOs that have a presence here, and by the fact that a part of the Bosawas Biosphere Reserve is located within the municipality of Bonanza. Greenstone had established an environmental department, which has been continued by HemcoNic. According to Gregory Downs Rocha of HemcoNic, this department spends US\$10,000 per month, covering the salaries of nine staff people, including a teacher who provides environmental education programmes for the company staff. They spoke of a new environmental conscience in Bonanza and how it was possible now for organizations to work together.

An oxidation lagoon is the most significant and visible measure that has been implemented to control the contamination of water bodies by the waste cyanide solution that is discharged by the mine's processing plant. The cyanide waste enters this sizeable lagoon at a concentration of 153 ppm and within a 24-hour period, this has dropped to 20 ppm. The cyanide content is closely monitored; only when it has dropped to 0.1ppm is the water from the lagoon released into the Tunki River. People living in the Concha Urutia neighbourhood, which is the closest to this lagoon, have complained about the smell that rises from its surface and the headaches that this causes them. In response, the representatives in the environmental department of HemcoNic have promised to look into establishing a windbreak of eucalyptus trees that would keep the fumes away from this neighbourhood.

The other major environmental concern expressed by community members is the sedimentation of water sources in the community of Santa Rita, which lies below the open pit excavations at the mine's Atlas site. As 60% of the mine's workings are open pit and 40% are subterranean, erosion and sedimentation are a great concern. The earth that is eroded is accompanied by chemicals originating from the heavy machinery used at the site. Even though the environmental costs are greater, open-pit extraction is more cost effective for the mining company.

Working Relations with the Mining Company:

In terms of the employment offered by the company, there have been lay offs during both Greenstone's and HemcoNic's ownership of the mine, and the current workforce is approximately 450. Workers are represented by two unions, SINTRAMIN (Union of Mine Workers) and SIOM (Independent Union of Mine Workers). They earn between US\$108 and US\$144 per month and also enjoy various benefits including food baskets, health services, education, loans and support during emergencies.

Of the estimated total of 3,000 small-scale miners in the

area, about 1,000 are organized into four cooperatives: MINARBON (Artisan Mining Bonanza), COOPEMINA (Small-scale Miners Cooperative), ASPEMINA (Association of Small-Scale Miners) and the *Independientes* (or "Independents" – belying its name, a group affiliated with the company). These cooperatives are, in turn, composed of working collectives of four to eight members each. The company has contracts to purchase ore from two of the cooperatives, MINARBON and COOPEMIN, and also from the *Independientes*. Each day, ten to twelve collectives are scheduled to deliver ten tons of ore each to the company plant for processing. With a high gold content in their ore that ranges between 0.5 ounces and 1 ounce per tonne, the small-scale miners estimate that between the three cooperatives, they produce 3,000 ounces of gold per month. According to one HemcoNic employee that was interviewed, the contribution of the small-scale miners can be as high as 50% of the company's total gold production in a given month. Several people who were interviewed in Bonanza corroborated this level of production by the small-scale miners.

In comparison, the August production goal for the company was at 2,800 ounces, up from 2,000 in previous months. According to Gregory Downs Selva, the Coordinator of CEDHCA (Human Rights Centre for Autonomous Citizens) and former mine employee with 25 years of service, "The amount that's contributed by the small-scale miners probably isn't 50% but more, since they're extracting from very rich veins. The ore that the small-scale miners bring for processing is very rich because they want to be paid well. The most economical for the company is the small-scale miner, who is considered a sub-employee of the company. He does not have any social security benefits, no fixed salary, no food basket and no other special conditions. At the present time, the company does not have the capacity to function without the small-scale miners because the investment in machinery and other inputs has not been great enough."

On average, a small-scale miner belonging to one of these cooperatives earns about US\$120 per month. Angel Blanco the President of COOPEMIN explained that this only leaves 400 córdobas (US\$27) to live on per month, after covering the expenses of sacks, explosives, etc., needed to continue mining. He said that small-scale miners are generally heavily dependent on credit and that "sometimes the children go out in the morning without eating; maybe they'll only have coffee and bread."

Of the small-scale miners interviewed who represented the various cooperatives, a common complaint was that they did not trust the company's assessment of the value of the ore that they delivered to them. They expressed concern about the lack of transparency in the process and not being allowed to have a representative present where the chemical assay work is done. The final results contradict the results of their own tests and, as a result, the payments that they receive are consistently lower than what they expect and calculate themselves. If they request a re-analysis of their ore, it can cost them 360 córdobas (US\$24) if the new result

shows no change. Gregory Downs Rocha from HemcoNic's environmental office explained that the small-scale miners make their assessment without separating the silver from the gold and thus get a higher reading. It was not clear, however, why this was not explained to the small-scale miners nor how this would justify not permitting them to have a representative present during the chemical assay process.

An additional frustration for the small-scale miners is that they must wait up to three weeks to receive payment for the ore that they deliver to the company. These conditions keep the traditional grinding mills, called *rastras*, alive as an alternative ore-processing practice, even though the company would like to see them banned. Ore processed at *rastras* provides a better price, the process is transparent, and the payment for the gold extracted is immediate. A common practice for the small-scale miners is to deliver ten tonnes to the company and then process two tonnes at the *rastras*. Small-scale miners that do not belong to one of the cooperatives that have a contract with the company will either purchase this right temporarily from others or do their processing at a *rastra*.

Risks Faced by Small-Scale Miners:

Despite the major contribution that small-scale miners make to the company's overall gold production, they carry out their work with a high degree of insecurity and risk and a total lack of benefits from the company. As one small-scale miner put it, "we can't even get a pill from their clinic, even if we paid for it. We get buried under 15 tons of earth and they give us coffee and bread for the wake – that's all." When the small-scale miners have approached the company with a demand for greater transparency and questions regarding the value that is assessed for their ore, the response from the manager, Tom McGrail, as expressed by one small-scale miner, has been: "I have a contract to buy and sell. If you want to sell to me, do it and if not, shit! Go to the *rastra*. All you represent is 10% of production. This concession is mine and I pay my taxes to the government."

The working conditions for small-scale miners are typically very insecure and dangerous. They are forced to work with inadequate equipment for economic reasons, and this has cost the lives of many small-scale miners when they have either fallen in a vertical shaft for lack of stronger rope or been buried alive for lack of wood to stabilize tunnel walls. In the last two years, six small-scale miners have died in such tragedies.

There are also many cases of silicosis and many people in the community talked about how their fathers and grandfathers have sacrificed their lungs to the company. Workers can begin to show signs of silicosis after only six months of working in the mine. The company does not remove workers until they have silicosis to the fifth degree and State hospitals are not equipped to provide treatment. According to Gregory Downs Selva of CEDHCA, "there are many that have their lungs destroyed and then they get tuberculosis, which is not considered a work-related illness in Nicaraguan laws, even though the majority of miners get it."

Being at the end of the road means that the people of

Bonanza have very poor access to any kind of legal assistance. There is not a single lawyer in the zone and there is no money to bring a lawyer from Managua who, as they say, would demand to travel by air and eat chicken. The company is the law. Francisco Rizo, a young law student from Bonanza who is studying in Managua, is now preparing to be the first. He worked for the mine in 1990 and was a witness to illegal land acquisitions made by the company. His job with the company was to negotiate the right to explore on properties. He discovered that the company was actually being registered as the owner of those properties and, in many cases, evictions would follow. His own father's farm had fallen victim to this same manoeuvre.

Proposal for Small-Scale Miners:

As in La Libertad, the company in Bonanza is proposing a gravimetric ore-processing plant as a solution for the small-scale miners. The plant would exclusively process the ore extracted by the small-scale miners and would be managed by them. As in La Libertad, the small-scale miners in Bonanza are critical of this proposal due to its limited capacity, which cannot hope to provide a solution for the more than 3,000 small-scale miners. According to Justo Hernandez of DPM, this plant will only be able to process thirty tons of ore per day, which is the amount of ore that just three collectives deliver daily. Given that HemcoNic now receives ore from ten to twelve collectives daily, this would mean that eight to nine collectives would have to disappear. With this as the only option, the cooperatives would be forced to compete with one another, dramatically weakening their collective position vis-a-vis the company. As all the positives appeared to be in the company's favour, the leaders of the cooperatives were carrying out discussion sessions about this proposal at the various work sites of the small-scale miners, heading out early, walking with flipchart papers tucked under their arms.

The Whistle:

Each day 12,000 people in Bonanza hear the company whistle, which now makes its announcements on behalf of HemcoNic, just as it did for a long string of companies that preceded it. The first whistle blows at 6:00 am and then it blows again immediately, as though with an insistence that all should pay heed to start their day's rhythm with that of the company. It alerts everyone once more at 6:50 and then announces the commencement of the workday at 7:00 am. At 9:00 and 9:20, the whistle blows again, framing the break when workers can come out. At 11:30, the whistle announces lunch, and at 12:20 comes the reminder to return to work, followed by the 12:30 whistle when work commences anew. At 4:30 pm the whistle announces the beginning of the first of two night shifts, and so on.

This is the clockwork that ticks in each person's life in Bonanza, allowing few to live beyond the impact of the company's discipline. Upon closer observation, the whistle is just a hint of the many ways that everyone in Bonanza is reminded daily that it's the company's rhythm and investors' agenda that matters the most.

La Libertad is a historic gold-mining community. A quick overview of its history reveals its early roots with a German family, the Kauffmans, in the 1800s. They were the first to start mining in the area with operations on Cerro San Juan, which is a mine still being worked to this day. During WWII the Nicaraguan dictator Anastasio Somoza dispossessed the Germans. An American investor, Preston Clayton, established the Los Angeles mine in the 1960s and the Canadian company Lemman Resources was active in the 1970s, but then left the country when the Sandinistas ousted Somoza in 1979. Under the Sandinistas, the mine was nationalized and increased its capacity with the support of Swedish investment. Following a change in government in 1990, the mine was once more privatised; the Canadian company Greenstone Resources Inc. purchased the mine in 1994. Greenstone introduced dramatic changes, employing open-pit mining and cyanide heap leach extraction. This was the introduction of this technology to the country and came accompanied with great promotional fanfare. The extent of the environmental disturbance that resulted – and is visible from the front porches of many homes in the town – was unprecedented in Nicaragua. Greenstone collapsed in 1999, and in May 2001 the ownership of the concession passed to the new anonymous association, DESAMINIC.

“When the Party’s Over”

The Greenstone Experience in La Libertad

The way to La Libertad is still a long, kidney-jolting, and crowded bus ride accompanied by sad and loud *ranchero* music. At least this much had not changed since my first visit in 1995 when the Canadian mining company Greenstone Resources Inc. was beginning to reshape the physical geography as well as the socio-economic balance and dynamics of this small town of approximately 30,000. The purpose of my trip this time was to hear the stories, impressions, and analyses of Greenstone’s involvement now that they were gone.

When the bus pulled in it was already a dark night, and the tropical storms causing flooding and threatening famine on the Atlantic coast were reaching this far inland, bringing abnormally lengthy and heavy periods of rainfall. Dodging the puddles on the road reminded me of how road conditions are a popular measure of the development that so far has not been the fruit of the investments of foreign mining companies. In this way, La Libertad shares the common paradox of many mining communities around the world – it’s a town built on gold but the roads are not paved with gold: they are not paved at all.

The difficulty of finding accommodations provided the first indication of the most recent changes in La Libertad. Nearly every available room was occupied by mine workers recently arrived from other areas of the country to work for the new owners of the mining concession, DESAMINIC (Desarrollo Aurífero Minero Nicaragua – Auriferous Mining Development of Nicaragua) and its affiliated mining company, DESAMIN (Desarrollo Aurífero Minero – Auriferous Mining Development). They restarted the mining operations in May 2001, following a period with no production that lasted a year and a half preceding the collapse of Greenstone. This year and a half period was a time of crisis and hunger in the community that I was to hear much more about in the coming days.

The price of Greenstone’s collapse:

Greenstone first announced a temporary shutdown of their operations shortly after Hurricane Mitch in October of

1998. They cited the need for repairs as the reason, but despite the lack of work they kept the company’s mine workers on the payroll. In this way, the company was able to avoid declaring bankruptcy and State intervention. It is established in the national Labour Code that three months after a company has stopped production, there must be special justification in order for it to continue in that condition.

While the company’s workers continued to receive their pay, the situation was dramatically different for the community’s small-scale miners who, along with cattle ranchers, are considered to be the traditional economic pillars of the municipality. The small-scale miners are represented by COOPEMILICH (Cooperative of Small-Scale Miners of La Libertad, Chontales), which was formed in 1994 in order to protect their interests with the arrival of Greenstone, and has a membership of approximately 350.

With the shutdown, no further purchases of ore were made from the small-scale miners (in violation of their contract) nor did they receive pay for 3,000 tonnes of ore that had already been delivered, worth about US\$120,000. COOPEMILICH had a contract with Greenstone to sell 700 metric tons of wet ore per month, at a value of US\$40-45,000. The accumulated deficit over the 14-month period when no purchases were made by Greenstone was calculated at US\$500,000. According to Amacio Anizal, member of COOPEMILICH, this situation created an economic crisis whose impact was obvious to see in the community.

Greenstone bought time by promising to start up operations and re-establishing new payment schedules for the ore that had been delivered. On the basis of these promises, local merchants allowed the families of small-scale miners to buy basic supplies on credit. As the company’s shutdown stretched out, and as the dates for payments continued to be postponed, the community entered into a deepening economic crisis. According to the former mayor, Mario Lazo, “they (Greenstone) abused the generosity, the nobility and also, in my opinion, the humility of the population, in doing what they did. They left a tremendous economic emptiness in the population and also participated in the economic deteriora-

tion of commercial activity.”

How it Happened:

There were several factors that contributed to Greenstone’s collapse, according to the community. One of them, however, was not the lack of production, as Greenstone at the time of its collapse was at its best moment, producing between 7,000 and 8,500 ounces of gold per month. While Greenstone attributed much of the blame on the drop in the gold price in 1997, from US\$395 to US\$257 per ounce troy, a local economist argued that the company should have been able to endure this impact for a considerable time given the low production costs at their open-pit and cyanide leach operation on Cerro Mojón. As another factor leading to their collapse, Greenstone pointed to the damages and losses, amounting to approximately US\$2 million, accrued as a result of Hurricane Mitch in 1998. It was the popular analysis in the community, however, that these reasons were mere convenient pretexts and that it was far more significant that Greenstone was already suffering economically and well on its way to failure due to poor administration and technological errors.

People in La Libertad now understand that Greenstone was really a company for exploration only and that their intentions were to start up the mine, present a good image internationally, sell shares and then sell the company. Unable to sell the company, they then failed when they entered the resource exploitation phase for which they were least prepared. It is also believed that the mine in La Libertad was being used to finance the development of Greenstone’s operations in Honduras and Panama.

The example of poor administration and waste most frequently mentioned was that of extravagant salaries paid to foreign workers, ranging from US\$15,000 to US\$25,000 per month. The company’s monthly payroll for its foreign workers totalled US\$400,000 and their presence extended over a longer period of time than initially intended, the original idea having been for the foreign workers to train local workers to fill their positions. Also included in the price tag for foreign workers were the houses that had to be built and the higher living standard that needed to be assured. The anecdotes of the money that flowed in the streets of La Libertad during Greenstone’s heyday have taken on near legendary proportions.

One of the local high school students, for example, talked about an American topographer with whom he’d become friends. He earned US\$8,000 per month, an unbelievable sum – in the estimation of this student – compared to the salaries paid to locally hired mineworkers. The highest salary paid to a qualified Nicaraguan worker or middle level technician ranged from US\$370 to US\$440 per month and the lowest, basic salary was US\$180. In the opinion of René Leiva, a small-scale miner, “there’s such high unemployment here that it’s like they’ve found a nest – a nest for exploitation.” The former mayor of La Libertad, Mario Lazo, also reflected on this disparity; “it is a notable and discriminatory difference. Local workers have a vast experience base and are very capable.”

Impressions and Memories:

When sharing their reflections on the experience with Greenstone in their community, responses followed a pattern resembling that of “day after” stories that recount the happenings of a wild party. First the positive highlights are shared but these are then quickly tempered by the sobering assessment of what’s been left in the party’s wake – the hangover the next morning and the mess that’s been left behind. True to this pattern, those interviewed first expressed nostalgia for the busy movement in the town during those Greenstone years, with the traffic of many trucks, weekly dances, vendors coming in from other parts of the country and a booming local economy. These stories would then be followed by accounts of a different tone, as they assessed the impact of the prostitutes that appeared in La Libertad, attracted by the free flow of money; the debauchery; the drunk foreign mineworkers falling in the streets with pockets bulging with bills; the canteens that appeared and that now have become a permanent feature in La Libertad in addition to various and serious environmental concerns. It’s the mess after the party that has formed the legacy of those years.

Young people attending the local high school, who were between nine and eleven years old when Greenstone arrived, seemed the clearest of all voices in terms of the social impact of Greenstone’s activities on their community. “Because I’m young,” said one of the youth leaders, “I do notice the problem, even though the community doesn’t really take notice. The majority of youth are corrupted now with about 65% smoking cigarettes and marijuana. Drugs and alcohol have increased. Now there are many prostitutes and they’ve stayed on. Prostitution is probably the most profitable job in the municipality now. We didn’t have these canteens before. All these things have caused a separation of families.” Viewed alongside these long-term negative impacts, these young people considered the support given by Greenstone for school celebrations, the local patron saint festival, and some small community projects as not amounting to very much – although Greenstone highlighted these in their regular community bulletins when they were doing well.

The Dreams and the Dependence:

In 1994, when Greenstone first purchased the concession in La Libertad, which encompasses 183 square kilometres and includes the town itself, the community had high expectations for this foreign investment, the modern technologies to be introduced, and multiple promised benefits to be enjoyed by the community. One eagerly awaited community benefit that never came to be, but that was mentioned by many who were interviewed, was a Polytechnic Institute that would provide training in various areas related to mining.

The expectations with the arrival of Greenstone and the resulting disillusionment were expressed in this way:

“Nicaragua’s bad luck has been that all of its mining municipalities have been left impoverished. We thought things would be distinct with Greenstone

and their new way of working and the new technology. We thought that there would be a university where students would gain experience in geology, mining, metallurgy and every area that relates to the development of the mining sector.”

“The population developed a great hope, thinking that the arrival of Greenstone would be so important for us locally that it would be necessary to have an airport. We also thought that La Libertad would get a paved road. We thought that at least 1,500 workers would be needed and that there would be no more unemployment in La Libertad. We thought that the unemployment of Santo Domingo, San Pedro, Santo Tomas and partly of Juigalpa would all disappear because there would be so much demand for workers.”

These dreams were not simply products of wishful thinking but were rather, fuelled by promises made by the company. Coming out of a decade of economic stagnation and the discipline and hardships of the Sandinista revolution and the Contra war, people were eager for change and happy for the promises they were told. On the wave of this optimism, fuelled by the company’s persistent public relations campaign, COOPEMILICH signed an agreement with Greenstone to dismantle their traditional ore-processing equipment – called *rastras* – in exchange for the right to mine on the concession, using secondary veins of no industrial interest and to sell their ore to the company for processing.

Rastras then disappeared from La Libertad and this was the beginning of a relationship of dependence for the small-scale miners that would lead to on-going and endless negotiations about quotas and processing fees over the next three years, in a continuous and wearing defence of their right to mine, which had more than once led them to believe that the company’s real intention was to disappear the small-scale miners and not just their *rastras*. The dismantling of the *rastras* also foreshadowed the economic crisis that was now being experienced by the community. With their traditional equipment destroyed, the small-scale miners, the backbone of the local economy, were left without options when Greenstone no longer bought their ore.

The Many Levels of Impact:

To illustrate the impact of this economic pressure, Amacio, himself a small-scale miner, pointed to three former small-scale miners passing on the road with machetes. One was returning home from a pasture where he’d been hired for the day to clear land and the other had been chopping firewood to sell. Many others were leaving the area to find work, he said, because they could no longer wait on promises. His own situation was no better, he seemed humiliated to confess, with nothing more to do than plant some yucca and to help around the house. Amacio was a leader amongst the small-scale miners, whom I’d earlier visited on several occasions and whose past gold strikes were well-known.

Another small-scale miner expressed his disillusionment in this way, “They promised that there would be better days but they’ve been super worse because with the agreements that we signed, we were forced to suffer hunger for a year and a half.” The small-scale miners also complained that as a result of depending on credit and the company never paying, the reputation of the small-scale miners suffered as they increasingly were viewed to be untrustworthy. They said that this damage was particularly difficult to mend.

Local merchants were also deeply affected by Greenstone’s shutdown and uncertain plans. One local merchant that was interviewed was owed an accumulated debt of US\$40,000 from the small-scale miners. “We have gone into debt with distributors and companies to be able to guarantee credit to the small-scale miners who are already in arrears because the company has not paid for the ore that they delivered. The company has only made promises to pay, but they have not kept their promises. We are completely bankrupt. On top of all this, they are creating a breakdown and destruction in the area – in so many ways destroying the environment. They come to take away precious metals and leave us wearing rags. By now the curbs should be made of gold.” According to the former mayor, Mario Lazo, “Greenstone tricked the population with this work stoppage that they said was to restore equipment. They have a high level of responsibility for this local economic deterioration.”

Growing Defiance and Support for Small-Scale Miners:

During the lengthy shutdown period, the small-scale miners finally took action on July 29th, 2000 and approximately 400 of them occupied Cerro Mojón where Greenstone had its operations. This occupation lasted for 9 1/2 months, during which time they extracted ore and processed small quantities for subsistence, using mercury. The traditional *rastras* to process the ore once again began to appear in La Libertad, like dinosaur machines being resurrected, but now they had a new symbolic significance, representing independence and defiance. By August 2001, there were five *rastras* operating in La Libertad once again, each capable of processing approximately two tons of ore per 24-hour period. The *rastras* had reappeared as a result of the crisis, offering a business opportunity for their owners who rent them for C\$500 (US\$37) per 24 hours and a processing option for small-scale miners.

This crisis, while it affected many sectors of the community, also resulted in the creation of a unifying consensus on the importance of small-scale mining to the stability of the local economy. When interviewed, the former mayor, Mario Lazo, himself a cattle-rancher, named small-scale mining as the number one pillar of the local economy. This realization led the present municipal council to pass an ordinance in support of the right of small-scale miners to operate *rastras* on their own properties.

The former president of COOPEMILICH, Darwin Kauffman, spoke of the importance of the small-scale min-

ing sector nationally. “Conservatively speaking there are about 10,000 small-scale miners in Nicaragua and we can conservatively calculate that each of these miners produces one gram of gold per day. The result is 322 ounces of gold per day, worth US\$86,296. In 250 working days per year, the final result is more than US\$21 million. These 10,000 heads of families have found this way to maintain their families for 2 or 3 generations, without any economic support and with a law that does not benefit them.” In this discussion, the question arose how much more would be possible with this sector, if investment and training were available and then the rhetorical question of whether the government would support these families if they were no longer permitted to mine.

The municipal ordinance in favour of small-scale mining shines a small light of hope for this sector in an overall national political context (as represented in the recently revamped Mining Law) that practically leaves small-scale mining out of the picture. The Mining Law was most criticized for the increased and near-complete power it gives to the owners of the concessions, many of whom are foreign investors. It was only as a result of persistent lobbying that small-scale mining came to be included in one of the law’s articles, in which they are granted the right to use 1.5% of any concession. It is, however, the exclusive right of the owners of the concession to determine the conditions and parameters for the use of that small area.

The Rastras Return:

Mining companies argue that the law makes them responsible for any environmental destruction that occurs within the concession and for this reason, they cannot permit the re-establishment of *rastras* that could result in mercury contamination. This environmental argument was used when Greenstone first came to La Libertad, to justify dismantling the *rastras*. The community, now having suffered from the impact of that first agreement and having witnessed the extreme environmental damage caused by the company’s open pit operations, is much less receptive to this argument. The municipal ordinance is the one legal defence that is now being exercised by the small-scale miners to defend their right to operate *rastras*. DESAMINIC’s need to maintain good community public relations is the other factor that could work in the small-scale miners’ favour.

In contrast to the *rastras* dismantled in 1995, some of the new ones being built are now incorporating considerations for environmental protection, making use of filters and settlement tanks where any escaped mercury can be captured and recovered. These *rastras* are also located a good distance from water bodies that could be affected. This is not true of all of the *rastras* but there is pressure amongst the small-scale miners to improve their image as contaminators of the environment and they express an interest to learn better practices and their need for financial support in order to implement these improvements.

The *rastras* are not seen as a long-term solution but as experience has taught them, neither are the foreign companies. Those interviewed point out the possibilities of devel-

oping the small-mining sector into a business that could operate alongside the mining company. This would require the small-scale miners to have their own concession with primary and secondary veins and the technology to process ore containing an average of 4 to 8 grams of gold per ton. It’s calculated that a secure livelihood could then be assured for 150 to 200 families in the La Libertad area. According to Darwin Kauffman, former president of COOPEMILICH, “the logical progress of the cooperatives is to become their own businesses but this will also imply an internal process of purification. Not everyone will be able to be a small-scale miner because things will have to be viewed from the perspective of a business.”

Environmental Concerns:

One of the main environmental concerns expressed regarding the mining company’s operations was the silting of the river as a result of the great movement of earth at the open-pit site and the resulting erosion, particularly during the rainy season. Javier Ocón, the new vice-president of COOPEMILICH, estimated that each of the eight leach-pad cells in the mine’s open-pit operation holds between 120,000 and 140,000 tons of ore, piled up over 8 metres high. When the mine is working at its normal pace, 7,000 tons of ore are processed per day, extracting approximately the same number of ounces of gold per month. The other product is the approximately 7,000 tons of sterile material that is dumped daily by the trucks. Mario Lazo, the former mayor, described the resulting view in this way, “there use to be cattle ranches there but now there is a great deal of sterile waste materials from the mine. The panorama which used to be pastures is now a view of waste.” According to Javier, the micro-dams that have been built to retain erosion are not enough to control these large movements of soil, especially during the rainy season. As the river fills, it has gradually become more like a muddy ditch.

La Libertad is a community that has always had water in generous supply. Greenstone, however, located its open-pit operations only three kilometres from the source of the Mico River, which is the most important river in the zone, flowing into the Rama River, which passes through several municipalities on its way to the Atlantic coast. Subterranean water supplies are also threatened as the open-pit operations reach greater and greater depths. The original elevation of Cerro Mojón (380 feet) has been reduced by more than 150 feet with the open-pit operations. There is concern that as the extraction continues to deepen, they will reach a level below that of the river. At the present rate of extraction, some predict that within the next 15 to 20 years there will be no more water. It was only 20 years ago, after all, that people can remember there were still forests and a distinct climate.

The huge pit that will be left behind once the mining operation comes to a halt is also a major environmental concern. The high school students that were interviewed said that Greenstone’s reforestation efforts, in their opinion, haven’t come close to restoring what has been lost in the deforestation that’s been carried out or addressing the dry-

ing up of the Mico River. They talked about the animals that have disappeared, the change in the climate, and the topsoil that's been removed that limits the recovery of plant life that can occur. The community has had few of these environmental concerns addressed while the company points its finger at them for their environmental practices in the use of the *rastras*, as well as in their method for cheese-making.

Now with DESAMINIC:

DESAMINIC, the new owner of the concession since May 2001, inherits this history and the legacy of Greenstone's short life in La Libertad. Following on the experiences of the last few years, many people in the community are calling for community consultations to be held between the administration of the mining project and the local population. The Municipal Environmental Commission and the Development Committee are two groups that hope to be involved. The new start-up of the mine has been gradual and cautious, without any of the fanfare and hype that characterized Greenstone. At these early stages, there has already been a cut in personnel and a cut in salaries, and the level of gold recovery has not yet been very favourable. As of April 2002, only three out of eight leach pads were being used and about 3,800 ounces of gold were being extracted per month. So far, the mine is barely working at 50% capacity.

While it is not clear exactly who the owners are of this new company, there is a notable presence of familiar faces that were part of Greenstone's operations, particularly Tom McGrail who is a pivotal figure, trouble-shooting and flying between the two communities and managing the mining operations in both La Libertad and Bonanza, where he resides. Randy Martin, also formerly of Greenstone, is commonly held to be one of the major investors in this new venture, with US\$55 million quoted as the amount of his personal investment. The other shareholders are believed to include the McGregor family and several companies with whom Greenstone had amassed large debts that were being paid off with shares in this new company. These companies* include: Nicasen cement company; Lamberg drilling company; Siibory drilling company; Jansan construction company; Meco-Santa Fe (a Central American consortium supplying heavy machinery) and Nimack, which is a US importer of heavy machinery. It is also believed that IMINSA (Nicaraguan Mining Investments, S.A.), which brings together investors from the various mines and was formed when the mining sector was privatised after 1990, also has shares in DESAMINIC.

The BEMILASA Gravimetric Plant:

The most recent development in the mining operations in La Libertad has been the reconditioning and start up of the old Los Angeles plant, under the name of DESAMINIC's affiliated company, BEMILASA (Beneficio Minero Los Angeles, S.A.). This is a gravimetric ore processing plant for high-grade ore containing at least 8 grams

of gold per tonne, promising a recovery rate of 85%. This is being presented as a solution for the small-scale miners. They, however, have many reservations and suspicions with respect to this proposal. They are concerned about the high processing fee of US\$37.50 per tonne and the limited capacity of the plant to process only 1,200 tonnes per month. The small-scale miners are also concerned that they will only be able to process high-grade ore and will have no way to process the lower grade ores which they will also necessarily be extracting.

It is believed that BEMILASA represents a personal project and investment for Tom McGrail and there is concern that the plan is to use the participation of the small-scale miners to activate the plant and to attract investment, and to then push the small-scale miners aside as the company itself begins to extract high-grade ore and uses up the capacity of the plant. The small-scale miners also see this as part of a plan to bring about the disintegration of COOPEMILICH. They have noted that Tom McGrail prefers to deal with individual small-miner collectives rather than the cooperative, and in this way convert them into salaried workers. According to the former president of COOPEMILICH, this is what was done in Greenstone's operation in Panama.

Seven Months Later...

Seven months later in the home of Amacio, Tomasa, his wife, is doing some extra cooking in the evening, and the air is filled with eye-watering smoke as she cooks indoors on an open fire, to save on propane. She is making pastries to sell the next day at the neighbouring school where she teaches. Their twin daughters wait eagerly to sample the pastries and I can tell that they could eat many more than what their mother has permitted them. There is a need to bring some extra money into the house. Amacio left months ago for the Atlantic coast to sell gold jewellery on commission. On the other side of town, the dwindling membership of COOPEMILICH is meeting to discuss the BEMILASA proposal and to consider what traps might be lying in wait for them there. A new executive has been voted in and Darwin Kauffman, the former president who was the negotiator for the cooperative throughout the Greenstone period, is now managing the BEMILASA plant. While a few consider him to be a traitor, most accept that each person must do what's necessary to support their families.

The End of the Party:

It's the end of the party with Greenstone, and while the Canadians have taken away approximately 300,000 ounces of gold in the few years that they operated in La Libertad, the community has been left reeling in the aftermath. Their disappointments and frustrations encompass a vast array of short and long-term problems, both environmental and socio-economic.

Difficult lessons have been learned at a great price. One outcome is a renewed and strengthened pride in the people's

* The spelling of these company names may be incorrect as they were transcribed from taped interviews without the support of written documents to refer to.

identity. In the central park in La Libertad, there are two new statues – a cattle rancher and a small-scale miner. They’ve appeared with the resurgence of the *rastras* and proclaim the same defiant message that these are the community’s roots, its identity, its security and its base for development. People speak of a resistance to any future efforts to have these traditions “disappeared”. The commu-

nity’s leaders now talk about a struggle for more than a commercial relationship of buying and selling but also one that addresses the social aspects that are contemplated in the Mining Law. They speak of relationships that are defined in different terms to make these changes possible and to bring greater dignity to their work. With time to shake off the haze of the party, a new clarity has emerged.

Photographs – Bonanza



Road by the market in Bonanza.



Truck carrying sacks of ore of the small-scale miners to HemcoNic's processing plant.



Children playing on Bonanza's main road, close to the market.



Oxidation lagoon for cyanide waste solution discharged from the HemcoNic plant. The pipeline brings it in at 153 ppm cyanide.



Poison sign marking oxidation lagoon.



Open cut excavation of the Atlas vein at HemcoNic's mine site.



Heavy machinery excavating the Atlas vein at HemcoNic's mine site. Erosion and chemicals from the machinery contaminate water sources for communities below the site.



Entrance into underground mine at HemcoNic's mine site.



Small-scale miner with tools of his trade, returning home at the end of the day.



Home of a small-scale miner.



Housing built for miners working for the Neptune Mining Company.



Women extracting ore from a riverbed.



Mine site of the Neptune Mining Company. This site is still being worked by small-scale miners.



13 year-old boy extracting ore from this horizontal shaft. Notice that there is no wood reinforcing of tunnel walls.



Marlene Chavarria is the owner of an extraction plant and contracts men to do the extracting. She is accumulating sacks of ore and must purchase processing rights from small-scale miners that belong to cooperatives that have contracts with HemcoNic.



Manual ore-processing using "molinetes" for high-grade ore.



DPM ore-processing plant. Gold-rich ore is shovelled into this hammering mill for crushing and mixing with mercury.

Ore that is finely ground is washed over this mercury-coated trough where a gold-mercury amalgam scum accumulates on the surface.



Trough coated with mercury, connected to the hammer mill at the DPM processing plant, Bonanza.



Woman from Río Blanco. She and her six children live on the 10 córdobas (less than US\$1) per day that she earns from extracting gold from ore, using these "molinetes". She must pay 10 córdobas per pail of ore that she processes. She says that the conditions here are better than in Río Blanco.



At the DPM chemical shack, nitrous oxide is used to remove the silver from the gold.



Gold that has the mercury burned off ("refogar").



Illustrating the retort used to capture mercury vapour and to carry it into cold water where it again becomes liquid and can be recovered and reused.



Gold and mercury amalgam before the mercury is removed. DPM, Bonanza.



Rafael Gutierrez Baez of the small-scale miners cooperative, MINARBON (Minero Artesanal Bonanza), Bonanza.

Photographs - La Libertad



Main street, La Libertad with a view of the open-pit site on Cerro Mojón in the background. This is the only surfaced road in La Libertad.



Muddy, typical road in La Libertad.



Close-up of cyanide sprinkler system on heaped ore.



Cerro Mojón mine site.



Erosion from Cerro Mojón site causing silting of Rio Mico.



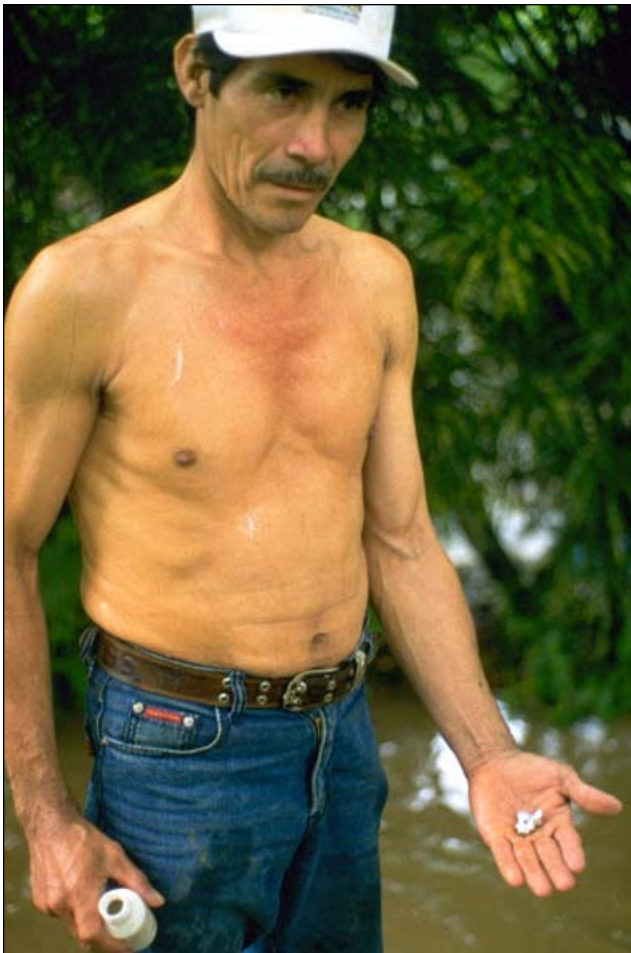
Silting of Rio Mico from erosion upstream at mine site and dumping of waste material.



Processing high-grade ore using a "bolillo". Mercury is added to the finely ground ore.



Processing high-grade ore using a "bolillo". Mercury is used to draw out the gold from the finely ground ore.



José Antonio Martínez with an amalgam of mercury with gold. Contains about 20 grams of gold. He extracted 2 grams of gold from 5 lbs. of ore.



Placing the finely ground ore into a container to mix it with mercury and water.



Amalgam of mercury with gold.
One ounce of mercury was used to extract this ball containing 20 grams of gold.



One of five new "rastras" – traditional milling equipment.



Grind rocks of a "rastra", grinding ore fine and mixing it with mercury. Rocks are lifted when the process is completed and the amalgam of mercury and gold is scraped from the rock floor.



Feeding ore into the "rastra".



A traditional ore-processing "rastra", grinding high-grade ore.



Manual smashing of ore before it is shovelled into the "rastra" for grinding.



Child manually smashing the ore to reduce the time needed to grind it in the "rastra".



Jewellery-making workshop in La Libertad. They would buy the gold extracted at the "rastras".



Workers in the jewellery-making workshop, La Libertad.



Centro Humboldt local representative and former mayor Eugenio Pao with his daughter.
Bonanza, Nicaragua, August 17, 2001



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