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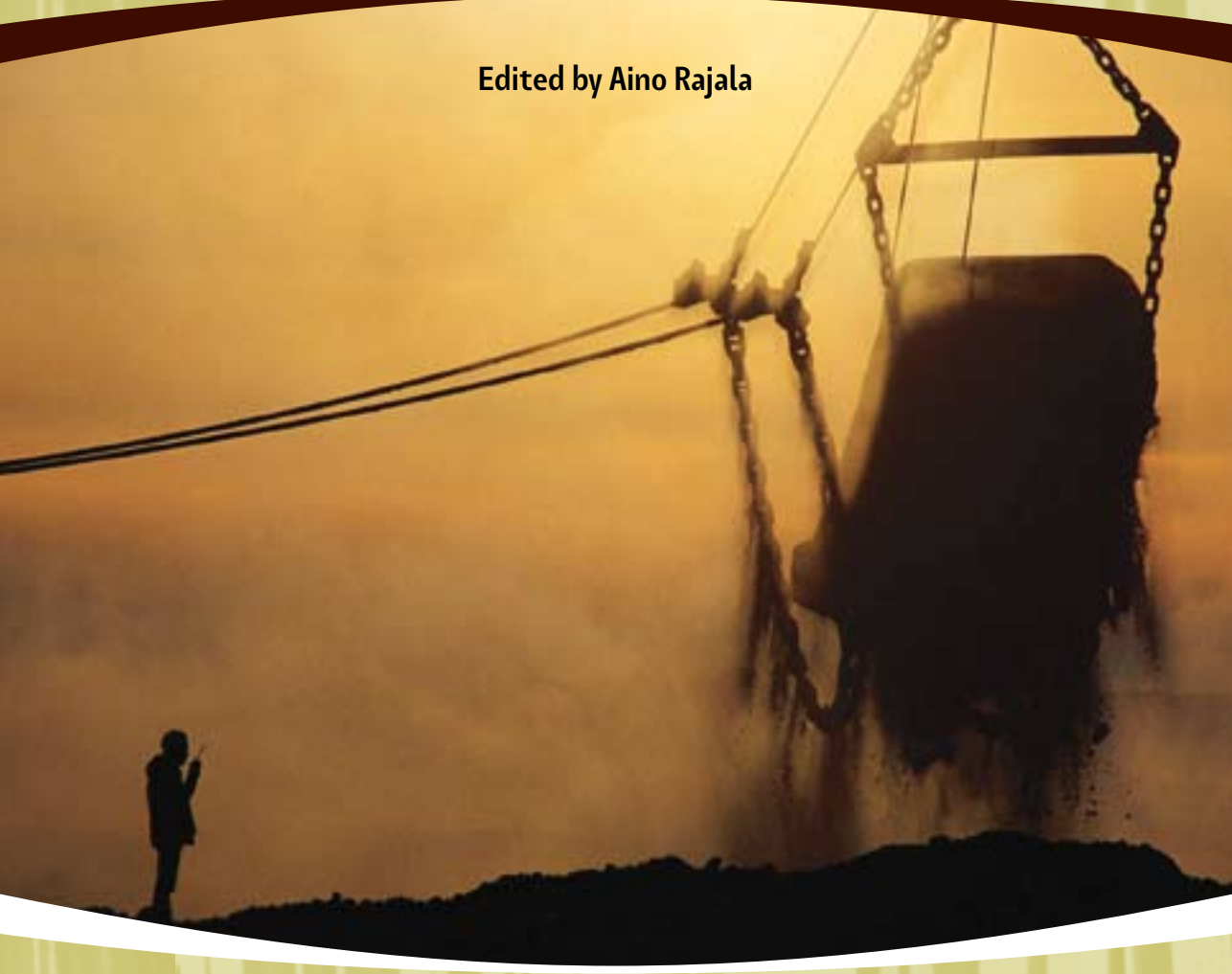
Edited by Aino Rajala



Enriched or Impoverished?

Environmental Accounts about Mining in the Global South

SIEMENPUU PUBLICATIONS 1

Enriched or Impoverished?
Environmental Accounts about Mining in the Global South

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PART II MINES, CONSUMERS AND CITIZENS

Prologue

I am writing this on my office computer with my mobile beeping next to me and a silver necklace hanging around my neck. The office is warm and bright.

Mining products are all around us – in consumer products, energy production, electronics. Most frequently the mining products that we use come from developing countries. What exactly do we, environmentally-aware citizens, know about mines in the South? And more importantly, what should we know?

This publication from the Siemenpuu Foundation enlightens us on a topic that often seems to be ignored in Finland. Part I comprises six case studies from the Philippines, India, Zambia, Malawi, Indonesia and Peru. In the case studies, local NGOs tell us about mines, whether existing or planned, and about their influence on the environment and on people. These organisations are partners of the Siemenpuu Foundation, and have recently implemented mine-related projects with the foundation's financial support. Key members of the organisations, whose ideas and enthusiasm fuel the projects, are also profiled in these chapters.

These examples remind us of the immense destruction that mines can cause. Forests are cut down, water gets polluted and people must be uprooted to create room for the mines. At the same time, however, these examples reveal a range of possible solutions. An Indian environmental NGO took legal action against the state for handing out illegal mining permits, Peruvian media activists made a movie on anti-mining campaigns and a civic movement in the Philippines educated local people to monitor the environmental performance of a nearby mine.

Part II looks at how we as consumers and citizens can influence choices about mining. Finnish activists and researchers discuss how our daily choices link to Southern mines. Satu Lähteenoja and Michael Lettenmeier calculate the ecological footprint, or baggage, of mining products. Päivi Pöyhönen walks us through the production chain of

the metals used in consumer electronics. Olli-Pekka Haavisto introduces some Northern NGO campaigns attempting to affect mining conditions in developing countries. Finally, Aleksi Neuvonen discusses the options people in the industrialised countries have for changing mining and the ethics surrounding it, as well as adding a few words on the future of consumerism.

This publication opens the Siemenpuu Foundation's series of thematic publications, which will comprise annually published reports on various developmental and environmental themes. The role of the Siemenpuu Foundation as a funder of environmental projects gives at a broad perspective on the environmental work done in different parts of the South. We wish to make this experience and the stories of these activists accessible to the Finnish public. ■

Aino Rajala

Aino Rajala

Mining north and south

A short introduction to mining and its problems

What type of social and environmental hazards do mining create? How are these problems shared between the industrialised and the developing world?

Mining is among the world's oldest industries: for thousands of years, the earth's crust has been penetrated in search of non-renewable natural resources. This has always caused environmental damage to a certain extent, but today's advanced technology, combined with heavy machinery and the use of chemicals, is causing unprecedented damage. The mining industry can never be completely sustainable, but the question we must ask is how do we minimise the harm?

There are two main types of mines: underground mines and opencast or open-pit mines. Nowadays approximately 60% of the world's mines are open quarries. Technological developments in the latter part of last century made possible the transfer of greater quantities of gravel and earth, paving the way for larger open mines than ever before.

Open mines generally cause more environmental damage than underground mines. Vast areas of land must be cleared of all vegetation before the earth's crust can be penetrated and quarrying started. The direct environmental impacts of underground mines are more local, since the mining is done in tunnels. On the other hand, safety is poorer because of the risk of cave-ins and bad air quality.

The mining industry is a large-scale producer of waste

Mining waste is one of the biggest environmental problems associated with mining. The mining of minerals produces large amounts of valueless stone which is separated from the minerals and stored as waste. The waste consists of blocks of stone, gravel or fine stone powder. A substantial part of the environmental baggage of mining is simply caused by these huge amounts of waste. One single kilo of

mined metal creates tonnes of waste, which require vast areas of land for replacement. Sometimes this waste is dumped directly into water courses, such as rivers, where it damages ecosystems and causes sedimentation and flooding. In underground mines it is possible to return the waste stone back underground, which diminishes the waste problem considerably.

In some cases the waste stone is toxic and has to be stored as toxic waste. The most widely known example is the radioactive waste from uranium mines. But even non-toxic waste stone can gather acids and heavy metals when it is exposed to conditions above ground. These toxins can wash into water systems and seep into groundwater. These problems are extremely long-lasting. Some of the mines that were functioning during the Roman Empire are still polluting the environment today.

The chemicals used in the enrichment of raw ore also create serious environmental problems. The most well-known are quicksilver and cyanide, both of which cause substantial problems when released into the environment. Mines also create air pollution such as stone dust and different types of gases.

The products of mines in developing countries seldom benefit the surrounding communities. In an iron ore mine in Barbil, India, the local indigenous people gather the excess ore falling from a transport vehicle.

Picture by Kai Vaara

Responsible mining is possible

There is a lot that can be done to prevent hazards caused by mining. For example, toxic waste can be avoided if there are adequate resources for proper environmental programmes. Some mines take reasonably responsible actions.

The biggest defect is the huge gap between environmental responsibility and consciousness in industrialised and developing countries. The mines that function responsibly are mainly found in the North, thanks to good resources and technology, tight legislation and environmentally aware citizens.

The most serious damage is generally caused by mines in developing countries. Environmental laws in the South are less developed and the implementation of these laws is in most cases not nearly as conscientious as in the North, leaving the mining companies more space to manoeuvre. For example, where there is no appropriate legislation for the handling of mine waste and environmental management after a mine is closed, the mining companies may neglect these issues altogether.

The same goes for the rights of local communities. Mining companies find it easier to obtain mining permits in the South than in the North, where the law gives locals a say before any mining operations begin. The well-informed people of the North also have completely different opportunities for defending their rights than the people of the South who often lack formal education. The situation is worsened by the fact that most of the mineral finds in developing countries are located on indigenous peoples' land. Unfortunately, it is common for local communities not to be given enough information about the planned mine and they can be forcefully moved elsewhere to allow the mine to proceed. Sometimes they don't even receive adequate compensation for the loss of their land.

Is mining a poor country's gateway to wealth?

The governments of many developing countries are positive about mining projects launched by foreign companies due to the fact that they bring foreign investment and a badly needed injection of foreign currency reserves into these economies. Few consider whether or not mines automatically benefit the poor countries who host them.

Research shows that mining creates more problems than it solves. The developing countries that are rich in mineral resources are still among the world's poorest and their economies are growing at the slowest pace. In comparative studies of developing countries, standards of living and economic growth in countries exporting mining products

compare poorly with those countries with no mineral resources. For example Zambia, Niger and Peru are dependant on the mining industry, but they nonetheless all score highly on the poverty index.

One reason for the widespread poverty in these countries, despite the profits earned by the mining industry, is the industry's sensitivity to economic fluctuations. The economies in many developing countries rely heavily on the mining of a single mineral, thus price fluctuations on the world market shake the entire economy of the country. This is the cause of poverty and debt in many mineral-dependent countries.

Poor governance and corruption are other factors blocking local citizens' access to mining profits. Loopholes in taxation and weak taxation policies commonly mean that the host country is left with a mere fraction of the profits gained by the mining company. In a corruption-ridden country, even the smallest of tax resources rarely find their way into the pockets of the citizens, not to mention returning to the people living in the mining communities.

Companies, regulators, funders and consumers

Mines cause a lot of harm, but on the other hand, mining products are needed on a continuous basis. Who is responsible for the problems that mining causes and what should be done about the consumption of mining products?

The fact that we need mining at all stems from the technology, economic systems, business procedures and consumer habits of the industrialised countries. This is why it is not up to developing countries alone to solve the problems. A heavy responsibility lies with the mining companies that often function in different countries with different principles. Influencing individual companies has sometimes proven successful, but international co-operation is also important in order to create consistent regulations for the mining industry so that the problems it causes can be controlled. International financial institutions have a crucial role to play: the environmental standards of the World Bank, the International Monetary Fund (IMF) and the regional development banks influence the conditions of mines in developing countries to a great extent. The United Nations is currently reforming these standards.

According to consumer statistics, mining products are flowing from developing countries to the North: industrialised countries consume about 75% of the world's nine most important minerals. For example, an average American consumes around 22 kilograms of aluminium per year, whereas his Indian counterpart consumes 2 kg, and his Af-

rican equivalent only 0.7 kg. Also, China's share in mineral consumption is growing enormously.

It is clear that the consumption of mining products must be moderated. And, if the industrialised nations cannot function without mined products, they must at least recycle the products more effectively. Metals are ideal for recycling because their qualities stay the same even after numerous cycles of use. The most responsible mining companies are the ones that focus on recycling minerals and lengthening their lifespans instead of mining new minerals. ■

The author is a member of the Siemenpuu Foundation's representative body and a development co-operation activist in a Finnish NGO called Dodo.

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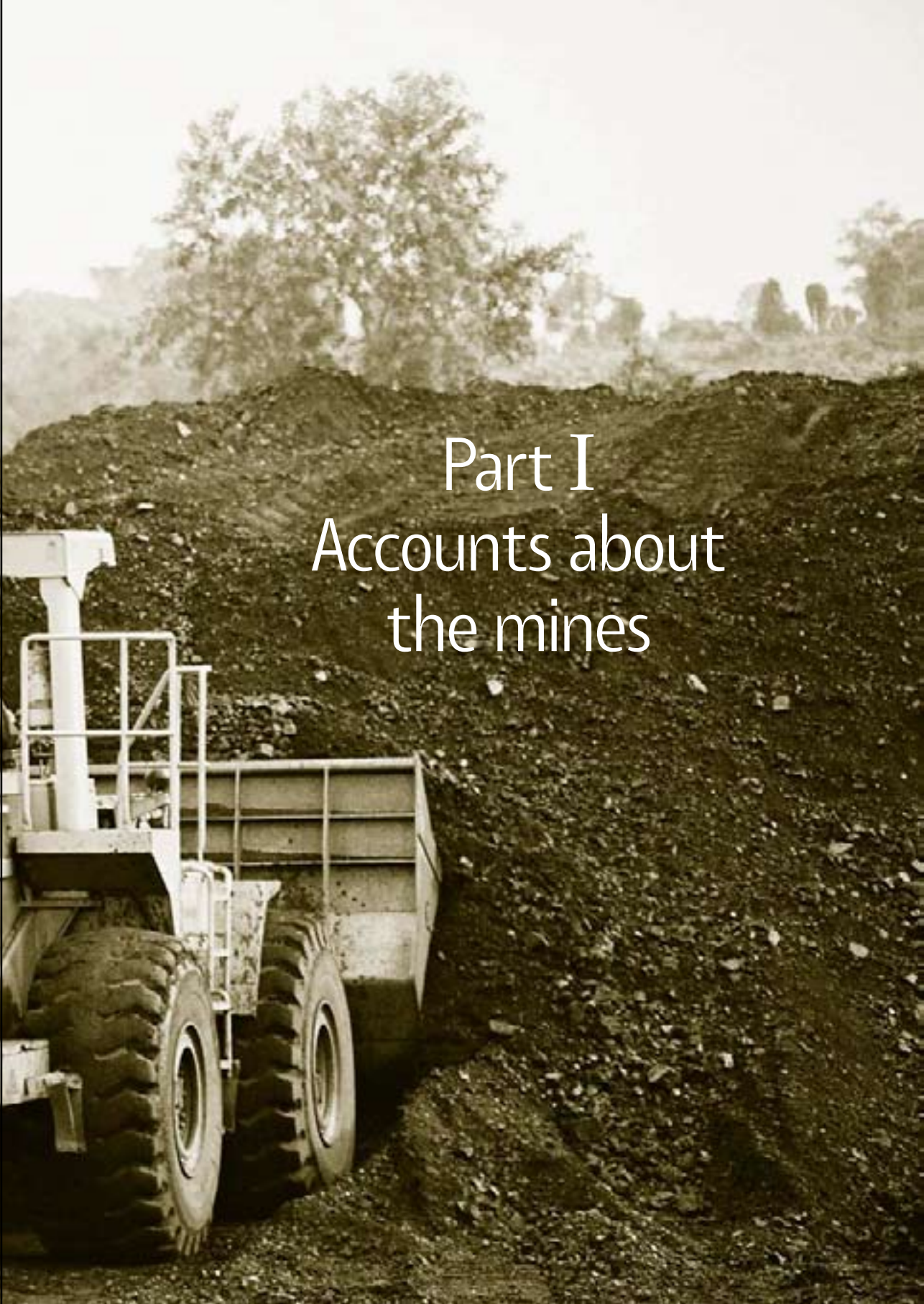
Finland is a developing country when it comes to mining laws

In general, the mining laws in industrialised countries are more advanced than in developing countries. However, Finland is an exception to the rule: the country's mining laws are seriously outdated. A law dating back to 1965 gives generous liberties to mining companies digging for ore. There are only a few rules and regulations about searching for and reserving mineral rich areas: for example, companies are permitted to reserve an area only 50 metres from a residential building. The law does not provide local communities adequate access to information about mining projects and people's options for influencing them. In some places the law contradicts environmental legislation.

Finland's mining law is undergoing reform. A working group assigned by the Ministry of Trade and Industry is currently drafting a proposal for a new mining law. The work has been slightly delayed, but the deadline for the proposal is the beginning of 2008. In the autumn of 2008, various stakeholders will be asked to comment on the draft and parliament is due to discuss the law at the beginning of 2009. It could come into force in 2010.

Picture by © International Labour Organization / K. Cassidy



Part I
Accounts about the mines

The Abra River is located in Cordillera in the northern parts of the Philippines, an area rich in mineral resources.

Picture by STARM

Ana Leung

How to save the Abra river?

The mountain region in the Philippines suffers from the toxins produced by the gold mine

The common situation of abundant natural resources side-by-side with poverty is particularly marked in the Abra River region of the Philippines. For decades, a large gold mine has been damaging local livelihoods and polluting this important river. Today, local people monitor the condition of their environment as members of an active civil society movement.

The mining industry has a long history in the Philippines. Small-scale mining has been practised for at least a thousand years, whereas large-scale mining was introduced to the country a century ago. The Cordillera region in the northern Philippines is particularly rich in mineral resources. The mountains of the region contain a substantial part of the country's gold and copper resources. Despite the vast mineral resources, the mountains' inhabitants remain poor. Most of the population are indigenous peoples whose main livelihood is agriculture.

The situation has not changed since the Philippines was a colony, first of Spain and then of the United States. Now it's the central government's turn to treat Cordillera as a reservoir for raw materials. The benefits are rarely seen by local people: most of the roads in the region are rocky paths, hospitals are understaffed and schools are inadequately maintained

Gold fever in the Abra River

The Abra River is one of the largest river systems in the Philippines, flowing through four northern provinces. About 197,130 people live along its banks. Historically, the Abra River functioned as a channel for trade and cultural exchange between the communities in the mountains and the lowlands, as well as between traders from the Philippines and other Southeast Asian countries. Nowadays, the indigenous

peoples and the people living in the lowlands depend on the river for irrigating crops, fishing, small-scale mining, transport, washing and refreshment.

Large-scale mining began upstream in the Abra River when the price of gold rose in the 1930s and a group of American ore prospectors founded The Lepanto Consolidated Mining Company. The company, along with its mines, was based in the city of Mankayan and has been attracting miners from throughout the Cordillera region ever since.

When the Lepanto mine began functioning in 1936, it released all of its waste upstream in the Abra River. It wasn't until the 1960s that the first waste dam was built to collect the mining waste. Many dams have since been built as previous ones collapsed and polluted the nearby rice fields. Mining waste has also caused sedimentation in the river and this has lowered the riverbed.

The river retains toxins from several decades

One of the gravest problems surrounding Lepanto, and mines in general, are the toxins that are formed in the waste stones. When the stone is exposed to air and water, a chemical reaction creates sulphuric acid that dissolves the heavy metals in the stone. The acid and the dissolved heavy metals – quicksilver, lead, arsenic and copper – are washed away by rain water into the river and groundwater.

The acid is poisonous to plants and other living organisms. Heavy metals accumulate in plants and enter the food chain, ultimately being consumed by humans. They can cause different types of skin diseases,

The water quality of the Abra River is monitored on a continuous basis. Researchers, activists and local people are involved in monitoring groups organised by the Save the Abra River Movement.

Pictures by STARM

cancer, and liver and kidney failure.

Another concern is cyanide, which is used by the mine in order to ensure that 97% of the gold is extracted from the ore. According to some reports, Lepanto uses up to 3,000 kg of cyanide every day. Even though the waste water is cleaned, high levels of cyanide still leach out into surrounding areas. Cyanide is extremely toxic and long-term exposure to even small amounts can cause heart and brain disorders in people.

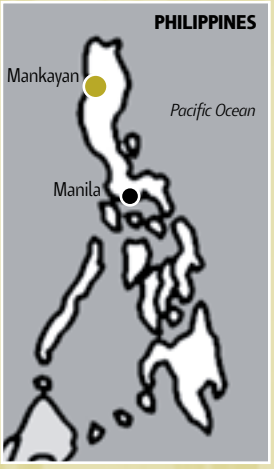
A health survey conducted in 2005 showed that the levels of cyanide, lead and copper in the bloodstream of people living close to Lepanto were much higher than those of people living further away.

The mine threatens traditional livelihoods

Old people tell us that the numbers of shrimps, eels and other aquatic organisms have decreased. The numbers of fish have also declined. Fishermen from the Abra River have noticed skin disorders and other abnormalities in the fish. Dead fish float downstream every year during the rainy season. Numerous cows, water buffaloes and other domestic animals have also died after drinking water from the river.

Communities downstream complain of weakened crops. Rice stems are malnourished and sick. The amount of land suitable for farming has diminished because of floods of sludge and mining waste during storms. On other occasions the sludge has hardened into a cement-like mass, making it impossible to cultivate rice.

- **The gross national product per person in 2006 in the Philippines was 5000 dollars.**
- **The Philippines' most important natural resources are wood, oil, nickel, cobalt, silver, gold, salt and copper.**
- **The Philippines exported 4,126 billion dollars' worth of minerals in 2005.**
- **There were 2,311 different sized mines in the Philippines in 2004.**
- **The mining industry is growing in the Philippines due to improvements in the operational environment for mining companies.**



What about indigenous peoples' rights?

The earth means life to indigenous peoples. It is more than merely the source of a livelihood. Their ancestors have been buried in ground that has been handed down from generation to generation. Social structures and cultural traditions are connected to the land. When the land is taken away or polluted, indigenous people lose their unique lifestyles.

The land surrounding the Lepanto mine used to belong to indigenous people. The American colonialist government systematically rejected the requests of the indigenous peoples to keep their land by referring to numerous different laws. A law enforced in 1902 gave the United States government the power to declare all the land of the country as its own. The land registration law of 1905 limited land ownership so that in order to become the legitimate owner of a certain plot of land, one had to be able to present a written document approved by the government. The mining law of 1905 stated that all of the country's land was to be made available for ore prospecting.

Picture by STARM

Activist profile: **Ana Leung**

"My mother comes from the province of Abra. She used to tell me stories about how it was to play by the Abra River. I grew up in Manila so for me coming to work with the Abra River has been like returning to my roots," explains Ana Leung when describing her environmental activism.

Ana Leung has worked for a long time with the Save the Abra River Movement (STARM). She is a medical doctor by background and teaches at a university in Baugion. After getting involved in a project exploring the long-term effects of mining on the health of local communities, she came across STARM and became their spokesperson. STARM is a network of mainly volunteer activists consisting of researchers, church groups, environmentalists, students and local inhabitants. With financial support from the Siemenpuu Foundation, the network has organised groups to monitor water quality. The monitoring groups consist of both researchers and "barefoot biologists" from the villages on the river banks. The rationale of this monitoring is that the condition of the environment should be under constant analysis, not just through specific projects. The groups have analysed water samples to measure levels of toxins and reported conditions in various parts of the river. They have also monitored the health of local people.

Ana thanks the local communities for their co-operation: "I am extremely proud of the work that STARM has done. The backbone of the move-

Today, Philippine law recognises the rights of indigenous peoples to their ancestral land. But at the same time, the government is emphasising enhancing large-scale mining activities. This pro-mining policy is being supported by the World Bank and foreign companies which are searching for new investment and profit-making opportunities in developing countries.

A 1995 law permits foreign companies to mine for ore in the Philippines for 25 to 50 years. It is currently easier for foreign investors to apply for mining rights than it is for indigenous peoples to protect their land. The law states that a mining permit can only be obtained with the consent of the indigenous people, but this rule has often been broken through bribery or the threat of violence. The government's department of environmental and natural resources has often contradicted itself by acting on behalf of both the mining industry and at the same time implementing environmental policies.

ment is the people and communities of the Abra River who have done a great job. Their observations and practical information about this river form the foundation for the research and campaigning of STARM". Apart from research, STARM also works on spreading information in the Philippines. The members of the movement speak about problems facing the river at various events and in the media. In addition to the general public, the movement also distributes information among local communities and has published news pamphlets in the local Ilocano language.

This effective information work has also reached the mining company Lepanto. "Initially the company looked at us with great suspicion. They even questioned our research results. But as soon as STARM began to gain publicity, their attitude changed. Lepanto became concerned about the image of the company and started cleaning its sewage water. Small-scale improvements were even noticed in the villages, but unfortunately the changes were merely temporary." Ana fears that if STARM disappears from the headlines, Lepanto may start polluting again as it did before. STARM also works together with the local government of Cordillera. "The local government seems mostly to agree with us, since the officials know the area well and some of the problems affect them as much as they do the local people. However, they are unable to affect national level policies."

"This is a tedious battle because promoting the mining industry is an important priority for the government of the Philippines. But there is still hope because more and more people are becoming aware of the problems caused by industrial mining."

Aino Rajala

→ www.abrenian.com/starm

Environmental destruction is not accounted for in profit margins

Lepanto boasts that their mines are crucial to the economic development of the Philippines. The company is the largest producer of gold in the country. Yet, their workers are barely paid the legal minimum wage. And worker health and safety are not always guaranteed. The company's profit calculations are not valid because they do not account for ecological debt, which is calculated from the losses caused by the industrialised countries' unsustainable use of natural resources in developing countries. All of the environmental and other damage caused by Lepanto since the 1930s should be added to the negative side of the balance sheet.

The inhabitants of Cordillera have not stood by while the mines destroy their river. They have come together into civil society movements, one of which is the Save the Abra River Movement. The Lepanto miners' union has also been active. As long as Lepanto continues mining, there will be active civil society movements and information work along the banks of the Abra River. ■

The author is a spokesperson for the Save the Abra River Movement in the Philippines.

- **Gold is a soft, easily worked metal that has been used for several millennia.**
- **Gold is one of the few metals that is found in its pure form as flakes or even chunks.**
- **Gold is primarily used for jewellery (75%), with the rest used for tooth fillings and electrical devices.**
- **The global annual production of gold is approximately 2.5 million kilos.**
- **Most of the world's gold is stored in vaults in state banks.**

Reinford Mwangonde

The long and short term aims of the campaign against mining

Uranium mining will start in Malawi

There is a disputed uranium mine project underway in Kayelera, Malawi. The mine is threatening to chase the local people from their homes and to pollute an important water course because the mining company refuses to negotiate more responsible actions with civil society organisations in the area. Long-term work to tighten environmental laws in the country is needed.

Who would want to live next to a uranium mine which emits radioactive dust into the environment? Not many. Such mines are being opposed in Western countries. But as the price of uranium continues to increase, mining companies are driven to find new sources, usually in developing countries.

Mining companies have only recently arrived in Malawi in Southern Africa but there are already several projects underway. The government welcomes uranium mines into this poor country. Traditionally, Malawi has lived off agriculture but world trade is not fair or equitable enough to allow an agricultural country like Malawi to become wealthy on farming alone. This is why the government is turning its back on agriculture and investing in the mining industry instead. Currently, it has handed out more than 20 uranium mining permits.

Mining projects have caused immense fear among the local people. Civil society organisations have made these concerns public. The disadvantages of mining uranium are well known: open mines spread radioactive dust, the radon gas from tunnel mines and the toxins from concentrate plants may travel far in the environment, causing medical problems and contaminating groundwater. The risks remain present for thousands of years.

The Rukuru River is an important source of household water for local communities.

Picture by Reinford Mwangonde

Clearing the way for the mine

An Australian company, Paladin Resources, is one of the numerous mining companies to be granted a permit. It will begin mining uranium in Kayelekera in Northern Malawi at the beginning of 2008. The Malawi government supports the mining project, but local communities are not so sure of the benefits. First of all, Paladin Resources is planning to chase people away from their land to make room for the mine. This forceful evacuation is possible due to the existence of vast areas of land governed under the traditional common law which has granted the locals the right to live on the land without actually lawfully owning it. Besides this, all of the land in Malawi belongs to the government and the President has the final word in deciding the fate of natural resources. All this means that local communities have no recourse for defending their land.

The compensation paid to local communities is inadequate since people are not paid for the land they have lost access to, only for lost buildings and agricultural equipment. The amount paid is usually minimal, a few dollars at most, and does not therefore assist the families in the long-term.

- **Malawi is one of the world's least developed countries, with an annual GNP per person of about 600 US dollars in 2006.**
- **The country's most important sector is agriculture, on which 90% of the population depends for income.**
- **Malawi's most important agricultural products are tobacco, tea and sugar.**
- **Her most important natural resources are chalk, uranium, coal and bauxite.**
- **The mining industry is new in Malawi and its importance to the economy is not yet significant.**

Besides this, Paladin Resource's lawyers have prepared a contract that contradicts the Malawi constitution by guaranteeing the company priority access to water and electricity over local people.

Environmental double standards

One fear is that the planned mine will endanger Kayelekera's water systems. The mine is situated along a tributary of the Rukuru River, which flows into Lake Malawi, one of the largest freshwater reserves in the world. The river and lake are rich in fauna, as well as being important sources of household water.

Civil society organisations (CSOs) in Malawi have expressed concern about the environmental standards of the country's outdated mining laws and have demanded that mining companies abide by stricter norms. However, Paladin does not find it necessary to apply the standards in Kayelekera that would be enforced in countries like Australia and Canada. The CSOs are concerned that this will lead to problems, especially when it comes to mining waste. If radioactive waste is buried according to regulations in the old legislation, the Rukuru River will be endangered. The government of Malawi refuses to recognise the problem because the mining companies have promised that there will be no negative side effects. However, it is a known fact that despite the strict environmental regulations in Australia, uranium mines have still had negative effects on the environment and the food safety of local people.

The government of Malawi does not score highly on mining issues in general. Even the mining permits are shrouded in secrecy and

the government has broken the law by not publicising information about mining projects. The CSOs of local communities have not been adequately informed about the development and implementation of mining projects, despite this being required by the law. Thus local organisations do not have an opportunity to influence the planning and implementation of mining projects. The fact that the government owns 15% of the shares of Kayelekera mines may be one reason they are withholding such critical information: it cannot bite the hand that feeds it. Nobody knows who is actually benefiting from the shares owned by the government and how the deal has influenced the mining permit. There are widespread rumours of corruption.

The myth of mining and wealth

The official rationale for the government to defend mining projects is economic growth. The government is suggesting that the economic

Activist profile: **Reinford Mwangonde**

Picture by CFJ

"I am no natural scientist. My environmental activism is rooted in human rights, I want to defend the rights of the most vulnerable in Malawi to a clean environment", says Reinford Mwangonde, Director of Citizens for Justice (CFJ). CFJ is mostly concerned with mining issues, the community responsibility of mining companies and human rights. Reinford has been the main driver of the organisation since it was founded.

"I want to challenge multinational companies and the government of Malawi with my work. There is still a culture of silence in Malawi after its dictatorial past. It is not common to stand up to the authorities. It is high time this attitude changed."

Reinford has a wide understanding of advocacy work due to his diplomatic background. He worked for the government of Malawi at the UN consulate in New York. In the future he plans to continue his work on a different level: "...it is highly likely that I will be working with politics in Malawi. I am an activist and I want to change this country through the political fora."

CFJ works as part of a network of other CSOs and its anti-uranium mine work is funded by the Siemenpuu Foundation. Currently, the most important issue the CFJ is working on is publicising some of the suspicious features of the Paladin Resources project in Kayelekera and resolving some of the problems. For example, in building the mine the company destroyed numerous places sacred to the Ngonde tribe. This was the final straw in turning local village chiefs against the mining project. To fix the mistake, Paladin hired the spiritual leader of the tribe to silence the complaints of the local people about the destroyed sanctuaries.

benefits of mining exceed the negative effects. According to Paladin Resources, the Kayelekera mining project alone will increase Malawi's GNP by 20%.

But this claim is not accurate. One needs only look at Malawi's neighbours, Zambia and Zimbabwe, to find evidence that rather than increasing GNP, the mining industry instead causes many social and environmental problems. One key risk for Malawi is the lack of an educated workforce, meaning that desperately needed jobs in Kayelekera will go to foreigners. If this happens the mine will not benefit the local communities in any way.

Even if GNP were to rise as a result of mining activity, this does not guarantee that Malawians' equality and social rights would improve or that poverty would be diminished. On the contrary, mining projects often increase income inequalities because the rich and powerful reap the benefits while the poor are left to suffer the consequences.

"Of course it worked", says Reinford, who is himself a member of the Ngonde tribe. "The spiritual leader, Mr Kaong, is a poor man who took the job offered by Paladin. He has a huge influence on the local people because he comes from an ancestral line of spiritual leaders and is believed to have witchcraft powers. Some are even afraid of him. This has led to a situation where only few villagers oppose the mining project since the rest respect Mr Kaong and his opinions."

Paladin's failure to respect local communities has encouraged civil society organisations to demand better management of the mining project. The organisations have attempted to co-operate with the mining company by suggesting norms that the Kayelekera project should follow. However, the mining company has attempted to interfere with the work of CFJ. "Paladin got extremely nervous once when we took an Australian photographer to the mining site. They called the police and soon we were surrounded by armed policemen who took us to the police station. The interrogations took four hours before they released us. It was terrifying", says Reinford.

Finally, the organisations decided to sue Paladin in order to push through their appeals for improved management of the mines. But pressure from Paladin and the government is breaking the united front presented by the civil society organisations. One by one these organisations have agreed to settle out of court, but it is unclear whether this is voluntary or enforced. Reinford, as the leader of CFJ, has become one of the key figures in the drama and he is getting worried by the situation. "I don't want to become the Ken Saro-Wiwa of uranium mines but if that is my destiny, my spirit will haunt those who shoved me into the front-line", says Reinford.

Aino Rajala

The struggle for reform

When it became apparent that the government of Malawi had issued a rushed mining permit to Paladin Resource, the Malawian civil society organisations launched a campaign for the responsible mining of uranium. With Citizens For Justice (CFJ) in the lead, a network of organisations was formed to influence the government and Paladin in order to promote environmental values and the rights of the people in the implementation of the mining project in Kayelekera. The organisations have also worked with international organisations, such as Australian organisations, in order to pressurise mining companies to take responsible action.

Paladin has rejected the organisations' claims and as a last resort the civil society network sued the mining company. The aim of this is to stop the entire mining project until the mining laws of Malawi have been reformed. Currently (November 2007) there is some confusion regarding the court process as the Malawian government and Paladin

The Kayelekera uranium mining project is a threat to the local water system. Pollution could make its way through the Rukuru River all the way to Lake Malawi, which is extremely rich in biodiversity.

Picture by Reinford Mwangonde

Paladin Resources has not listened to the people of Kayelekera in the planning of the uranium mining project.

Picture by Reinford Mwangonde

have caused division between those NGOs bringing the legal action. It is uncertain whether the issues will be solved in the court room or if the government and the mining company will be able to avoid the trial. One can only hope that reform of the outdated mining laws will continue regardless of the on-going court case, and that the legislation will eventually meet international standards. CFJ will keep working to decrease the damage done by future mining projects in Malawi. ■

The author is the director of a Malawian organisation, Citizens For Justice.

- **Uranium is a heavy, radioactive and chemically toxic element.**
- **Uranium is primarily used for nuclear power and nuclear weapons.**
- **Current uranium resources will last for decades.**
- **The largest known uranium resources have been found in Australia, North-America, Kazakhstan, Russia, South-Africa, Niger and Namibia.**

In Zambia mines have been opened and closed but post-closure environmental care has been neglected. The picture features a former government-owned copper mine in Lumwana which was first closed down, sold years later to a private company and then re-opened.

Picture by the Environment Authority of Zambia

Emmanuel Mutamba and Simon Mwamba

Copper, lead and community responsibility

The people and the environment within Zambia's mining history

In the 1960s Zambia was a middle-income country with one of the highest GNPs in Africa. Nowadays the country is close to being one of the poorest. Copper mines have been the backbone of the Zambian economy since the beginning of the 20th century. How has the privatisation of national mining companies affected how they treat people and the environment?

The history of mining in Zambia goes all the way back to the mid 1800s. Large-scale mining began when the now-closed Kabwe lead and zinc mine was founded in 1901. The mining industry grew and became the main pillar of the nation's economy. The most important mineral area in Zambia, referred to as the Copperbelt, was even named after one of the world's largest copper deposits.

For decades, the Zambian mining industry was controlled by foreign companies. Zambia gained her independence in 1964, after which the government obtained a majority of the shares of mining companies as part of the new nationalisation policy. Finally, all of the mining companies owned by the government were fused into one company, Zambia Consolidated Copper Mines (ZCCM).

From well-being to poverty

Copper prices were high from the late 1960s until the end of the 1970s. Because of this favourable economic climate, the Zambian government launched development projects to improve people's living conditions. ZCCM offered education, health and sports services, not only to its own employees but to all of the inhabitants of the Copperbelt. Many Zambians experienced an increase in their standard of living thanks to this financial support. During this time Zambia was ranked a middle income country with one of the highest GNPs in Africa.

However, the relative wealth only lasted until the oil crisis in the

1970s. The crisis made the price of copper drop and this turned out to be devastating for Zambia's economy. By 1994, Zambia's GNP had halved and the country had become the 25th poorest in the world.

The 1980s were tough, not only because of the downturn in the mining industry, but also because of drought. Eventually the economy fell into crisis and people's discontent grew. One-party rule broke down during the historical multi-party elections in 1991. The new government began liberalising the economy and privatising national companies with the help of the World Bank and the International Monetary Fund. ZCCM was broken into seven separate mining units and sold to foreign investors. This was the start of an unstable period, with the owners of companies changing and mines being closed as unprofitable.

The situation of the miners

During the last two years the price of copper has risen once again and the Zambian mining industry is recovering. But at the same time, criticism is growing. Many civil society organisations feel that mines' economic benefits do not reach the local people or even the miners themselves. The new mining and mineral law of 1995 states that all the owners of large scale mining permits should pay 3% of their gross profits in mineral taxes and license fees. Despite this, most mining companies pay only 0.6% in taxes because they have managed to negotiate favourable deals with the government.

In addition, the privatisation of mines has led to massive lay-offs: between 1997 and 2004 the number of employees dropped by one-third. Working conditions are also inadequate. The media has reported that temporary workers in the mining industry usually work in inhumane conditions and sometimes even without appropriate safety gear. New mine owners have also terminated some of the social commitments that the government-owned ZCCM had agreed to. "New mine owners are more concerned with making profits than with people. They lack the responsible attitude of the government-run companies", says Jones Bwalya, a former employee of ZCCM who is currently unemployed.

- **Copper is one of the metals that has been longest in human use.**
- **Copper is the third most important metal used in industry after steel and aluminium.**
- **Approximately 0.8% of the weight of ore is usable copper.**
- **It is estimated that the known copper resources will last for about 30 years**
- **Copper is mined in Zambia, Chile, Indonesia, Peru, the US, Australia and Canada.**
- **The annual production of copper is around 12 million tonnes.**
- **Copper is used for electrical cables, car heat transmitters, water pipes, roof plates of houses, window frames and IT cables.**

Workers unions continuously accuse new mine owners of paying slave wages to their employees even though the price of copper is high. Miners' strikes have become common.

Environmental disregard

While the social responsibility of the Zambian mining industry has worsened with the privatisation process, environmental issues remain as poor as ever. Until recently, the corporate law which regulates the Zambian mining industry had no environmental protection regulations. ZCCM, for example, had no guidelines on how to handle toxic waste or how to take care of environmental problems after closing mines.

The current mining and mineral law does require that an environmental impact assessment is done on each new mining project. Zambia's environment ministry also acts as a watchdog overseeing the implementation of environmental laws in Zambia. However, mines have continued to pollute the environment.

Carbon dioxide emissions in the smoke from smelting plants cause respiratory diseases and acid rain which harms water systems and plants. Mines have also released waste water containing heavy metals into rivers. When the same river water is used for drinking the toxins have become a serious health risk for people and cattle. Another serious environmental problem is the sedimentation of rivers.

When water turned into poison

On November 6th 2006, the inhabitants of Hippo Pool village in Chingola experienced some strange things. As they were fetching water from the nearby Kafue River they noticed that the water in the river had turned unnaturally blue and that it was full of dead fish. The river is the only source of water for the villagers, so they collected water from the river as usual and gathered the dead fish for food. Later the strange colour was explained. A pipe in the nearby Nchanga copper mine had broken and toxic chemicals had leaked into the river. The owner of the Konkola Copper Mines (KCM) was responsible for this.

"We are extremely concerned because the Nchanga mine of KCM pollutes the river on a continuous basis. The company is poorly managed and it has no environmental plans", comments the spokesman for the government's department of environment, Justin Mukosa. He says that the case clearly highlighted KCM's weak community responsibility since management was so slow in taking care of the problem. The department of environment gave an order to stop the waste plant of the mine from running and to start actions to clean the area and

correct the damage. Research conducted by the department of environment stated that KCM had carelessly released water containing acid waste into the river.

Because of the pollution in the Kafue River, tens of thousands of villagers in Chingola were left without clean water for a week. Two water plants had to cease distributing water because it was so polluted. The water companies sued KCM but the case was later settled out of court and without trial. The chemical content in the water was extremely high: copper, manganese and cobalt were found in quantities thousands of percent higher than allowed by the Zambian department of environment. Many people became ill immediately after drinking the water and, according to doctors, the symptoms will continue for a long time. However, there are no signs of compensation being paid to local people by the mining company.

The burden of lead in Kabwe

Waste water from the zinc and lead mine in Kabwe has had long-term environmental effects. Despite closing in 1994, it has left a poisonous legacy. One of the most serious problems includes land masses polluted by lead. Such lead masses are even found close to residential

Activist profile: **Emmanuel Mutamba**

Picture by Pia Korhonen

Emmanuel Mutamba became interested in environmental issues initially through his research at the Meteorological Institute of Zambia. He studied the impact of desertification and climate change in Zambia's Northern Province at the beginning of the 1990s. Inspired by this work, he joined a Zambian environmental organisation called Environmental Conservation Association of Zambia (ECAZ). Soon Emmanuel and a few other activists formed an environmental organisation called Green Living Movement (GLM). "I felt that Zambia needed a stronger, grassroot-level force to increase the profile of environmental issues", he explains.

The GLM started off well even though members were sometimes hard to find. The organisation relies heavily on volunteers: currently there is one full time and one part-time employee as well as 18 volunteers. Emmanuel also works as a volunteer. "I earn my living as a private consultant and from my small farm." The GLM concentrates mainly on working with rural communities. Emmanuel has been involved in numerous community projects that have aimed to strengthen the abilities of rural communities to manage natural resources, to solve conflicts, in leadership and HIV/AIDS awareness.

One of GLM's furthest reaching projects is the Green Times, a magazine which is supported by the Siemenpuu Foundation. Emmanuel tells about the background to the magazine: "I was bit-

areas in Kabwe. According to a recent report by Blacksmith, an environmental organisation, Kabwe is given the dubious distinction of being among the ten most polluted places in the world.

There are around 40 square kilometres of polluted land in Kabwe and each polluted kilo of land can contain up to 500 grams of lead. High levels of lead have also been measured in the air because of lead dust that has spread from the mine's filtering plant. Samples collected from grain have also contained dangerously high levels of lead.

Lead pollution is a serious environmental and health risk. Lead influences the nervous system, causes kidney disorders, distorts physical growth and increases children's risks of suffering from aggressive behaviour and learning disorders. In adults it mainly affects reproduction. Lead can also affect the unborn child through the mother.

Nowadays there is a separate company called ZCCM Investment Holdings taking care of the environmental and social impacts of mines in Zambia. This was formed after the privatisation of ZCCM and it owns minority shares in private companies which used to belong to the state-owned company. With the support of the Zambian government and the World Bank, the company is currently working on a Copperbelt environmental project to improve the health and security of local communities. The project aims to prevent and decrease the effects

ter about the fact that environmental issues are always addressed in the inner pages of the Zambian newspapers. I was bitter that the Ministry of Environment is the least funded organ of the government. It is natural resources that make this country go round!" This monthly magazine was established to address these issues, and is unique in Zambia.

Green Times has also been a tool for the GLM to deal with mine related issues, often reporting incidents occurring in the Copperbelt region. Emmanuel also has personal experience of mines, having lived in the mining town of Kabwe where he conducted research among the inhabitants. "You really get to see the impacts of an underground mine. People are still suffering from lead pollution."

The motivation of this hard working activist remains strong even though he does admit that volunteer work can be stressful. "Right now I am involved in a community project as a trainer. In addition to this, I write action plans and project proposals for the GLM and meet with potential donors. I also have to find time for consulting so that I can continue feeding my family!"

"It always brings meaning to life if you can bring about change. I am motivated by my belief that the life of humankind depends on the environment. Poverty can be conquered only if we value the symbiotic relationship between humans and nature."

Aino Rajala

→ www.greenlivingmovement.org

- **Zambia is one of the world's least developed countries; in 2006 the annual GNP per person was 1,000 USD.**
- **Mining is one the main industries in Zambia, followed by agriculture and tourism.**
- **One of the world's largest copper reserves has been found on the border of Zambia and the Democratic Republic of Congo.**
- **The Zambian economy has long been dependent on the export of copper, but recent governments have attempted to reduce this dependency by putting emphasis on other mining products and livelihoods.**
- **In 2006 mining contributed 11.8% of Zambia's GNP and 1% of its materialized economic growth of 5.9%.**
- **Copper, cobalt, zinc, lead, coal, gold, silver, emeralds and uranium are all mined in Zambia.**

of environmental destruction and to restore land for agriculture. The objective is to restore mining lands to their original state or to develop alternative uses. ■

The authors are activists from a Zambian environmental organisation, the Green Living Movement.

Bhanu Rebbapragada

Indigenous peoples' lands at risk

The Indian government and the mining company racing to advance the bauxite project

The mountains of Southern India are home to vibrant indigenous peoples who live above a rich seam of bauxite. But a mining company wants to open the seam, which will destroy an entire culture. The indigenous peoples, or the Adivasis, are against the mine, but face a tough opponent in the form of a united front created by the mining company and the government.

Nukalamma is an Adivasi woman from the village of Beesupuram. These days she and other women from the village have been busy running from one meeting and government office to another. They are desperately trying to save their land.

The Adivasis live in beautiful hills blessed with tropical forests, abundant rain and traditional farm lands. They grow rice, millet, grain, beans, vegetables and flowers. They collect honey, nuts, leaves, fruit, roots and seeds from the forest in order to sell them to the traders at the marketplace. They also have large coffee plantations which bring some cash income for their families. They are not rich but they are self sufficient. Most of their food is grown by traditional methods in the valleys and hills. This is aided by the numerous streams and springs originating from the tops of the hills that eventually feed vast rivers.

Soon all this will be taken away from them. Bulldozers will tear down their houses and roll over the forests. The fields will be turned upside down and the local people will have to move to new, alien areas. The hills that the Adivasis had treasured as a blessing have now turned into a curse because of the bauxite vein running through them. It is not just a question of land but also a matter of a cultural genocide. The entire mountain chain of the East-Ghat is faced with the death sentence of the bauxite mines.

Shifting economic goals

India's mining industry was controlled by the public sector for a long time. New economic policies introduced in 1990 turned India from a socialist welfare state into a market-led liberalised economy based on industrialisation and foreign investment. This has led to serious conflicts between local communities and companies seeking to benefit from natural resources. The multinational, private mining industry regards India's diverse mineral resources as a potential source of endless profit. New mineral policies enacted in 1993 have weakened legislation, environmental regulations and community responsibility in order to allow easier access to natural resources. The mining industry is now able to influence local and national governments in a centralised way.

The Eastern Ghat Mountain Range extends through the eastern states of India. It is a treasure of biodiversity including valuable deciduous forests with abundant flora and fauna. The springs of the region sustain large river systems.

The Eastern Ghats are also home to the culturally unique indigenous peoples, consisting of several tribes. Their common name in India is Adivasi. The Adivasi population in India is big, numbering over 100 million, and most of them live in the mountainous regions of the East and West Ghat and the central and south-west parts of the country. They have been granted a special position by the constitution and positive discrimination strengthens their position. In addition, specific laws protect their lands against exploitation by the more powerful majority.

Life in the Adivasi villages in the Eastern Ghats is traditional and close to nature. Mining projects would mean the destruction of both nature and culture in the region.

Picture by Samata

India now has a reputation as a rapidly developing country whose economy and consumers' habits are becoming similar to the West. However, there are huge differences between the Adivasis and most of the population.

However, the Adivasis are still disadvantaged when it comes to primary school education and health care, they have higher rates of infant mortality and they lack basic commodities such as drinking water, electricity and roads. They are not able to compete with the majority of the population when it comes to employment and they suffer from extreme poverty and malnutrition.

The Adivasis vs violence by the state and the companies

As elsewhere, mineral resources in India are often found in forest covered regions inhabited by indigenous peoples. The mining industry has therefore a particularly drastic impact on them.

The bauxite mine planned for the Eastern Ghats is in Visakhapatanam, Southern India. This project is a good example of the aggressive nature of mining companies and government corruption. The bauxite is located in the middle of indigenous people's lands. But while the constitution of India clearly states that the land cannot be transferred to anybody else, several governments have still granted mining permits for companies in the area.

An organisation called Samata took action against this injustice in the 1990s. Samata sued the Indian government for granting illegal mining permits and won the case. This was an important milestone since many mining permits were cancelled in the aftermath. Succeeding governments, however, have attempted to circumvent the verdict instead of respecting the constitution. Recently the local government has again entered into contracts with both Indian and foreign mining companies. Many applications are also being processed.

The Visakhaptanam mine is being planned by a mining company called Jindal South West Limited. The Indian government is working closely with the company, raising suspicions about possible corruption. Mining projects used to be the responsibility of the mining companies but now it seems that the Indian government finds suitable land for mining, makes sure that the companies get their permits, convinces the local communities about the "common good" of the projects, obtains the lands and takes care of required settlements. In their own countries these multinational companies would have to follow to strict environmental and social regulations, but in countries like India they can manipulate weak governments who are the first to break their own laws. For example, according to the environmental

The bauxite mine would consume huge quantities of water and would add to the water crisis in Visakhapatnam. The water shortage affects not only the indigenous peoples of the mountains but also farmers and consumers in towns.

Picture by Samata

law, mining companies are supposed to submit environmental and social impact assessments, environmental management plans, risk control schemes and phasing out plans to the ministries of environment and forestry and to publish all the relevant documents. Jindal has not submitted a single one of these documents on the bauxite mine in Visakhapatnam.

The mining company, together with the government, has been working on making local attitudes favourable towards the mining project. They have been distributing posters to local villages showing new schools and hospitals. They have also been showing promotional films about the benefits of the mining project. The local villagers have even been taken to visit other mining communities. Jindal has also sponsored healthcare and education, promised non-existent jobs and other benefits to win over the local communities or to create friction within them. These empty promises aim at changing the minds of the communities and enhancing the company's image.

When local people have put up any resistance, Jindal has relied on the police force to suppress them. Village chiefs have been bribed to hand over their lands and intimidated with illegal arrests. The threat of violence is felt both by the villagers and the organisations that have come to their assistance. For example, when Jindal arranged a legally-required public hearing on the Visakhapatnam mining project, it was organised in an extremely undemocratic manner. Local communities were not informed of the hearing and would never have heard about it if it wasn't for non-governmental organisations like Samata. When

Picture by Ville-Veikko Hirvelä

- **Bauxite is formed when the soil disintegrates, thus more of it is being formed all the time.**
- **Bauxite is mined in open mines.**
- **Bauxite mines are primarily located on both sides of the equator in tropical and subtropical areas where the disintegration process is fast.**
- **Bauxite is used for producing aluminium.**
- **Aluminium is used for many purposes such as production of cooking utensils, food packages, cables, conducting wire, boats, ships and aeroplanes due to its lightness and other useful qualities.**

the locals attempted to attend the hearing, they were prevented from doing so by the police. Those who attempted to enter the event were beaten down.

Will the water run out?

Mining in Visakhapatnam not only destroys the livelihoods of the indigenous peoples, it also causes serious problems for more distant farmers and citizens. The mining and processing of bauxite require great quantities of energy, land masses and water. This exacerbates an already severe water crisis. Water shortages are a problem for everyone; some farmers have even committed suicide as a result. Bauxite has been mined in the area before and mining waste seriously polluted water systems and farming lands.

In the case of Viksahapatam as well as many others, the Indian government has neglected all respect for human rights and environmental considerations. Both local communities and civil society organisations have been threatened when they have stood up to fight against the mining companies. The economy is being distorted so that the projects of private companies would appear public.

So who is to blame? The government, which has become a henchman of the mining companies? The multinational corporations whose greed has no limits? Western consumers and their lifestyles? The urban middle class of India who want to work for the mines? Investors and shareholders who earn the profits? Or the poor Adivasis who either have to face violence or succumb to the pressure of the mining company? At least the Adivasis in Visakhapatnam are fighting to their best abilities. They are not trying to stop development but to save what is left of their nature and culture. ■

The author is an employee of the NGO Samata.

Picture by Kai Vaara

Activist Profile: **Bhanu Rebbapragada**

For Bhanu Rebbapragada, working for Samata is clearly not just a job. She has lived for years in remote mountain villages, defended the rights of the indigenous peoples all the way to the courts and even coped with the threat of violence connected to campaigning. The Adivasi people are genuinely close to Bhanu's heart.

"Initially, there was a lot of romanticism in my interest towards the Adivasis. I was attracted to the breathtaking beauty of their mountainous landscapes and the thought of learning to understand their traditional knowledge. It was clear to me that the problems that the Adivasis were facing were not caused by their 'laziness' or 'bad manners' as the general public likes to think but because they are mistreated."

Bhanu's interest has been going strong for over a decade now. During this time she has become a central figure at Samata and she is literally married to her work. "I met my husband Ravi at Samata. He is the director of the organization. We share the same vision and passion for defending the rights of the Adivasi people and so we decided to get married and work together."

The couple lived among the Adivasi for many years. At the same time, the road opened for Samata to become an actor at the national level. In the beginning, the organisation was small and locally run, with Ravi, Bhanu and their friends doing educational and empowerment work amongst the Adivasis. The group gradually grew when more and more people from the villages and even outside wanted to join. Nowadays Samata is a large and influential network still working at the grassroots, but also reaching out to local government, the media and national politicians.

Samata even had the guts to sue the Indian government. In 1997, the organisation won a trial against the Indian government for handing out illegal mining permits to the area which has been granted to the Adivasi people by the constitution. The government agreed to cancel the permits. "It was a unique victory, not only for the Adivasis but for indigenous peoples all over the world. There is no other such explicit verdict."

Despite all this, Samata's work is still desperately needed since, unfortunately, the verdict did not stop the government from granting new mining permits. Samata continues the work of empowering the Adivasis with the support of the Siemenpuu Foundation, and Bhanu is working actively with the project. She still spends a lot of time in the villages: educating the village chiefs in anti-mining campaigns, supporting women's leadership and assisting in building schools that teach the traditional knowledge of the Adivasi people. The idea is to strengthen the respect among the Adivasis for their own culture and to give them tools to defend it from mining projects, among others.

A lot of enthusiasm is needed in this work because the mining situation in India is still very concerning. "If the lands of the Adivasis are destroyed, it will cause the death of both the nature and the culture. That is why we must try to stop this current craziness."

Aino Rajala

→ www.samataindia.org

Bauxite is mined in open mines. The picture is from the state of Tamil Nadu in Southern India.

Picture by Ville-Veikko Hirvelä

- **India produces 89 different minerals, for example iron, manganese, chrome, titanium and bauxite.**
- **Apart from this, reserves of coal, diamonds, raw oil and chalk are also found.**
- **The mining industry is among the 10 most important industries in India; it produced 2% of GNP in 2006.**
- **In 2000, there were 655,017.90 hectares of land reserved and rented out for private mining companies and the public sector, regulated by 8,996 separate leasing agreements.**
- **The Indian mines are either open like the bauxite mines or underground like the coal mines.**

The largest coal mining company in Indonesia, Kaltim Prima Coal, has several coal mines in Eastern Kalimantan.

Picture by the International Labour Organisation / K Cassidy

Ancha Parawansa

Why was the coal company awarded?

Deforestation, poverty and mining support projects in Indonesia

When a mining company starts operating in Eastern Kalimantan the local people have to give up their land either voluntarily or by force. The jobs that were promised never materialise. A province rich in natural resources is becoming further impoverished.

In the past couple of years Indonesia has become a paradise for investors. Anybody who is willing to invest in the mining industry is welcomed. The country is rich in natural resources and the government is doing its best to ensure that it is easy to establish new mines.

One of Indonesia's most important export products is coal. The production of coal has increased every year since 2000 and over the next five years the Indonesian government is planning to double production. The increased production will be exported to other countries in Asia, such as Japan and Taiwan.

Even though the Indonesian government wants to increase the production of coal, the Vice Minister for Energy and Natural Resources has admitted that there are severe environmental problems and land conflicts connected to mining. Population growth and attempts to protect the forests and water systems are also obstacles to expanding mines. The combination of these factors is creating pressure to shift from open mines to underground ones.

The environmental problems and land conflicts caused by the mining industry are also entwined in the new form of government in Indonesia. After the fall of Suharto's dictatorship in 1998, the country has attempted to decentralise the previously highly centralised government. This has given power to districts, which are placed between provinces and sub-districts in the Indonesian regional hierarchy. In the current system, both the central government and local governments have the authority to hand out mining permits. Permits issued by both of these bodies have caused problems, but local governments

Sepaso Induk is one of the villages in East Kalimantan that has suffered from environmental problems such as floods caused by the nearby coal mine.

Picture by Hanna Matinpuro

especially have been eager to promote the interests of mining companies. Corruption is also a problem at the local government level.

Coal and contradictions

The province of East Kalimantan in Indonesia is rich in natural resources. The numerous mines in the area are producing increasing amounts of coal, just as the government has planned. But natural resources and the welfare of the local population do not always go hand in hand. In 2006, the number of people in East Kalimantan living below the poverty line was one of the highest in the country. And inequalities are also pronounced. This can be seen particularly well in the district of Kutai Kartanegra, which has the most poor people in East Kalimantan, but is also the wealthiest district in Indonesia.

There are about 20 coal mining companies working in Indonesia, the largest of which is Kaltim Prima Coal (KPC). This company works in an area covering 90,096 hectares in East Kalimantan and its mining permit is valid until 2021. Coal is being mined in six open mines and there are numerous coal reserves in the area that are not yet being used.

KPC has been mining in East Kalimantan for over a decade. Even though the mines are working as planned, the expectations of the local population for increased standards of living have not been met. The situation in the villages is very different from what the company originally promised. How did this happen?

How the land ended up in the hands of the mining company

In 1993, the local government sent a delegation to the village of Sekerati in Eastern Kutai district to inform the villagers that their land was to be taken over by the KPC mine. The villagers were lured into giving

up their land with promises of huge benefits: the company promised to provide the villagers with drinking water and healthcare services, as well as to give them priority when employing workers for the mines. Short-sightedly the villagers agreed to give away their land.

The village land was then measured, after which the delegation paid each villager whatever they considered suitable for the acquired piece of land. The villagers began to notice the downside of the deal, but at this point they had no more say in the matter. They were told that the land would be taken anyway and those delaying the handing over process would be paid even less.

So the villagers lost their agricultural land, and despite their promises, KPC did not offer them jobs in the coal mine. The unemployed people tried to make ends meet in various ways, some of which resulted in the illegal felling of trees. A development programme was initiated to help the community, but it never dealt with the bigger issues such as the deteriorating condition of the environment. For example, the issue of water pollution was never dealt with; instead the schools in the village were given equipment and the villagers were convinced to give even more land to the mining company.

One Indonesian civil society organisation launched a programme to ensure that the KPC would be more responsible towards the local communities. The programme brings together various stakeholders: representatives from the government, the mining company and local communities. However, the uneducated local communities are not equipped to take part in this type of process on the same level as the other stakeholders. In practice, the villagers became mere spectators

- **Coal is a common non-metal with reserves likely to last for hundreds of years.**
- **Coal is used in the production of steel. It reduces iron oxide into iron.**
- **Coal is a significant fuel.**
- **Coal fibre is light, but strong as steel and it is used for a range of purposes, from ski poles to aeroplanes.**

Picture by International Labour Organization / K Cassidy

in the process, a stamp that legitimises the community responsibility programme.

Support programmes on a stable base?

The Kaltim Prima Coal company received a community responsibility prize in 2005. It was voted the best company in Indonesia for its social, economic and environmental awareness. A committee with representatives from the Ministry of Social Affairs and various universities decided upon the winner. Some members of the committee visited the mining areas and stated that the community support programmes were built on a stable base.

Thanks to the prize, KPC can now present itself as a company with community responsibility at an international level. It is also easy for the company to reject the arguments presented by activists concerned about social and environmental issues.

The award given to KPC offended most of the population of East Kutai who have been involved in organising, gathering and distributing critical information on the mining areas. The problems caused by the mining company are not restricted to mistreating the local communities, they also include discrimination against workers and conflicts with the local government.

When the KPC started its operations, the local community thought they would become wealthier after getting work in the mine. Nearly 15 years later, it has become apparent that this will not happen. The uneducated people from the villages are not employed in the mines and employees are brought from towns. The role of local communities has been to deal with the loss of their lands and the environmental legacy of the mine.

Damage to forests and water

In the Bengalon sub-district in Eastern Kutai, local people have always been deeply connected to nature, especially the forest. The forests have provided a livelihood and medicines for the people, and forests have significant cultural and spiritual meaning. Along with sawmills and logging, nature has begun to vanish around the villages of Bengalon. The final blow has been dealt by the mines: forests have vanished completely under massive land transfers.

Deforestation has also led to other problems. Floods in the area have become much worse. For example, in December 2005, Sepaso Induki village, located next to the KPC mines, experienced its worse floods in 20 years. Farmers especially experienced losses, but the damage caused by the floods reached wider: prices have gone up, theft has become more

common, disease has increased and the quality of drinking water has declined. Many locals have had to locate to higher ground.

Another key problem is the lack of clean water in villages downstream from the mines. In the sub-district of Bengalon the level of pollution is so high that the water in the river has turned brown and has become undrinkable. In addition to this, erosion of the river banks has destroyed the roads leading to the villages. One elderly villager from Bengalon told us: "The condition of the river is critical. The river has changed dramatically since the mining companies arrived."

The villagers must not remain bystanders

The farmers' groups in the operating area of Kaltim Prima Coal have protested against the company twice. For example, when the company did not pay the compensation it had promised, the farmers organised a demonstration. In conflict situations, the company has usually turned to the government, the army and the police, and the security machinery has then pressured and threatened the people belonging to the farmers' groups. Many members have been taken to the police district headquarters to hear accusations of extortion and torture for no reason. Many members of these groups have paid a great price for their resistance.

It is not acceptable for the KPC to use the Indonesian security forces to pressure villagers who are holding on to their rights for their land and livelihoods. Many civil society organisations in East Kalimantan are educating the rural villagers in environmental issues so that ordinary people are better able to defend their rights to natural resources. The awareness of local people must be increased and they must become active – otherwise they will remain mere spectators in the participatory planning meetings of mining companies. ■

The author is the director of the Justice, Equality and Freedom Foundation Kalimantan Timur in Indonesia. Translated from the Indonesian language by Otto Miettinen

- **Indonesia is one of the mining superpowers.**
- **Indonesia's GNP was 3,900 dollars per person in 2006; 9.7% of total GNP came from mining and energy industries.**
- **Traditionally, Indonesia has been known for its bauxite, silver and tin mines; now copper, nickel, gold and coal production are on the rise.**
- **Indonesia's coal production was 159 million tonnes in 2006, of which it exported 119.8 million tonnes.**
- **Many American, British and Canadian mining companies operate in Indonesia, for example Freeport, McMoran, BHP Billiton and Rio Tinto.**

Activist profile: **Ancha Parawansa**

Picture by Hanna Matinpuro

Ancha Parawansa's goals are high. "The motivation that I have for this work derives from the desire to create a government in Indonesia that would save the natural resources of this country. My dream is a non-violent community where people could live peacefully side by side."

Ancha's environmental awakening happened in school where he was already campaigning, distributing leaflets on environmental issues to the other students. Since then, social justice has become important to him too. Today, Ancha has much experience, including as director of the Justice, Equality and Freedom Foundation Kalimantan Timur (JEFF Kalitim). The organisation functions mainly on a voluntary basis — Ancha earns an additional living by writing for newspapers.

The aim of JEFF Kaltim is to promote a state governed by law and human rights. In practice the organisation aims especially to empower farmers and workers to become active citizens in the East Kutai district of East Kalimantan.

Mining issues are closely related to JEFF Kaltim's current work, which is organising an empowerment project with the help of the Siemenpuu Foundation in the villages of East Kutai where people have been driven away from their lands because of mines. Severe examples of lack of ecological democracy have been wittnessed in the area.

"The villages have also experienced outright conflict between the local farmers and the Kaltim Prima Coal company", explains Ancha. "The land conflict in 2000 began when the KPC did not pay the locals for the land that had been taken from them. The local farmers stopped the operation of the mine with their protests. The coal mining company agreed to negotiate settlements but the process was halted when a group of farmers borrowed a KPC vehicle. Security forces stopped the vehicle and beat up the 18 farmers that were in it. Later all of the farmers were arrested and taken to jail in the neighbouring town."

Another conflict occurred in 2003, when the heavy vehicles of the mining company drove straight through the village fields and destroyed crops. These are the types of situations where empowerment work is crucial.

Also environmental issues need to be taught for they are not known to the villagers. "I hope that we can bring a new perspective on environmental issues to the villagers by talking with them", says Ancha.

Aino Rajala

Stephanie Boyd

Tambogrande – dearer than gold

How an inventive civil society movement stopped a gold mining project

It is possible to rise up against mines in a peaceful manner. In Tambogrande in Peru, a civil society movement managed to reject a gold mine threatening mango plantations by singing, dancing and waving mangoes.

Peruvian school children are taught that the Inca chief Atahualpa was murdered 500 years ago because the greedy Spanish were after his gold and silver. Today's Peru is plagued by a new gold rush that has its roots in more recent history.

The Peruvian military government fought against leftist guerrillas in the 1960s and 70s. This was followed by severe inflation that led Peru to be rejected by foreign investors. Alberto Fujimori became the surprise winner of the presidential elections in 1990. His anti-terrorist strategy victimised all of the leftist movements, regardless of whether or not they had connections to armed guerrilla groups. Death patrols eliminated all suspected terrorists, and mass murders along with tortures were assigned. When the public state of emergency ended in the mid 1990s, terrorism was literally wiped out – alongside all resistance movements, including a previously strong labour movement.

The time was ripe for Fujimori's neo-liberal plans. The president quickly became a favourite of the financial world which was privatising government-owned companies at a cheap price, relaxing tax regulations and ignoring environmental laws. Once again, foreigners flooded into Peru to find the El Dorado of the new age, the golden city.

Who benefits from mines?

Peru is currently the largest producer of gold in South America, and hosts the world's largest deposit of silver. Yet half of the population lives on under two dollars a day. Gold is Peru's most important export

product, but if the mining industry is compared to other industries in the country, its significance diminishes. Factory industries, commerce and agriculture form the largest share of the GNP. However, the latest governments of Peru have exaggerated the importance of mining and promoted the motto "Peru – the land of mines".

For over a decade many governments have led people to believe that the mining industry has supernatural powers to bring development and wealth to the country in one go. Local communities, on the other hand, feel that the wealth promised by the mines has not trickled down. Instead, they have been left with environmental destruction, social problems and unrest by workers.

This is not a problem facing Peru alone. Many developing countries rich in mineral resources are also some of the poorest. Corruption and weak tax regulations prevent the profits of mines from benefiting the hosting developing countries. Also in Peru, former President Fujimori is being accused of stealing millions of dollars.

A wake-up call for civil society

The current president of Peru, Alan Garcia, has continued with the unpopular free mining policies launched by Fujimori. This has caused strikes and mass demonstrations. The positive aspect of the protests is that they prove that civil society is awakening after two decades of fear and oppression.

From the indigenous peoples of the Amazon to the mountain people of the Andes and the agricultural producers of the coast, communities close to mines are getting organised to demand a say in the development of their regions. For example, Tambogrande, a small village in North Peru, is situated on a metal deposit worth billions. It has launched a vigorous campaign to keep the mining projects of multinational companies at bay. The example of the town's mango farmers has inspired civil society movements in Argentina, Indonesia and Ghana. Of the various natural resource conflicts occurring around the world, Tambogrande is a unique example of the power of organised local communities and non-violent resistance.

The case of Tambogrande

The lively countryside town of Tambogrande is located close to the border of Ecuador, in the San Lorenzo valley—the most important fruit producing district in Peru. This luxuriant, green oasis is a rare sight in the middle of the harsh desert of the coast. Forty years ago, a massive irrigation project funded by the World Bank and the industrious work of settlers turned thousands of hectares of what seemed to be worth-

In 1999, the Manhattan Minerals company started test drilling in the streets of Tambogrande to the surprise of the inhabitants.

Picture by Stephanie Boyd

less arid land into a subtropical fruit garden.

Farming in San Lorenzo produces over 40 million dollars annually. The valley exports mangoes to Europe, North America and Asia, and also produces almost half of the mangoes and limes in the country. But now, the farmers of San Lorenzo are saying that this wealth is threatened because foreign mining companies want to use the minerals deep in the ground to make quick cash.

In 1999, a Canadian company, Manhattan Minerals, started doing research in Tambogrande. They found gold, silver, copper and zinc under the town and were prepared to open a massive open mine. The company wanted to shift a third of the town elsewhere, but could only

Activist profile: **Stephanie Boyd**

The Tambogrande campaign has left a deep impression on Stephanie Boyd, a Canadian reporter living in Peru. Initially she heard of the campaign in the media. She travelled there to make a story and ended up staying: "The idea was just to write an article about Tambogrande, but the people I met were so passionate and verbal that I realised that they had to be given a chance to tell the story in their own words. So I left my job, joined a small organisation of Peruvian movie makers called Guarango and together we started filming anything that had to do with the Tambogrande campaign." The project created an internationally renowned movie called Tambogrande – Mangoes, Murder, Mining, co-directed by Ernesto Cabellos from Guarango.

Picture by Stephanie Boyd

Godofredo Garcia Baca was the pillar of strength of the Tambogrande campaign.

Stephanie speaks highly of Godofredo Garcia Baca, the charismatic leader of the Tambogrande campaign. The whole idea for the movie started in an interview done with this passionate mango farmer. Baca never got to see the finished movie because he became the only victim of his own non-violent campaign – he was murdered.

According to Stephanie, the shocking incident remained unresolved even though a former Peruvian secret service agent was convicted of the murder. "He was convicted of an armed robbery and manslaughter, as if he had 'accidentally' killed Godofredo. The court dismissed the fact that Godofredo was murdered with intent. His family and supporters all say that his real murderer is still on the loose." Stephanie explains indignantly.

"Godofredo's memory became a symbol of the persistence and strength that united the villagers of the valley and inspired them to fight a non-violent battle." says Stephanie. She quotes one of Go-

offer 350 jobs in return. To win over the local population, the company launched an expensive publicity campaign claiming that the mine would not cause any harm to agriculture.

A report filed by an independent American hydrologist, Robert Moran, on the other hand, revealed something completely different. According to Moran, the gold mine that was planned for Tambogrande would threaten the quality and accessibility of water, the environment in general and possibly also agriculture. The effects would be long term.

The mine was supposed to use a disputed cyanide method. Manhattan Minerals assured the villagers that modern mining is safe and responsible, but, on the other hand, it was a well known fact that in

Ernesto Cabellos and Stephanie Boyd, the makers of the Tambogrande movie

Picture by Claudia Alva

dofredo's numerous emotional speeches: "Nature and God are both great and good, but God did not come here to plant mangoes and limes for us. This is all our doing, the fruit of our own labour and it is our right to defend it."

Godofredo's work has not been in vain. Apart from saving Tambogrande, the lessons from the campaign were widely spread thanks to a project launched by Guarango. In the project supported by the Siemenpuu Foundation, the Tambogrande movie was shown to local communities all around Peru and non-violent campaigning and media advocacy workshops were organised.

The lessons of non-violent campaigning are needed because at times the mine conflicts in Peru have been close to exploding. Protesters are easily considered as extremists, even terrorists.

"The Tambogrande story is an incredible exception among mining conflicts and that is why we want to spread our document to as many mining communities as possible", Stephanie Boyd says.

Aino Rajala

→ www.guarango.org

Guyana, Romania and the United States, recent cases of cyanide leakages have caused environmental damage, illnesses and death. Cyanide is extremely poisonous: a portion the size of a rice grain is enough to kill a person and one microgram worth of cyanide in one litre of water can destroy the fish in an entire water system.

Citizens and politicians side by side

In order to stop the mine, the inhabitants of Tambogrande united and took action in a creative and inventive way. Marches were turned into cultural events praising farming as much as opposing the mine. Instead of aggressive banners, the proud farmers waved mangoes, limes,

- **The ancient gold country, Peru, is currently South America's largest gold producer.**
- **The GNP of Peru was 6,600 dollars per person in 2006.**
- **Gold is Peru's most important export product, bringing over 14 billion dollars worth of currency income in 2004.**
- **Apart from gold, mines in Peru dig for copper, silver, oil, gases, iron ore, coal and phosphate.**
- **Metal mines contribute 3.76% of Peru's GNP.**
- **In 2006, the government of Peru registered 24,482 mining permits, covering an area of 9.9 million hectares.**

The farmers of Tambogrande opposed the planned gold mine in a peaceful manner: during protests they carried fruit in their hands.

Picture by Malu Cabellos.

watermelons, pumpkins and other locally produced fruit in their hands, and dancers dressed as limes twirled around in the streets. Local bands composed and performed sentimental songs styled as traditional ballads and waltzes. Young people designed posters, web pages and internet appeals that gained supporters for the campaign from the capital city and all around the world.

The leaders of Tambogrande also expressed their visions. They found out about the scientific and legal aspects of the mining project

- Gold is a soft, easily worked metal that has been used for several millennia.
- Gold is one of the few metals that is found in its pure form as flakes or even chunks.
- Gold is primarily used for jewellery (75%), with the rest used for tooth fillings and electrical devices.
- The global annual production of gold is approximately 2.5 million kilos.
- Most of the world's gold is stored in vaults in state banks.

and campaigned relentlessly against it. For example they organised the first mine-related referendum in the world. Voting booths and international election observers were present and the event gained a lot of media coverage. Even though the government never recognised the outcome as legitimate, it became a powerful political tool: 98.6% of villagers were against the mine.

"Land will last forever"

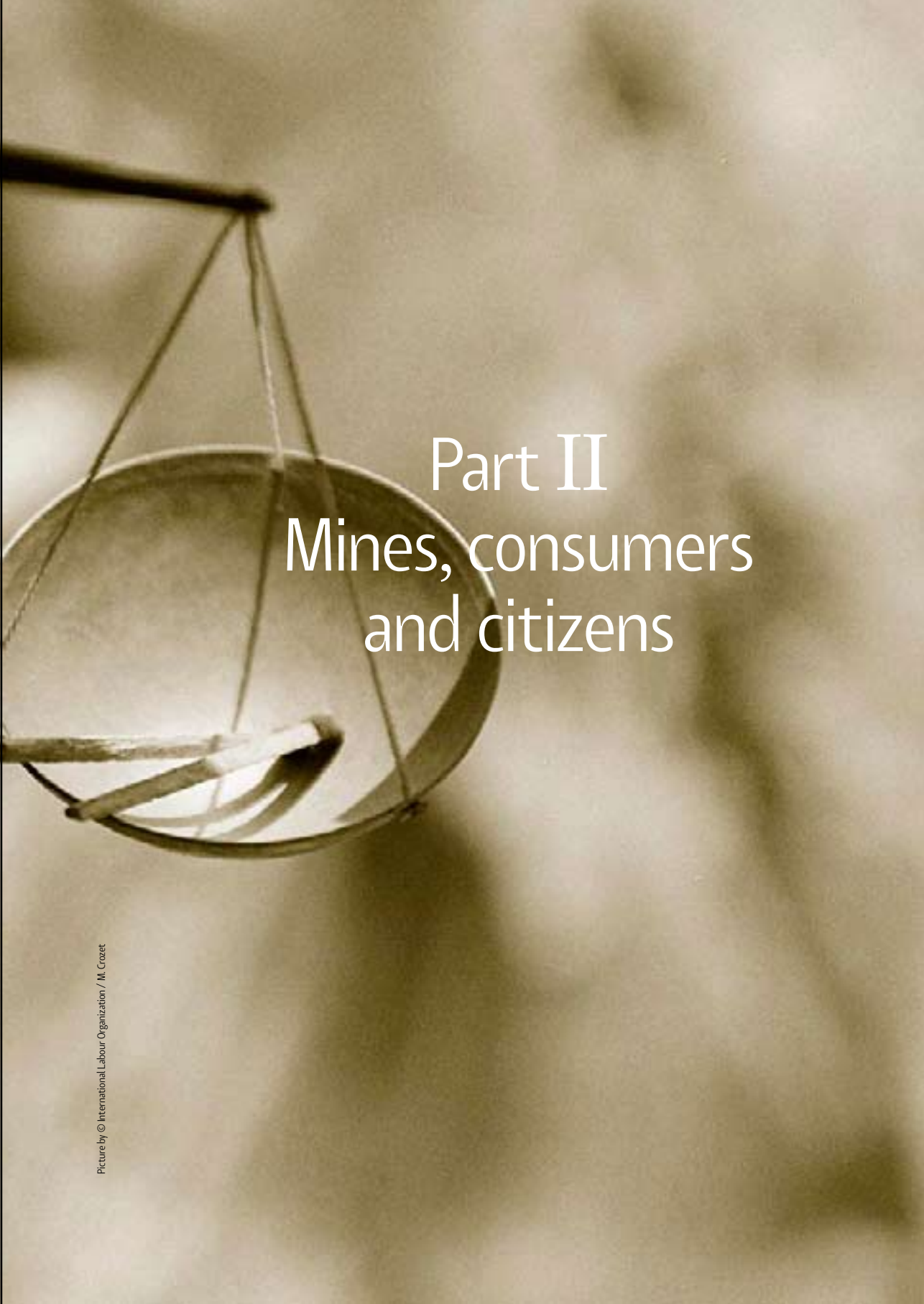
In December 2003, after five years of campaigning, the government of Peru withdrew the mining permit that it had granted to Manhattan Minerals, and stated that the company had not abided by the rules of the contract. The truth is that Manhattan never managed to gather the capital needed for the project because the investors were scared off by the media coverage gained by the campaign.

"When different instances, for example the Canadian media, found out that Manhattan had become involved in a conflict like this, the financial market reacted", says José de Echave, an economist for the Peruvian non-governmental organisation, CooperAcción.

Now the leaders of Tambogrande are attempting to declare the area a mine-free zone. They are afraid that another company will start up a new mining project. In addition, there are dozens of other mining applications waiting for investigation in San Lorenzo.

But the villagers of Tambogrande believe in the victory. "I will not leave this place", says a feisty grandmother called Isabel de Morales. "We will fight and fight until God says that our fight is over. We will fight for our children and their spouses and our grandchildren. If I die, this land will stay with my grandchildren, their children and so on. It will last for ever." ■

The author is an employee of Asociatión Guarango Cine y Video in Peru.



Part II
Mines, consumers and citizens

Picture by © International Labour Organization / M. Crozet

Platinum mine in South Africa.

Picture by Sakari Autio

Michael Lettenmeier and Satu Lähteenoja

The heavy ecological rucksack of mineral wealth

The harms of television and jewellery use in numbers

Did you know that the production of one gram of platinum consumes 320 kilograms of non-renewable natural resources? The catalytic converter of a car consists of 3 grams of platinum. The quality of air has improved in countries like Finland due to the increased use of catalytic converters, but the use of platinum generates massive amounts of mining waste in countries like South Africa.

The consumption of natural resources is continuously increasing throughout the world. The more people take materials from nature, the more environmental damage is caused. There has been discussion in recent years about how to reduce our consumption of natural resources, but at the same time the prices of raw materials have risen due to increased demand. According to studies of the National Institute for Material Science of japan, in 2040 many metal reserves will last another 10 years at most, if consumption develops as it does presently.

The ecological rucksack and MIPS

It is possible to measure the amount of natural resources consumed during a product's lifespan. The ecological rucksack of a product is a measurement (in kilograms) of the amount of material that its raw-materials' extraction, production, use and disposal has consumed. Thus, the ecological rucksack is an invisible burden carried by any individual product.

The ecological rucksack of mining products is particularly high. For example, while mining for metals a large amount of overburden must be removed. This results in gigantic mountains of waste in mining countries. One gram of gold carries an ecological rucksack of 540 kg.

Thus, the production of one gold ring consumes more than a tonne of natural resources. In comparison, the production of one gram of silver uses "only" 7.5 kg of natural resources. A steel fork carries an ecological rucksack of 0.5 kg. For a coffee machine, the rucksack is 50 kg. The manufacturing of even a small car causes an ecological rucksack of 20 tonnes. Most of the rucksack is created in the mines.

The material input service unit (MIPS) relates the use of material to the benefits of the actual product. MIPS weighs the amount of natural resources required to provide a certain benefit, such as one year a product can be used. The MIPS is calculated by adding the product's own weight and the weight of its ecological rucksack (MI) and dividing this figure with the sum of its benefits, such as the number of years it can be used. For example, the amount of natural resources consumed by a television can be correlated with the number of hours it is used, and a car with the kilometres that it is driven. Hence, the MIPS of watching television is about one kilogram per hour and the MIPS for driving a car for one kilometre is about two kilograms. Watching television for two hours consumes the same amount of natural resources as driving a car for one kilometre.

Mining products in everyday consumption

An average Finnish person's ecological rucksack is around 40 tonnes a year. This includes all activities, from eating to hobbies, and all products, from apartments to newspapers. This ecological rucksack includes at least five tonnes of mined material, such as coal, steel, aluminium and copper. Household equipment alone consumes three tonnes of natural resources per person annually, most of which come from mines. Motor vehicles, buildings, packaging, electricity and heat all have ecological rucksacks that include mining products.

Researchers involved in the FIN-MIPS Household Research Project have been studying household consumption of natural resources. They were surprised of the significant contribution of jewellery to a household's ecological rucksack. The production of a gold ring weighing 5 grams requires almost three tonnes of natural resources, which is almost as much as the consumption involved in producing all the furniture for a two-room apartment. Fortunately, the lifespan of jewellery is generally very long. When the natural resources used to produce an item are weighted by the likely lifespan of the product, jewellery's share in the household's annual ecological rucksack falls to only 5%.

Electrical and electronic devices consume huge quantities of natural resources during their lifespan. Most of their ecological rucksack is made up of copper and steel. In Finland, the production of electrical

devices consumes more natural resources than their use. Over half of the ecological rucksack of electricity produced in Finland comes from coal mines and a fifth from uranium. Yet, electricity's rucksack is relatively small in Finland because a lot of renewable resources in electricity production. In Germany, the rucksack of using electronic devices is many times heavier mainly due to the country's reliance on lignite. Thus in Germany, using electrical devices results in heavier ecological rucksack than producing them.

How can we decrease the consumption of mining products?

We use mining products every day without even thinking where they come from. Our everyday choices can affect the consumption of mining products and the size of our own ecological rucksack. For example, replacing aluminium foil with plastic wrap or buying crushed tomatoes in a carton instead of a metal can decreases the consumption of natural resources.

Mining products are consumed whenever we use electricity: 10-20% of the electricity produced in Finland is produced from coal and 25% from uranium. Coal forms over half of the ecological rucksack of electricity and uranium over 20%. By choosing to use wind power in your home, the consumption of coal and uranium would decrease significantly, and so would also the ecological rucksack of the electricity you use.

Because a great deal of the ecological rucksack of energy-consuming products comes from their production, it is important to pay attention to their lifespan and ease of repair. According to research commissioned by the Helsinki Metropolitan Area Reuse Centre Ltd., using the same refrigerator for 25 years consumes fewer natural resources than replacing it with an energy-saving one every seven to ten years. Our everyday consumption choices influence how many mines are needed and how fast they will be exhausted. ■

The authors are researchers involved in the FIN-MIPS Household Project of the Finnish Association for Nature Conservation.

Raw material	**Ecological rucksack** (Kg of natural resources / kg of raw material)
Platinum	320 000
Gold	540 000
Silver	7500
Copper	350
Aluminium	37
Stainless steel	18
Steel	9
Lead	16
Coal	5
Uranium	83 000

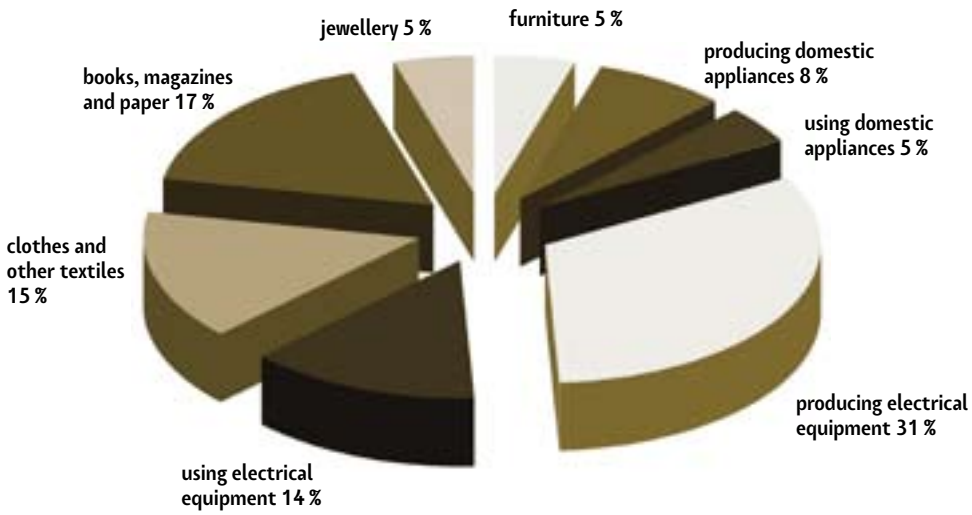
HOW MUCH NATURAL RESOURCES DOES OUR DAILY LIFE CONSUME?

The Finnish Association for Nature Conservation is conducting a project called FIN-MIPS Household – Sustainable Consumption. It aims to increase knowledge of the material consumption flows of individual households and to test this knowledge in practice. The research calculates the amount of natural resources consumed by different aspects of a person's everyday life: MIPS figures are calculated for activities like going to the theatre, doing sports, travelling, or using certain groceries and household items.

According to the research, for example, the consumption of natural resources of a sport or hobby are caused by the material flows connected to the location, equipment and traffic. Travelling to the sports place affects a heavier ecological rucksack than the sports equipment. The ecological rucksack of going to the theatre consists mostly of travelling, and building the actual theatre. The research will finish by autumn of 2008.

➜ www.mips-online.fi

THE ANNUAL ECOLOGICAL RUCKSACK OF PRODUCING AND USING HOUSEHOLD ITEMS



Päivi Pöyhönen

Mining: The invisible link in the electronics production chain

Laptop computers and MP3 players are mega consumers of metals

The production chain of consumer electronics is complicated. The journey travelled by metals from mines to mobile phones is so complex that even the producer rarely knows all the steps involved. But as a large consumer of metals, the electronic industry is also largely responsible for the impacts of the mining industry.

The sale of consumer electronics is increasing all over the world. Records are beaten constantly in sales of mobile phones, MP3 players, computers and game consoles. For example, over one billion mobile phones were sold last year alone.

The electronics industry is a mass consumer of many metals. In recent years, the demand for and prices of many metals have reached new heights, often because of the boom in consumer electronics sales.

Brand companies such as Nokia, Apple and Nintendo have made giant profits for years. They have invested in increasingly appealing products and are offering them to consumers at even cheaper prices. A Nokia phone costs only half of what it used to cost in 2002. In order to bring down their prices, companies have shifted production to subcontractors, especially in Asia.

Recently brand companies of consumer electronics have started addressing manufacturing conditions in countries like China. However, this is only the first step in a much longer production chain. The mining industry is the forgotten link in consumer electronics. Currently, brand companies' ethical responsibilities do not reach all the way to the production of metals. Most such companies would not even know where and under what conditions the metal they use is produced.

Metals' complex production journey

Metals end up in consumer electronics via many different channels. Each step may include several middlemen and it is difficult to track the exact route of products once they leave the mine.

After the mine, ore is processed into metal. The concentration plants and melting factories might be close to the mines, or they might not. For example, the raw ore from Africa is often processed in Europe or Asia.

Some processed metals are sold directly by metal stocks and sales companies and agents. Their clientèle are extremely difficult to pinpoint. For example, the raw material stock in London only gives out information about the total amounts it has sold, not about its customers.

Some metals are transported directly from the mine to the material and chemical producers, which can also be the same companies. The producers turn metals into different types of powders, yarn and chemicals which are sold to electronic component producers. The component producers, in turn, sell their products to brand companies which use them for producing mobile phones, laptop computers and so on.

But even this image of a production chain is simplified, because it excludes different broker companies, processors and so on which are so numerous that tracing them would take a huge amount of work.

Mobile phones, cobalt and child labour

Computers, mobile phones, MP3-players and other consumer electronics are made up of a lot of metals. The most significant ones by volume are aluminium, iron, copper, nickel and zinc. Other vital metals include beryllium, indium, tantalite and metals from the platinum group.

One of the metals used for mobile phone and laptop batteries is cobalt. Over half of the world's cobalt comes from the Copperbelt region in Zambia and the Democratic Republic of Congo. The cobalt manufactured there usually goes to the battery industry in China and from there into our mobile phones and computers.

Under what conditions is cobalt produced? The mines in Zambia and the DR of Congo illustrate only too starkly the problems of mines in developing countries. Cobalt is produced by both small and big companies; working conditions are often poor and environmental impacts grave. Most of the miners live in extreme poverty. The situation is particularly bad for substitute workers: in many cases the wages are not enough for basic needs. In the Katanga province of Congo, miners

work in extremely dangerous conditions but are given no protection. They are exposed to mineral dust which irritates their eyes and damages their lungs. Child labour is also common, with poverty driving many 7-18-year-olds to work in the mines.

Environmental problems in the Copperbelt region are caused by large areas covered by abandoned mines. Old and new dams full of mine waste pollute the environment. Some of the cobalt companies let their waste flow directly into rivers and local farmers complain that their livelihoods have been destroyed.

What can electronic companies and consumers do?

The brand companies selling consumer electronics should ensure responsible conditions right along the chain of subcontractors all the way to the mining sector. Currently the companies claim that tracing the metals is difficult and that as individual companies and small metal consumers they cannot influence the mines. However, the consumer electronics industry is one of the single most important consumers of metals. With a united stance it could have an impact on the mining industry.

There is no need to pressure the companies to stop doing business with metal producers in developing countries. Instead, the electronics industry should influence its subcontractors. Both the OECD's operating regulations for multinational companies and the UN's Global Compact ethical initiative emphasise the knowledge and improvement of human rights and environmental issues in the entire production chain. If companies want to abide by these regulations they could have an impact on the mining sector by choosing the subcontractors that fulfil the necessary ethical conditions.

At the same time as the European consumer is buying cheaper and cheaper electronics, the miner in the Copperbelt is not able to buy enough food or medicine for his family. When our children fancy a new game or a new ring tone, the children in Katanga are being hurt in mining accidents. Consumers should demand electronics that have been produced in a more responsible manner, and tell the brand companies that they are willing to pay more for products that have been produced sustainably and ethically. ■

The author is the EU project co-ordinator for the FinnWatch network. This article is based on research done by the makeITfair project.

The information project makeITfair searches for the origins of consumer electronics

makeITfair is an EU-funded youth information project formed by European civil society organisations based on studies of the production chains of consumer electronics. Its goal is to find out where the metals are coming from and what kind of middlemen sell them to brand companies. The project aims to influence both consumers and the electronic industry with the help of solid evidence.

The project is attempting to investigate working conditions in mines in countries like Congo, Zambia and Indonesia. The practical research work is being done on the spot by local organisations and reporters. The later stages of metals are being traced by researchers, for example by following the routes through which the metals travel on their way from the mines to consumer electronics. Actors like raw material sellers, sub-contractors and brand companies are contacted.

Finnish participants include the Finnish Association for Nature Conservation and FinnWatch. The project is funded by the European Union. In the coming years the idea is to proceed from mining issues to studying the assembly industry of consumer electronics and finally the industry's waste issues.

➜ www.makeitfair.org

THE METALS USED IN HOUSEHOLD ELECTRONICS

BERYLLIUM
With consumer electronic devices getting ever smaller, there is a need for stronger materials such as beryllium-copper mixtures. These can withstand intense heating and can dispose of the heat effectively. Half of the world's beryllium is used for manufacturing computers and mobile phones.

COBALT
Batteries of laptops and other electrical devices consumed one fourth of the world's cobalt in 2006. Cobalt is also used in magnets, loud speakers, earphones and hard drives.

GALLIUM
The largest consumers of gallium are mobile phones, especially the lights on keyboards and the flashes of cameras. The price development of gallium has followed the mobile phone market during previous years.

INDIUM
The consumption of indium is growing due to the dramatically growing demand for laptops, flat screen televisions and other flat screened electronics. Indium is also used for circuits in computers and other electronic devices.

PLATINUM
The growth in the use of platinum results from the increased production of hard drives. Platinum is also needed for the production of flat screens and liquid crystal display glass used in laptops and some televisions.

TANTALITE
Half of the world's tantalite is used for condensers found in mobile phones, computers, digital cameras, hearing devices and car electronics. The demand for tantalite has increased dramatically due to the diminishing size of consumer electronics.

Olli-Pekka Haavisto

Civil action for tackling mining

Many NGOs monitor mining companies

The environmental damage caused by mines has prompted powerful civil action. Even though fixing the situation seems like an impossible mission, there are signs of positive developments locally, regionally and even worldwide. Any means that are efficient are acceptable: the justice system, international agreements or ruining the reputation of misbehaving companies.

Banishing dirty gold

Gold is one of the most damaging products of the mining industry. Every single ounce of it creates around 79 tonnes worth of mining waste. In Ghana, Indonesia, the United States and Peru, goldmines have driven people from their homes against their will, destroyed traditional livelihoods and wiped out ecosystems and destroyed water sources. Indigenous peoples especially have suffered the consequences since over half of the world's gold comes from their lands. Irreversible destruction of water sources is more of a rule than an exception.

For years environmental organisations such as Oxfam America and Earthworks have been running the No Dirty Gold campaign to inform the public of the damage caused by gold mining. The campaign involves many local organisations and communities in issues surrounding the mining industry, human rights and the environment. Organisations from all over the world have joined the campaign.

The Business Ethics Network of environmental organisations recognised No Dirty Gold in October 2007 for its successful campaigning. Thanks to the campaign, eight of the leading jewellery traders have given up selling “dirty” gold.

Fighting the destruction of the Ok Tedi River

A giant copper and gold mine run by an Australian mining company, the Broken Hills Properties BHT, launched its operations in Western

Papua New Guinea in 1984. A pool built for waste stone and sludge collapsed in a landslide during the construction phase. The mining company then acquired permission from the government to dump all its process waste straight into the nearby Ok Tedi River.

As a consequence, the river has become so polluted that most species of fish have disappeared completely. The dumping of waste has lead to continuous floods that have caused many forest areas to be covered with water. In 1999 it was calculated that approximately 176 square kilometres of forest had been destroyed and almost 50,000 people had been displaced. One anthropologist described the situation as "eco murder".

The local people affected by the situation did not succeed in negotiating with the BHP, and finally they took the matter to the international water tribunal in the Hague. The tribunal has only a handful of ways to enforce changes, but the case attracted so much international attention that in 1996 BHP was required to pay settlements and to change its procedures. In 2000, the World Bank suggested publicly that the mine should be closed. Two years later, the new CEO of BHP described the mining project as a bottomless environmental hazard that should never have been started.

Unfortunately, the decisions of the water tribunal have not been followed through and the mine is still dumping its waste into the Ok Tedi River.

Canadian environmental vandals put on the map

For years, Canadian mining companies have assumed a veneer of community responsibility. They have admitted there are flaws, but have also been eager to prove these are merely exceptions.

Canadian civil society organisations are not so convinced. In 2006, they produced a so-called mining map of Canada which gathered information about all the human rights and environmental crimes that have been committed by Canadian mining companies in 25 countries worldwide. The map also reveals the involvement of international financial institutions in specific mining projects.

The map disproves the claims of the mining industry that any problems are merely random, isolated incidents. It also proves that many of the environmentally and socially damaging projects are being funded from the public purse. The organisations involved in compiling the map are aiming to publicise the true actions of Canadian mining companies. Above all, they are demanding a public and binding control system to prevent further damage by the mining industry.

A large variety of civil society organisations participated in the

mapping project, from labour unions to church organisations and from environmental organisations to groups fighting for peace and social justice. This project shows that effective results can be accomplished through the co-operation by different types of organisations within a country.

The mapping project is part of a larger entity called the Halifax Initiative. The purpose is to reform the actions of the World Bank, the IMF and export credit institutions so as to become truly attentive to poverty reduction, environmental sustainability and human rights, not just in speeches but also in reality.

Making mining projects more transparent

There is a lot to scope for improving the transparency and openness of mining projects. The Extractive Industries Transparency Initiative (EITI) was launched in Johannesburg at the World Summit for sustainable development in 2002. It attempts to make the industries exploiting natural resources more transparent, to decrease corruption and to benefit civil society. It supports governments from countries rich in natural resources. It also verifies and publishes the payments made by mining companies, as well as settlements that governments are receiving from oil, gas and mining operations.

EITI is funded by the Multi-Donor Trust Fund (MDTF) managed by the World Bank and including France, Germany, Norway, the Netherlands and Great Britain. It gives funds to support countries in implementing set criteria for transparency. EITI has an international secretariat.

However, EITI has been established from the point of view of states and companies and does not, therefore, challenge any of the basic premises of the mining industry. Its first written principle is: "We believe that the wise use of natural resources should be the motor for sustainable economic growth which contributes to sustainable development and poverty eradication, but if the use of natural resources is reckless, it can have negative economic and social consequences."

Civil society is mentioned in one criterion as a participant in planning, monitoring and evaluation and as a participant in public discussions. However, it is apparent that civil society should be given a larger role.

Local and global working together

Mining projects are always geographically localised. However, mining stems from economic trends and patterns that are global.

The most effective way to influence mining is therefore to bring lo-

cal, regional and international groups together.

The Mines and Communities Website aims to do just that. It is maintained by three British organisations: People against Rio Tinto and Subsidiaries (Partizans), Indigenous Peoples Links (PIPlinks) and the Society of St Columbian. The website spreads information about mining projects and campaign experiences so that different groups can benefit from the experiences of others and form joint campaigns.

The website is updated weekly with stories from all around the world about mining projects and their impacts. All of the facts in the articles are verified before being published. The dozens of organisations involved can send their information bulletins and funding requests to the website. The organisations themselves are responsible for the content in a democratic manner. The bulletins and articles are also organised into various categories, such as by country, company or miner or some specific issue such as women's rights or workers' safety.

According to the website, there has been a certain amount of change in the mining industry, such as a contract from the Global Mining Initiative (GMI) in 1998 and the foundation of the International Council for Mining and Metals (ICMM) in 2002. Some organisations consider these initiatives to be very positive and believe that mining companies are changing their ways of working considerably.

Many others, particularly the communities affected by the mining industry, do not share this optimism: opposition to mines has clearly increased during the past couple of years. Mining companies are blamed for their lack of transparency and large-scale violations of social, cultural and environmental conditions.

Civil society organisations have a lot of work to do both locally and globally. This evaluation of different types of campaigns shows that the best results are produced by diverse co-operation. ■

The author is an activist at Friends of the Earth and specialises in global water issues.

Epilogue

Picture by Olli Karttunen

Aleksi Neuvonen

A Tom Thumb adventure in mining

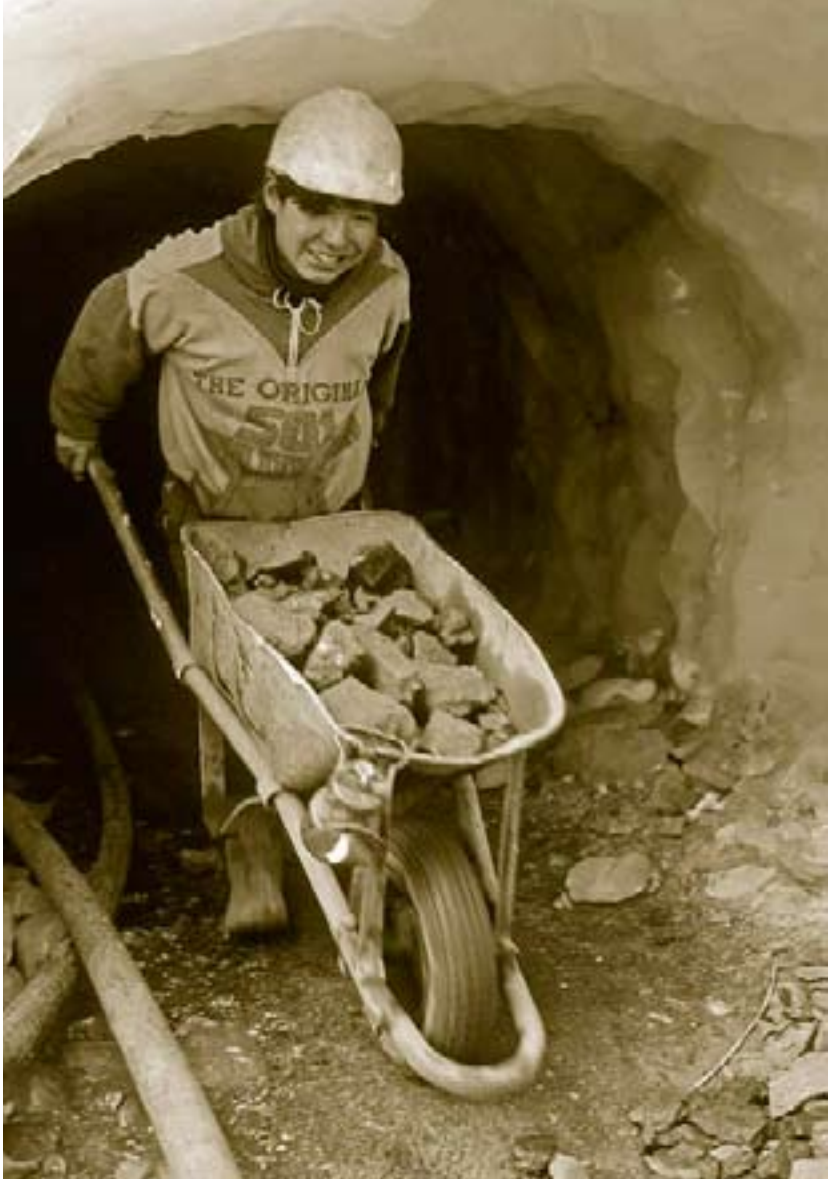
In my primary school geography class in the 1980s we were taught that Finland has no other natural resources than forests. Some other countries, on the other hand, were rich in oil, minerals and metals. Even Sweden had iron and silver.

I learnt more about the mines in Sweden when my mother used to read a book to me and my sister by Selma Lagerlöf about the adventures of Tom Thumb and the wild geese. A boy from Skåne travels through Sweden and sees, among other things, mines and the people who work there. The image of Swedish mining communities of the last century is not a pretty one: people lived in poverty, desperately seeking to make ends meet in any way possible.

The misery of the first years of industrialisation was already history in my childhood, as it was in those Swedish mines that we visited during our summer holidays. Instead of silver and misery, the mines are now producing experiences and relaxed tourist activities.

Mining and its problems were hidden from people in industrialised countries for decades. The stories in this book explain why. The mining industry has shifted from the remote Nordic forests to developing countries. In other words, to even more remote forests where environmental laws are little different to those in Sweden in the 1900s. Problems caused by production are often so local and remote from our point of view that they are rarely mentioned in the newspapers.

This is why it is still easy for us to believe that the actions of the mining industry increase wealth. This book confirms that this is not the case, at least not for the people living close to the mines. In that sense nothing much has changed in the past hundred years.



A gold mine worker in Rinaconda, Peru. How would a knowledge intensive vision of Malawi, Peru or Zambia look like?

Picture by © International Labour Organisation / E. Gianotti

But the mining industry does also benefit people other than the companies owning the mines. We, the Finnish consumers, benefit at least in the short run and from a narrow point of view. Our homes are filled to the brim with increasingly complicated electronics that consume an ever-increasing variety of different metals. These products continue to get cheaper and their lifespan continues to get shorter. They also play a central role in our perceptions of wealth and status. We feel that we are gaining something more by buying a new and exceedingly complicated phone, computer or MP3 player. Many feel that the development of our society is linked directly to technological development.

The increasing complexity of equipment means that fewer of us ac-

tually understand how our electronic products are built or what they are made of. Metals are hiding in smaller and smaller parts. It requires specific knowledge to understand how the household MIPS figures are formed.

Things could be different. The origins of all the things around us could be objects of wonder. The articles in this book explain why: the production of our household items involves so many problems of which we should be aware. It would seem morally immature and irresponsible to ignore these problems, either as individuals or societies.

But there is cause for hope. These stories reveal that today, thanks to communications technology, we have unprecedented opportunities to get first hand information about complicated incidents far away. Local, even remote groups can quickly spread information about mining problems to much larger groups of people. Some years ago these problems would have taken months or even years to hear about.

Information feeds interest. The ability to influence consumers is by far the most ground-breaking development of our time. It means that consumers want to know more and also to act responsibly based on this knowledge.

We also have another reason to be interested in the products that we consume. It is clear that over the next few decades there will be a revolution of some sort in the consumption of natural resources which will affect our everyday lives. It is not possible for us to sustain the current growth in consumerism, regardless of how much the productivity and efficiency of materials and energy increases. The basics for this were already laid down in 1972 in a report titled The Limits to Growth, which stated that limitless exponential growth in a confined space such as our planet is not possible. When the report was written, mankind was still consuming much less than the ecological capacity of the earth, whereas now we are consuming over 25% more than it can handle.

In the future, we will consume fewer material things and more of something else. What we will consume may have something to do with products, for example knowledge of their origins. In this way our relationship with these products will grow deeper. We may be willing to pay more for better products in order to consume much less in the long run.

For the future of the communities introduced in this book, it is crucial to think about how the value of future consumption will be formed. Are local communities left with an ever diminishing slice of what mining and other raw material production is now offering? How will the great structural change of consumption affect the people

whose involvement in changing consumer habits is much more limited than ours?

People living in the industrialised countries have a dual role in the lifespan of consumer products – we are involved in both production and consumption. We see in our everyday lives where the ore and metal ends up when it leaves the mines and factories; we also see how the forest industry uses wood. This creates possibilities for a public discussion about what is acceptable and what is not.

We can outline the responsibilities of different actors even through global webs of ownership and values. The problems caused by the mining industry are not just local, but something broader. Achieving this vision is more difficult in developing countries because what is visible is generally merely one corner of the production chain. The only possibility then is to criticise those causing those local problems.

We do not pity ourselves anymore for the lack of natural resources in Finland, not even in school books. The entire western world is focused on skills. We can easily disregard the production of raw materials, or at least the messiest parts, which are taken care of by people in other continents. How would a knowledge intensive vision of Malawi, Peru or Zambia look like? Who is left with the responsibility of creating one?

An international bestseller, The Dream Society, by the Danish futurologist Rolf Jensen, tells how future consumption will shift more towards experiences and stories. The book mostly describes Western companies and consumers. However, one thought is given to the developing world. Jensen claims that most of the areas which rely heavily on natural resources would already have a higher experience-value than their value in natural resources. It is of course merely a thought, but one well worth thinking. Without playing with thoughts, we have no chance of creating new solutions or a better world. ■

The author is the Vice Chairperson of a Finnish NGO called Dodo.

The Siemenpuu Foundation promotes democracy and environmental awareness in developing countries

The Siemenpuu Foundation supports the environmental work of civil societies in developing countries. Support is directed to Southern organisations' own locally planned and implemented projects which aim to promote ecological democracy and environmental protection or to prevent environmental threats.

It is the foundation's view that environmental protection is most successful when it is done in a sustainable, democratic and participatory manner. Besides environmental issues, it is also important to take human rights, social justice and cultural diversity into account. This is the kind of work where civil society can lead the way: at their best, environmental projects can provide good examples to the governments and companies in developing countries.

Siemenpuu supports environmental protection in countries where the traditions and working conditions of the local civil society vary considerably. Currently, the foundation is focused on working in three countries—Mali, India and Indonesia—where it funds projects on different themes through five co-operation programmes. Where the small village associations in Mali are planting trees, the SADED-network in India is promoting ecological democracy and the Yalhimo-organisation in Indonesia is increasing the involvement of indigenous peoples in the use of their forests. New co-operation programmes are also being planned in the Mekong River region in Southeast Asia and in Latin America. Individual projects in other countries are also supported.

The foundation receives support from the development co-operation funds of the Ministry for Foreign Affairs of Finland and reports to the ministry about their use. Apart form this, the foundation is functionally and legally an independent civil society actor. Its overall budget in 2007 was around one million Euros.

The Siemenpuu Foundation was founded by 15 Finnish civil society organisations working on environmental and development issues. It has been supporting environmental projects since 2002. It has a staff of five employees based in Helsinki, but a substantial part of its work is done by volunteers. The project funding decisions are made by a board of voluntary experts chosen by the founding organisations.

FOUNDING ORGANISATIONS OF THE SIEMENPUU FOUNDATION

- **BirdLife Finland**
- **Dodo**
- **The Swallows of Finland**
- **The Service Centre for development cooperation, Kepa**
- **The Finnish Nature League**
- **Friends of the Earth Finland**
- **The Finnish Society for Nature and Environment**
- **The Finnish Association for Nature Conservation**
- **Tinku Finland**
- **The Finnish Association for Environmental Education**
- **WWF Finland**
- **Technology for Life**
- **New Wind**
- **The Green Cultural Association**
- **Coalition for Environment and Development**

Enriched or Impoverished?

Environmental Accounts about Mining in the Global South

What kind of impacts does a gold mine in the Philippines have on the neighbouring river system? Who benefits from the Indonesian coal mines? How have the villagers in Malawi reacted to the uranium mine plans? Where does the cobalt in my mobile phone come from? Who bears the responsibility of the destruction caused by mining?

Enriched or Impoverished? provides its readers with information and accounts on the impacts of the mining industry in developing countries. The topic is not familiar in Finland, but it concerns everyone who uses a computer, sauce pan, bus or wears a ring.

The authors of the articles in this book are civil society activists in the South and in Finland. The mining related accounts are based on environmental projects of non-governmental organisations in developing countries funded by the Finnish Siemenpuu Foundation.

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