

Reckless Lending

Volume II

How Canada's Export Development Corporation
Puts People and the Environment at Risk



BY THE NGO WORKING GROUP ON THE EXPORT DEVELOPMENT CORPORATION

A WORKING GROUP OF THE HALIFAX INITIATIVE COALITION

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The NGO Working Group on the Export Development Corporation is a coalition of Canadian non-governmental organizations concerned about the human and environmental impacts of export credit agencies. The Working Group promotes adherence by export credit agencies, particularly Canada's Export Development Corporation, to internationally accepted standards regarding human rights, environment and sustainable development.

Members of the Working Group are:

Canadian Auto Workers

Canadian Council for International Cooperation

Canadian Friends of Burma

Canadian Labour Congress

*Canadian Lawyers Association for International
Human Rights*

Democracy Watch

Development and Peace

East Timor Alert Network

Falls Brook Centre

MiningWatch Canada

Project Ploughshares

RESULTS Canada

Rights & Democracy (ICHRDD)

Sierra Club of Canada Nuclear Campaign

Social Justice Committee of Montreal

Steelworkers Humanity Fund

West Coast Environmental Law Association

The NGO Working Group on the Export Development Corporation is hosted by the Halifax Initiative Coalition.



The Halifax Initiative seeks to reform the international financial system and its institutions to achieve poverty eradication, environmental sustainability and equitable redistribution of wealth. Canadian NGOs formed the Halifax Initiative in December 1994 to ensure that demands for fundamental reform of the international financial

institutions were high on the agenda of the G7's 1995 Halifax Summit.

Like the report "Reckless Lending – Volume I", Volume II documents the negative impacts of several projects financed by Canada's Export Development Corporation (EDC). These publications demonstrate clearly the need to ensure that EDC, a public agency, be required by law to uphold public policies and international standards protecting human rights, the environment and the social needs of communities.

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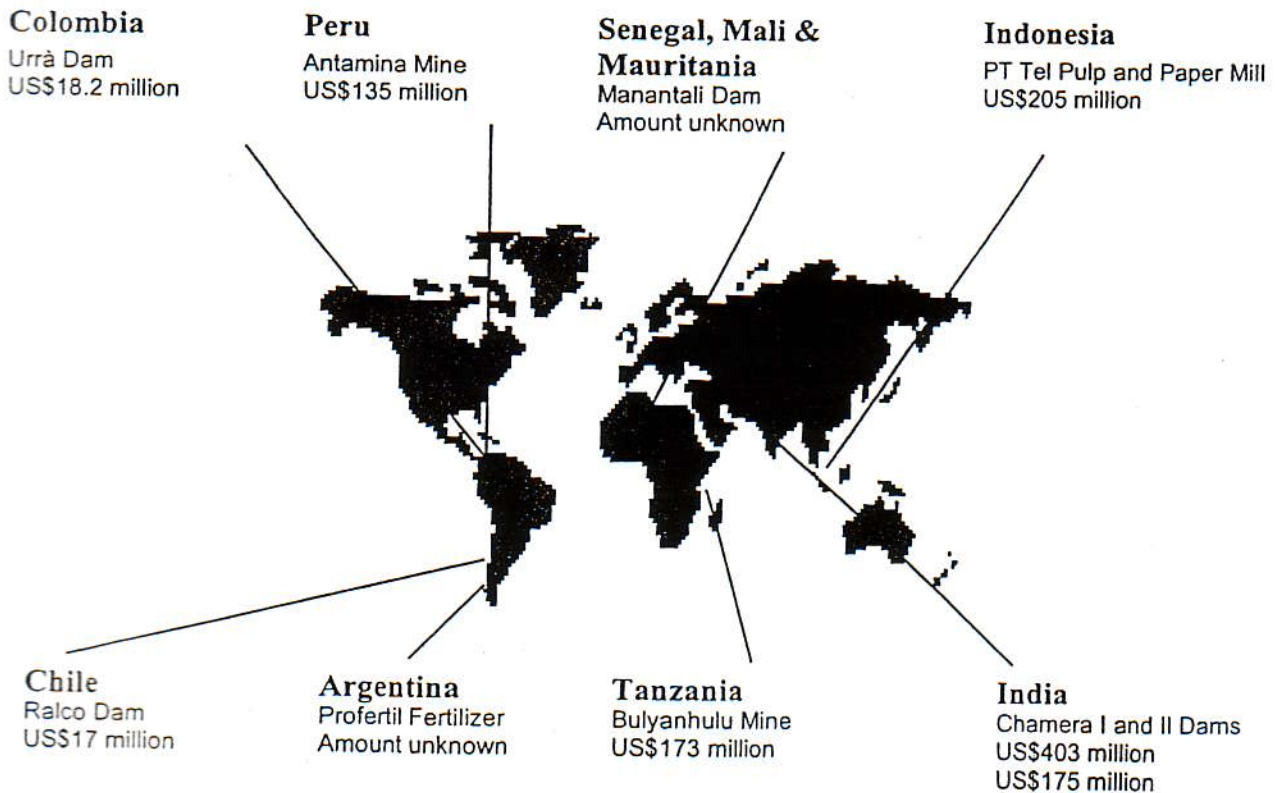
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Introduction

CANADA'S EXPORT DEVELOPMENT CORPORATION IS AN ACCESSORY TO A NUMBER OF DEVELOPMENT DEBACLES AROUND THE WORLD. LIKE RECKLESS LENDING - VOLUME I, RELEASED MARCH 2000, THIS REPORT PROFILES A FEW OF EDC-SUPPORTED PROJECTS THAT ARE MIRED IN CONTROVERSY DUE TO NEGATIVE ENVIRONMENTAL, SOCIAL AND HUMAN RIGHTS IMPACTS.

It is because of controversy surrounding certain projects, that the public knows that the EDC is involved. Since the EDC became a publicly owned institution in 1969, it does not as a policy release information about the projects it supports. It is exempted from the Access to Information Act.

Currently, the EDC is also exempted from the Canadian Environmental Assessment Act. Since a legislative review of the EDC began in 1998, increasing scrutiny of the EDC's social and environmental performance has occurred. The EDC adopted an Environmental Review Framework (ERF) in April, 1999. At least four of the projects profiled in this report were approved by the EDC after the adoption of its ERF.

These are just a few of the negative impacts of these projects.

- The Antamina mine, located in Peru, will level forever eight peaks in Peru's highest mountain range, which has been compared to the Canadian Rockies. People living near the mine have complained to the World Bank about the mine's pollution risks, inadequate compensation and the resettlement process.
- The Chamera II dam in northern India is continuing the devastation caused by the Chamera I dam, despite the fact that social and environmental issues of the first dam remain unaddressed. The first dam turned 18 kilometres of forested valleys into a lake, in an area already greatly suffering from deforestation. Landslides are increasing and the Chamera dams are located in an earthquake zone known as seismic zone V _ the highest seismic area in India.

- The Profertil complex in Argentina has been shut down twice due to ammonia leaks. Residents are preoccupied with the dangers associated with the transport and storage of chemicals, and plant emissions into the ocean.
- The Bulyanhulu mine has caused the eviction of thousands of artisanal miners from their mining concession through different court processes. Tanzanian environmentalists are concerned that gold mining in the area will lead to water contamination from hazardous mine tailings containing heavy metals and cyanide. According to reports received by Amnesty International, some artisanal miners were killed during evictions from disputed land.
- The Urrà hydroelectric dam in Colombia has destroyed the traditional food supply of the Embera Katio indigenous nation and increased the violence directed at the leaders of the community. A dozen leaders opposing the dam have been killed by the paramilitary and guerilla forces. Malaria and dengue are on the rise since the dam has been constructed.
- PT TEL, set to become Indonesia's largest pulp and paper mill, has subjected the local community to landlessness, unemployment, pollution, loss of livelihood and health problems. The company has been embroiled in conflicts with local villagers due to illegal logging, forced land seizures and intimidation by security forces.

- The Manantali dam is being retrofitted to generate power. Already, Manantali “had seriously upset the basin’s ecosystems and destabilized traditional economic activities, with the result that the region has become the poorest in all three countries. Increased social inequalities and malnutrition have caused a mass exodus of workers from the river basin ... the development of irrigated agriculture and the fact that salt water is now prevented from entering the delta have caused a proliferation of carriers of endemic diseases such as bilharziasis. according to a 1997 report by the African Development Bank.
- The Ralco dam, the second of six to be built along Chile's Biobío River, will flood 3,400 hectares of land, displace 600 people, 400 of them Pehuenche Indians. Many illegalities have occurred during the approval process of this project in Chile, including the dismissal of the heads of the environment and indigenous departments. There are currently three court cases on the dam pending in Chile.

Despite the fact that at least four of these projects underwent some form of environmental review at the EDC, there is little evidence that the local populations are being consulted, that environmental and social impacts are being mitigated and that international agreements on indigenous peoples and human rights are being upheld. The EDC’s existing procedures do not require:

- human rights impacts to be taken into consideration,
- the disclosure of environmental assessments prior to project approval
- the participation of locally affected people in the project design, implementation and monitoring.

The NGO Working Group advocates that the Canadian government regulate the EDC under the Canadian Environmental Assessment Act (CEAA). Regulating the EDC under CEAA could significantly improve the EDC’s environmental assessment

procedures and would increase ministerial oversight and accountability.

The EDC argues against coming under the purview of CEAA, wanting to self-regulate itself. As a public institution, the EDC should be mandated by law to require Canadian companies to be as thorough abroad as they are at home. Similarly, the EDC should be mandated by law to disclose environmental and social impact information of the projects it is considering prior to approval. Disclosure of information before project approval is key to an effective environmental assessment process.

The EDC has argued that disclosure of environmental impact assessments prior to approval can hinder its competitiveness. Yet the US and Australian export credit agencies have this requirement. Indeed, it is standard practice as part of an EA process, carried out by all Canadian public agencies, subject to CEAA.

This report shows that the small steps taken by the EDC, such as its environmental framework, may not be enough to protect local communities, the environment or Canada’s reputation abroad. Some projects presented in this report were approved before the framework was adopted, others went through the new environmental process. In both cases, negative impacts have occurred. This demonstrates firstly what type of impacts EDC financing can cause, and furthermore that these negative impacts have not been eradicated by the Environmental Review Framework in place.

The EDC’s statute is currently open to legislative change. All Canadians, parliamentarians and the public, must ensure that this opportunity is not lost to see Canada race to the top by adopting in law, global standards for its export credit agency. Only with appropriate legislation will the EDC’s financing no longer risk the environment and communities abroad.

Peru - Antamina Copper and Zinc Mine

THE ANTAMINA COPPER AND ZINC MINE WILL LEVEL FOREVER EIGHT PEAKS IN PERU'S HIGHEST MOUNTAIN RANGE. IT IS CONSIDERED ONE OF THE LARGEST MINING OPERATIONS IN THE WORLD AND HAS FORCED THOUSANDS OF RESIDENTS FROM THEIR LANDS AND LIVELIHOODS. PEOPLE LIVING NEAR THE MINE HAVE COMPLAINED TO THE WORLD BANK ABOUT THE MINE'S POLLUTION RISKS, INADEQUATE COMPENSATION AND THE RESETTLEMENT PROCESS.

This US\$2.3 billion greenfield project, currently under construction, is located at 4,300 meters above sea level in the Cordillera Blanca, about 300 km north of the capital city of Lima, right outside of Huascarán National Park. The copper and zinc mine is located under Laguna Antamina, which will be drained to extract the ore. In addition to the mine, the project includes a network of pipes to transport the ore to a pier that is being constructed near the coastal city of Huarmey. Antamina is reportedly the third largest undeveloped copper-zinc deposit in the world and plans to process on average 70,000 tons of minerals/day over 20 years, starting in 2002, leading to an estimated production of 300,000 tons of copper and 180,000 tons of zinc per year.¹ This represents approximately 16% of Peru's exports, and one third of its mining exports.

The mine, operated by Compañía Minera Antamina (CMA), is predominantly owned by three Canadian companies, Rio Algom (33.75%), Noranda (33.75%), Teck Corp (22.5%), and one Japanese company, Mitsubishi (10%). US-based Bechtel is the Project Manager. The project has gathered \$1.32 billion in international financing from the World Bank's Multilateral Investment Guarantee Agency (MIGA), export credit agencies and commercial banks, of which \$135 million comes from the Export Development Corporation (EDC). The EDC, along with other export credit agencies, is also providing US\$335 million in political risk insurance to cover the project's commercial bank loans against war and civil disturbance, transfer restriction and expropriation.²

Near the mine pit in the area of San Marcos, resettlement and compensation problems have occurred. Local populations from the area of Huarmey are worried about the environmental risks and loss of livelihood resulted from the mine. The mega size of the project impacting the vital Amazon and Pacific watersheds should have forewarned of the high degree of social conflict and the serious foreseeable environmental impacts.

Social, Economic and Development Impacts

1. Resettlement Problems for the Andean Communities

The communities located in the affected area have voiced serious concerns over CMA's resettlement procedure, particularly over the selection of the inhabitants to be resettled and the compensation awarded. Forced to move involuntarily and lacking adequate information about their rights, many residents complain that the involuntary resettlement plan was implemented without taking into consideration their socio-economic and cultural reality which are based on livelihoods derived from land. The plan directly privileged monetary compensation rather than land for land schemes. Moreover, it did not take into account the complex land rights and resource use patterns of production and exchange customary in this high Andean community. This has left some without land or compensation.

To add to these problems, the project's interest in the area has greatly inflated land prices, leaving many local inhabitants unable to afford new land. The policy applied was below internationally recognized standards, particularly those of the World Bank, a mistake the company recognized following the publication of the results of an independent evaluation commissioned by MIGA.³

2. Economic Development in Peril

While mining companies often boast of all the infrastructure developments, services and job opportunities they bring to a specific area, they sometimes bring their share of problems for the development of the region as a whole. A notable example is that of the community of Llata, now isolated from the area's farming communities because the mine has cut off its traditional access routes. This link traditionally facilitated the interregional transit between the Amazon region, the Andes and the coast. The community is still requesting access to be re-established, a request which to date is left unanswered.

In the port area, particularly in the fishing communities of Puerto Grande and Huarmey, CMA has also wrecked havoc. Many local fishermen complain that they have lost access to their fishing areas because of the pier construction and the obstacle the pier constitutes for the small rowboats that must now confront high winds and a long trip to find very little fish. Many residents who depend on this fishing have lost their economic subsistence and fear that, without better compensation, they will not be able to survive. Many also believe that the mineral dust poses a very high risk of pollution to the seawaters and that the proponent of the project is not taking the necessary precautions to prevent an accident, such as doubling the pipes.



Pier that blocks the access of local fishermen to the harbour.

Local residents also complain that the project authorities have not kept promises made to them at the time of project approval to provide access to water, electricity, roads, employment and training. They indicate, for example, that the company has hired Chilean workers or workers from other regions instead of hiring local labourers.

As a result of all these complaints, representatives in the community express a high level of mistrust against the whole project and the way it is being led. They perceive the foreign investors' efforts to dialogue as attempts to manipulate them rather than to resolve the conflict equitably. They have filed a complaint to the MIGA's Ombudsman, requesting its intervention to ensure the project's compliance with international standards of consultation and participation and the opportunity to make their own decision on the project. The Ombudsman is currently investigating the case, but meanwhile local residents have organized and are planning a general strike in all the areas affected by the project at the time this report is issued.

Impending Environmental Dangers

The communities living near the mine site have already complained that the headwaters of the Ayash River are now polluted, a pollution which they say coincides with the mine construction. While they have no scientific equipment to demonstrate this, they attest of a change in the color of the water. Aside from the concerns already raised by the local communities, however, experts who have analyzed the project's design fear that the mine can potentially create an environmental disaster, if it remains as is.

1. The loss of Laguna Antamina and the Formation of an Acid Lake

The development of the project implies the desiccation of the Laguna to develop the mine pit. This will impact the flow of underground and superficial water flows during the implementation of the project. The closure plan proposal to convert the pit into a lake does not take into consideration the fact that this lake could become highly acidic. Indeed, 20% of the waste rock that the mine will generate is considered reactive and shows high levels of sulphur.⁴ If this rock is in contact with air or water, it can generate acid waters and leaching of heavy metals, a phenomenon that will require adequate management, but this potential risk remains ignored.

2. Tailings Disposal

The project proposes the disposal of wet tailings at the head of the Marañon waters. It is well known by the scientific community that wet tailings disposals are very unstable,⁵ and failures of wet dam tailings can be catastrophic. Several environmental disasters are associated with such failures. The various communities who live in the Andean Plateau downstream from the tailings dam could be seriously impacted.

3. Potential Pollution

Risks of air and water pollution are high, particularly because of dust dispersal during the period of minimum water flow and exposure of waters to sulphur materials in the pit area. The environmental management plan requires a permanent report of the water quality in the area potentially affected and continual information to the communities that use these waters for their own consumption, that of their animals and their farmland. Currently the project reports to the Ministry of Mines, but no information is available to the local population. In spite of the creation of community-based environmental committees, these lack resources or technical

assistance to participate adequately in the monitoring activities.

CMA's Response: A "Responsible Mining" Policy

In spite of all these issues, Antamina is generally considered in Peru to be the mining project most attentive to community needs. CMA proactively disclosed the environmental impact assessment, it also invited municipalities to jointly design the regional development plan, mining as one actor, albeit major. This action was unheard of in Peru. The project is such an enormous investment that the development of the whole region now revolves around it with no accountability to the local residents. The project has also developed several other notable initiatives, including the creation of community-based environmental committees in Ayash, San Marcos and Huarmey.

As in many cases, the introduction of this mining project has generated great expectations and deceptions in the area. In this situation, these expectations and deceptions have been exacerbated by the fact that promises have not been kept, and by the local community's fears that this project is taking too many risks that could seriously damage their environment and threaten their livelihood. Environmental regulations in Peru are insufficient, rarely implemented or enforced by the national government to offer any real protection to the local

people. Recent mining accidents and examples of livelihoods destroyed day after day by mining projects throughout Peru loom large in the minds of many of Antamina's neighbours. The hope of the local people is that because the mine is run by foreign companies and backed by foreign investors, the project will obey internationally recognized standards as stated in their claim to MIGA's Ombudsman, and that their communities will not be victimized by environmental and social carelessness.

Antamina is seen to be a flagship project by companies and investors. What should have been done? A strong policy of transparency, community participation, and information sharing regarding all potential environmental impacts of the project should have been adopted. Every modification in the project design, which could potentially impact the environment and local people, should be vetted with the community and seek government approval. The community should have access to independent information and be fully supported in its participation to the planned environmental monitoring. To avoid the perception that Antamina is manipulating community opinion in exchange for development activities, the resources should be managed by an independent entity that could channel these funds towards development projects identified in a participatory manner in each zone.

India - Chamera Dams I and II

THE CHAMERA II DAM IN NORTHERN INDIA IS CONTINUING THE DEVASTATION CAUSED BY THE CHAMERA I DAM. THE FIRST DAM BURIED 46,000 TREES AND TURNED 18 KILOMETERS OF FORESTED VALLEYS INTO A LAKE, IN AN AREA ALREADY GREATLY SUFFERING FROM DEFORESTATION. LOCAL POPULATIONS DISPLACED FROM THE FIRST DAM REMAIN WITHOUT JOBS AND LAND. MEANWHILE, CONSTRUCTION ON CHAMERA II CONTINUES.

The EDC and CIDA provided \$403 million and \$245.5 million in loans respectively for the \$1.3 billion 540 megawatt (MW) Chamera I Dam in 1984.⁶ In November 1999, the EDC loaned \$175 million for the \$500 million 300 MW Chamera II Dam to India's National Hydroelectric Power Corporation (NHPC). The two dams are located 30 km apart on the Ravi River in Himachal Pradesh state in the Himalayan foothills of northern India. Chamera I started operating in 1994 and Chamera II is presently under construction.⁷ Canadian companies won all the foreign contracts for Chamera I. These include SNC/Acres International, General Electric Canada and Marine Industries.⁸

Chamera II is being built by the IndoCanadian Hydro Consortium comprised of SNC Lavalin, Acres International, General Electric Canada and Jaiprakash Industries.⁹

Social Impacts

The land and houses of 250 families were submerged by the Chamera I Dam.¹⁰ Land belonging to 339 families is being acquired for the Chamera II project, reported P K Dhuman, Himachal Pradesh's Chief Minister in the state legislative assembly, on March 3, 2000.¹¹

As reported in The Tribune (North India's main newspaper), 192 displaced families from the construction of Chamera I and II have organized themselves into the Chamera Oustees Welfare Association (COWA). On December 28, 1999, COWA went on a 18-day long hunger strike to protest the lack of compensation for its losses. From the state government, COWA demanded employment for one member each of the 192 families, land for the homeless and landless families as well as timber distribution rights. The Association suspended the hunger strike on January 15, 2000, after Kishori Lal, the Himanchal

Industries Minister, assured them that he would discuss their demands with Prem Kumar Dhuman, the Chief Minister, before February 22.¹²

On May 12, 2000, COWA blocked traffic on the Chamba-Bharmour highway to protest the government's "indifferent attitude" towards them. The displaced demanded compensation for their land, jobs and rehabilitation. COWA presented a memorandum to the state government.¹³ As recently as March 17, 2001, the oustees "flayed the indifferent attitude of the Himachal Pradesh Government" towards the families whose land and houses had been submerged in the Chamera dam and who were still waiting for rehabilitation. Madan Rawat, Chairman of COWA, demanded jobs and pointed out that the state government had so far not given land to the uprooted families. According to him, the displaced had also not been given their share of timber and so were unable to build houses.¹⁴

Environmental Impacts

The first dam contributed to increased deforestation in the area. Due to continuing deforestation, many parts of Chamba district are being turned into desert land¹⁵ and its geographical interior belts face the constant threat of soil erosion and massive landslides. During the monsoon season, houses, crops and livestock are often washed away.¹⁶ The landslides also threaten dams on the Ravi River including Chamera. Soil erosion has caused the silting of the Chamera dams and tunnels which could reduce the life of the projects. Nationally, India has lost most of its forests.¹⁷

In addition to contributing to deforestation, the Chamera project has depleted fish stocks. According to Kulbushan Ralhan, General Secretary of the Himachal Angling Association, the Chamera scheme has reduced trout fishing in the Ravi River. The Association has expressed concern over the depletion of fish stock in rivers due to the setting up of power projects in Himachal Pradesh. Ralhan explained that the mud extracted during the construction of power

projects was not being properly disposed of and was harming fish in rivers.¹⁸ Ajit Kumar, Secretary of the Dhauladhar Education Public Society and a noted local environmentalist, has pointed out that if the Ravi river was blocked by the Chamera project, “there would be heavy damage to colonies and nearby localities.” Kumar has expressed concern that no one was addressing the “gravity of the situation arising out of the construction of big dams” and huge tunnels using explosives. According to him, “the ecology of the state was in peril.”¹⁹

The Indian Ministry of Environment and Forests’ (MEF) environmental appraisal committee has called for halting the construction of Chamera II along with that of 11 other dams. In November 1995, the committee found that 90% of medium and large dams being built in India violated environmental and social requirements set by the MEF. Afforestation and rehabilitation of displaced people were the conditions most often violated. Consequently, “forests are being submerged, wildlife destroyed and people displaced without compensation.” Aside from warning some project authorities, the MEF has not acted against the schemes that broke its rules.²⁰

CIDA itself does not see “much environmental good” in the Chamera project and its officials have expressed the hope that the Indian government will cancel Chamera II. Having financed Chamera I, CIDA concluded that it was not the kind of development that India needed. “We could spend the money better elsewhere... such as [on] poverty alleviation”, remarked André Gingras (head of CIDA’s program in India), in 1992. “Energy projects were part of the 80s”, explained Gingras. “India needed the power and we had the expertise but now I would have to say in terms of development, it’s not very good.” In a country where most people live in villages, CIDA believes that the huge dams will only benefit city residents and factory owners.²¹

According to the EDC, Chamera II met the requirement of its environmental review framework.

Technical Problems

Chamera I has been plagued by myriad technical problems that bring into question the viability of the dam. These include leaking sluice gates, seepages in dam foundations, malfunctioning generators, floating debris, sedimentation and lack of an early warning system.²² The dam was built on a weak and unstable rock foundation and has been subject to several landslides which have damaged machinery.²³

Representatives of Rousseau, Sauvé and Warren (RSW), the Montreal engineering firm which monitored the dam for CIDA, were so concerned by their May 1996 visit to the site that they stated in a report dated June 26: “any further indications of structural unsoundness, slides, increasing seepages into the dam, evidence of seepages downstream from the dam, vortices on the reservoir along the right bank, etc. must be considered as potentially catastrophic requiring the immediate controlled lowering of the reservoir and eventually the shutting down of the power plant...”.²⁴ When another landslide occurred in August 1996, RSW asked CIDA to implement this recommendation.²⁵ In a June 28, 1996 letter to CIDA, RSW again warned that “[d]egradation of the already precarious situation could lead to a catastrophic event involving not only a major shortage in power production, but more important than all, potential losses of lives in the communities installed downstream of the dam.”²⁶

On top of being seriously unstable, the Chamera dams are located in an earthquake zone known as seismic zone V _ the highest seismic area in India.²⁷ There is no indication that a disaster plan which deals with the effects of a possible earthquake exists.

Since Chamera II is being built in the same area as the first dam, similar technical problems can be expected to happen.

Argentina - Profertil Nitrogen Fertilizer Complex

BASED IN ARGENTINA, THE PROFERTIL COMPLEX PRODUCES NITROGEN FERTILIZERS. AUTHORITIES HAVE SHUT DOWN A PLANT TWICE DUE TO AMMONIA LEAKS. RESIDENTS ARE ALSO PREOCCUPIED WITH THE DANGERS ASSOCIATED WITH THE TRANSPORT AND STORAGE OF CHEMICALS, AND PLANT EMISSIONS INTO THE OCEAN.

Located on the Atlantic coast of Argentina at Bahia Blanca, this US\$ 640 million complex²⁸ consists of a urea plant and an ammonia plant operated by Profertil S.A.. The Profertil complex is located next to nine other petrochemical plants and refineries which are 300 metres away from the Bahia Blanca neighbourhood of Ingeniero White.²⁹ The Profertil urea plant is the largest in the world and can produce 1.1 million tonnes of urea a year. Half the production will be exported, mainly to Mercusor countries.³⁰

Profertil is 50% owned by Canada's Agrium Inc. and 50% by Spain's Repsol YPF S.A. Calgary-based Agrium is the biggest producer of nitrogen fertilizers in North America. In Argentina, Agrium also operates 18 retail farm centres.³¹ The EDC is one of four lead-arrangers and provided project financing and political risk insurance in 1999. The amount of financing provided is unclear.³²

Environmental and Social Impacts

A fire and two ammonia leaks delayed the start-up of the Profertil plants. The fire took place in the ammonia plant on July 18, 2000. Agrium announced that no one was injured and that repairs were expected to take three weeks. The fire delayed the start up of that plant until mid-August.³³

The first ammonia leak at the urea plant occurred August 28, 2000, during an attempted start up of the facility.³⁴ Bahia Blanca Secretaria de Politica Ambiental (SPA), the local Argentine environmental regulatory agency, ordered the urea plant shut down. This leak followed a chlorine gas leak from the nearby Solvay PVC plant on August 20. Hundreds of residents of Ingeniero White had reacted to this leak by surrounding the Solvay plant and blocking the

entrance. With the ammonia leak, they surrounded and blocked all the plants including Profertil. This blockade lasted for a month. The residents demanded that the government carry out a comprehensive environmental and safety audit of the Profertil and Solvay plants and fully investigate the leaks. They were particularly concerned about the two leaks happening only a week apart and about constant emissions from the 10 plants at the same time. Greenpeace Argentina, which works with the community and has launched a campaign against releases from the Solvay plant, pointed out that but for strong ocean-bound winds, the ammonia and chlorine would have drifted over Ingeniero White.³⁵



Profertil Complex

The Argentine government responded to the blockade of the chemical plants by hiring TUV Rheinland, a German company, to do a safety audit. The Ingeniero White community wanted to be consulted about who would do the audit and what would be investigated but was not. The government held two meetings about the results of the

safety audit with the residents but did not give them the document itself which was not made public. Unsatisfied with the findings of the safety audit, residents organized themselves into a group called "Vecinos por La Vida" (Neighbours for Life) which calls for the closing of all ten plants. The group holds monthly demonstrations to protest the Profertil and Solvay operations.³⁶

The Profertil plant was restarted on October 19 but was shut down again by the SPA in early November after a second ammonia leak from a pressure release valve. This leak led to "angry demonstrations" from the community.³⁷ After closing the plant, the SPA

wanted to appoint an independent environmental auditor to provide a report on “specific issues.”³⁸ The SPA allowed the urea plant to restart on December 4 by which time the facility had lost three months of production. The second ammonia release remained within the regulatory limit of 35 ppm but following the leak the SPA reduced this to 20 ppm and a maximum of 5 ppm in Ingeniero White.³⁹

“To address the concerns from the nearby community”, Agrium installed a 24-inch flare stack to lessen ammonia emissions.⁴⁰ The company is supposed to install a second larger flare stack by the middle of 2001.⁴¹ Agrium closed a phosphates plant in Conda, Idaho (U.S.) in 2000 due to an acid spill.⁴²

After the first ammonia leak, 28 residents of Ingeniero White went to the local hospital with breathing problems and sore eyes.⁴³ According to Veronica Odriozola, toxics campaigner for Greenpeace Argentina, health facilities and authorities in the area are not prepared to deal with chemical accidents. People have not been given information on what to do in case of such emergencies and worst case scenarios

have not been investigated. Following the second leak, the local community was evacuated only after considerable delay. Two schools evacuated their students after learning about the ammonia discharge from a news program on the local radio station. No one from the plant or from the Civil Defence team informed the school.⁴⁴

Ammonia gas is a “severe respiratory tract irritant”. It can be noticed by smell at 0.6 to 53 ppm. Exposure to concentrations as low as 24 ppm can cause nose and throat irritation. At 500 ppm, severe nose and throat irritation occurs and brief exposure to concentrations above 1500 ppm can cause pulmonary edema, “a potentially fatal accumulation of fluid in the lungs”. Several cases of deaths from ammonia gas have been reported and short-term exposure to it has led to long-term lung and respiratory system disorders.⁴⁵ There were at least three major ammonia leaks in the U.S. during 1999-2000. In one case, the town of Bonita, Louisiana, had to be evacuated after up to 13,000 gallons of ammonia were released from a fertilizer tank.⁴⁶

Tanzania - Bulyanhulu Gold Mine

LOCATED 48 KILOMETERS SOUTH OF LAKE VICTORIA, THE WORLD'S SECOND LARGEST FRESHWATER LAKE, THE BULYANHULU GOLD MINE IN NORTHERN TANZANIA IS ONE OF SUB-SAHARAN AFRICA'S LARGEST GOLD MINES.⁴⁷ THE MINE BEGAN PRODUCING GOLD IN FEBRUARY AND IS EXPECTED TO UNEARTH 400,000 OUNCES OF THE PRECIOUS METAL EACH YEAR, OVER THE NEXT 19 YEARS.⁴⁸

All that glitters is not gold, according to small-scale miners who were evicted from the area to make way for the mine. These artisanal miners, who have been in a land dispute with the Kahama Mining Company that owns the mine, say the government destroyed people's property and they allege, killed up to 52 people in July 1996 when police forces were clearing the area.⁴⁹

While the Tanzanian government, Kahama Mining Company, and financial institutions supporting the mine say the allegations are base-less, local authorities and human rights activists are calling for a high-level independent investigation or commission of inquiry.⁵⁰

The EDC issued political risk insurance to Barrick Gold Corporation, the Canadian mining company that now owns the mine, on May 2, 2000,⁵¹ totaling \$173 million.⁵² The insurance was part of a package that was co-insured by the World Bank's Multilateral Investment Guarantee Agency (MIGA) which gave an additional \$172 million in guarantees to Barrick (\$56.3 million) and Société General SA (\$115.7 million dollars), an agent for a syndicate of banks.⁵³ The insurance will cover the mining investment against the traditional risks of transfer restriction, expropriation, war, and civil disturbance.⁵⁴ The \$172 million dollars in guarantees given by MIGA is the largest amount issued to date by the agency for a single mining contract in sub-Saharan Africa.⁵⁵

While Tanzanian authorities say small-scale miners were peacefully removed from the site, Maalim Kadau, the head of the small-scale miners committee in Kakola, a rural village near the mine, says that when the authorities started to clear the area, people went during the night when the police were away in order to retrieve equipment and ore left in the pits.⁵⁶ He says that up to 52 men who were still in the mining pits were buried alive when local police forces resumed filling in the area with dirt.⁵⁷ In the process, he also says that a total of 1,908 people lost houses, farms, mining pits or equipment as a result of the evictions.⁵⁸

While Kadau says he did not witness the actual burials because he was out of town trying to get a court ruling to stop the evictions, he says he personally witnessed the exhuming of bodies of people in August 1996. "As soon as we uncovered the first body, the regional police commander told us to stop or they would arrest people", he said. The police then took him to the station as soldiers finished filling in the area with dirt and closing the area to the public, he says.⁵⁹ Thobias Athanas, another small-scale miner at the time who is now unemployed, says he also witnessed bodies being exhumed from the pits.⁶⁰ "I personally saw three bodies that had been dug up by family members", he says.⁶¹

The dispute between Kahama and small-scale miners like Kadau and Thobias began in 1994 when the company, which was then-owned by Canadian company Sutton Resources Ltd, obtained legal mineral rights.⁶² Kahama immediately started to take legal action in the Tanzanian High Court (the second highest court in the country) to evict thousands of artisanal miners from the area, arguing that the small-scale miners did not have permits.⁶³ According to Kadau and other small-scale miners, like Nasib Sanga, who had been in the area since the mid-1970s, they did not have legal permits to mine in the area, but they did have permission from the government to mine and some had even paid taxes on some of the mining pits.⁶⁴ In November 1994, the High Court ruled that the small-scale miners could continue their operations until the case was heard by a special three-judge court.⁶⁵ But according to the Tanzanian government, the entire case was eventually thrown out of court by the Attorney General who decided that the small-scale miners had no case because they did not have legal titles to mine in the area.⁶⁶

The alleged killings had been reported in Amnesty International's 1997 annual report. In 1998 the human rights watch-dog sent a team to the area but it was unable to substantiate the allegations of deaths and so called for an independent investigation.⁶⁷ Harvey Van Velduizen, MIGA's lead environment officer, says a World Bank team of specialists visited the project and

local communities in September 1998 and concluded that the allegations may have been influenced by business interests that profited from the small-scale mining.⁶⁸ But Kadau says that the World Bank team never asked him about the alleged killings or loss of property.⁶⁹ He said it only inquired about how much profit they were making from mining and what they did with their money.⁷⁰

Barrick Gold Corporation Limited, the Canadian company that acquired Sutton Resources Ltd. in 1999, says that the Tanzanian government and Kahama and authorities fully investigated the allegations.⁷¹ It says that the reports were found to be based on lies by a local individual in retaliation for the refusal of Kahama to pay this individual a bribe.⁷²

The local councilor elected by the villagers of Kakola, Boniface Shija, says that a small investigation by the government was done once the allegations were

reported and no bodies were found. But he says the inquiry was very short and that only a few areas at the mine site were excavated. He agreed that a more thorough investigation was needed.⁷³

Tundu Lissu, a Tanzanian lawyer with the Lawyers' Environmental Action Team in Dar es Salaam (who is currently in a fellowship position with the World Resources Institute in Washington D.C.), is calling on Canadian citizens and activists in Western countries to put pressure on the World Bank and the EDC to withhold support for the project until a thorough high-level commission of inquiry is formed.⁷⁴ "The Canadian government and World Bank are using western taxpayers funds to support murder and mayhem in Tanzania in the name of poverty alleviation through foreign direct investment", he says.⁷⁵

Colombia - Urrà Hydroelectric Dam

“THE URRÀ DAM HAS BROUGHT WITH IT REPRESSION. IT HAS WIPED OUT OUR FOOD SUPPLY, DISPLACED HUNDREDS OF OUR PEOPLE, LED TO THE ASSASSINATION OF OUR LEADERS WHO WERE OPPOSING THE DAM AND BROUGHT AN EPIDEMIC OF MOSQUITO-BORNE DISEASES DIRECTLY LINKED TO THE FLOODING CAUSED BY THE DAM”, SAYS ALBERTO ACHITO, A LEADER OF THE EMBERA PEOPLE WHO CAME TO CANADA IN APRIL 2001 TO RAISE AWARENESS ABOUT THE HUMAN IMPACT OF THIS PROJECT AND URGE FOR CHANGES IN CANADIAN POLICIES TO ENSURE THAT THIS DISASTER IS NOT REPEATED.

During the past years, a growing number of Canadians have learned of the plight of the Embera Katio indigenous nation, living along the tributaries of the Upper Sinu River, in the last remaining rainforest of the Caribbean coast of Colombia. Their story was told in the first volume of *Reckless Lending*, March 2000 and profiled in the film, *Sacred Land, Scarred Land*.⁷⁶

In 1996, a consortium of Colombian and international investors constructed the Urrà I hydroelectric dam downstream from Embera Katio communities with the help of a loan of US \$18.2 million from the Export Development Corporation, in support of work on the project by a Canadian company. There was no prior consultation with the Embera before construction began, in flagrant violation of the Colombian constitution and of international treaties.

The impact of the dam on the Embera communities has been disastrous. In order to build the dam, the Urrà company erected a huge wall that cuts the Sinu River in half. As a result, fish are unable to get past the wall to spawn up river. Once self-sustaining communities, the Embera villages have been robbed of the mainstay of their diet and their food security. The result has been a lack of protein and widespread malnutrition, making people vulnerable to diseases which used to be easy to control. The dam has also turned fast running rivers into vast areas of stagnant water, bringing with it mosquitoes, mosquito bites, dengue and malaria.

Some Embera leaders who have expressed opposition to the dam have been murdered by paramilitary forces active in the region while others have been threatened with death. In a communique issued in October 1999,

the notorious paramilitary leader Carlos Castaño (who has more than a dozen arrest warrants pending for his involvement in numerous massacres) demanded that the Colombian government begin filling the reservoir. He stated that his forces would not permit “sabotage by subversive [elements] in this project”.⁷⁷ This communique was interpreted as a direct threat against the Embera leadership and their advisors.

Despite a court injunction, the Ministry of the Environment authorized the filling of the reservoir to proceed in November 1999. The next month, as Embera lands were being flooded, a group of more than one hundred Embera journeyed fifteen days by foot to the capital city, Bogotá where they set up camp outside the Ministry of the Environment, demanding to be heard.



Alberto Achito, Embera Leader

In April 2000, after more than four months, the Colombian government and the Urrà company signed a seven point settlement with the Embera which included, among other things, respect for human rights, damage compensation, new land and the suspension of plans for Urrà II, a second and bigger hydroelectric dam, which would

flood even more Embera land.

While Canadians welcomed the news of the settlement, the threats against the Embera have not ceased. Embera leaders who opposed the dam have continued to be targets of assassination and threat; the compensation has brought with it new problems and reports from the region now speak of malaria and dengue epidemics.

The Embera Katio have struggled to maintain their autonomy as indigenous peoples in the face of the armed conflict ravaging Colombia. But with the construction of the Urrà dam, they have come under increasing pressure and attack by various armed actors operating in the zone. According to direct accounts by the Embera, right wing paramilitary groups, working with the support of the state security forces, have attempted to forcibly recruit Embera men into their ranks, pressing them to identify the leaders in the communities and in particular those who have opposed the dam.⁷⁸ This forced collaboration has, in turn, made them into targets of attacks by guerrilla forces operating in the zone.

In mid September 2000, paramilitary forces -- some traveling by helicopter -- conducted incursions into various Embera communities. On September 16, they forcibly "disappeared" twenty-one Embera women, men and children traveling upstream in three canoes. Following an intensive national and international campaign, all twenty-one were released after five days in captivity. Others were not as fortunate.

According to a March 27, 2001 communiqué, six Embera have been killed by guerrilla forces while paramilitary groups have murdered at least eight Embera, among them five important leaders.⁷⁹

The most recent killing occurred on March 6, 2001 when José Angel Domico Jarupia (known by the Embera as Buruchiro) was murdered by two members of a paramilitary group in the town of Tierralta, less than one block away from the headquarters of the organization of indigenous leaders of the Sinu and Verde rivers (*Cabildos Mayores del Rio Sinu y Rio Verde*). The assassins made away with Buruchiro's body, the whereabouts of which, as this update was going to print, remained unknown.

Buruchiro was a much loved and respected Embera leader who had played a key role in the negotiations with the Urrà company. He was also a member of the Embera Katio commission that negotiated the signing of the April 2000 agreement with the Colombian government and the Urrà company.⁸⁰

In addition to the threats posed by armed actors, the health situation remains critical. In March 2001, the Association of Peasant Farmers and Fisherfolk of the Sinu River (ASPROCIG) sent out an SOS in which they denounced that "hundreds of indigenous Embera and campesinos living in the region of the Urrà I hydroelectric dam are becoming victims of epidemics of malaria, hemorrhagic dengue and skin infections whose origin is inextricably linked to the proliferation of disease carrying insects brought about by the damming of the upper part of the Sinu River, as well as the great quantity of decomposing organic matter in the dam's interior".⁸¹

Indonesia - PT Tanjung Enim Lestari (PT TEL) Pulp and Paper Mill

THE PT TEL PULP AND PAPER MILL HAS SUBJECTED THE LOCAL COMMUNITY TO LANDLESSNESS, UNEMPLOYMENT, POLLUTION, LOSS OF LIVELIHOOD AND HEALTH PROBLEMS. CONFLICTS HAVE ARISEN DUE TO ILLEGAL LOGGING, FORCED LAND SEIZURES TO PROVIDE PLANTATIONS FOR THE PAPER MILL AND INTIMIDATION BY SECURITY FORCES.

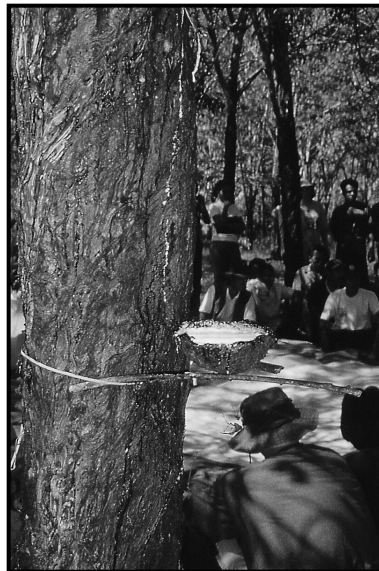
Located in South Sumatra, PT TEL is set to become Indonesia's largest pulp and paper mill with an output of 450,000 tonnes of pulp a year. PT TEL works in conjunction with its sister company PT Musi Hutan Persada (MHP) the task of which is to prepare large pulp plantations for the mill. The Barito Pacific Group, Indonesia's largest logging company, owns the majority share in PT TEL. Preparations for setting up the mill began in 1990 under the notoriously corrupt and extremely repressive Suharto dictatorship.⁸² In 1991, Suharto personally intervened to speed up the paperwork and financing for the mill.⁸³ As in many major Indonesian projects at the time, a Suharto family member (in this case, his daughter, Siti Hardiyanti Rukmana) was brought in as a major shareholder in PT TEL.⁸⁴ In this manner, the Suharto family amassed a fortune estimated at \$56 billion, almost half the gross national product.⁸⁵

The entire output of the mill is expected to be exported.⁸⁶ Marubeni, the Japanese company, has a monopoly arrangement to import 20% of Japan's paper pulp from PT TEL and CellMark of Sweden has the monopoly for European exports. Japan, China and South Korea have been the main export markets for Indonesian pulp.⁸⁷

In 1994 and 1997, the EDC, along with other investors and export credit agencies, approved US\$1.5 billion and US\$1.3 billion respectively for PT TEL⁸⁸. The EDC provided a loan of US\$ 205 million. Commercial bank loans worth US\$341 million have been arranged by a syndicate led by Morgan Grenfell (owned by Deutsche Bank) which includes the Bank of Scotland, AT&T Capital Corporation, the Bank of Tokyo-Mitsubishi and Korea First Bank. The Barito Pacific Group and another Indonesian company, PT Tridan Satriaputra, have invested U.S.\$200 million in the project.⁸⁹

Social Impacts

PT TEL and MHP have been embroiled in conflicts with local villagers. The government has ignored villagers' protests that the mill and plantation have "taken their land, cleared mature rainforest and destroyed their livelihoods." The PT TEL scheme is wrecking a community and its sustainable way of life at a time when 60% of Indonesia's population lives below the poverty line and the figures are rising, due to Indonesia's economic crisis in 1998 and the imposition of loan conditions by the IMF.⁹⁰



Rubber Tap

In 1992, PT MHP began illegal logging of the forests of Benakat villagers despite their protests. The company cleared 1,000 hectares of mature rainforest, one third of the Benakat community's ancestral forest. This violates a condition of the agreement signed with the international financiers of the project - that no rainforest will be destroyed for PT TEL.⁹¹

Traditionally, the people of the Muara Enim district (near the mill) have made a living from small rubber plantations, fishing and subsistence agriculture. In 1995, local rubber brought a monthly income of Rp 3 million - nearly US \$1,000 per month at a time when the average national income was \$1,000 per year. The villagers were told by local authorities and security forces to give up 1,250 hectares of rubber gardens or risk being charged with "hindering development", a subversion charge. The farmers were interrogated, threatened with imprisonment and accused of involvement with Indonesia's banned Communist Party. Those who sold their land got very little compensation.⁹² About 4,500 people from six villages affected by the mill construction are now landless and face destitution. The economic prospects of people

who depend on fishing in the river or rearing fish in ponds are threatened by the serious risk of water and air pollution from PT TEL.⁹³ An estimated 12,000 people live in these villages.

According to the U.K.-based NGO, Down to Earth, which is focused on Indonesia, PT TEL is “generating social conflict” between people who have been pressured into giving up their land, those who still have their land and migrant workers attracted to the area by employment possibilities. Local people are also concerned about the rise in prostitution which has accompanied the arrival of migrant workers and foreign staff. The plant is supposed to employ 15,000 people, but few locals will have the education or skills required. Local people who are now landless have no other source of income and have to compete for any manual work with more experienced outsiders.

Hundreds of workers employed by subcontractors building the PT TEL mill launched protests in 1998 to demand a pay increase. Parts of the plant were damaged in the protests. The workers said that they could not survive on their wages and had no land to grow food. The contractors were PT Klockner, a subsidiary of the Canadian company, Klockner Stadler Hurter Ltd., and Holland Ballast Theis. Furthermore, after the contractors have finished clearing the site and installing equipment, most labourers will be dismissed.⁹⁴

In 1995, 500 villagers in Muara Niru and Kuripan signed a letter to Indonesia’s Vice-President calling for a halt to the construction of the pulp mill. Local villagers whose land had been taken for the mill repeatedly told government officials of their opposition to the project. In June 1997, local representatives went to the Department of Trade and Industry to protest an environmental impact assessment issued by PT TEL. The Indonesian Forum for the Environment (WALHI), Indonesia’s main environmental group, wants the project cancelled due to environmental and social concerns. Similarly, the National Legal Aid Foundation has complained to government ministers about the violation of environmental laws and local people’s rights. Following the removal of Suharto in 1998, villagers have repeated their call for stopping the mill’s construction and demanded the return of their lands.⁹⁵

In February 1999, thousands of farmers from six villages near PT TEL protested for eight hours outside the mill gates. They claimed that the inadequate compensation they had received for their land was the

result of corruption and intimidation by local authorities and demanded renegotiation of the payments. Hasan Zen, the former mayor of Muara Enim, has been accused of corruption in dealing with PT TEL compensations. He is thought to have pocketed thousands of dollars meant for villagers and has been questioned by the Public Prosecutor’s office. In 1995, PT TEL gave the Muara Enim local government Rp1.6 billion (then less than US\$500,000) to settle all compensation claims. Farmers were paid Rp 5,000 per rubber tree, half their worth, and more than half their trees were not counted.⁹⁶

Environmental Impacts

An environmental impact assessment (EIA) was commissioned by PT TEL in early 1997. As such, this EIA was not independent. It was also flawed, limited and strongly opposed by WALHI. The document failed to consult the local population or register its opposition to the plant. The EIA only looked at the effects of PT TEL, not PT MHP. No health study was done to evaluate future effects of pollution. No soil studies were done and the environmental information on the pH and temperature of the river water was incomplete. The study also did not look at the question of how wastes would be treated before their disposal in the Lematang River. Even so, the EIA report still considered the PT TEL development as negative or neutral on almost all the environmental criteria used. It stated that the plant would have a harmful effect on community health and could cause social conflict between locals and newcomers. The company admitted in the EIA that there was a serious health risk to local residents from air and water pollution but did not suggest how this could be reduced.⁹⁷

The PT TEL plant will release nitrogen oxides, sulphur dioxide and hydrogen sulphide, polluting the air in nearby villages. These gases are dangerous to human health, because they damage the respiratory system, smell foul and form acid rain, which damages crops and property. The noxious gases and acid rain could affect areas 10 km away from the mill and 30,000 people. The mill will pour 70,000m³ of waste a day into the Lematang River. Although this waste will have been treated, it will still carry solids and harmful chemicals including chloroform. According to the EIA, the mill “will cause a serious decline in aquatic life in the River Lematang.” Tens of thousands of people who live in thirty villages downstream from PT TEL are at risk from water pollution as they use the river for drinking, cooking, washing, transport, fishing and agriculture. Studies show that 90% of the local

people use the river for drinking water during the dry season when the wells are dry.

PT TEL intends to use chlorine as a bleaching agent. This could mean the release of organochlorines, especially dioxins, into the air. These are very toxic in small amounts and accumulate through food chains. New mills in North America and Europe use ozone, oxygen or hydrogen peroxide for bleaching instead of chlorine thus avoiding the creation of dioxins and reducing other pollutants. The plant design also has not maximized recycling or reuse techniques. Instead the mill uses “stacks equipped with scrubbers and end pipe treatment of sludge, finally disposing wastes into the atmosphere, landfill sites and the River Lematang.”⁹⁸

In October 1998, a court in Palembang, South Sumatra, found PT MHP guilty of illegally using fire to clear forest lands for planting. MHP was one of 176 companies named by Indonesia’s Minister of Forestry in September 1997 for contributing to the devastating forest fires of 1997/8. In total, five million hectares were burnt of which 20% was forests. The government has not prosecuted any company for the fires. The court action against MHP was brought by WALHI. Choking smoke hung over South Sumatra for several months. Supplies of face masks and medicines were inadequate. Thousands of children going to school wore cloths round their faces and people suffering from respiratory illnesses filled the hospitals. “The effects have been compared to every man, woman and child smoking a couple of packets of cigarettes a day for several months.” The long term damage to public health is incalculable.⁹⁹

Forty NGO representatives from Canada, Japan, Europe, the U.S., Australia, India, Philippines and Malaysia visited the PT TEL area in May 2000. At a village located on a river near PT TEL’s wastewater disposal site, the group saw evidence of skin ulcerations on people who had bathed in the river after the company commenced operations. The representatives also smelled the putrid air spewed by the mill. Villagers showed the group bottles of black water they had filled from the river near PT TEL’s outfall pipes, which is the villagers’ water supply. The

visitors heard about how the villagers had been “terrorized” by security forces for expressing their opinion, and about the forced land seizures carried out by PT TEL under military guard. The villagers also stated that they had not been consulted about the plant’s location.¹⁰⁰

The EDC’s Environmental Review Framework was implemented in April 1999. As such, the PT TEL project in Indonesia pre-dated this policy. However, according to a spokesperson of the EDC, the EDC reviewed the environmental impacts of this project and assured itself the issues were being properly addressed.

In answer to Canadian activists who ask why their government is supporting an arrangement which damages the environment and Indonesian communities, Sergio Marchi, former Minister for International Trade, stated that: “an environmental impact assessment of this project was undertaken by an independent environmental consultant, namely Beak Pacific Consultants Ltd. The consultant’s overall conclusion was that the project would generate a net positive impact on the economic, social and physical environment. In particular, the report asserted that the project would be consistent with national development programs, including job creation, infrastructure development, and improved forest protection.”

Marchi added that the project was “subject to the approvals and permits process of the Indonesian authorities, including the Ministries of Forestry, Environment, Industry, Transmigration, Public Works, BAPEDAL (The Environmental Impact Control Agency) and the Provincial Governor of South Sumatra.”¹⁰¹ These were officials of the highly corrupt Suharto government so their approval is meaningless and as stated above, the EIA was not independent and was flawed; it was commissioned by PT TEL and carried out by PT Beakindo Pacific, an Indonesian subsidiary of Beak Pacific International, a Canadian company owned by Sandwell from 1973 to 1982. In its own publicity, Beakindo defines some of its roles as that of helping Indonesian companies to obtain financing and government permits and guiding them through the Indonesian environmental approval process.¹⁰²

Senegal, Mauritania and Mali - Manantali Dam

THE SENEGAL RIVER BASIN DEVELOPMENT PROJECT¹⁰³, A US\$1-BILLION DAM PROJECT, COMPLETED IN 1988, HAS ALREADY BROUGHT ECONOMIC RUIN, MALNUTRITION, AND DISEASE TO HUNDREDS OF THOUSANDS OF WEST AFRICAN FARMERS, AND IS EXPECTED TO SPREAD MORE MISERY WHEN IT STARTS GENERATING POWER IN 2002.

The EDC has provided credit insurance to a Canadian company assisting in the conversion of a failed irrigation dam in West Africa's Senegal River basin into a hydropower project designed to deliver electricity to the capital cities of Mali, Mauritania, and Senegal.

Multinational plans for developing the Senegal River basin date back to the early 1970s, when the newly-independent countries of Mali, Mauritania, and Senegal created, on the instigation of foreign aid agencies, the Organization pour la Mise en Valeur du Fleuve Sénégal (OMVS). The original concept - popular among aid agencies in those days was a series of large-scale multipurpose dams on the Senegal River designed to provide irrigation, power supply, and improved navigation. The plan was intended to boost food production and bring prosperity to the valley's two million inhabitants.

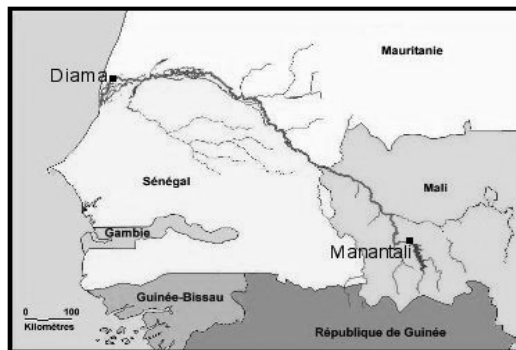
In 1981, with financing of about US\$620 million from 12 donors, Canada and the African Development Bank among them, construction began on two dams: one at Diama, on the river delta, to prevent intrusion of salt water into the lower valley, and the second at Manantali in western Mali.¹⁰⁴

But by 1988, all funds had been exhausted yet no turbines or transmission lines had been installed at Manantali.¹⁰⁵ The river was unfit for commercial navigation and as for irrigation benefits, less than one-third of the area to be irrigated actually was.¹⁰⁶ Also, few farmers could afford the high cost of diesel for irrigation pumps and other inputs required to grow rice and wheat.¹⁰⁷

Instead of boosting food production, the Manantali dam has brought economic ruin, malnutrition, and

disease to hundreds of thousands of West African farmers by holding back the

Senegal River's annual floods upon which age-old farming systems, as well as floodplain and coastal fisheries depended for their productivity.¹⁰⁸ For centuries, the annual floods of the Senegal River have been the lifeblood of flood recession agriculture, fishing, and cattle grazing for hundreds of thousands of people. Retreating floodwaters enriched the soil by depositing nutrient-rich silt on the land. On average, the river seasonally flooded about 150,000 hectares and up to 350,000 hectares in high-flow years. The floods provided nutrients to the floodplain and coastal fisheries, and recharged the aquifers upon which villagers depended for their domestic water supplies.



Once the Manantali dam was built, however, the floodwaters needed for growing sorghum and keeping pastures fertile all but disappeared. Once-abundant fisheries collapsed and the valley became infested with waterborne disease.¹⁰⁹ According to the World Commission on Dams, between 500,000 and 800,000 people living downstream of the Manantali dam lost all or part of their means of survival due to the elimination of the river's annual floods.¹¹⁰

Malaria and bilharziasis have increased dramatically and resistant strains of malaria have appeared.¹¹¹ Robert Boss from the World Health Organization said that the creation of large areas of fresh water in the lower valley "caused the largest epidemic of schistosomiasis that has ever occurred in sub-Saharan Africa."¹¹²

Upstream, the Manantali's huge reservoir submerged almost 500 square kilometres of fertile farmland and forests, forcing 12,000 people to leave their homes and farmland. Those resettled were not compensated for their lost fallow cropland and pastures. With

reduced land holdings and declining soil productivity, hunger and malnutrition often followed eviction, an ironic fact given that the original purpose of the Manantali dam was to increase food production through irrigation.¹¹³

By the early 1990s, development of the Senegal River Valley was in a state of crisis. “The enormous investment made so far in River Senegal has not brought development”, writes Adrian Adams who spent two decades working with farmers organizations in Senegal. “Nor has it brought prosperity, except to a few artificial enclaves.”¹¹⁴

Foreign aid for the Senegal River Development Authority (OMVS) had all but dried up and the plans for completing Manantali ground to a halt when political chaos and military conflict engulfed the region; some of which was provoked by the Manantali dam itself. When Manantali was completed in 1988, it opened up new prospects for large-scale irrigated agriculture in areas where black peasants had traditionally grown sorghum and maize once the annual floodwaters receded. Since peasants lacked the capital needed to convert to irrigated farming, the Moor elites of Mauritania decided to seize the peasants’ land and had 70,000 of them expelled to Senegal. Senegal and Mauritania nearly went to war over this conflict.¹¹⁵

Finally in June 1997, donor agencies decided to breathe new life into the Manantali project by retrofitting the failed irrigation dam as a power plant with a massive infusion of aid, including \$38 million from the World Bank. CIDA provided \$30 million, while the EDC provided credit risk insurance.¹¹⁶ EDC spokesman Rod Giles would confirm only that the credit risk insurance was for a Quebec City-based firm, *Entreprise Conjointe Lambert Somec GLR*, involved with the project’s transmission lines.¹¹⁷ The EDC has refused to say when this insurance was issued and the EDC does not publish details of its project lending and insurance activities.

Other Manantali donors include the African Development Bank (\$35 million), France (\$94 million), Germany (\$65 million), European Union (\$37 million), the Islamic Development Bank (\$21 million) and the West African Development Bank (\$19 million).¹¹⁸

Under construction since 1997, Manantali is scheduled to start delivering power to Senegal and Mauritania in April 2002, while Mali will get its share in August

2001.¹¹⁹ The \$445-million project includes the installation of a 200-MW power plant at the dam, about 1,500 kilometres of transmission lines connecting the three capitals, and nine transformer stations. Mali, Mauritania, and Senegal are to receive 52 per cent, 15 per cent, and 33 per cent of the project’s output, respectively.

Manantali donors are well aware that phase one has been nothing short of a disaster. According to a 1997 report by the African Development Bank, the Manantali dam “had seriously upset the basin’s ecosystems and destabilized traditional economic activities, with the result that the region has become the poorest in all three countries. Increased social inequalities and malnutrition have caused a mass exodus of workers from the river basin ... the development of irrigated agriculture and the fact that salt water is now prevented from entering the delta have caused a proliferation of carriers of endemic diseases such as bilharziasis. The incidence of malaria has also increased, and resistant strains of the disease have appeared.”¹²⁰

Without explaining how, the African Development Bank, CIDA, and the World Bank contend that sinking hundreds of millions more into the Manantali power project will help reverse the costly environmental and economic damage caused by the dam. According to the African Development Bank, the power project is “an opportunity to rectify the negative effects ... on the fragile ecosystems of the river basin, traditional floodplain agriculture, river fishing and the health of the local people ...”.¹²¹



The Manantali Dam

Similarly, Diane Marleau, the then-minister responsible for CIDA, also maintained, again without substantiation, that the Manantali power project would be managed to protect the “health and traditional interests” of downstream farmers. “CIDA is confident”, wrote Marleau, “that [the project] will contribute to improved living conditions of the Malians, the Mauritians, and the Senegalese.”¹²² World Bank official Philippe Durand was also quoted in *International Water Power & Dam Construction*,

the hydro industry journal, saying that “power will not be produced at a detrimental cost to other [water] users.”¹²³

But critics argue that once the turbines are installed, the dam operator will be under pressure to maximize power generation revenues by holding water back in the reservoir instead of releasing water to downstream farmers when they need it, either during the rainy season or in times of drought. This will further deprive already impoverished farmers of the precious water they need to grow their crops. And while donors have called for more studies of health problems and declining fisheries productivity, there is no plan to reduce the rate of exposure or infection in the valley, nor is there any provision to compensate valley residents for past or future damages and losses.

Manantali donors insist the dam operator will recreate the annual floods but it's clear from the reservoir management plan that the area flooded will be diminished, and more people are going to be impoverished. Under the current plan approved by donors, including the EDC, 50,000 hectares would be flooded only once every 10 years, only 30,000 hectares would be flooded on average, and there would be no flood recession agriculture at all every third year.¹²⁴

Arguably, the real reasons donor governments and agencies decided to revive Manantali have little or nothing to do with fixing the floods in the Senegal River Valley. The World Bank is supporting the Manantali project, according to its own documents, as a way of generating revenue that will “help service the debt incurred in building the Manantali dam” and to “promote private-sector participation in running the project and other future projects in the Valley.”¹²⁵

Canadian Involvement

The Canadian government and companies have figured prominently in the Manantali project dating back to its inception in the 1970s. While the Manantali project has impoverished hundreds of thousands of people, Canadian companies have done very well by this disastrous scheme. In 1981, CIDA provided C\$46 million to help build the Manantali dam and continues to provide grants to OMVS to this day.¹²⁶ Hydro-Québec International and SNC-Lavalin began their involvement in the mid-1980s by helping to plan Senegal river development.¹²⁷ In 1993, CIDA paid C\$4.9 million to a consortium including Hydro-Québec International, Dessau Associates and SNC-Shawinigan to advise the Senegal River Development

Authority, OMVS, on the feasibility of constructing a regional electricity distribution network that would connect Mali, Mauritania, and Senegal.¹²⁸

Then in 1998, after donors had decided to rescue Manantali, CIDA provided another C\$30 million, out of which C\$19.8 million went to Sulzer Canada for turbines (manufactured in Burnaby, BC), C\$6.8 million went to Tecslut International of Montreal for installation and supervision of the turbines, and an undisclosed amount went to Roche International of Sainte-Foy, Quebec for a three-year fisheries study.¹²⁹

As it happened, Hydro-Québec International and the French company Elyo, a subsidiary of Suez Lyonnaise des Eaux, bought a 34 percent stake of Senelec, Senegal's national electric utility in early 1999.¹³⁰ One-third of the output from Manantali's CIDA-financed turbines will go to Senelec. Hydro-Québec International and Elyo had planned to increase its stake to 49 per cent over the next five years but in March 2000 Senegal's newly elected President, Abdoulaye Wade, for reasons that remain unclear, terminated the Senelec privatization deal.¹³¹ Senegal's energy minister, Abdoulaye Bathily, was quoted in the *Financial Times* as saying that the “results [of the deal] were disastrous.”¹³² Apparently, with no legal framework in the agreement to bind Hydro-Québec International and Elyo to investment commitments, there had been little spending on maintenance of aging equipment or investment in new power plants to ease the country's power shortages. The *Financial Times* also reported that new management replaced local staff with costly expatriates while cutting loose local suppliers in favour of foreign ones.

OMVS is now soliciting bids from utilities and companies to operate the Manantali dam and power plant.¹³³

Manantali Is Uneconomic

Manantali is more expensive and less reliable than the alternatives. For a fraction of the capital sunk in Manantali, a string of modern and reliable power plants could have been quickly installed to supply power where needed, without adding to the burgeoning debt burdens of each country.¹³⁴ Had the three governments decided instead to invite the private sector to invest in power plants that could supply power to their respective distribution utilities, they could have eliminated power shortages and ended chronic under investment in electricity infrastructure and services throughout the region.

Fortunately, Senegal has begun to move in this direction, encouraging private investment in small-scale power plants to ease power shortages and expand services in rural areas, while leaving Senelec with its monopoly on distribution. Several U.S. companies are now building high-efficiency power plants in the 30-90 MW capacity range.¹³⁵

As modern cost-benefit analysis for existing dams elsewhere has shown, it can be more economical to decommission dams and restore free-flowing rivers and riverine fisheries than it is to keep dams in operation.¹³⁶ In the case of Manantali, its social, environmental, and economic costs are astronomical and growing, the electricity alternatives are cheaper and more reliable, and flood-recession agriculture has proven more cost-effective than irrigated farming. If a cost-benefit analysis of decommissioning Manantali were undertaken, NGOs contend the analysis would reveal the economic benefits of decommissioning Manantali outweigh the benefits of operating it for power production and irrigation.

Based on evidence that problems caused by the Manantali dam will likely be prolonged and worsened by the hydropower additions, citizens groups in donor countries and those representing farmers and herders in the Senegal River Valley, have demanded that the Manantali power project be stopped until:

- the annual flood is reestablished for the benefit of downstream agriculture, herding, and fishing;
- diseases caused by Manantali are eradicated;
- valley residents affected by the dams are fairly compensated; and
- the riparian rights of affected citizens are recognized.¹³⁷

Chile - The Ralco Hydro Dam

CURRENTLY UNDER CONSTRUCTION, THE 155 M HIGH RALCO DAM IS THE SECOND OF SIX TO BE BUILT ALONG CHILE'S BIOBÍO RIVER. UPON COMPLETION, RALCO WILL FLOOD 3,400 HECTARES OF LAND, DISPLACE 600 PEOPLE, 400 OF THEM PEHUENCHE INDIANS, AND THREATEN THE EXISTENCE OF 50 ANIMAL AND AQUATIC SPECIES.¹³⁸ ACCORDING TO CHILE SUSTAINABLE, AN ENVIRONMENTAL ORGANIZATION, THE RALCO DAM IS NOT NEEDED IN CHILE IF ENERGY SAVING TECHNIQUES ARE IMPLEMENTED.¹³⁹

The EDC is providing US\$17 million for Ralco and has already put US\$20.5 million into financing the first dam, Pangué.¹⁴⁰ Pangué went into operation in 1997 and has recently experienced difficulties due to droughts and insufficient amounts of water in the reservoir.¹⁴¹ This dam forced three species of fish into extinction, and endangered the already vulnerable Araucaria pine, Ciprés de la Cordillera, and Tepa trees because of logging which was used to clear land and roads. Environmentalists have stated that an environment impact assessment of both dams should have been done before Pangué's construction.¹⁴²

Social Impacts

The Pehuenche people are the last Mapuche tribe to live a traditional lifestyle. They managed to avoid land reforms introduced in 1979, and continue to live a semipastoralist and self-sufficient existence. These pastoralists still practice seasonal migration and live beside the Biobío River in the winter months. Within the past century their land has shrunk from 54 million to 30,000 hectares, and they will now lose over 3,000 hectares with the construction of the Biobío project, which will destroy their spiritual home.¹⁴³ Without arable land and suitable areas to migrate within, their culture is at risk, adding them to the list of already 'extinct' indigenous groups in Latin America. The relocation program proposed by ENDESA, the Spanish electrical company that is building the dam, will also force the Pehuenche to change their religious traditions, which are associated with the surrounding flora and fauna, especially the Pehuen tree, also known as the Araucaria Pine.

Resistance in Chile

Currently, the Ralco Dam has three court cases pending concerning violations of environmental law, water law and indigenous law. Work on the dam is continuing despite injunctions filed by the Pehuenche and environmental groups which have already stopped construction three times since the building of the dam started in 1998.¹⁴⁴

The first legal action involves The National Commission on the Environment's (CONAMA) and ENDESA's illegal approval of the dam's environmental impact assessment; the second, ENDESA's claims to water rights on the Biobío and the last, Chile's approval of the construction of Ralco, which violates the country's 1993 Indigenous Peoples Law.

The indigenous law only permits trading of lands if all members of the community agree and if the lands offered as compensation are of equal or superior value. According to the indigenous law, officially ENDESA should not begin construction without written consent from all 400 Pehuenche who will be affected by the flooding. They must agree to a resettlement resulting from a land swap with ENDESA, but, currently, not all the Pehuenche have signed agreements to leave the land. At least ten families have said they will never leave or trade their land. The families that did sign were tricked into it and the land being used for the trade is of lesser quality.¹⁴⁵ By going ahead with the construction of Ralco, ENDESA and the Chilean government are acting illegally.

Indigenous opposition to the Ralco dam has not been tolerated by the Chilean government. The National Indigenous Corporation of the Chilean government (CONADI) has deemed Ralco illegal and called for the government to respect the indigenous law. Former President Eduardo Frei's response was to fire two consecutive Mapuche directors of CONADI and three members of its board. At the time of these decisions Frei held an interest not only in ENDESA but also in two enterprises contracted to build roads and parts of the dam.¹⁴⁶

The twelve women who formed the activist group called Mapu Domuche Nehuen (Women with Strength of the Earth – WSE) are the core of the resistance to the Ralco dam. Led by sisters Nicolasa and Berta

Quintreman, this Mapuche Pehuenche group has launched a campaign in Chile to stop the dam's construction. The women have organized demonstrations and conferences, lobbied the government and legislature and appealed to ENDESA to cancel Ralco. The sisters have become well known throughout Chile and are frequently quoted in newspapers and interviewed on radio and television. WSE has been pressured by ENDESA and repressed by the government and police during some of its demonstrations. The government began court action against the sisters but ended this when faced with public outrage. The Quintreman sisters have recently begun legal proceedings against ENDESA in Spain based on Spanish laws which condemn genocide. For the WSE, ENDESA's construction of Ralco is tantamount to genocide because it will destroy the Pehuenche as a community.¹⁴⁷

Working with WSE is the Grupo de Acción por el Biobío (GABB), a second organization strongly opposed to Ralco. This is an umbrella group formed specifically to fight for the land and the river, and against the construction of all the dams on the river. GABB focuses on the environmental and human impacts of the Biobío dams. The group filed a claim against the Pangué Dam on behalf of the Pehuenche people with the World Bank's inspection panel in 1995, bringing to light the violations of World Bank policies.¹⁴⁸ GABB says that the land offer to the Pehuenche is illegal because it fails to keep the people self sufficient.

Environmental Impacts

The Ralco Dam endangers not only the Pehuenche people but also the ecosystem of the upper Biobío river. Ralco would destroy this unique ecosystem which has Chile's highest rate of biodiversity and endemism. The dam will eliminate six endemic fish species and eradicate large surfaces of native tree species declared rare, vulnerable or endangered.¹⁴⁹ Many species of plants and animals are already endangered in the area. Now, these species are at risk of becoming extinct. Others will probably be added to the endangered list once the project has been completed. Those endangered include: 14 species of fish, amphibians, birds, and mammals, including the Andean condor, slenderbilled parakeet, and puma.¹⁵⁰ Those that have already become extinct in the construction process include the longeared deer and the miniature deer.¹⁵¹ Pangué and Ralco's cumulative impacts on the watershed will be devastating, including unpredictable changes in the climate, wind patterns, humidity and serious deterioration of the

water quality. The weight of the reservoir could induce seismic and volcanic activity. There are four active volcanoes in the area of the dam.¹⁵²

In recent years, scientists have evaluated the wild plants in the Araucaria forest for medicinal purposes. The destruction of the forest could mean the loss of potentially valuable medicinal species, and the loss of the Pehuenche people's medicinal practices.¹⁵³ Deforestation will occur due to the clearcutting of trees for the building of the dams and roads leading to construction sites. Deforestation in other areas of the world has caused the cooling of forest temperatures and an increase in nitrates in the water, because more water is leaching through the soil instead of being absorbed by surrounding plant life.¹⁵⁴

Like CONADI, Chile's National Commission on the Environment (CONAMA) has declared the Ralco project illegal. As he did with CONADI, President Frei reacted by dismissing the director of CONAMA. The Commission later reversed its ruling on Ralco and awarded ENDESA a permit to build the dam.¹⁵⁵

ENDESA

ENDESA is the electrical company privatized during the Augusto Pinochet regime; in 1999 ENDESA was taken over by a Spanish company of the same name, ENDESA España. The company made a commitment to keep Chile's energy demands satisfied. Now it looks as though Chile may end up with too much energy, as the six dams are projected to yield 2900 megawatts of electricity –the country only needs an extra 350 megawatts per year.¹⁵⁶ The gas company GasAndes signed agreements in 1995 to build a pipeline through the mountains, and convert enough electrical plants into gas plants to more than satisfy Chile's energy deficit.¹⁵⁷

How does ENDESA, which is the richest company in Chile, have the power to start Ralco and bypass laws? According to Juan Pablo Orrego, President of GABB and winner of the alternative Nobel Prize, the Right Livelihood Award, the company wrote the water and energy laws for Chile and gave itself permission to freely take water from the Biobío River and reap its benefits.¹⁵⁸ ENDESA led the Pehuenche to believe that it had all the necessary permits to build the dam, and therefore needed to sign the contracts for a land exchange so they would not be flooded. According to a recent report, the Pehuenche who moved are filing complaints about ENDESA's lack of commitment to their contracts.¹⁵⁹ Their complaints include poor conditions for livestock during heavy winter

snowfalls, a lack of technical assistance, a shortage of firewood and a failure to build a medical centre. In ENDESA's contracts with the Pehuenche people, it promised them 0.3 percent of the profits from the sale of electricity approximately \$120,000 per year. Since Pangué's completion in 1997, the Pehuenche have not received any of this money.¹⁶⁰

International Finance Corporation

The World Bank's International Finance Corporation (IFC) was the main financier of the Pangué, the first dam, lending ENDESA US\$70 million. The IFC demanded an exhaustive environmental analysis but ENDESA never provided this. In its 1992 assessment, the IFC indicated the inadequacy of data about fisheries impact, downstream flows, and the social impacts on the indigenous community.¹⁶¹ The gaps in the data were never filled, but the loan was still granted. The IFC had, at the time, assured investors that Pangué would be the only dam on the river, even though Ralco's specific purpose is to slow siltation and regulate flow into Pangué. Following public outcry over ENDESA's violations of the Pehuenche's rights and its failure to meet the IFC's environmental requirements for the Pangué Dam, the IFC appointed an independent commission. Following the commission results, IFC announced in July 1997 that it will not finance any other dam on the Biobío river. The IFC admitted to "shortcomings" in its appraisal of the Pangué project which it stated "would have benefited from a more systematic approach to the analysis of environmental and social issues." James Wolfensohn, the IFC President, and Jannik Lindbaek, its Executive Vice President, agreed that the agency "should have waited more for complete information and analysis before moving

forward with the Pangué project, especially with respect to the downstream impact of the dam."¹⁶²

The Canadian Role

The EDC is providing US\$17 million in financing to ALSTOM Canada based in Tracy, Quebec. This company has a CDN\$27 million deal with ENDESA to supply generating equipment to the Ralco Dam, which will create 50 jobs at the Tracy plant.¹⁶³ The EDC has taken the position that Ralco meets the requirements of its environmental review framework, but has not provided details about the application of this standard. Electrowatt, an international company, did the 14 volumes of environmental research that the EDC used. This report concluded that Ralco's environmental impacts could be mitigated.¹⁶⁴ However, Rodrigo Garretón Kralemann, Project Officer at GABB, who is familiar with the report, has stated that the consultant's conclusions had been modified and censured, making the report unreliable. The EDC is currently investigating these allegations.

As Sara Imilmaqui Aguas, founder of Women with the Strength of the Earth, put it in a recent letter to the EDC: "We ask EDC, like the World Bank, to refuse to continue financing damming of the Biobío river. We urge you to disassociate yourself from a vision of development that presupposes that ecological devastation and cultural fragmentation are inevitable costs of progress."¹⁶⁵ Imilmaqui Aguas visited Ottawa in April 2001 to speak about the destructive impacts of EDC trade financing: "The Ralco Dam is changing the way of life of my people forever", she said. "This dam will bring social, economic and cultural chaos to what is now a self-sufficient community living in harmony with the environment".



Sara Imilmaqui Aguas- Mapuche woman

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Appendix

Recommendations to Ensure the EDC is Responsible to People and the Environment

The Export Development Act must be amended as follows:

Section 10 of the Export Development Act, which refers to the purpose of the EDC, must be changed to read: The Corporation is established for the purposes of supporting and developing, directly or indirectly, Canada's export trade and Canadian capacity to engage in that trade and to respond to international business opportunities in a manner consistent with Canada's commitments to international agreements, namely, the Universal Declaration of Human Rights, the International Labour Organization's Declaration on fundamental principles and rights at work, and the Rio Declaration of the United Nations Conference on Environment and Development.

The Act must require project information, defined as name of the borrower, country, name of exporter, amount and type of financial support, term and a brief description of goods, services or project, along with any environmental, social and human rights information collected, to be disclosed publicly before approval by the Board and during monitoring and evaluation.

The Act must require that all projects with known or potential significant environmental, social or human rights impacts must be submitted to the Board of Directors for approval.

The EDC Board of Directors must be empowered to withhold financing support after taking into account adverse environmental, human rights or social effects of a project or transaction.

The Export Development Corporation must adopt the following policies:

Project-specific information must be disclosed on the EDC website and in the Annual Reports. This information must include the name of the borrower, country, name of exporter, amount and type of financial support, term and a brief description of goods, services or project, environmental, social and human rights impact information and monitoring and evaluation reports.

The EDC must establish an autonomous accountability mechanism, using the mechanisms of the World Bank Group as a model, to track and guide the EDC's policy implementation, assist the EDC staff with sensitive projects and to receive and address complaints from external parties affected by the EDC-supported activity.

The EDC must require social, environmental and human rights assessments, using World Bank standards and methodology as a base, and to contractually oblige companies to implement assessment recommendations.

The EDC must sign on to and implement the recommendations of the World Commission on Dams.

The Canadian government must undertake the following:

The Access to Information Act must be amended to include the EDC within its purview.

DFAIT must actively assist EDC to support and respect the protection of international human rights within their sphere of influence; and to make sure that Canadian companies are not complicit in human rights abuses, by developing country guidelines in consultation with stakeholders.

The Canadian Environmental Assessment Act must be amended to include the EDC within its purview.

The Auditor General of Canada Act must be amended to require EDC to develop a sustainable development strategy and report to the Commissioner for Environment and Sustainable Development.

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