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Mining conflicts, environmental justice, and valuation

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Abstract

In this article some historical and contemporary mining conflicts are described. The international environmental liability of mining corporations is discussed. Comparisons are made with conflicts in the United States and in South Africa which fall under the rubric of the Environmental Justice movement. Such conflicts are fought out in many languages, and the economic valuation of damages is only one of such languages. Who has the power to impose particular languages of valuation? Who rules over the ways and means of simplifying complexity, deciding that some points of view are out of order? Who has power to determine which is the bottom-line in an environmental discussion? © 2001 Elsevier Science B.V. All rights reserved.

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1. Introduction

The claims to environmental resources and services of others who are differentially empowered and endowed, can be contested by arguing inside a single standard of value or across plural values. In this article, valuation of damages is discussed and also international environmental liability. The relations between ecological distribution conflicts and economic valuation are as follows. First, the pattern of prices in the economy will depend on the concrete outcomes to ecological distribution conflicts. Second, ecological distribution conflicts (which often arise outside the market) are not fought only through demands for monetary compensation established in actual or fictitious market places. They may be fought out in other arenas.

Thus, ecological distribution conflicts are sometimes expressed as discrepancies of valuation inside one single standard of value (as when there is a disputed claim for monetary

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compensation for an environmental liability), but they often lead to multi-criteria disputes (or dialogues) which rest on different standards of valuation. When the study of an ecological distribution conflict reveals a clash of incommensurable values, then this helps to develop an ecological economics which moves beyond the obsession of “taking nature into account” in money terms, and which is able therefore to cope with value pluralism.

2. Environmentalism avant-la-lettre: copper mining in Japan

I have chosen copper mining as a starting point, for two reasons. First, it provides historical examples. By looking at historical cases of environmental conflict which were not yet represented in the language of environmentalism, we can then interpret as environmental conflicts, instances of social conflict today where the actors are still reluctant to call themselves environmentalists [1]. Second, by comparing historical with contemporary conflicts on copper mining, I make the point that copper has not become obsolete (despite aluminum and optic fiber). On the contrary, the frontier for the extraction of copper reaches new territories, and this is a good point to make against the believers in the “dematerialization” of the New Economy.

Environmentalists in Japan remember Ashio as the site of Japan’s first major industrial pollution disaster. This was a large copper mine not far from Tokyo owned by the Fukurawa corporation, which witnessed a major workers’ riot against working conditions in 1907. Japanese social historians have debated whether the riot was ‘spontaneous’ or organized by ancient brotherhoods. There were also already some “direct action” socialists in Japan at the time. While, as we shall see, in Rio Tinto in Andalusia in 1888 there was a common front between miners and peasants against pollution, this does not seem to have been so at Ashio, where tens of thousands of peasants along the Watarase river fought during decades against pollution from heavy metals which damaged not only crops but also human health. They also fought against the building of a large sediment basin to store the polluted waters, which implied the destruction of the village of Yanaka in 1907 including its cemetery and sacred shrines. “The mine’s refinery belched clouds containing sulfuric acid that withered the surrounding forests, and the wastewater. . . ran off into the Watarase river, reducing rice yields of the farmers who irrigated fields with this water. . . Thousands of farming families. . . protested many times. They petitioned the national authorities and clashed with the police.”

Eventually their leader, Tanaka Shozo, created a great stir by directly petitioning the Emperor for relief. As environmental destruction reemerged in the 1960s as a major social issue, and popular concern with the impact of pollution intensified, so Ashio’s legacy as “the birthplace of pollution in Japan” has endured. At that time, copper played a major role in the Japanese economy, ranking second to silk among Japan’s exports [2,3].

Ashio was not unique in the world, and Fukurawa’s own publicity remarked that Butte in Montana was a fearful place to live: “The smelting process has utterly destroyed the beauty of the landscape, evil gaseous smoke has killed all plant-life for miles round about; the streams are putrid with effluent, and the town itself seems buried under monstrous heaps of slag” [3]. Such were then the realities of copper mining in America. Ashio in comparison was not so bad except that, unlike Montana, there were thousands of unhappy peasants downstream.

Fukurawa had bought the Ashio mines in 1877. In 1888, he made a deal for the supply to a French syndicate of 19,000 tonnes of copper over 2.5 years, the target was met in full, 3000 miners were working then at Ashio, their number was to increase later to 15,000. The contract with Fukurawa was signed on behalf of the French syndicate by the manager of Jardine Matheson, a firm founded by Sir James Matheson of the Lews, who was an uncle of Hugh Matheson, the founder of the Rio Tinto company [3]. Fukurawa procrastinated for decades on anti-pollution measures, profiting from the novelty and uncertainty of the chemical pollution in question, and from the closeness between government and business in Japan.

In cost–benefit language, it was argued: “Suppose for the sake of the argument that copper effluent were responsible for the damage to farmlands on either side of the Watarase — the public benefits that accrue to the country from the Ashio mine far outweigh any losses suffered in the affected areas. The damage can in any case be adequately taken care of by compensation” (article in the *Tokio Nichi Nichi Shinbun* of 10 February 1892, in [3], p. 74). In today’s parlance, a Pareto improvement means, in the strict sense, that a change such as a new mining project improves somebody’s situation, and does not worsen anybody’s situation. In this sense, Ashio did not fulfil the criterion.

However, a Pareto improvement in a wider sense allows for compensation under the so-called Kaldor–Hicks rule, so that those better off can (potentially) compensate those worse off, and still a net gain be achieved. This was Fukurawa’s claim. Tanaka Shozo (1841–1913), the son of a peasant headman of a village in the polluted area, the leader of the anti-pollution struggles, could not yet have known about cost–benefit analysis and welfare economics. He became, in the 1890s, a member of the Diet in Tokyo. Famous for his fervent speeches, he was a man with deep religious feelings, the retrospective father figure of Japanese environmentalism-born, therefore, more in a tradition of pro-peasant environmental justice (and also of care for the urban ecology and concern for forest protection and the water cycle [4]) than wilderness preservation, although within a national context of industrialism and militarism which put environmentalism on the defensive.

Today Japan is of course a big importer of copper through active transnational companies like Mitsubishi. Pollution from copper mining and smelting play still a big role in the ecological economies of some exporting countries. If world copper extraction was in 1900 of the order of 400,000 tonnes per year, 100 years later it is of the order of 10,000,000 tonnes, an increase by a factor of 25 (compared to a four fold increase in the human population, from 1.5 to 6 billion people between 1900 and 2000). Over 60% of copper production comes from such new mined ores, the rest from recycling, hence the relentless expansion of the copper frontier. The cheaper the cost of fresh extraction, the less recycling there is.

3. The story of Rio Tinto

It was in Huelva, in the southern Spanish region of Andalusia in the 1880s, years before the words environment and ecology became common social coinage, that the first big environmental conflict associated with the name of Rio Tinto took place [5,6]. The old royal mines of Rio Tinto were bought in 1873 by British and German interests, under Hugh Matheson, first chairman of the Rio Tinto Company. A new railway to the harbor of Huelva was immediately built, which was kindly made also available to local passengers

on week-days (not on local holidays or Queen Victoria's birthday). A very large open-pit mining operation was launched. Some 80 years later, in 1954, the mines were sold back to new Spanish owners, the original Rio Tinto company keeping one-third interest. This British company Rio Tinto (renamed Rio Tinto Zinc) went on to become a worldwide mining and polluting giant [7] — its name, its business origins, its archive, all point to Andalusia, where a massacre by the Army on 4th February 1888 of local farmers and peasants, and syndicalist miners, was the culmination of years of protests against sulfur dioxide pollution.

Historians still debate the number of deaths caused when the Pavia Regiment opened fire against a large demonstration in the plaza of the village of Rio Tinto: "The company could not find out, and in any case soon decided it was better to play down the seriousness of the whole affair and gave up its attempts to discover the number of casualties, though Rio Tinto tradition puts the total number of dead at between 100 and 200" ([5], p. 207; 6, pp. 83 ff.). Historians also debate whether the miners complained only against the fact that excessive pollution prevented them from working on some days (days of *manta*, i.e. blanket) and therefore from earning full wages on those days, or whether they complained against pollution per se because of damage to their own and their families' health.

The company was taking out a large quantity of copper pyrites, employing some 10,000 miners. The idea was to sell the copper for export, and also as a by-product the sulfur in the pyrites (used for manufacturing fertilizers). The amount of ore extracted was so large, that in order to obtain the copper quickly, a lot of the sulfur was not recuperated but was thrown into the air as sulfur dioxide when roasting the ore in *teleras* in a process of open-air calcination, previous to smelting the concentrate. "The sulphurous fumes from the calcining grounds were a major cause of discontent. They produced an environment that everyone resented, for the pall of smoke which frequently hung over the area destroyed much of the vegetation and produced constant gloom and dirt" ([5], p. 192). Large and small farmers, though the company was paying monetary compensation to them, managed to convince some of the councils from small surroundings villages to forbid open-air calcination in their own municipal territories. The company successfully intrigued (through members of the Spanish Parliament in its pay) to segregate Rio Tinto as a municipal territory of its own (being part of the territory of Zalamea, a larger town), on the reasonable argument that population in the mining area had increased very much. The company was keen to have local municipal officers favorable to her.

On 4th February 1888, the immediate causes for the strike had been the complaint against the non-payment of full wages in *manta* days, and the demand for the abolition of piece-work and for the end of the deduction of one peseta weekly from the wage bill to cover expenses of the medical fund. Maximiliano Tornet, the miners' syndicalist leader, an anarchist who had been deported from Cuba back to Spain some years earlier, had managed to make an alliance with the peasants and farmers (and some landowners and local politicians) who had constituted the Huelva Anti-Smoke League. When the army arrived in the plaza full of striking miners and peasants and peasant families from the region damaged by sulfur dioxide, an argument was going on inside the Rio Tinto town-hall on whether open-air *teleras* should be prohibited by municipal decree not only in surrounding villages but also in Rio Tinto itself.

In terms of today's language of environmental management, the local stakeholders (syndicalists, local politicians, peasants and farmers) did not achieve successful conflict

resolution, let alone problem resolution. Had the municipality publicly announced a decree against open-air calcination, the tension in the plaza would have diminished, the strike would have been called off. Other stakeholders, that is, the Rio Tinto company and the civil governor in the capital of the province, were in the meantime mobilizing other resources, namely, arranging for troops to be brought into action. It is not known for sure who first shouted “fire”, perhaps a civilian from a window ([5], p. 205), but the soldiers understood the shout as an order to start shooting into the crowd.

The popular interpretation of this episode in terms of environmentalism became unexpectedly relevant 100 years later, as the village of Nerva, exactly in this region, struggled in the 1990s against the regional authorities over the siting of a large hazardous waste dump (precisely in a disused mine). Local environmentalists and village officials explicitly appealed to the living memory of that “year of shots” of 1888 [8], 50 years before the civil war of 1936–39, when the miners of Rio Tinto were massacred again, this time for non-ecological reasons. Meanwhile, skeptics on the thesis of popular environmentalism point out that, in 1888, the workers were more worried about wages than about pollution, and that the peasants and farmers were manipulated by local politicians who wanted to make money from the Rio Tinto company or who had their own disagreements with other politicians at national level on the treatment given to the British company — so conspicuously British that it sported an Anglican church and a cricket team.

4. Ecuador, Bougainville and West Papua

“Retrospective” environmentalism related to mining and air pollution is becoming a staple of social history in many countries. Not only air pollution, also water pollution (as in the Watarase river in Japan, and in Ilo in southern Peru) is important. Extraction of copper has been increasing at about 1.5% per year still in the 1990s. If prices go down it is because of oversupply and not because of lack of demand. In the late 1990s, in the region of Intag (Cotacachi, province of Imbabura) in northern Ecuador, Mitsubishi was defeated by a local non-governmental organization, Decoin, with help from Ecuadorian and international groups, in its plans to start mining for copper. I know this case first-hand, because of my relation with Accion Ecologica (Quito) which helped Decoin. The idea was to relocate 100 families to make way for open-cast mining, bringing in thousand of miners in order to extract a large reserve of copper. This is a beautiful and fragile area of cloud forest and agriculture, with a mestizo population. Rio Tinto had already shown interest, but its previous incursions in Ecuador (at Salinas in Bolivar, at Molleturo in Azuay) ended in retreats. A Mitsubishi subsidiary, Bishi Metals, started in the early 1990s some preliminary work in Intag. After many meetings with the authorities, on 12 May 1997, a large gathering of members of affected communities resorted to direct action. Most of the company’s goods were inventoried and removed from the area (and later given back to the company), and the remaining equipment was burnt with no damage to persons. The government of Ecuador reacted by bringing a court case for terrorism (a rare event in Ecuador) against two community leaders and the leader of Decoin but the case was dismissed by the courts one year later.

Attempts to bring in Codelco to mine (the Chilean national copper company) were also defeated, when Accion Ecologica from Quito sent one activist, Ivonne Ramos, to downtown

Santiago to demonstrate with support from Chilean environmentalists on the occasion of a state visit of the president of Ecuador, and she was arrested. The publicity convinced Codelco to withdraw. Accion Ecologica also organized a visit by women belonging to the Intag communities, to copper mining areas in Peru, like Cerro de Pasco, La Oroya and Ilo. The women did their own interviews in those areas, and came back to Intag with their own impressions, carrying sad miners' music and lyrics which became an immediate hit in Intag. These triumphant local women still deny to this day that they are environmentalists, or, God forbid, ecofeminists.¹ Today there are several initiatives for alternative forms of development in Intag, one of them being the export of "organic" coffee to Japan arranged through environmental networks first contacted in the fight against Mitsubishi. But the copper ore is still there, underground, and the world demand for copper (despite calls for the "dematerialization" of the economy) keeps increasing.

Copper mining is more successful elsewhere, though not without conflicts. In the island of Bougainville, the Rio Tinto Zinc company got into trouble because of local opposition despite the agreement the company had made with the government of Papua New Guinea, which has sovereignty over Bougainville, in order to exploit the site of what was described as the most profitable copper and gold mine in the world. Back in 1974, it was reported that "the natives of Bougainville have stopped throwing geologists into the sea even since the company (Rio Tinto Zinc) declared itself willing to compensate them for the land it had taken with cash and other material services". However, it was also reported that monetary compensation was not enough: "The village communities affected gave the highest importance to land as the source of their material standard of life. Land was also the basis of their feelings of security, and the focus of most of their religious attention. Despite continuing compensation payments and rental fees, local resentment over the taking of the land remains high, and there is strong opposition to any expansion of mining in Bougainville, whether by the existing company, the government, or anyone else" ([9], p. 195). Finally, the tiny island of 160,000 inhabitant erupted into a secessionist war at the end of the 1980s. We notice here the use of languages such as sacredness, and national independence. We notice also that the language of monetary compensation was brought into play.

Not far from Bougainville, the copper extraction frontier reached West Papua under Indonesia's sovereignty, 30 years ago at a copper and gold mine called Grasberg owned by Freeport McMoRan from New Orleans, a company run by a colorful CEO, Jim Bob Moffet.² Rio Tinto has a participation in this mine. The plans are in 2000 to mine daily 300,000 tonnes of ore, of which 98% would be dumped into the rivers as tailings. The "ecological rucksack" of this operation includes of course not only the discarded tailings but also the overburden, that is all the materials removed before reaching the ore. The total copper content to be finally recovered would be nearly 30,000,000 tonnes of copper, 3 years of world production, which would come into the market at a rate which would make of

¹ Accion Ecologica (Quito) and Observatorio Latinoamericano de Conflictos Ambientales (Santiago de Chile), *A los mineros: ni un paso atras en Junin-Intag*, Quito, 1999, on the *wayno* music, p. 66.

² Much of the documentation on this case comes from the files from the Permanent People's Tribunal on Global Corporations and Human Wrongs organized by the Lelio Basso Foundation at the School of Law, University of Warwick, Coventry, 22–25 March 2000. See also Eyal Press, "Freeport-McMoRan at Home and Abroad", *The Nation*, 31 July –7 August 1995, and Robert Bryce (from the newspaper *Austin Chronicle*), "Spinning Gold", *Mother Jones*, September–October 1996.

Grasberg the supplier of nearly 10% of world copper every year. This open cast mine is at high altitude, next to a glacier. The deposit originally formed the core of a 4100 m mountain, and the bottom of the open pit now lies at the 3100 m level. The current expansion would mean an annual extraction of ore that would allow an annual output of 900,000 tonnes of copper, and of 2750000 oz of gold.³ Water pollution in the Ajkwa river has been up to now the major environmental complaint, and acid drainage will be an increasing problem. The ecology of the island is particularly sensitive, and the scale of operations is enormous. In 1977, at the initial stages of operation, some Amungme rebelled, and destroyed the slurry pipeline carrying copper concentrate to the coast. Reprisals by the Indonesian army were terrible. Many complaints against Freeport McMoRan led to an initially unsuccessful class-action suit in New Orleans in April 1996 by Tom Beanal and other members of the Amungme tribe. The best-known representative of the Amungme is now Yosepha Alomang, subjected to detention in horrible conditions in 1994, and who was prevented from leaving the country in 1998 when she wanted to attend a Rio Tinto's shareholders' meeting in London.⁴

Which line will the new Indonesian government, and also the separatist movement in West Papua (Organisasi Papua Merdeka (OPM)), take towards plans by Freeport (and Rio Tinto) to expand the extraction of copper and gold ore? The OPM has staged ceremonies raising the Papuan flag in the last 30 years, answered violently by the Indonesia army and by Freeport's security forces (one famous instance took place on Christmas Day of 1994 at Tembagapura, a locality near the Grasberg mine). Will claims for an ecological debt to be paid by Freeport McMoRan be made not through a private class-action suit brought by indigenous tribes but as a result of an Indonesian governmental action, an international replica of a Superfund case in the United States?

The Indonesian state had an authoritarian regime (or less politely, it was a capitalist dictatorship) from the mid-1960s until the end of the 1990s. It would be a cruel joke to say that a suitable environmental policy (implementing the "polluter pays principle") would have allowed externalities to be internalized into the price of exported copper and gold. Environmental economists forget to include the distribution of political power in their analysis. Some of them even believe in their touching innocence that environmental damages arise because of "missing markets". In fact, externalities should be seen in general not as "market failures" but as "cost-shifting successes" [10].

Freeport McMoRan was building in 2000 with Mitsubishi, a large smelter at Gresik in Java, for export of copper to Japan. Freeport McMoRan also happens to own in Huelva, Spain, the firm Atlantic Copper which is the successor of the copper smelting and refining operation of the Spanish Rio Tinto company formed after 1954, and where copper concentrate from Grasberg is taken. It is all as a large family.

5. Pollution miracles, and problem-resolution

Sulfur dioxide is produced not only by copper ore roasting and smelting, but also, and in many regions of the world in much larger quantities, by burning low-quality coal in

³ Mining Journal (London), Vol. 329, no. 8448, 26 September 1997.

⁴ Survival for Tribal Peoples (London), Media Briefing May 1998, "Rio Tinto critic gagged".

electric power stations. In a contemporary urban context, the environmental chemist and historian Peter Brimblecombe [11] argues that sulfur dioxide emissions usually provoke social reactions because they come from visible single-point sources (coal power stations, smelters), while other forms of air pollution (NO_x and VOCs from cars, precursors of tropospheric ozone) are more dispersed and they are more peacefully accepted. Brimblecombe's hypothesis is helpful to explain movements against sulfur dioxide.

Sulfur dioxide emissions have given rise to local conflicts, and even to international conflicts as in Europe over "acid rain" in well-known cases of "transboundary pollution" which also exist in other continents, for instance between the sparsely populated territories of southern Brazil and Uruguay because of the power station at Candiota, or inside the United States, where acid rain reaches New England from western states. It is not so difficult to decrease emissions of sulfur dioxide by installing scrubbers, or by changing the fuel used in power stations. An intensification of the social conflict may lead to a solution to the problem. The teleras disappeared in Huelva some 10 years after the massacre, and nevertheless exports of Rio Tinto copper kept increasing. Broadbent [12] shows how, following some well-known environmental conflicts in Japan at the end of the 1960s and the beginning of the 1970s, there was a minor "pollution miracle" in Japan as relates only to some pollutants, such as sulfur dioxide, and as relates also to mercury contamination, so conspicuous because of the Minamata and Nigata cases. Sulfur dioxide emissions began to decrease in absolute terms earlier in Japan than in Europe.

In Germany in the mid-19th century, there was a so-called "chimney war". Complaints against pollution of sulfur dioxide led to building taller and taller chimneys. Chimneys of up to 140 m were built already before 1890. The authorities ordered the tall chimneys to be built in order to pacify protests in the immediate surroundings. The factory owners complied willingly in order to disperse the pollution over a larger territory where hopefully it would be mixed up with the pollution from other factories, thus evading responsibility in judicial cases which required cause-and-effect proof of the source of the damage. Discussions on the effects of sulfur dioxide not on people's health but on the forests are also over 100 years old ([13,14], p. 35). Momentarily, the chimneys solved the conflict if not the problem. Later, the problem of sulfur dioxide emissions itself was to be solved even in the Ruhr.

In international purely political conflicts without real substance, such as a dispute between states over a strip of useless territory, by reaching a peace agreement and drawing a new frontier, both the conflict and the problem disappear. Sometimes, as in the last 20 years for the threat by CFC to the ozone layer, or for transboundary sulfur dioxide emissions in Europe, agreements are reached which lead to regimes that solve both the conflict and the problem. Instead, in many other environmental cases, solving the conflict is not equivalent to solving the problem. In order to advance towards problem-resolution, what is then needed is conflict exacerbation. True, as explained by Downs [15], public mobilization against the environmental and health costs of pollution achieves media attention, this contributes to further mobilization. Downs believed that the downward part of the attention cycle comes either from technical solutions to the problem (the case of sulfur dioxide), or from the fact that the increasing marginal money costs of pollution abatement are seen as too expensive. Downs predicted that attention to any concrete environmental issue will increase and wane according to the price of remediation and consequent social mobilization, and media attention. Nevertheless, the relentless clash between economy and environment cannot be

permanently silenced by socially-constructed hopes of an angelical dematerialization of the economy.

6. Environmental justice

In the United States, “Environmental Justice” has come to mean since the late 1980s and early 1990s an organized movement against “environmental racism”, i.e. the disproportionate allocation of toxic waste to Latino or African-American communities. It is also relevant for Indian reservations in the United States, particularly in the context of uranium mining and nuclear waste. The Environmental Justice movement in the United States [16–30] fights against the alleged disproportionate dumping of toxic waste or exposure to different sorts of environmental risk in areas of predominantly African-American, or Hispanic or Native-American populations. The language employed is not that of uncompensated externalities but rather the language of race discrimination, which is politically powerful in the United States because of the long Civil Rights struggle. In fact, the organized Environmental Justice movement is not an outgrowth of previous currents of environmentalism but rather an outgrowth of the Civil Rights movement. Thus, in the Third World, the main socio-environmental question was in the 1980s whether an indigenous, independent environmentalism of the poor existed, a question first theorized in India and, later, in Latin America and Africa, because of episodes of defense of common property resources against the state or the market [31,32]. Meanwhile, in the United States the question was whether the buoyant mainstream environmental movement would deign to consider the existence of “environmental racism”, whether it could accept and work with “minorities” which were mainly concerned with urban pollution.

There are many cases of local environmental activism in the United States by “citizen-workers groups” [33] outside the organized Environmental Justice movement, some with 100 years’ roots in the many struggles for health and safety in mines and factories, perhaps also in complaints against pesticides in Southern cotton fields, and certainly in the struggle against toxic waste at Love Canal in upstate New York led by Lois Gibbs [34,35] who also later led a nation-wide “toxics-struggles” movement showing that poor communities would not tolerate any longer being dumping grounds [36]. In the “official” Environmental Justice movement are included celebrated episodes of collective action against incinerators (because of the uncertain risk of dioxins), particularly in Los Angeles, led by women. Also in the 1980s, other environmental conflicts gave rise to groups, such as People for Community Recovery in South Chicago (Altgeld Gardens), led by Hazel Johnson, and the West Harlem Environmental Action (WHEACT) in New York, led by Vernice Miller. In 1989, the South-West Network for Economic and Environmental Justice (SNEEJ), led by Richard Moore, was founded, with its main seat in Albuquerque, New Mexico, out of grievances felt by Mexican and Native American populations. In October 1991 the First National People of Color Environmental Leadership Summit took place in Washington, DC, the Principles of Environmental Justice were proclaimed, and the movement for Environmental Justice became well known. President Clinton’s Executive Order 12,898 of 1994 on Environmental Justice was a triumph for this movement. It directed all federal agencies (though not corporations or private citizens) to act in such a way that disproportionate burdens of pollution

do not fall on low income and minority populations in all territories and possessions of the United States. Thus, both poverty and race were taken into account, and nothing was said about impacts outside the United States.

The insistence on “environmental racism” is sometimes surprising to analysts from outside the United States. In fact, some foreign academics refuse to acknowledge the racial angle, and have boldly stated that: “If one were asked to date the beginning of the environmental justice movement in the United States, then 2 August 1978 might be the place to start. This was the day when the CBS and ABC news networks first carried news of the effect of toxic waste on the health of the people of a place called Love Canal” ([37], p. 18). However, the Love Canal people were not people of color, they were white, as such categories are understood in the US, and therefore were subject only to metaphorical, not real “environmental racism”. Other non-US academics agree with the interpretation that Environmental Justice is in the US a movement against “environmental racism”. I also agree. Thus, the seminal moment ([38], p. 108) was in 1982 in Warren County, North Carolina. Of course, one could also argue that the world environmental justice movement started long ago at a hundred dates and places all over the world. For instance, in Andalusia in 1888, when miners and peasants at Rio Tinto were massacred by the army. Or when Tanaka Shozo threw himself in front of the Emperor’s carriage with a petition in his hand. Or, in the United States, not in North Carolina but in the struggles against mining corporations in Wisconsin conducted by alliances of Indian tribes and environmentalists in the 1970s and 1980s [39], and in many other struggles of resistance by Native Americans, from Canada to Tierra del Fuego. Which will be the worldwide 1st of May or 8th of March of Environmental Justice and the Environmentalism of the Poor? Chico Mendes’ assassination day, Ken Saro-Wiwa’s, or perhaps the day the Rainbow Warrior was sunk by the French secret services in New Zealand, and its Portuguese cook died? Or when Karunamoi Sardar died defending her village in Horinkhola, Khulna, Bangladesh, on 7 November 1990?

The self-conscious Environmental Justice movement destroyed the NIMBY image of grassroots environmental protests by turning them into NIABY protests (not in anyone’s backyard). Also, it expanded the circle of people involved in environmental policy by practicing “post-normal science” [40] in the “popular epidemiology” movement. In the United States, the legislation against racism (such as Title VI of the Federal Civil Rights Act of 1964) forbids discrimination based on race. However, in order to establish the existence of racism, it is not sufficient to prove that environmental impact is different (for instance, that lead in children’s blood level is different according to racial background). It must also be shown that there an explicit intention to cause harm to a minority group. The uncertainties of environmental risk (for instance, dioxin), and the statistical difficulties in separating racial and economic factors in toxic waste location decisions, have given rise to a rich practice of “popular epidemiology” [41]. Lay persons gather scientific data and other information, and they also process the results offered by official experts in order to challenge them in cases involving toxic pollution, a clear case of “extended peer review”.

By emphasizing “racism”, the movement for Environmental Justice also emphasizes incommensurableness of values. The polluter pays principle implies that a worsening ecological distribution is compensated by an improving economic distribution. The objective is of course to make pollution expensive enough so that its level will decrease by a change in

technology or by a lower level of polluting production. Whatever the objective, the principle implies a single scale of value. Now, the same problem phrased in terms of “environmental racism” becomes a different problem. I can inflict damage to human dignity by using a racial insult or by racial discrimination. Paying a fine does not entitle me to repeat such conduct. There is no real compensation. Money and human dignity are not commensurate.

Bullard, who is both an academic and an activist, realizes the potential of the Environmental Justice movement beyond “minority” populations, and asserted in 1994: “Grassroots groups, after decades of struggle, have grown to become the core of the multi-issue, multi-racial, and multi-regional environmental justice movement. Diverse community-based groups have begun to organize and link their struggles to issues of civil and human rights, land rights and sovereignty, cultural survival, racial and social justice, and sustainable development. . . Whether in urban ghettos and barrios, rural “poverty pockets”, Native American reservations, or communities in the Third World, grassroots groups are demanding an end to unjust and non-sustainable environmental and development policies. . .”.⁵ Low-income “people of color” are a minority in the US but they are certainly a majority in the world at large.

There are some ecological distribution conflicts in the world (the European conflicts on nuclear risks as expressed at famous fights in Gorleben or Creys-Malville, or again the European conflict against US “hormone beef” and transgenic crops), for the analysis and resolution of which, the metaphor of “environmental racism” is not useful. On the other hand, we could retrospectively apply “environmental racism” to one of the many forms of racism that the Spaniards showed in America, by imposing a terrible load of mercury poisoning to indigenous workers in silver mines [42]. Environmental racism is often a useful language for conflicts which have been fought up to now under the banner of indigenous territorial rights. Activists and lawyers in the class action suit against Texaco from Ecuador, blamed Texaco in advertisements in US newspapers in 1999 for “environmental racism”. Profiting from the publicity against Texaco because of a court case for internal racism against black employees in the United States (settled out of court in 1997 for US \$176,000,000), sympathizers for the Ecuadorian plaintiffs placed an advertisement in the *New York Times* (23 September 1999) which stated: “The lawsuit alleges that in Ecuador, Texaco dumped the poisonous water produced by oil drilling directly onto the ground, in nearby rivers, and in streams and ponds. The company knowingly destroyed the surrounding environment and endangered the lives of the indigenous people who had lived and fished there for years. These are people of color, people for whose health and well-being Texaco shows only a cavalier disregard. . . It’s time that Texaco learns that devaluing the lives and well-being of people because of the color of their skin is no longer acceptable for any American company”. Notice that this language, so effective in the United States, was not used when the case started in 1993, and it would be problematic though not impossible to apply it to Texaco’s successor, Petroecuador, which has used similar technology damaging not only indigenous people but also average mestizo Ecuadorian settlers. Perhaps “internal colonialism” [43] could be used against Petroecuador, as against the Nigerian authorities, while “racism” could be reserved for Texaco (or Shell, in Nigeria).

⁵ R. Bullard, *Directory. People of Color Environmental Groups 1994–1995*, Environmental Justice Resource Center, Clark Atlanta University, Georgia.

7. International environmental liabilities

Environmental conflicts in South Africa are often phrased in the language of environmental justice [44]. Thus, a conflict in the late 1990s which continues at the time of writing places environmentalists and local populations against a project near Port Elizabeth for the development of an industrial zone, a new harbor, and a smelter of zinc for export, owned by Billinton, a British firm which would guzzle up electricity and water at cheap rates while poor people cannot get the small amounts of water and electricity they desperately need, or in any case must pay increasing rates under current economic policies. The Billinton project has costs in terms of tourists' revenues because of the threats to a proposed national elephant park extension nearby, to beaches, estuaries, islands and whales ([44], p. 47). There are also costs in terms of the displacement of people from the village of Coega. This point was emphasized in a letter sent by the Southern Africa Environment Project to Peter Mendelson, the British Secretary of State for Trade and Industry: "We are writing on behalf of those who have historically lacked the capacity to assert their rights and protect their own interests but who now seek to be heard and to call to the attention of the international community the injustice that is now about to be inflicted upon them". The life of the people of Coega was already full of memories of displacements under the racist regime of apartheid. Although Billinton could no longer profit from the lack of voice of the people under apartheid, now — it was alleged — it sought "to take advantage of the region's desperate need for employment to enable construction of a highly polluting facility that would never be allowed adjacent to a major population center in the UK or any other European country".⁶ A small improvement in the economic situation of the people would be obtained at high social and environmental cost, because of displacement of people, and also because of increased levels of sulfur dioxide, heavy metals, dust, liquid effluents. An appeal was made to the British minister to take into account OECD's guidelines for multinational enterprises which include a chapter on environmental protection since 1991, but which are no more than recommendations which the authorities cannot enforce directly. The minister was asked in any case to exercise his influence upon Billinton informally.

The environmental impacts which the apartheid regime left behind are now surfacing. There are large liabilities to be faced. Best known is the asbestos scandal, which includes international litigation initiated by victims of asbestosis against British companies, particularly Cape. Nearly 2000 persons asked for compensation because of personal damages as a result of Cape's negligence in supervising, producing and distributing asbestos products. The lawyers argue that Cape was aware of the dangers of asbestos at least from 1931 onwards, when Britain asbestos regulations were introduced. Nevertheless production continued in South Africa with the same low safety standards until the late 1970s. Medical researchers have found that 80% of Penge's black miners (in Northern Province) who died between 1959 and 1964 had asbestosis. The average age of the victims was 43. Cape operated a mill for 34 years in Prieska, Northern Cape, where 13% of workers' deaths were attributed to mesothelioma, a very painful asbestos related cancer. Asbestos levels in this mill in 1948 were almost 30 times the maximum UK limit. There are other cases in South

⁶ www.saep.org, letter from Norton Tennille and Boyce W. Papu to Peter Mandelson, 7 September 1998.

Africa of asbestos contamination, by companies, such as Msauli and GEFCO, at locations, such as Mafefe, Pomfret, Barberton, Badplass [45].

Contaminated abandoned mines and asbestos dumps must nowadays be rehabilitated by the post-apartheid South African governments. Simultaneously, court cases were started against Cape in the UK, and the House of Lords (in its judicial capacity) ruled for a while (until July 1999, when the judgement was reversed) that such cases could be heard in London rather than in South Africa. It seemed that British companies could be sued in British courts. Against GATT–WTO doctrine, the asbestos court case and similar ones, if successful, would show that international regulation is required not only about the safety and quality of the final products but also on the process of production and its side-effects. When regulation failed or was non-existent, and when effective protest was impossible because of political repression, there are then retrospective liabilities to be faced. The courts will perhaps institute little by little a sort of international Superfund obligations for the transnational companies. True, the South African apartheid state was blind to damage to black workers. The asbestos and mining companies should be held accountable for the “externalities” that they left behind. Given the chance, workers and their families would have complained, not so much because they were environmentalists but because their health was threatened. The law firm which represents the asbestosis victims also brought actions in London for damages to workers at Thor Chemicals in KwaZulu-Natal on behalf of victims of poisoning by mercury, and on behalf of cancer victims from Rio Tinto’s Rossing uranium mine in Namibia.⁷

In April 1990, massive concentrations of mercury had been detected in the Umgeweni river near the Thor Chemicals’ Cato Ridge plant. This was reported in the national and international press. Thor Chemicals imported mercury waste into South Africa, partly supplied by Cyanamid, an American company. South African environmental groups, mainly Earthlife under Chris Albertyn’s leadership, allied themselves with the Chemical Workers Industrial Union, the local African residents under their chief, and also white farmers from the Tala Valley who had already endured a bad experience of pesticide spraying from the neighboring sugar industry. A true “rainbow” alliance, which also incorporated US activists against the Cyanamid plant in question, complained against such “garbage imperialism” or “toxic colonialism” by asking: “Why did Thor, a British company, decide to build the world’s largest toxic mercury recycling plant on the borders of KwaZulu in a fairly remote part of South Africa? Why not build it closer to the sources of the waste mercury in the United States or in Europe?” ([45], pp. 82–84).

Actually, “the practice of exporting hazardous wastes for disposal in developing countries has been described as environmental injustice or environmental racism on a global scale” [46]. The Basel Convention of 1989 forbids the export of hazardous waste from rich countries except for recovery of raw materials or for recycling. It was complemented on 25 March 1994 by a full ban negotiated at a meeting in Geneva on all exports of hazardous waste from the 24 rich industrialized countries of the OECD. Pending ratification and domestic implementation of this agreement, and assuming also that Article 11 of the Basel Convention (which allows for bilateral or multilateral hazardous waste exporting agreements

⁷ Ronnie Morris, “UK court demolishes double standards”, Business Report, 4 March 1999, and subsequent information downloaded from www.saep.org. A UN report stated in 1990 that the Rossing uranium mine in Namibia was “a theft under the law and must be accounted for when Namibia becomes independent”.

provided they comply with “environmentally sound management”) is not abused, then a sad chapter of industrialization would be closed. Rich countries would not be able to exploit the weaker regulations of poorer countries to avoid their own responsibility for minimizing waste. Clearly, the issue is far from over. The logic of Lawrence Summers’ Principle still remains compelling.⁸ It might also happen that as a consequence of the ban on exporting hazardous waste, industries relocate to poorer countries where environmental resistance is weakened by people’s powerlessness and by corrupt government. “The products are then being shipped to the home country where consumers enjoy the benefit of the product while shifting the environmental costs to the developing countries. Greenpeace is investigating a shift in new organochloride related industries from developed to developing countries and have identified at least fifty new facilities in Brazil, India, Indonesia and Thailand” [46].

The perception of risk changes with time, sometimes because scientific research produces clear results, sometimes because, on the contrary, scientific uncertainties cannot be dispelled, and a feeling of danger creeps in. Then, the question is asked: Who is responsible for cleaning up the (newly perceived) mess, or for paying indemnities or making reparations? How to assign environmental liabilities, granting that restoration may be impossible when irreversible damages or deaths are involved? Thus, the “Superfund” legislation in the United States is supposed to achieve the cleaning up of hazardous waste sites (chemical dumps, mine tailings. . .), which are called “orphaned” when no existing corporation or private citizen or public body is responsible. In this exceptional case, the burden of proof lies with polluting companies rather than with the polluted citizens or with the regulatory agency. Companies have to prove against EPA’ allegations that no risk of damage exists from the waste they have abandoned. Nuclear waste is excluded however from the Superfund legislation, which arose in the late 1970s (at the end of President Carter’s administration). Its official name is Comprehensive Environmental Response Compensation and Liability Act (CERCLA). The EPA must not act in an “arbitrary and capricious” manner but it has no obligation to prove that there is actual damage, only that there is a risk of damage. Critics of Superfund point out that the costs are too high compared to benefits, including administrative costs, and that the communities near the waste sites cleaned up do not always benefit economically because the improved environmental situation is countered by the adverse environmental image.

Notice that there is no international Superfund to which appeal can be made, should common-law judicial actions against Texaco, Freeport MacMoRan, Dow Chemical, Cape or the Southern Peru Copper Corporation fail.

After listing a number of cases in the United States in which indemnities have been paid by corporations, such as the Exxon Valdez, a Venezuelan journalist asked himself in January 2000: “Being Venezuela a country dominated by the oil and mining industries, the question is, which is the *pasivo ambiental* (i.e. environmental liability) of all this oil and mining activity in our country?”⁹ It is fascinating to watch the widespread diffusion of the term *pasivo ambiental* in a mining and oil extraction context in Latin America.

⁸ Internal World Bank memo, as reported in The Economist, 8 February 1992, under the title “Let them eat pollution”. This has become a favorite text for the Environmental Justice movement.

⁹ Orlando Ochoa Teran, *Quinto Dia*, 18 January 2000, relayed by J.C. Centeno through the Environment in Latin America discussion list (ELAN at CSF). Some of us have been struggling for years with mixed success to introduce the equivalent expression *deuda ecologica*.

8. Conclusions

Driven by consumption, the throughput of energy and materials in the world economy has never been so large as today. We are certainly not in a “post-material” age. Externalities (i.e. cost-shifting) must be seen as part and parcel of the economy, which is necessarily open to the entry of resources and to the exit of residues. The appropriation of resources and the production of waste result in ecological distribution conflicts, which give rise to a worldwide Environmental Justice movement which in fact started many years ago. The Environmentalism of the Poor and the movement for Environmental Justice (local and global), grown from the complaints against the appropriation of communal environmental resources and against the disproportionate burdens of pollution, may help to move society and economy in the direction of ecological sustainability. As mining, logging, oil drilling and waste-disposal projects push into further corners of the planet, people all over the world are seeing their basic rights compromised, losing their livelihoods, cultures and even their lives.

The management and resolution of such ecological distribution conflicts requires cooperation between business, international organizations, NGO networks, local groups, governments. Can this cooperation be based on common values? We argue that whenever there are unresolved ecological conflicts, there is likely to be not only a discrepancy but incommensurability in valuation [10,47–52]. In other words, “semiotic resistance” ([53,54], p. 61) to environmental abuse may be expressed in many languages. To see in statements about human rights, indigenous rights, sacredness, culture, livelihood, intrinsic natural values, an a priori refusal of the techniques of economic valuation in actual or fictitious markets, indicates a failure to grasp the existence of value pluralism. Different interests can be defended either by insisting on the discrepancies of valuation inside the same standard of value, or by resorting to non-equivalent descriptions of reality, i.e. to different value standards. For instance, it can be stated that while humans have different economic values they all have the same value in the scale of human dignity. When we say that someone or something is “very valuable” or “not very valuable”, this is an elliptical statement (which requires the further question, in which standard of valuation? [55]. For policy, what is needed is not cost–benefit analysis but rather a non-compensatory multi-criteria approach able to accommodate a plurality of incommensurable values [49,50,56]. While conventional economics looks at environmental impacts in terms of externalities which should be internalized into the price system, one can see externalities not as market failures but as cost-shifting successes which nevertheless might give rise to environmental movements [57,58]. Such movements will legitimately employ a variety of vocabularies and strategies of resistance, and they cannot be gagged by cost–benefit analysis.

In conclusion, conflicts on the access to natural resources or on the exposure to environmental burdens and risks, may be expressed inside one single standard of valuation or through a value standard contest or dispute, that is a clash on the standards of value to be applied, as when losses of biodiversity, or in cultural patrimony, or damage to human livelihoods, or infringements on human rights, are compared in non-commensurable terms to economic gains from a new dam or from a mining project or from oil extraction. There is a clash in standards of valuation when the languages of environmental justice, or indigenous territorial rights, or environmental security, are deployed against monetary valuation of environmental risks and burdens [52].

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