

**NO MORE LOOTING
AND DESTRUCTION!**

We the Peoples of the South
are Ecological Creditors

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PREFACE

Benin, Ecuador, Peru or India are tropical countries, impoverished for many reasons: for their colonial past, the plundering of natural resources, the loss of forests and biodiversity, the ruling neoliberal model, because peasants no longer have access to their land and seeds, due to the weight of external debt, and the severity with which climate change has hit these countries. In Africa, Asia and Latin America we see the same occurring: inequality, corruption, poverty and death.

Our continents have been plundered with intensity and have lived through conditions of violence, massive forced migrations, coups d'état, civil wars, the scourge of AIDS, famine, genocide and droughts or floods, as a consequence to climate change.

During these last years, oil and gas extraction, mining activities and the wood industry, have played an ominous role in the development of peoples, as apart from provoking environmental impacts they have also caused enormous and irreversible social and economic impacts on countries. The history of these activities has also been linked to violence, dictatorships, to massacres. Examples such as those of oil in Nigeria, Sudan or Colombia, mining in Peru or Philippines, are known by us all; they are cases in which the presence of oil, gas or mineral has been a cause for armed conflicts, and poverty.

Also biopiracy, a common practice among European colonists in America (the Spanish, English, Dutch and Portuguese from this colonial period were biopirates), is today presented under a new guise, and comes in the form of a new scourge. With it, pharmaceutical and seed companies have made themselves rich at the cost of the loss of agriculture and wild biodiversity in our countries, as well as the



collective rights of indigenous and peasant populations where such resources are extracted.

On the other hand, all Third World countries live under political and economic pressure owing to our external debt, contracted basically to establish a development model based on intensive extraction of these same natural resources.

Ecological debt is a new concept explaining an old practice – the real flow of capital, natural resources and human beings – and explains the destiny and effects of external monetary debt. Moreover, it proposes to identify debtors and creditors of the debt in this unfair world, made up of an enriched North that keeps its high level of consumption thanks to resources extracted in the South.

In the centre of this model of global and local over-consumption, over-exploitation, inequality and debt, we find fossil fuels, whose exploitation, extraction, transport, refining and consumption provoke serious environmental, social and cultural impacts, on both a local and global scale (such as climate change), thereby constituting a great part of the ecological debt.

This chain, which goes from the extraction to the consumption of resources, presents various reasons that result in an ecological debt.

- The eradication of cultures and sacrificing of the health of the people.
- The loss of wild and agricultural biodiversity owing to pollution generated by this activity.
- The destruction of eco-systems (seas, coasts, forests, etc.)
- The cancellation of other sources of clean, renewable and low-impact energy resources, due to disloyal competition from differing subsidies in the hydrocarbon industry.



- The production of tons of carbon that inevitably reach the atmosphere and exceed the planet's capacity for absorption, thus provoking the increase of greenhouse effect and climatic chaos.
- The imposition of increasing export of hydrocarbons to pay off growing external debt.
- The appropriation and control of public goods.
- The hoarding and monopoly control of a strategic resource, through which the basis of the industrial society's production system is controlled.
- Social and environmental, local and global costs not included in the value of oil and gas exports.

We are in an opportune moment to exchange strategies in the face of globalisation. Every day spaces are created for developing perspectives and common perceptions about ecological debt, and this allows us to share experiences and case studies in order to learn more about concrete possibilities to make our demands.

The Southern Peoples' Ecological Debt Creditors Alliance, a platform that facilitates and brings together some of these initiatives, wishes to present this publication as part of the journey towards confronting local and global impacts and bringing an end to conditions of violence and destruction.

This book draws on presentations made in three seminars on ecological debt, climate change, biopiracy and mining held consecutively in Benin, Ecuador and Peru over the last year. We hope that this publication, now launched in Mumbai, helps us build the way to creating new societies and weaving new networks of solidarity between the people of Africa, Asia, Latin America and other friendly nations.

Ivonne Yáñez
Lima, August 2003



We are not Debtors, we are Creditor

Aurora Donoso Game
SOUTHERN PEOPLES ECOLOGICAL DEBT
CREDITORS ALLIANCE (SPEDCA)
Acción Ecológica - Ecuador

The genocidal attack by the USA and its European allies on Irak is a form of action, based on arrogance, ambition and cruelty, by which the world's largest powers ensure for themselves the flow of strategic natural resources that sustain their economy. This has been a permanent practice throughout history.

In Asia, Africa and Latin America we have been submitted to a long history of plundering and destruction which began at the time of European colonization: mercury poisoning in silver amalgam in Potosí, Bolivia; exploitation of gold in Minas Gerais in Brasil; the rubber of the Amazon; guano from Peru; the quebracho in Argentina; the bark of the quinine tree (*cinchona*) from the Andes; contamination from copper dioxide in Chile, and many other similar cases in Asia and Africa. If we look at the size of Latin America, Asia and Africa in relation to the size of Europe we can understand the volume of wealth that was transferred from these colonies to the North.

The industrialized countries of the North were formed thanks to the slave work of Southern peoples, violently subjected to the continual exploitation of our natural wealth during the colonial period.

Colonization also started permanent processes of exploitation and impoverishment in the countries and peoples of the South, that



continue to this day. From then on, the industrialized countries of the North became accustomed to a way life based on the exploitation of the South. And all this debt has remained in impunity!

These days we live through silent wars of looting and systematic destruction of our lands, peoples and cultures, by the Northern industrialized countries, their governments, corporations and financial institutions, in complicity with some Southern governments and elites, to favor the accumulation of world wealth in their hands. This accumulation has reached such an extent that of the 100 largest economies of the world, 52 are global corporations and 48 are countries. 90% of these corporations are found in industrialized countries, they are responsible for 70% of world trade and possess 90% of all patented technology and products. (Ecumenical Agency for Development Aid).

Owing to innovations in production technology, communication and transportation, there is currently a permanent increase in: the rhythm of intensive extraction of non-renewable resources such as oil, gas and minerals; the substitution of native forest by wood plantations and other monoculture for exportation; the destruction of coastal ecosystems for shrimp aquaculture and over fishing; the biopiracy.

The case of oil exploitation provides us with a clear example as industrialized countries in the North depend principally on oil to sustain their industries and trade. This is where oil company violence comes from such as Shell, Chevron-Texaco, Exxon Mobil, Total-Fina-Elf, AGIP, British Petroleum, Unocal, Occidental and others that are operating in Africa, Asia and Latin America, in countries such as Burma, Thailand, Chad, Sudan, Nigeria, Colombia, Ecuador and others. These companies have destroyed and contaminated nature and affected indigenous, black peoples, peasant and fishermen. Peoples such as the Cofán, Secoya, Huaorani, Quichua, Shuar and Achuar in Ecuador, Mapuche in Chile, Guahibos and Araucas in Colombia, Achua, Urarina, Yora in Peru, Sakai and Aceh in Indonesia, Karen in



Burma, Ogoni in Nigeria, Bakola in Cameroon, peasant villages in Chad, ethnic minorities in Sudan, and all the peoples of the Niger Delta and many others.

These companies are those mainly responsible for the social and environmental destruction of the affected communities by oil expansion, as well as the impact due to climate change from carbon emissions into the atmosphere from oil burning.

Examples such as these can be found throughout activities of intensive exploitation of natural resource, in exportation monoculture, in mega projects such as hydro electrics, motorways, hydroways, dams, and many others promoted in the South by the IMF, the Multilateral Development Bank, transnational corporations and Northern governments.

All these elements add up to form the North's immense ecological debt with the South.

What is Ecological Debt?

Ecological debt is accumulated, historical and current debt, which industrialised Northern countries, their institutions and corporations owe to the peoples and countries of the South for having plundered and used of their natural resources, exploited and impoverished their peoples, and systematically destroyed, devastated and contaminated their natural heritage and sources of sustenance.

Industrialised countries are also responsible for the gradual destruction of the planet as a result of their patterns of production and consumption, and environmental pollution that generates the greenhouse effect.

In specific terms, ecological debt includes:



Historical debt for the plundering, destruction, devastation, slave labour and cultural annihilation in the South that Northern countries generated during the colonial era.

Debt from the social, environmental, economic and cultural impact of the extraction of natural resources, such as oil, gas, minerals, marine and forest life.

Debt from the intellectual appropriation and use of ancestral knowledge relating to seeds, the use of medicinal plants and other knowledge on which biotechnology and modern agro-business depends, for which royalties must be paid.

Debt from the impact of imposing Green Revolution technological packages that include “improved” seeds and agro-toxics, and from the genetically modified seeds of the Biotechnological Revolution.

Debt from the use and degradation of the best land, water, air, and human energy to establish export monoculture, putting the food and cultural sovereignty of communities at risk.

Debt from the pollution of the atmosphere with carbon by industrialised countries through their disproportionate gas emissions, which are the principal cause of climate change and ozone layer damage. Debt from the appropriation of the atmosphere and the carbon absorption capacity of oceans, vegetation and forests.

Debt for the damage caused by chemical, nuclear and biological arms production, and also toxic substances and residues that are deposited in Southern countries.

To talk of ecological debt is to demand environmental, social and economic justice; it is to understand the whys and wherefores of wealth and poverty; to identify those responsible for social, cultural and environmental damage both locally and globally; to fight against impunity: it is the opportunity to stop the destruction of the lives and peoples of the South.



Mechanisms of plunder

It would seem that the current form of plundering uses more subtle methods than those applied during the conquest, but nevertheless hiding behind them we find economic and warlike threats like those we have lived under in recent times.

There is more and more confirmed evidence suggesting that decisions on global running economics and the control of natural resources, are taken by parallel and supranational organizations that keep themselves hidden from the public eye.

Council on Foreign Relationships (CFR) is an entity that brings together the most powerful individuals, institutions and corporations of Northern countries, among them media owners, IMF directors, the main directors of multilateral Bank, the most powerful transnational corporations, politicians, main representatives of governments, universities, investigators and armed forces, espionage and security bodies. They meet periodically to take decisions and define strategies on economic and military policy on a global level.¹ This is the only way that we can explain the coherence in the objectives that these actors share – control of military geopolitics, of the planet's economies and natural resources.

Among the mechanisms used are the impositions of the neoliberal model, external debt and free trade agreements. These mechanisms are promoted by international organizations in which Northern government are hegemonic: the IMF, the World Bank, the regional development bank, the WTO and others.

The Business of external Debt

The external debt crisis of the 1980s was the ideal pretext for powerful groups in the North who, through their international



financial institutions, conditioned Southern countries in order to maintain control over their economies and sustain the flow of raw material, cheap labour and financial resources.

Structural Adjustment Programs, “Poverty Relief” Programs and Country Assistance Strategies (CAS) imposed by the IMF, the World Bank and the multilateral regional Bank, are ways of imposing the neoliberal model, which includes: privatization of strategic sectors, opening up to foreign investment, labour and environmental flexibility, fiscal adjustment, economic and environmental deregulation.

The cynically named “Aid for Development” are credits oriented to the needs of these powerful groups. Credits to finance structural adjustment programs. Credits with variable interest rates, which turned into usurer interest rates. Credits to buy technology and pay for advice. Credits to buy military equipment and consultancies. Credits for building infrastructure that facilitated over-exploitation of natural resources. Credits to pay interest on external debt. Credits to change national legislation and allow legalization of the illegitimate, as is the case of laws that promote mining which eliminate environmental protection laws.

With co-financing from the Swedish and British governments, the World Bank lent \$24 million to Ecuador, to promote industrial mining through a new Mining Law that would give enormous guarantees to foreign investment, financing the country’s mining land register, and creating an authority that cynically claimed to seek mining development and environmental protection. Nevertheless, it is well known that the World Bank also represents important mining interests, and the \$643 million given to mining projects in 1996 were not donated in vain.²

According to the report “Perverse Harvest”³ in the 20 years between 1983 and 2002, the multilateral bank lent Ecuador approximately \$1.425 billion for projects relating to the agricultural sector. \$600 million were destined directly to this sector and the rest



went to other projects that had a significant agricultural component, or that influenced policy in the same sector.

Inter-American Development Bank (IDB) and World Bank credits were directed to changing agricultural policy, to growth the use of the “green package” and all agro-industrial technology, as well as to promote agro-exports in Ecuador, in order to generate currency to service external debt. These were credits based on the precepts of the Washington Consensus, and benefited transnational corporations that produce and sell pesticide, seeds, fertilizers and equipments, as well as those that promoted the spread of artificial irrigation systems and controlled technology etc.

An article published by the Washington Post points out that the webpage of USAID proclaims that: “the principal beneficiary of the US foreign aid program has always been the United States itself” and that almost 80% of USAID contracts go “directly to US companies”. It also states that in 2000, USAID programmes, which cost \$7.5 billion, helped to create new markets for US goods and “hundreds of thousands of jobs” for US citizens. (Michael Dobbs, *Aid abroad is business back home*, Washington Post, 25 January, 2001).

All such activities financed by user credits have benefited principally the “donors” and have generated serious social, cultural, economic and environmental impacts in Southern countries: displaced communities, impoverishment, migration, deforestation, loss of agricultural and wild biodiversity, soil erosion and water contamination.

External debt generates ecological debt both through directing these credits towards activities that produce social and environmental impacts and through the application of pressure to generate currency for the payment of interest on the debt.



Free Trade Increases Ecological Debt

According to the report “Blockade By the South?”⁴ free trade was imposed through structural adjustment programs during the 1970s and 1980s, and in more recent years has come under the name of “poverty relief”. However it is now clear that it is the negotiation of free trade treaties, such as the Free Trade Area of the Americas (FTAA), the World Trade Organization (WTO), the North American Free Trade Agreement (NAFTA) between Canada, Mexico and the USA, or bilateral treaties, that are the most powerful tools employed by corporate interests to control the world economy. These treaties aspire to the unconditional opening-up of markets, ensuring intellectual property rights, giving complete freedom to investments and guaranteeing the provision of strategic natural resources (oil, gas, minerals, freshwater and biodiversity).

Monopoly control of basic global food is aspired to by corporations who wish to consolidate it through free trade agreements, using as bait the promise that Southern farmers, particularly small- and medium-scale ones, will have access to Northern markets, historically closed under protectionist policy.

Nevertheless, what we are seeing is that in the run-up to 2005, the year in which the FTAA enters into effect, and a time with substantial advances in negotiations with the WTO, there is a massive amount of agricultural products coming into our countries, controlled in the large part by transnational companies evidently seeking to make national producers bankrupt. The pricing policy of transnationals in these cases does not only reflect the exaggerated subsidies that accompany agricultural production in the North, but also the strategic need to eliminate those who compete with them, that is, millions of rural peasants who still produce corn, rice, potatoes, wheat, coffee, milk, meat and other products that form part of the basic diet across the world. Only in this way will they be able to obtain a monopoly.



To increase production and sale so as to flood the global market necessarily implies the construction of better infrastructure, greater energy supply (oil, gas, hydroelectric) and the exploitation of more natural resources (minerals, wood, biodiversity, water). It also means greater external indebtedness, as it aims at putting into practice the IDB project named Regional Infrastructure Integration in South America, a project similar to the Puebla Panama Plan in Central America, which comprises the construction of megaprojects within multi-modal strategies that include transport, energy and communications. The IDB, the World Bank, CAF and Fonplata will provide the credit. The exploitation of natural resources and the infrastructure building will in most cases be carried out by transnational companies: this is a good deal.

According to the Network of Resistance to Oil Activities in Tropical Countries – OILWATCH, despite the international recognition that the burning of fossil fuels is the principal cause of climate change, investment in fossil energy over the last years has been 100 times greater than in other energy sources. It is calculated that Multilateral Credit Agencies have invested nearly \$50 billion in fossil fuels.

To sustain the globalization process, the petrol frontier has expanded over the last ten years, with 100 new countries incorporated into exploration activities and exploration and exploitation agreements drawn up in heartlands.

According to the U.S. Energy Information Administration, world demand for oil will increase by 56% (that is, 43 million barrels per day) in the coming two decades. The Energy Department's Statistical Agency foresees that world demand will increase from 77 million barrels per day, the current consumption, to 119.6 million barrels per day in 2020.

To ensure control over the resources, transnationals require geopolitical control supported by military plans. It is not in vain that, for example, the US has set up military bases in Ecuador (Manta),



Colombia (Tres Esquinas and Leticia), Peru (Iquitos), Aruba (Reina Beatriz), Curacao (Hato), Cuba (Guantanamo) and Honduras (Soto de Cano). They plan to build military bases in El Salvador and Argentina (Tierra de Fuego), and control the Alcántara base in Brazil. The USA also finances the military component of Plan Colombia. With the declaration of the war on terrorism after 11 September 2001, the US has given itself a green light to install itself in any corner of the world.

All of these plans increase the social and ecological debt that the North has with the South. For this reason it is important to hinder the carrying out of such plans and to demand the debt that is owed. We must strengthen our sovereignty, our defence of collective and environmental rights, and the sustainability of our peoples and countries.

We, the People of the South, are creditors

On the slave route in Benin, Africa, one of the rites imposed by colonists was to turn around on one of the sections of the route, so as to forget history. This very same idea is what is intended by the neoliberal system; that we forget our history, its deep roots in our land which sustains and feeds us and strengthens our resistance.

It is time to stop the looting and destruction, the accumulation of wealth and the systems that promote it. Our history shows us that we are CREDITORS OF ECOLOGICAL DEBT.

By constituting ourselves as CREDITORS we change the power relationship. From the position of creditors we can prevent ecological debt from increasing, demand the sanctioning of those responsible for environmental and social damage, and the restoration of affected ecosystems.

As CREDITORS of ecological debt, we must demand the cancellation of external debt, which apart from being paid financially already, is illegitimate as it increases ecological debt.



To be CREDITORS implies a call to peoples to re-appropriate nature, to manage their resources and life sources in a sustainable manner.

It thus becomes indispensable to form alliances among Southern peoples who are all creditors of ecological debt, as a space that allows us to unify and strengthen our demands and positions.

Thankfully, it does exist movements opposed to the neoliberal system, that struggle to avoid the control of transnational corporations, to seek structural solutions to the problem of external debt. Likewise, indigenous peoples and peasants have suffered the impact of this model and are resisting privatizations, exploitation of their natural resources and imposition of free trade agreements.

Notes

- 1 *The World's Brain. Finance and external debt as tools for domination.* Adrian Salbuchi, Córdoba y Buenos Aires, 2001, 2002.
- 2 *Socavando los Bosques.* World Rainforest Movement. January 2000.
- 3 *Perverse Harvest. International Institutions and Ecological Debt of Agroindustries in Ecuador.* Instituto de Estudios Ecologistas del Tercer Mundo. Acción Ecológica. Gerard Coffey 2004.
- 4 *Blockade by the South?.* Southern Peoples Ecological Debt Creditors Alliance – SPEDCA, Acción Ecológica, Instituto de Estudios Ecologistas del Tercer Mundo. WSF 2003. Porto Alegre, Brasil.

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- 1999 “No more Plunder. They owe us the ecological debt”, *Acción Ecológica.*
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SPACES FOR DEBATE AND ACTION FACING ECOLOGICAL DEBT

In the face of the problem of ecological debt, several spaces with complementary objectives have been formed: the Southern Peoples' Ecological Debt Creditors Alliance (SPEDCA), the European Network for the Recognition of Ecological Debt (ENRED), the Debate Group on Environmental Justice, Ecological Debt and Sustainability (JADES), as well as other organizations and networks that have incorporated ecological debt as a priority within their objectives.

THE SOUTHERN PEOPLES' ECOLOGICAL DEBT CREDITORS ALLIANCE - SPEDCA

This is an initiative launched in Prague in 2000 for the Campaign for the Recognition and Demand of Ecological Debt. The Alliance is a space to bring together organisations, networks and social movements from the South to identify ecological debt from North to South, to look for mechanisms that make demands viable, to demand sanctions, compensation to those affected, and environmental restoration. It seeks to strengthen the joint positions of creditors to achieve recognition of ecological debt, repairing the damages caused and prevention of potential impacts.

THE EUROPEAN NETWORK FOR THE RECOGNITION OF ECOLOGICAL DEBT - ENRED

Set up in Paris in 2003 and promoted through the Debt Observatory, the objective of ENRED is to drive forward and coordinate efforts that seek the recognition of ecological debt contracted by European countries with Southern countries, as well as to contribute to the reduction/elimination of ecological debt in the future. For this purpose they will contribute to, strengthen and propose campaigns in place to this effect on a European level.



DEBATE GROUP ON ENVIRONMENTAL JUSTICE, ECOLOGICAL DEBT AND SUSTAINABILITY - JADES

Started in Paris in 2003 as a proposal by the ecological debt campaign's promoter, José Augusto Padua, this proposal is supported by Alianza 21. The group is made up of activists and academics from Asia, Africa, Latin America and Europe who have worked on the topic for several years. The objective of the group is to gain recognition, restoration and prevent future accumulation of ecological debt, through research, debate, communication and lobbying as a contribution to environmental justice and sustainability.

OTHER ORGANISATIONS AND NETWORKS THAT HAVE INCORPORATED ECOLOGICAL DEBT INTO THEIR WORK

Other networks and organisations that have incorporated ecological debt within their priorities do exist, among them: Jubilee South, Oilwatch, World Council of Churches (WCC), Kairos, Vodo, the Committee for the Cancellation of External Debt in the Third World (CADTM), and Friends of the Earth International. All of them have organised events to spread arguments based on ecological debt and look for joint strategies that consider the problem of both external debt and ecological debt.



The ecological debt in the context of sustainability*

Karin Nansen

REDES – Friends of the Earth - Uruguay

The industrialized countries of the North have generated an ecological debt with the countries of the South since the times of the conquest. This debt has increased throughout history, first through the direct appropriation of natural goods and resources by the colonial powers, and later by the imposition of a predatory development model, unequal and inequitable terms of trade, the unjust and disproportionate appropriation of ecological space and the privatisation of nature and services by transnational companies (TNCs).

Introduction

The current development model fostered by the neo-liberal economic system is based on a “grow or die” doctrine that seeks continuous economic growth and the maximization of profits in the shortest term possible. The very essence of this doctrine is questioned as it generates destruction and degradation of the ecosystems on which life and cultures depend, deterioration of the quality of life of the majority of the population, and major social, economic and political

* *Article presented during the “Globalization, Ecological Debt, Climate Change and Sustainability: A South-South Conference”, held in Benin, in November 2001, organised by Acción Ecológica from Ecuador, FoE Benin and FoE International.*



exclusion. This model is responsible for increasing an ecological debt that has been the result of the colonial world order and the subsequent models imposed on southern communities.

Neo-liberal economic globalisation, which is really about the expansion of TNC power throughout the planet, comes alongside the authoritarian imposition of a homogeneous model that threatens biological diversity, cultural identities and results in the concentration of power and resources.

Natural resources and the services they offer to humanity are commodified and put at the service of the “God market” - which has the capacity of transforming everything into money- instead of at the service of human welfare. The supposedly “invisible hand” of the market is presented as the only way of guaranteeing an efficient use of natural resources and managing supply and demand in a rational manner. The current system aims at giving up the planet, its people, its ecosystems and its life to that invisible hand which in reality is an appendage of TNCs.

In order to confront an authoritarian, destructive and marginalizing model, diverse social movements all around the world are becoming organized to resist this paradigm based on destruction and the incremental accumulation of an ecological debt. They are also forging sustainable, just and participatory alternatives based on an integrated vision of sustainability, involving four dynamic dimensions that interact among each other: ecological, social, economic and political dimensions.

Ecological dimension: related to the enhancement of diversity, the profound knowledge about nature’s cycles and fostering productivity of ecosystems. This ecological dimension calls for the resistance to homogenisation and for the defence of the public character of natural goods against commodification and privatisation.

Social dimension: related to collective rights and social justice. Calls for respect and recognition of cultural diversity as well as gender



equity are to be key components of sustainability, demanding new relationships among human beings.

The economic and political dimension: Demands a redefinition of economy to serve human needs in an integrated manner, according to nature's potential and human cultures. The economy must be embedded in and controlled by society, and the market should mainly be a means to exchange products. This dimension should be associated to the diversification and decentralization of the economy.

Neoliberal Globalisation and Ecological Debt **The globalisation of exclusion, homogenisation and degradation**

The so-called economic globalisation is nothing other than the expansion of the power of trans-national companies, favoured by economic, financial and trade policies imposed by the World Bank (WB)-International Monetary Fund (IMF)-World Trade Organization (WTO) trident. Although these institutions declare in unison that their objectives are to promote economic growth to guarantee development and expand and liberalize international trade, their real objective, which becomes more evident day to day, is to favour the accumulation of power and resources under the control of few. This means maintaining and increasing the benefits enjoyed by global corporate actors.

The other face of the transnational financial capital expansion process and the so-called integration of international markets, is the increasing marginalisation and exclusion of the vast majority of the world population and a major degradation and destruction of ecosystems at the very base of life.

For global corporate stakeholders, the planet is in fact a homogeneous globe that does not contain diverse peoples, cultures, territories or histories. Thus, the same technological, economic (trade,



finance and investment), educational and other policies will be suitable throughout the planet to guarantee the development that comes from economic growth.

But insofar as these policies have generated deep inequalities (contrary to the trickle-down theory), have violated diversity (by only adapting themselves to the interests and visions of the world held by the corporate shareholders) and have had to be imposed in an authoritarian manner (as they do not coincide with many communities' visions of the world), the model itself is characterized by the strong social, economic, political and ecological exclusion it generates, and by the continuous accumulation of an ecological debt.

Free trade doctrine vs. sustainability

The control of the economy by the market system, according to Polanyi (1975) “means no less than the running of society as an adjunct to the market: instead of economy being embedded by social relations (as in the past), social relations are now embedded in the economic system”.

The market should be an instrument of economy, whereby the various economic stakeholders freely exchange products, in a relationship of complementarity and equity. Nothing could be more distant from this than the current market situation.

Instead of economics being conceived as the organization of production and distribution for the satisfaction of human needs, human needs are now determined by the market system, and the whole production process is organized to produce pseudo satisfactors or inhibitors.

Human beings and natural resources have been turned into objects within the market sphere, while the anonymous market has invaded the social and ecological spheres, aiming to replace the relationships among human beings and between them and their



environments.

Although the WTO has laid the foundations for the free movement of products, services, investment and finance throughout the “globe”, this same institution, similarly to other free trade agreements, establishes new regulations aiming at protecting corporate rights (for example, intellectual property rights and the right to equal or better treatment for foreign investment). It goes so far as to allow transnational companies to take governments to court over policies that could affect the companies’ profits, as in the case of NAFTA, and potentially in the FTAA).

In this respect, it may be said that free trade agreements and their sacrosanct institutions, are substituting the regulations that formerly protected the widest interests of a diversity of stakeholders, through regulations aimed at favouring the interests of transnational corporations.

As Sachs (2001) points out, both strategies - deregulation as well as re-regulation - were pursued in the name of free trade. The contradiction disappears as soon as one realizes that the aim in both cases was to create a uniform legal foundation for a global economic space.

In the name of the de-monopolization of economic activities, new corporate monopolies have been set up, in a race of growth or death, establishing new rules of the game for our societies and taking control over decision-making in various walks of life.

Societies can no longer establish the rules of the game that control the impacts of economic stakeholders. Today it is the major private economic stakeholders who, through international financial and trade institutions, establish these rules, achieving control over our societies and over nature.



The unsustainability of the economic theory of free trade

The economic theory of free trade is based on the idea of comparative advantages and the consequent desirability of specialization of labour, arguing for efficiency and output maximization. Each country has a comparative advantage in producing and exporting the resource or commodity for which it is most suited, in terms of the availability of production factors; thus, trade benefits all, as every country will specialize in producing the goods and resources according to its comparative advantage.

But free trade is highly inefficient as products are transported great distances instead of being produced locally or regionally. One of the key characteristics of free trade is to increase the distance between consumers and producers to allow for greater profits for corporate actors, instead of promoting sustainable and diverse production systems at local and regional levels.

Free trade also destroys cultural diversity and prevents citizens from having diverse occupational choices, as its mandate is to specialize only in some areas in which a country is most effective.

To add to the above arguments against the theory of comparative advantages as an organizing principle, we must be aware that the reality today is that production is no longer dependent on the availability of resources in a country. As Sachs points out, companies are now in a position to split up their value-creation process and locate individual parts in areas of the world with the most advantageous wage, skill or market environment. There is the shifting distribution of the value-creation chain across far-flung regions of the world, which enables companies, in their choice of the best location for each stage of production, to enjoy the full rationalization of benefits.

This process does not involve countries producing goods according to their comparative advantages, but corporate chains with branches and subsidiaries in many countries (and free trade zones),



developing resource-, market-, efficiency- and asset-seeking strategies. The “grow or die” doctrine encourages the existence of fewer and fewer stakeholders (on the basis of acquisitions, mergers and vertical integration) and therefore, resources and power become ever more concentrated.

In the case of MERCOSUR, corporate strategies have been redefined on the basis of market opening and the changes generated by this process. The initial reaction has been to seek the streamlining of administrative structures and the reduction of employment, in addition to the adoption of new trade and distribution strategies. The major private firms, and in particular TNC branches, were those in the best position to carry out these actions. (Kosacoff & Bezchinsky & Bonvecchi quoted by Regis Bonelli, 2000)

FDI in the region was mainly aimed at fusion and acquisition (F&A) and not at the installation of new branches or the construction of new plants. The new flow of FDI in the region has mainly been channelled to the service sector. Of the US\$7.67 billion for the year 1996, no less than 75% was aimed at this sector. In 1997, of a total of US\$ 15.3 billion from FDI, almost 83.7% was allocated to services. In both cases, the main sub-sector was that of services provided to companies. In second place come the electricity, water and gas services (ECLAC 1998), where FDI had been virtually nil until 1995. This increase is related to privatisation. (Bonelli, 2000).

The blindness of unlimited growth

Access to natural goods should be equitable, respecting the diversity of nature and its productive potential, as well as the cultures that have interacted with and promoted biological diversity.

Production and consumption models imposed subsequently to neo-liberal economic globalisation are those of the industrialized countries in the North, based on an intensive use of natural resources, contravening the presumed implementation of a process of



dematerialization of economy. As Sachs points out, even in those cases in which more efficient productive practices from the standpoint of energy consumption have been implemented, or in which eco-efficient technologies have been applied, the growth of global economic activities involves an increase in the consumption of natural resources. In some cases this does not happen according to service unit, but in terms of the totality of the extraction, production, marketing and consumption processes, and the continued accumulation of ecological debt.

The exploitation of nature to serve over consumption in the North and the greed of the TNCs is harming the balance of many of the world's ecosystems, and therefore the services that they provide to humanity. Nature is not a stock of natural resources that can be considered in an isolated manner, but a network of diverse ecosystems interacting in a dynamic way; this complexity is not considered by economic stakeholders, on the contrary, any attempt at preserving its wealth and diversity may be tried in courts specially set up to settle trade controversies.

There is no doubt that the problems generated by the free trade doctrine are not only theoretical, but they have various very real negative impacts on the daily life and environment of millions of people throughout the world. Protests against the World Trade Organization in Seattle in 1999 were a demonstration of the resistance to a system that generates increasing exclusion and to attempts to commodify all spheres of life and the environment. In order to check this fragmentation process – in which few win and the majority lose – it is imperative to recognize that the present model of continuous economic growth at any price, has led to an excessive consumption of resources by a minority, to degradation and destruction of nature's goods, violating the communities' present and future possibilities of satisfying their needs, and to greater and continued accumulation of the ecological debt the North has incurred with the South.



The debt trap

The free trade doctrine imposed by the WTO is the same as that which sustained and sustains the structural adjustment programmes promoted by the International Monetary Fund and the multilateral development banks, demanding that the countries of the third world open up their markets and financial systems and reduce their social expenditure. The changes necessary to bring to an end the fallacies imposed on our societies, imply profound changes in the architecture of the international financial system, as has been suggested at various fora for several years now: “50 years are enough.”

The peoples of the South supporting the heavy load of external debt, very often do not have access to the resources essential to satisfy their needs, because these resources are aimed at production for export, in order to generate currency.

The programmes of the Bretton Woods institutions (the World Bank and IMF) promote exports on the basis of a short-term vision, encourage the excessive supply of raw material on the world markets (that accumulate ecological debt) and therefore a drop in the international prices of such products, seriously affecting the North-South terms of trade and thus further increasing the ecological debt. The countries of the South have increased their exports at enormous and unaccounted social and environmental cost, while at the same time poverty and unemployment are growing.

The IMF Structural Adjustment programmes also favour the reduction of public expenditure addressing social issues, which in turn affects the quality of life of the majority of the population in the South. These same institutions also promote policies aimed at a greater commercialisation of natural goods and the privatisation of public services, imposing a model that socializes costs and privatises profit, perpetuating the unfair distribution of resources and encouraging a few to consume more, while fewer and fewer possibilities of access to resources are available for the vast majority.



In order to bring back the balance of trade in favour of sustainability and promote trade and the satisfaction of needs on a local level, an end should be put to export-led development. The Structural Adjustment Programmes should be buried, so that the people can define their future, regaining control over their national budgets and their development plans.

The illegitimate external debts, already paid, should be annulled and the North should recognize its ecological debt with the South as a basic requisite for any sustainability proposal. It is along these lines that the initiative of the Creditors of the Ecological Debt Alliance was launched in Prague in September 2000.

Unequal Ecological Exchange

It is important to be aware that on the one hand, in global terms, the North is responsible for over-consumption and on the other, that the vast majority in the South suffer because they are not allowed access to resources necessary for life.

WTO rules and those of the Bretton Woods institutions mutually strengthen and complement each other, imposing the unchecked exploitation of natural goods for export and promoting the extraction of natural resources, vital for the South, from the biological, economic and cultural point of view.

What in market terms are known as commodities, in Third World communities are vital goods from nature for daily subsistence and to maintain ecosystem balance and their productivity. Furthermore, these goods have a deep meaning from the cultural standpoint.

Unequal ecological exchange is a result of the imposition of a model centred on exports aimed at generating currency to comply with the obligations generated by external debt, and of an economic system (trade, investment and finance) that increases the ecological debt



through the transfer of natural goods – be they soil, water, wood, minerals, etc. – from South to North, resulting in the continued devastation of ecosystems and cultures.

As Martinez Alier points out, the North consumes two thirds of the primary commodities being exported, while these same commodities account for the largest share of developing countries' export earnings and 45% of developing countries have primary products as their main source of export earnings (IMF, 1998, quoted by Martinez Alier)

To face the challenge of building up sustainable societies, it is absolutely essential to reverse this process and redistribute wealth and access to resources in an equitable manner and to allow communities to manage and control their natural resources.

Principles for Sustainable Societies

Defending already-existing and new sustainable societies implies a two-pronged strategy; the first is to resist the imposition of this authoritarian and destructive model called neoliberal economic globalisation and the second to fight for the adoption of a set of principles by our societies that reverse current dominant trends and put us on the road to sustainability.

Here we will present some of the principles we propose should be at the very foundation of both strategies.

To allow for societies to organize themselves around these sustainability principles the historical ecological debt must be recognized and those responsible for its generation must compensate communities for the damage and restore their environments, and the ongoing process of continuous generation of ecological debt must come to a definitive end.



Societies in the South have the capacity and cultural wealth to define their present and future around principles that are the opposite to those being imposed by corporate actors and the institutions serving their interests.

Self reliance and participation

Self-reliance refers to the autonomy and the power to control the course of events that most influence a community's future. People, and therefore communities, nations and regions, should not be subjected to impositions by other people or institutions that impair their ability to live their lives according to their own legitimate priorities and preferences.

Self-reliance means accountability to the community and thus responsibility. Among the characteristics of the so-called free market we can name anonymity and distancing; both of these promote the externalisation of costs (environmental and social), which affect communities, thus increasing the ecological debt.

Self-reliance implies using local resources as much as possible to fuel diverse economic activities to meet people's needs in an integrated way, while respecting ecosystem characteristics and dynamics and cultural diversity.

Self-reliance means economical and political self-determination and the possibilities of influencing life conditions on a local level correlated to higher degrees of economic decentralization and relative degrees of self-sufficiency.

Territorial management by communities

As Leff (1994) points out, the management of natural resources remains subject to private property principles and to the jurisdiction of nation states, and not to the rights of communities and society in



general. Legal norms sanction individual behaviour that generates harmful effects on the environment, instead of reorienting the rationality of resource use, while at the same time empowering communities.

A sustainability approach requires the mobilization of social groups calling for the legitimisation of communal control and management of resources. Territorial management based on social control and cultural valorisation of community resources cannot be planned under the criteria of economical calculations that have sustained and legitimised centralized development models.

Economic decentralization implies social participation in determining the theoretical principles, operative instruments and social values that norm the decision-making criteria for productive activities and the ways of using such resources.

Communities must have the right not to authorize exploitation of their environments, to say no to those activities that will impact their present and future, both in physical and cultural terms.

Recognition of the public nature of natural goods and communities' rights

As world citizens we must stop the privatisation of natural assets - be they water, agro-diversity or the atmosphere - and we must fight for the recognition of their public nature if we are to build sustainable societies in the near future.

Communities must have control over resources, to allow for a harmonious interaction between human beings and the environment and to guarantee the protection and enhancement of ecosystems as integrated units.

Communities must be compensated for the damage done to them and those responsible for the harm must restore the



environments (part of the recognition of ecological debt) to allow the satisfaction of their needs.

From the market rationale, nature is seen as a source of resources that exist to be exploited to fuel unlimited economic growth. In the name of use rationalization and efficient management, natural goods are being privatised to ensure the constant flow of resources into the global market economy.

The dignity line: responsible and sustainable use of natural resources

The dignity line appears as a new conceptual framework in the North-South debate on sustainability. On the one hand we must eradicate over consumption and the excessive use of resources and, on the other, we must eradicate poverty, guaranteeing access to goods that are necessary for the majority of the population. The existing environmental space between the ceiling imposed by natural limits and the floor, which would be the minimum consumption necessary to sustain a decent life, can be defined as the dignity line, that is the mean strip space where we should all converge to live a decent life, without deteriorating or depleting the goods that other people need or will need: a new, just and sustainable approach to the management of our economies.

Greater commodification of nature and the increasing opening up of markets are directly linked to the control of goods essential to life. Sustainable production and consumption should be the centre of the new economic models. Communities should have the right to refuse to have their resources commodified, in order to guarantee that these will continue to be social goods aimed at the satisfaction of needs and to avoid them from becoming private resources, aimed at promoting over-consumption by the elites.

The dignity line is the mean strip between the ceiling and the floor of the environmental space concept.



A new approach to economic welfare: economic diversity

The doctrine of comparative advantages has led to a homogenizing of productive specialization and an international division of labour, where Third World countries produce raw materials at low prices, involving enormous ecological and social costs, and where industrialized countries produce technologies at a high price, feeding enormously unfair terms of trade and ecological exchange. Economic homogenisation in the countries of the South is related to the payment of debt services and to structural adjustment programmes, violating sustainable and diverse production and consumption systems.

“Exports of goods and services in the developing world are usually below 30% of the GDP, which does not necessarily imply low environmental pressure from the exporting sector. Development strategies aimed at attracting international capital to the export-oriented primary sector (Bolivia, Peru, Chile and Venezuela) may lead to increasing income distribution asymmetries and illusory growth in the short term” (Martinez Alier 2000)

We must introduce a new concept: economic diversity. Economic diversity implies the diversity of economic strategies (that is to say, the end of the absolute priority of production geared towards exports), diverse economies (that is to say, a wide spectrum of sectors and activities instead of an economy depending on one or two commodities), and diversity within each of the sectors (equivalent to the exclusion of monopolies).

Countries and communities must have the opportunity to select, according to their own criteria, those economic mechanisms that are best adjusted to their environment and their needs at a given time. These decisions should be taken, considering the need to optimise economic activity and preserve some degree of self-sufficiency in order to encourage the development of strong and diverse economies, able to withstand external impacts and adapt themselves when necessary.



A new approach in economic decision making: participation and social control

Insofar as the economy is controlled by the “invisible hand of the market”, and vital resources are increasingly being commodified, people do not have the possibility to decide on how and on what resources available in their surroundings should be used. Unlimited economic growth and liberalization of international trade, investment and finances are the main organizers of society on a global level today. This violates the free will of peoples, ecological and cultural diversity, community welfare, generating increasing exclusion and degradation of ecosystems fundamental for life.

The communities must decide locally what their needs are and to what extent they need international trade. Local economies should mainly be based on their own productive systems and on the reduction of distances between production and consumption.

Food Sovereignty

Communities and countries must have the right to decide their own agricultural policies and to control their food systems in order to feed their population with sufficient, safe, sustainably produced, locally grown and locally processed food products.

Food sovereignty relies on small-scale indigenous and family farming, and on equitable access to land, water, forests, and other resources such as seeds and plant genetic resources. It also relies on the resource conservation afforded by organic/ecological farming practices.

Biological and Cultural Diversity

Neoliberal globalisation stands for homogenisation, same institutional frameworks, same policies, same technologies, and same



seeds everywhere without considering ecological and cultural diversity. Corporate actors aim to adapt societies to their interests and world visions, negating the richness of and the need for diversity if we are to sustain our societies and protect and enhance our environments.

As biological and cultural diversity are strongly linked and are the very foundation of life, we must organize ourselves to resist the imposition of a homogenous model and to defend diversity as an organizing principle in our societies.

Precautionary Principle

The precautionary principle must be a guiding factor in policy design and decision making, so that societies can choose whether they are willing to run certain risks or not.

It is important to take into account that the decisions we take regarding resource use will always have an effect on future options, and for this reason strategic, participatory planning is essential, based on a vision of sustainability.

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Environmental justice, ecological debt and sustainability*

*José Augusto Pádua***
Environment and Justice

Over the last few years, two fundamental concepts - environmental justice and ecological debt - have renewed the debate about the global transition toward sustainability, creating a stronger link between the movements for social change and environmental care. Even though these concepts did not originate in academic circles, intellectuals and researchers alike have also begun to incorporate and develop these principles.

The concept of environmental justice emerged from the Black Movement in the United States. Informed by their experiences in the civil rights battles of the 60s, organized defense groups of colored people began to notice - at first intuitively and later more systematically - that the most polluting and environmentally damaging economic activities were deliberately distributed, being predominantly concentrated in the neighborhood of Black, Native American and Latino communities. Such “environmental racism” illustrated the correlation between social and environmental inequality, causing the most marginalized sectors of society to receive a disproportionate share

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of the environmental impact created by the socio-economic system. Although the dominant classes were largely responsible for this impact, through their unsustainable consumption and production patterns, they were protected from the degradation by intentionally targeting its effects to the public space and to the areas occupied by the non European-American sectors of society.

The conceptual innovation consisted in framing the environmental debate in terms of rights and justice and not solely in terms of conservation and survival. The central premise was that all people are equally entitled to a healthy environment, and that any structure or process that in practice targeted the most economically disadvantaged populations for environmental risk and degradation was unfair. Such degradation, where unavoidable, should be distributed equally through all sectors of society. In this way, the movement against environmental destruction and degradation began to be considered as an arena for the struggle for true democracy and the affirming of human rights.

Although the concept of environmental justice originated in the United States, it has been appropriated and redefined by social movements all around the planet. It has an extraordinary potential for a political renewing of environmentalism and for making it more relevant to the struggle for social transformation. For example, in Latin America, despite the pronounced evidence of environmental racism (especially in the form of ecological discrimination against indigenous and Afro-descendant communities), the issue has centered on the defense of impoverished populations against systemic environmental inequities. The fight for environmental justice, on the other hand, has transcended efforts for mere defense, and acquired a much more proactive character. It is clear that the poor majority of the population must be protected against the selective advance of environmental degradation. But also, on a positive way, the poor have the right to enjoy equal access to the common environment and its natural resources via an equitable and democratic distribution of clean water, arable land, pure air etc. In this sense, the struggles for agrarian and



urban reform gain a much more explicit and coherent environmental dimension. The same can be said about the fights to defend the collective space against the encroachment of privatization context. On the other side, the defense of the environment has acquired much stronger social implications. Indeed, the transition to sustainability must include as a basic principle the people's right to live beyond a "dignity line", which implies, for example, a basic basket of water, energy and green spaces. The concept of environmental rights must overcome the indulgent and technocratic visions that are used as a framework to the "poverty line" policies.

Environmental Justice: A Condition for Global Sustainability

The concept of ecological debt was launched by Latin American ecologists during the 1980s, as a way of challenging the economicist and deceptive nature of the discussion about the "financial debt". The basic argument was that the growing degradation of the Earth's ecological systems is closely linked to the ecological inequalities inherent in and developed by the world economic system of the last five centuries. Indeed, the modern world-system produced a huge ecological segregation, with a minority of 20% of the human population, living mainly in the OECD countries, consuming over 80% of the Planet's resources and consequently producing 80% of the global environmental impact. The historical outcome of this segregation is that this minority of high level consumers are ecological debtors in relation to the majority of the world's population. Even if, paradoxically, they live in countries whose financial institutions are the main global "financial debt" creditors.

The rationality of this argument has two components. Firstly, this great inequity is the historical result of colonialism and imperialism, which generated a complex legacy of disproportionate consumption of the Earth's human and natural resources in favor of certain regions and at the detriment of others. This liability already constitutes a political and moral debt, even though its details are not



easily mathematically demonstrated. Secondly, the disparity of economic patterns in the current context results in a small part of the human population occupying a disproportional amount of the planet's environmental space. For example, the global warming produced by the production and consumption patterns of a planetary elite threatens the life conditions of the whole of the human population, especially the poorest sectors who are most dependent on direct access to the ecosystems (and thus very vulnerable to climatic instabilities). The ecological debt, in this sense, is not only a legacy from the past, but a concrete reality that expands daily.

It is not difficult to perceive the political promise of the link between both concepts. Actually, the ecological debt is created by the effects of preserving a strongly unfair global environmental order, where a minority of rich people is confiscating the Earth's resources for its own sake, at the same time as exports the consequences of planetary degradation to the poor majority of humankind.

The situations of environmental injustice at the global and national levels generate internal and international ecological debts that must be paid politically. To put it in another way: the concept of environmental injustice critically diagnoses the roots of contemporary environmental unsustainability at its various levels and ties it to the over-consumption caused by the unfair and disproportionate appropriation of the basic materials for survival. On the other hand, the concept of ecological debt postulates the ethical imperative that these injustices must be faced and overcome, given that only the payment of these debts will make possible the building of just, balanced, beneficial and sustainable human development models in the different regions of the planet.

Global unsustainability is thus confronted by promoting the concept of environmental justice and the political (rather than monetary) repayment of the ecological debts. It is only by equitably redistributing the planet's resources that it will be possible to avoid the over-consumption of a minority, which is the greatest factor of global



degradation. It is essential to identify patterns of consumption and production that are environmentally sustainable and appropriate to the balanced and equitable development of humanity as a whole. This ethical guideline could work as a great incentive to promote sustainable technologies and practices, given that the disproportional consumption by the elite has been the great stimulus for promotion of destructive and irresponsible economic and technological patterns. As Gandhi said, “The Earth provides enough to satisfy every man’s need, but not every man’s greed”.



ECOLOGICAL DEBT CASES

Fossil fuels
and ecological debt



Ecological debt and Transnational Corporations in Africa*

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1. Introduction

It is now no longer necessary to argue about whether the penetration of African societies by capitalist relations of production from around 1400 onwards and the formal process of incorporating Africa into the capitalist world economy from around 1850 onwards have done more harm than good to Africa and its people. Mounting evidence available indicates clearly that Walter Rodney was right and his critics were wrong.

The following facts from the latest World Development Report are as revealing as they are disturbing: the Human Poverty Index is highest in Africa than in any other part of the world; by the same token, African countries are at the bottom of the Human Development Index. Nigeria, potentially the richest country in Africa, is number 151 out of the 174 countries listed on the Human Development Index. Countries such as Ghana do a little better but overall, African countries are among the poorest of the poor countries on the earth today.

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This discussion looks at the role of transnational corporations in the process of Africa's impoverishment in general, and more specifically, their role in creating a new ecological deficit in Africa. In the process, we deal with the concept of ecological debt and how it may be defined in order to establish appropriate debt levels and responsibilities for payments.

2. Forces involved in Africa's Incorporation into the Capitalist World Economy

Offiong (1980:76) has noted that, 'the international system upon which Africa depends implies a structure, that is, a structure of institutions, classes, and power arrangements. The dynamic process that takes place within that structure known as "imperialism" is thus an institutionalised system of control that systematically shapes the institutions and structures of dependent dominated countries and limits their freedom of action, if they are to avoid the system's sanctions, to system-defined alternatives". The notion of a system implies a centre of some remote control and of parts that are so arranged that they function automatically and naturally. It is true that there is an international capitalist system but the key question is what are the driving forces of this system?

Even in closed systems, the first cause principle still exists. All human systems are brought into being by human agency. In the capitalist system, human agency and thus driving forces are individual capitalists who erect and maintain institutions that foster and protect their role and control over other classes in society.

In the early days of capitalist accumulation and penetration of other modes of production, the driving forces were individual merchant capitalists supported by state power. For example, the triangular trade in slaves in which underdeveloped Africa and developed Europe and the United States of America and Canada was driven by private companies and individuals such as the East India



Company, Baker and Dawson, Richard and John Barclay, Azurara and several others. During the colonial period, these driving forces had expanded considerably to include the large number of joint stock companies that were established during the emergence of industrial capitalism. In Nigeria and in many English speaking African colonies, the Royal Niger Company and later the United African Company played a leading role in the expansion of capitalist relations of production. In French speaking African colonies, Societe Generale enjoyed the privilege of leading the capitalist penetration campaign.

In the neo-colonial period, and especially in the period now regarded as that of globalisation, “the dominant forces are the TNCs (Transnational Companies or Corporations), the characteristic institutional form of transnational practices, the transnational capitalist class in the political sphere and in the culture-ideology sphere, the culture ideology of consumerism” (Sklair, 2001:4).

These forces are often supported by the state structures of advanced capitalist countries and those of the underdeveloped world, exploited for profit. These state structures are, nevertheless, creations of the capitalist class with the purpose of serving class interests. It is thus that capitalist state structures are manned by professional politicians and bureaucrats who are themselves capitalists in terms of their worldviews, orientations, attitudes, preferences and practices.

3. Transnational and Multinational Corporations

Many writers have noted problems of definition involved in distinguishing transnational corporation from other types of global corporations such as the multinational business enterprise (Sklair 2001; Jenkins 1987). Sklair (2001:2) has suggested that, “transnational refers to forces, processes, and institutions that cross borders but do not derive their power and authority from the state.” The transnational corporation is nevertheless one of the most important of these forces. The UN Economic and Social Council refers to the transnational corporation as, “all enterprises that control assets - factories, mines,



sales offices and the like – in two or more countries” (UNCTC, 1978:158). Jenkins (1987:1-2) believes that it is best to adopt a broad definition, which sees TNCs as “firms that control production in at least one foreign country”.

The problem with this definition is that it excludes global financial institutions from the spectrum of TNCs. Yet, it is clearly established that both finance and production capital work hand in hand to support and enlarge the global capitalist system. In essence therefore, TNCs are corporations that engage in economic activities across national boundaries and which often have huge assets and resources at their disposal.

The distinction between TNCs and multinational corporations (MNCs) has usually been in terms of the membership of the organizations. MNCs were viewed as those TNCs that had employees drawn from different countries. Moreover, MNCs usually establish sites in most countries and operate these sites largely as autonomous units. However, recent developments among TNCs in the areas of mergers and acquisitions have increasingly blurred the distinction between MNCs and TNCs. Now it is clear that in both cases, share holdings may be geographically dispersed and that organizational membership will cut across national boundaries. What is, however, not at issue is that, with respect to third world countries at least, the location of control in both TNCs and MNCs tends to be in some foreign advanced capitalist country, usually the USA, Canada, Japan or Europe. These developments indicate the need to use both MNCs and TNCs interchangeably: they spring from the same interests, operate on the same terms and produce the same consequences.

4. Profiling TNCs

TNCs vary in terms of size, national coverage, origin and area of concentration. The last of these criteria is perhaps the most important in terms of the consequences or effects of TNCs on different parts of the world. However, the origins of TNCs are also of significance. In



terms of origin, the largest number of TNCs is located in the USA, which accounts for 151 (30.0%) of the Fortune Global 500 (1996). The USA is closely followed by Japan, which accounts for 141 (28%) of Fortune Global 500 (1996). Between developing and underdeveloped countries, only India (1) Mexico (1) and Venezuela (1) have three TNCs between them (Table 1) These TNCs are however state sponsored enterprises.

In terms of areas of concentration, the consumer goods and services sector accounted for 153 (30.6 %) of the 500 Global corporations; financial services accounted for 132 (26.4 %) of the TNCs; heavy industry posted 84 TNCs (16.8%) of the total while infrastructure and electronics respectively accounted for 88 or 17.6% and 43 (8.6%) of Fortune Global 500 (1996). (Table 2)

Table 1
Areas of Concentration of Fortune's Global 500 (1996)*

No	Area of Concentration	Number of TNCs	%	Reveries US \$ Trillion
1.	Consumer goods and services	153	30.6	4.3
2.	Financial Services	132	26.4	2.6
3.	Heavy industry	84	16.8	1.7
4.	Infrastructure	88	17.6	1.6
5.	Electronic	43	8.6	1.2
	Total	500	100%	11.4

Compiled from Sklair (2001: 38)

The heavy industrial sector is dominated by extractive global companies (petroleum refining 29, chemicals 18, metals 15, crude oil production 3, and mining 3). The refining petroleum companies are dominated by the 'Seven Sisters' - five US based corporations plus Shell and BP" (Sklair, 2001: 44)



5. The Ideology of TNCs

Understanding the ideology or the particular beliefs of the owners of TNCs is crucial to an explanation of the activities of TNCs in the world in general and in the underdeveloped parts of the world in particular. Ideologies help rationalise actions that border on the criminal or, that are in fact, criminal. They suggest strategies, justify means, define options and even the choice of particular ends. The slave trade was rationalized, for example, on the ideology of racial superiority, the needs of capitalist commerce and development. Today, the ideology of the TNCs has changed little.

Korten (1996:131, 70-71) has identified several key elements of this ideology, including the beliefs that:

- The world's money, technology, and markets should be controlled and managed by gigantic global corporations;
- Corporations should be free to act solely on the basis of profitability without regard to national or local consequences;
- There should be no loyalties to place or community;
- People are motivated primarily by ambition;
- The uncontrolled pursuit of ambition and acquisition leads to socially optimal outcomes.

It has also been pointed out that the willingness with which multinational oil companies tend to exploit the undemocratic and corrupt processes of most third world countries arises from an entrenched oil industry culture that defines the relationship of Western oil companies with third world countries. According to Ashton – Jones, (1998:130) this oil industry culture is founded on five assumptions:

- That profit maximization is the only basis upon which a company can operate, so that any expenditure beyond what is required to get out the oil is resisted;



- That deals can only be made with governments, regardless of the government's legality or morality;
- That the “market”, (that is, the industrialized world) has a right to have the resources it wants, at the lowest price, and regardless of the costs to local people who are obliged to play host to mining companies; and
- That “we”, the mining companies, know best and act responsibly.

Continuing, Ashton – Jones, (1998:31) says:

“Generally, neither the companies nor the governments with whom they associate, (from both first and third worlds) are willing to accept any divergence from this culture which is reinforced with a mixture of cynical public relations and intimidation. It is fair to say that the adverse impacts of mining upon the lives of host communities (and, for that matter, the extravagant use of mineral resources by the industrialized world) arise more from this immoral culture (this wickedness) than from anything else.”

These assumptions drive the operation of the TNCs operating in the third world. They serve to justify and legitimise the attitudes of the multinational (oil) companies towards such environment degrading activities as oil spills, gas flaring, shoddy and unsafe constructions of oil facilities, supply of guns and weapons for the massacre of indigenous peoples, bribery of top officials of the state and their direct participation in human rights abuses.

6. TNCs In Africa

Seen against the above background, it is easy to understand the activities of TNCs in Africa. During the colonial period, almost all TNC activities were concentrated in the primary sector. These included “tea estates and coffee plantations in Kenya, rubber plantations in Liberia, copper mines in Zambia, precious metals in South Africa” (Jenkins, 1987: 6) and cotton, groundnuts and coca in Nigeria. Although the



Table 2
World Wide Sales of Leading TNCs compared to GDP
of selected Third World Countries

No.	Company	Nationality	Industry	Sales (\$bn)	GDP (\$bn)	Country
1.	Exxon	USA	Oil	73.6	83.2	South Korea
2.	RoyalDutch/Shell	Netherlands/UK	Oil	72.6	80.6	Indonesia
3.	General Motors	USA	Motor Vehicles	64.4	76.2	Argentina
4.	BP	UK	Oil	44.1	73.5	Nigeria
5.	Mobil	USA	Oil	43.0	50.7	Algeria
6.	Ford	USA	Motor Vehicles	40.2	47.5	Venezuela
7.	Texaco	USA	Oil	36.3	47.5	Turkey
8.	IBM	USA	Office Equipment	35.2	42.0	Thailand
9.	Du Pont	USA	Chemicals/ Energy	27.6	34.4	Colombia
10.	General Electric	USA	Electrical	21.4	32.8	Philippines
11.	Chevron	USA	Oil	21.4	30.6	Hong Kong
12.	Amoco	USA	Oil	20.7	30.6	Libya
13.	Atlantic Richfield	USA	Oil	18.9	30.1	Egypt
14.	Toyota	Japan	Motor Vehicle	18.2	29.3	Malaysia
15.	EN 1	Italy	Energy and Chemicals	17.9	27.7	Pakistan
16.	Unilever	UK/Netherlands	Food	16.2	19.8	Chile
17.	Chrysler	USA	Motor Vehicles	15.0	18.8	Peru
18.	Elf	France	Oil	14.7	18.2	Singapore
19.	BAT Industries	UK	Tobacco	14.4	15.5	Syria
20.	Hitachi	Japan	Electrical	13.4	13.3	Morocco

Taken from Jenkins (1987:9)

TNCs moved into the manufacturing sector during the colonial period, they continued to expand and dominate economic activities in the primary sector of African economies. There was, however, now a shift from agricultural products to the extractive (including timber) industries. In addition, they tended to dominate those sectors of manufacturing industry in which they began to participate. The data



on the worldwide sales of leading TNCs compared to GDP of selected Third World Countries in 1984 is indicative of the first trend (Table 3) while the data on the share of manufacturing industry controlled by foreign firms in selected African countries for the same period is indicative of the second trend (Table 4). Over the years, these trends have deepened, rather than receded.

Table 3
Share of manufacturing industry controlled by foreign firms in selected African Countries*

Country	Year	Foreign %	Basis of Calculation
Ghana	1974	50	Sales
Kenya	1976	30 – 35	Employment
Nigeria	1968	70	Assets
Zaire	1974	30 - 35	Equipment

Taken from Jenkins (1987:9)

7. TNCs Impact on Africa

The impact of TNCs on the world economy in general and on Africa in particular has been a matter of controversy. On the one hand, there are those, including the TNCs themselves who have argued that TNCs have been the engines of economic growth and development in the world and Africa.

On the other hand, there are those who have argued that while the TNCs have indeed been the engines of growth in the wealth of a small portion of the earth's population, they have nevertheless been the engines of poverty and underdevelopment for the vast majority of the world's people. This second view is obviously the correct one. It is supported by the historical experience of the peoples of the third world and Africa in their relationships with TNCs, by the determinants and hence role of power in economic relationships and by the specific practices of TNCs in Africa.



Although there are several areas of African experience that are directly relevant in this regard (Africa's debt crisis, underdevelopment, poverty, political instability, cultural crisis, etc) we shall focus particular attention on Africa's growing environmental and hence ecological crisis. The analysis shall be in terms of the role played by TNCs in the creation and substance of this crisis in Africa. Africa's ecological crisis is substantively different from the ecological crisis in the advanced parts of the world. It arises largely from the activities of global multinational companies in the extractive industries: mining, petroleum extraction, exploitation of forest resources, including genetic reserves and the introduction of large mono product farms. While we can cite several examples in Africa where the activities of TNCs and their local collaborators have produced ecological crises, (Ghana – where there has been excessive water pollution especially in the mining areas, and depletion of forests for surface mining; Zaire – where foreign interests in the mining industry and the consequent export of all outputs to the advanced capitalist countries have produced environmental degradation, mass poverty, unemployment and economic growth without development; Cameroon - where the activities of logging companies have dramatically altered the ecosystem) two particular instances of the activities of TNCs will be highlighted to illustrate the general situation. These are the cases of Papua New Guinea and Nigeria.

Broken Hill Proprietary in Papua New Guinea

Sklair (2001:241) has documented that Broken Hill Proprietary (BHP) “was a major actor in the mining industry in Papua New Guinea. The OK Tedi copper mine, in which BHP had a controlling stake, had been both a source of large profits and a running sore for the company since its opening in the 1980s. Shortly after the Australian government granted independence to Papua New Guinea in 1975, OK Tedi Mining Limited was established. The promise of revenues and jobs persuaded the PNG government to exempt the company from most of the country's environmental laws. Unsurprisingly, the mine has



become an environmental hazard. According to the Australian Conservation Foundation, in 1991, the head of the OK Tedi River System was almost “biologically dead” after years of exposure to crushed rock, cyanide and heavy metal wastes from the mine. The livelihood of about 30,000 landowners had been seriously impaired and in 1994 they filed a suit in Australia against BHP. The company, which accounted for about 30 percent of Papua New Guinea’s federal revenues, was later found guilty by the Victoria Supreme Court (BHP was headquartered in Melbourne) for its involvement in legislation that was drafted for the PNG parliament making it a criminal offence to sue BHP! For this behaviour, BHP was included in Multinational Monitor’s list of the ten worst corporations in 1995”.

The Nigerian Case

The role of TNCs and the Nigerian government in the brutal exploitation and creation of an ecological disaster in Nigeria’s Niger Delta has been well documented (Olorode, 1989; Ashton – Jones, 1998; ERA/FoEN, 1999; Human Rights Watch: The Price of Oil, 1998; Iyayi, 1999; Okonta, 1998).

It is instructive that Ashton – Jones’ ‘The Human Eco-systems of the Niger Delta’ is dedicated to:

“NNAH UABARI,
who was shot dead on 25th October 1993
near Shell Flow Station No, 5 Ilorokoro, Ogoni, Rivers State Nigeria.”

The repression of the peoples of the Niger Delta has gone hand in hand with the crude exploitation of the oil resources of the area. In this repression, the oil companies led by Shell have played a significant role, providing Nigerian police with guns and information with which to suppress local revolt against its profit maximization activities. As Olorode (1998: 15) has noted, the oil industry in Nigeria has inflicted unprecedented agony on the indigenous communities of the Niger Delta by completely disrupting the waterways, by destroying soil, water,



air, animal and plant life and indeed cutting off all the means of livelihood of the communities. Olorode (1998) has equally documented how other branches of the extractive industry in Nigeria (tin mining in the Jos Plateau area, lignite and coal mining in the Enugu and Niger Basin area, exploitation of forest products and plant genetic resources) have adversely affected the local and hence national ecosystems.

The extractive industries in Nigeria, as in other parts of Africa and the third world, are completely dominated by TNCs. The TNCs not only operate with the full backing of their home governments over which they have considerable control but also exercise complete control over the governments of Africa and third world countries. The role and impact of TNCs in these contexts confirm the view that they: “have emerged as the dominant governance institutions on the planet, with the largest among them reaching into virtually every country of the world and exceeding most governments in size and power. Increasingly, it is the interests of TNCs more than the human interest that defines the policy agendas of states and international bodies, although this reality and its implications have gone largely unnoticed and unaddressed” (Korten, 2001:54).

From this brief analysis of the profile and activities of TNCs some general points can be made about the reasons for environmental degradation in Africa and elsewhere. The first point is that in any given situation, environmental and ecological problems often arise from unequal power relations between the user non-owner and the owner non-user of natural resources. This holds true not only in TNC non-owner and indigenous peoples owner-non-user relationships in Africa and other parts of the Third World but also for the same types of relationships in advanced countries. It is for this reason that the activities of extractive companies produced quite different results for both Canadian and American Indians than they did for Canada’s Atlantic Provinces and US West Texas farmers. For the Indians on both sides, the activities of extractive companies caused social dislocation, environmental degradation and despair. For the West Texan farmers



and Canada's Atlantic Provinces, "local community businesses became more prosperous and larger ... the new oil field and gas money broadened and deepened the distribution of wealth and power in the community" (Copy, 1984). Whereas in the one case the extractive companies and the US and Canadian governments entered into agreements with local communities that guaranteed that they could exercise the right to refuse, delay or permit any activity in their communities, in the case of the Canadian Indians, the culprits, the Reed Paper Company and the Canadian government both "disclaimed all legal, social and moral responsibility for the pollution. Neither the Federal government, the state government nor the politicians could, or would help the Indian people" (Ikein; 1988: 118). Unlike the Texan farmers, the Indians were, of course poor, unorganised but most importantly, indigenous and powerless.

The second fact is that environmental degradation is the result of the pursuit and application of the TNC ideology, which is also the ideology of the capitalist class in the advanced capitalist countries. Thus ideas about sustainable development and corporate environmentalism cannot succeed in a world where profit making, mass consumption and acquisition and greed inform or provide the fundamental basis for economic, political and social relationships. The third point is that those who exercise dominant power in the user – non – owner and owner-non-user relationship are not only largely responsible for producing environmental degradation; they are also responsible for producing poverty in these contexts. This point is amply supported by specifically American experience, by the American and Canadian data that we have just reviewed and by thousands of case examples from various parts of other third world countries. In this regard, the following are illustrative: the Japanese controlled Philippine Associated Smelting and Refining Corporation, PASAR and its record of shame in the Philippines; the experience of the indigenous Igorot people of Benguet Province, Philippines in the hands of the US (rich Philippine investors owned Benguet Corporation); the careless dumping of waste and severe pollution in Venezuela, Curacao, Peru and Ecuador by oil companies notably, Shell (Bassey, 1997; the



environmental tragedy in Indonesia (Ikein; 1990); etcetera, etcetera, etcetera. The fourth and certainly the most alarming and disturbing point is that the TNCs that degrade the environment of the Third World do so deliberately and consciously, rather than out of ignorance, necessity, lack of resources or accident. Whether it is in Papua New Guinea or Nigeria, the Philippines or Ecuador, the TNCs backed by their home governments take part in drafting legislation to cover their tracks or to escape responsibility, they actively take part in human rights abuses, they mount advertising campaigns that cost billions of dollars to polish their image and distort the facts, they tell lies. They do all these and more knowingly, deliberately with the backing of carefully crafted strategies. It is within the context of these four observations and particularly, the last one that I believe the concept of ecological debt needs to be phrased, given meaning and developed.

8. The Concept of Ecological Debt

Debts imply some mandatory obligations based upon some precedent. The obligations may be moral or legal but they do require to be redeemed. Moreover, that requirement, or the foundation that provides validity for the obligation is the precedent and therefore the nature of the debt, whether moral or legal can only be inferred from the nature of the precedent. In the normal debtor – creditor relationship, the precedent is provided by a request from the debtor to the creditor for some facility. The relationship between the debtor and the creditor is formalized in an agreement which becomes binding on both parties: the creditor is obliged to provide the promised facility while the debtor is obliged to replace the facility upon terms and conditions specified in the agreement. Even in cases where the obligation is moral, for example, where A feels indebted to B for some acts performed by B that A values, the obligation arises out of an understanding between A and B, that an obligation exists on the part of A to redeem the debt at some future date. No formal agreement may be executed but the obligation to redeem the debt will be no less binding.



Difficulties arise in the debtor-creditor relationship where: [i] A believes that B owes her a debt but which B does not acknowledge – or refuses to acknowledge; and [ii] where B acknowledges the debt claimed by A but proclaims that it is a moral rather than a legal one. This may be so even when, indeed, A maintains that the obligation is a legal one or both legal and moral. In this case, the parties will be required to plead their causes in the court of precedent.

Ecological debts encounter these and other difficulties in at least four areas. The first is one of definition; the second is that of quantification and therefore of establishing the limits of responsibility; the third is assigning responsibility. The fourth and by no means, the least difficulty is ensuring that those who have responsibility actually assume and discharge that responsibility.

Defining Ecological Debt

Some writers have made a distinction between ecology and environment and while noting the dependence of the one upon the other have insisted that the two terms be used differently (Ashton-Jones, 1998; Sklair, 2001). Indeed Sklair (2001) has argued that leading trans-national corporations are consciously involved in promoting the idea of an environmental rather than an ecological crisis because the latter has greater implications for corporate behaviour. Corporate environmentalism has costs but they are costs that can easily be absorbed within the dominant TNC ideology. Other writers make no distinction between ecology and environment indicating that one does not make sense without the other (World Commission on Environment and Development). While taking serious note of Sklair's observation, this discussion will use the two terms interchangeably.

Ecological, or from our point view, environmental debt, has been defined as “the additional burden on the environment occasioned by surpassing the limits of the resilience of the natural system” (Navia, 1994, quoted in Ojo, 2001: 28); or as surpassing “the productive



potential of the ecosystem” (World Commission on Environment and Development, 1987: 9). These and related definitions raise a number of questions: what is the resilience of the natural system or the productive potential of the ecosystem? What is the nature of the additional burden and how does the burden arise? These questions, especially the last one, are important because of the need to assign responsibility for debts.

Arising from our earlier observations, we see an ecological debt as an obligation owed by economic and political actors to society or sections of it for conscious acts on their part that lead to a damage of the environment and impairs its ability to support life or regenerate itself. The emphasis on actors indicates that recognizable individuals and institutions perpetuate harmful acts to the environment whether or not they hide under an agenda of global sustainability or development imperatives. The idea that the acts are conscious is to draw attention to the legal, rather than moral obligation that the consequences of damage to the environment, impose. It is also to separate this class of action from others such as those in previous pre-modern or pre-industrial societies, when food-gathering communities engaged in relationships with the environment that ultimately led to the true tragedy of the commons. In particular, given the acknowledged relationship between poverty and environmental degradation, the insistence on economic and political actors acting consciously usually in pursuit of the profit motive suggests that responsibility for environmental degradation cannot be shared to the poor but rather those whose actions cause poverty. Finally, being conscious acts, they are different from acts of ignorance or accident. They can and need to be placed within the representative class of actions that we categorize as “crimes against humanity”. For example, we are aware that soldiers kill each other and even members of the civilian population in times of war. These killings are not regarded as criminal acts: they are understandable within the rules of war. But then some soldiers do get tried for war crimes. An ongoing and classic case is that of Milosevic, former President of Yugoslavia who has been arrested and is now being tried at the Hague for “crimes against humanity”. The trial is based upon the notion of decent and indecent or normal and abnormal acts



in war. While different kinds of action can lead to ecological damage, not all such actions need to be classified as ecological debts. We suggest that the notion of ecological debt be reserved for damage to the ecosystem that results from the conscious acts of economic and political agents and that the concept of **ecological losses** be reserved for damage to the environment that result from the unintentional actions of economic agents and actors. The one is a crime of the head, the other an offence of the heart. Both require redemption but of qualitatively different kinds. TNCs commit ecological crimes in the third world for which they must pay but payment cannot be in the form of sustainable development, nor corporate environmentalism; it must be in the form of appropriate and adequate restitution. The question that arises however is, how are the adequacy and appropriateness of such payments are to be determined?

Establishing Costs

Many commentators on the ecological crisis are agreed that is difficult if not impossible to quantify and allocate the costs of ecological damage (Kapp, 1970; Martinez –Alier, 1990). Indeed, Kapp (1970: 44) has argued that:

...the fact of the matter is that both disruption and improvement of our environment involve us in decisions that have the most heterogeneous long-term effects, and which moreover, are decisions made by one generation with consequences to be borne by the next. To place a monetary value on and apply a discount rate to future utilities or disabilities in order to express their present capitalized value may give us a precise monetary calculation but it does not get out of the dilemma of a choice and the fact that we take a risk with human health and survival. For this reason, I am inclined to consider the attempt at measuring social costs and social benefits in terms of monetary or market values as doomed to failure ... (Quoted in Martinez-Alier *Ecological Economics: Energy, Environment and Society*. Basil Blackwell, Oxford 1990: xx)



Martinez-Alier (1990) has suggested that one way to resolve the problem is to politicise the economy by assigning values to alternative results and costs since neither economic rationality nor ecological rationality can be relied upon to solve the problem of incommensurability in evaluation. The problem with such a solution however, as Martinez-Alier recognizes, is that the politicisation of the economy will mean leaving decision making in the very hands of those who create the negative externalities. Thus the interests of “the three or four billion of the earth’s poorest members” who suffer the effects of environmental degradation will not be taken into account. We believe that the problem of measurement can be solved if we reserve the process for ecological debts as opposed to ecological losses. Indeed, we believe that the difficulties that Kapp observed apply largely to damages to nature that we have classified as ecological losses.

Indeed, Pearce and Turner, 1990; Power, (1996) have demonstrated that it is possible to measure environmental damage, especially those that involve environmental debts. Devlin and Grafton (1998) have advanced the notion of property rights as basis for conducting such valuation. “Property rights are defined in terms of owner(s) and their relationship with others regarding the asset. A property right provides a stream of benefits to the owner (or user) and requires that others respect the property right. Who owns the property right and how this right is specified affects its use”. (Devlin and Grafton, 1998: 38)

Once property rights are established over resources, it becomes possible to make people pay attention to the external costs that are generated in the course of using those resources and therefore of ensuring that payments will be made for any negative externalities thereby created. An important point about property rights is that they can be exercised at local, national and international levels. At the local level, the problem is easy to identify, property rights can easily be established and the costs of negative externalities quantified; moreover, the major contributors to the problems can be identified easily. The idea of local property rights and how trading schemes can be



established at this level indicates how the process may also be established at the national and international levels.

At the national level, ecological debts can be computed as an aggregate of the debts at the local level; in the same way, the debts at the international level can be established as the sum total of the debts at the national level. The idea then is that rather than think of ecological debts in global terms, and therefore be confronted with the problems of incommensurability, assigning responsibility and exact measurement; it is better and more realistic to begin with an agenda of local ecological debts which are arrived at on the basis of local property rights. Such rights would include tradeable permits and responsibility on the part of the users whenever and wherever negative externalities are produced. The methods of enforcing these rights, including the role of regulatory agencies, would also be provided for and addressed when drawing up the tradeable permits.

In proposing this approach towards the establishment of the ecological or environmental debt, we wish to acknowledge that a number of preconditions must exist for success. The first precondition is that property rights must be vested in the real rather than surrogate owners of resources. The real owners of the resources are those who have a historical claim to the resources and who also will be most affected by negative developments with respect to the use of the resources. In developing countries, the major problem is how property rights are established: this explains the struggles of the peoples of Nigeria's Niger Delta for control over the oil and gas deposits on their land. It also explains the refusal of the Nigerian state to concede such rights to the people of the Niger Delta. In essence, here, as in several parts of Africa, property rights are vested in the state, which however, goes into collaboration or collusion with transnational corporations to exploit those rights without regard for the interests of the owner non-users or host communities.

The second precondition that needs to exist is that the property rights must be adequately protected by appropriate legislation. In the



name of the need for revenues and development, the governments of several third world countries often fail to enact legislation that protect the property rights of their people. Indeed, legislation is enacted that frees the TNC user-non-owners of those rights from several obligations. It must be noted however that within the context of the ecological debt as have conceptualised it here, the lacuna in the laws does not free the users of the rights from being liable for abuse of those rights; if anything, it simply postpones the day of reckoning for them.

The third precondition is that the owners of property rights must be empowered to protect their rights. Where the owners of the property rights are weak relative to the users of those rights, ecological abuse will certainly occur.

In summary then, ecological debts need to be calculated on the basis of specific local instances. The localization of quantification means that every possible detail will be captured: the actual degree of abuse, opportunity costs and so on. It will not matter that the origins of a particular pollutant are several thousands of kilometres away, nor that the effect become recognizable after so many years. These will be matters of tracing responsibility. What will be critical from the point of view of establishing the size of the debt will be compiling all the data that relate to actual costs in each local situation. From such local costs, national and international costs can then be established.

9. Conclusions: Ecological Debt, reparation and debt Cancellation

A reappraisal of the past and ongoing relationships between the third world peoples and leading centres of the advanced capitalist world has led in recent times to demands by peoples of the under-developed world for various forms of compensation and restitution from the leading centres of the advanced capitalist world. One of these demands, reparation, is specifically African and is anchored on the inhumanity of the forced trade in slaves from around 1400 to 1850



during which over 20 million Africans were uprooted from the African continent and sold into plantation labour in the Americas and elsewhere. Walter Rodney (1972: 106) has shown, for example, that whereas in 1650, Africa's population stood at 100 million, by 1900, three hundred and fifty years later, the population had increased to just 120 million. Europe and Asia, which respectively had 103 million and 257 million people in 1650, had increased their populations to 423 million and 857 million people by 1900. The trade in slaves pushed Africa outside of the orbit and hence natural trajectory of its development as a push by a big planet on a small planet alters the trajectory of the small planet forever. The slave trade altered Africa's natural trajectory of development forever. The demand for reparation thus seeks redress for a small part of the incalculable and unindemnifiable damage done to Africa by European and American slave traders.

The second demand, shared by all third world peoples is that of debt cancellation. This demand is based upon the realization of debtor countries that the huge debts, which they are being called upon to pay, represents a fraction of the surplus expropriated from their own countries by agents and representatives of global capital. More importantly, it is based upon the realization that the debts arose as a result of unjust economic, trading and political relations that were consciously foisted by the advanced capitalist countries on the poor countries. It has been estimated for example that in 1996 alone, the net outflow of funds from the third world to the advanced world was in excess of US\$50.0 billion. This net outflow was calculated by subtracting the total outflow of foreign investments from the advanced countries to the third world from loan repayments by third world countries. What the data shows is a scandal: in effect, third world countries are financing the development of advanced countries and having to be reminded that they are poor by the same advanced countries.

The third demand, the idea of an ecological debt owed by rich countries to the world in general and to third world countries in



particular links the current world wide ecological crises and specific regional environmental disasters to the conscious activities of a globalising capitalism. For third world and African countries, the ecological debt has a close relationship with debtor status and therefore the demand for debt cancellation and for the sources of the loans that finance the debts of third world countries are extracted from the soils of third world peoples – extractions that produce environmental disasters and crises in the third world. That this relationship is indeed recognized by international financiers can be seen in the attempt some years ago to write off US\$4.0 billion of Brazil's foreign debt as the value of the ecological damage to the Amazonian rain forest in Brazil.

In general, however, what needs to be understood is that the demands for reparation, debt cancellation and payment of ecological debt are related. They are demands that arise from the exploitative nature of the relationships between third world and first world capitalist countries. Indeed, they arise from the relationships between poor and rich countries, where the rich have become so by fraudulently taking what belongs to the poor. In a fundamental sense therefore, all the demands arise from a class of actions on the part of the advanced capitalist countries that need to be recognized and as treated as crimes against humanity. This needs to be the slogan for the various demands. The slogan may not win any specific concessions now because of the existing power relationships between third world and the advanced capitalist countries but it will certainly serve a note of warning to them that we understand the history and nature of our relationships and that a day of reckoning is coming.

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OIL and GAS in Africa: ecological debt Huge as the sky*

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EARTH RIGHTS ACTION

Introducción

The story of oil and gas in Africa is the story of rogue exploitation, despoliation and bizarre brigandage. It is a story of pollution, displacement and pillage. It is a montage of burnt rivers, burnt forests and maimed lives. An oil well is a death sentence if it is located in your backyard.

I was waiting for immigration checks at the Johannesburg International airport in late August 2001 when suddenly I found that I was standing behind two US oil industry workers based in Nigeria. They were quite loquacious. Two lines in their excited talk caught my attention.

- “Just imagine,” one said, “how crude oil is always found in Godforsaken places.”
- “No,” the partner replied, “it is crude oil exploitation that makes those places Godforsaken.”

* Article presented during the “*Globalization, Ecological Debt, Climate Change and Sustainability: A South-South Conference*”, held in Benin, in November 2001, organised by *Acción Ecológica* from Ecuador, *FoE Benin* and *FoE International*.



This brief interaction sets clearly the basic pillar of ecological debt. Every destructive action attracts a debt. It is an ethical issue; it is a moral issue; it has cultural connotations; it is economic, political and even criminal.

Revenue: on what Avenue

If Africa were to be devoid of mountains, rivers and other natural features, oil and gas fields would nevertheless have provided sufficient dots on the map to arrest your attention. Each dot on the map representing oil or gas fields has a long story to tell. Their histories are deeply linked to the histories of the geographical boundaries within which they are found. These dots look so abstract and commonplace on maps, but they did not just appear there; they are the footprints of oil transnational corporations (TNCs) whose umbilical cords are fed by colonial blood.

The revenue accruing from oil and gas exploitation is certainly huge. The problem is that it does not translate to positive change in the nations of Africa. The huge revenues are neither adequately nor transparently accounted for by the governments or by the TNCs. Thus, the same deprived people are made to bear the heavy load of unpayable debts allegedly owed to the World Bank and other creditor institutions of the North.

The extractive industry generally holds a record in conflict generation, gross human rights abuses and sustenance of undemocratic or at least unstable regimes. It does not matter where in the South these companies operate or whether we are considering crude oil or diamonds¹. When one reflects on the situation in Sierra Leone, one cannot but think that wearing a diamond these days could mean the same as wearing a child's limb on one's finger.²



Let's go Offshore

Offshore oil and gas exploitation has predictably generated conflicts due to the brazen disregard of social and environmental concerns and today the TNCs are literally heading into the deep waters as they head offshore. Off shore is attractive for many reasons:

- Onshore reserves are drying up after about five decades of ceaseless exploitation.
- There are huge finds now found offshore that are open to exploitation at monster profits.
- TNCs activities are removed from the immediate view of local communities
- Toxic wastes can be dumped into deep waters with less resistance or need for environmental accountability.
- Impacts are more insidious but less readily noticed.
- Less needs to be spent on requirements of good neighbourliness. Once out in the seas, TNCs claim they have no neighbours.

The problem with this is that the destructive effects of these activities are not wholly kept offshore. Mankind is yet to produce effective legislation or even physical boundaries to block off offshore pollutants that tend to wash onshore and even across national boundaries.

Another threat from these offshore adventures is that the TNCs are digging in for a long stay. This means the extension of present conflicts, exploitation, destruction, degradation and environmental and human rights abuse.



Nigeria

The oil industry in Nigeria is emblematic of oil activities in other Sub-Saharan countries in Africa. Cases of degradation and human rights violations are well documented and known. Let us mention a few examples.

On 14 October 2000, ten youths of the Olugbobiri community, Bayelsa State, were murdered by military guards near an oil facility belonging to AGIP in an unprovoked attack. After this massacre AGIP commissioned a study into the alternatives to using military personnel on oil facilities.

The incident at Olugbobiri came about as youths from the community sought to clarify the status of the specifications for a proposed road project in the area. It was alleged that the oil company had altered the agreed specifications without proper procedures and without any discussion with the local people.

On 28 May 1998, Ilaje youths were shot, killed and wounded on Chevron's Parabe platform where they had gone to arrange for dialogue on the impact of oil extraction on their communities and livelihoods.

Cases abound where rivers are not only polluted but are also set on fire in a bid to conceal evidence of crude oil spillage. When you see a fire in the Niger Delta you do well not to jump into any river. It may just be the river itself that is on fire.

Oil and gas business is a business carried out on an uneven ground. Trade with the North has been decidedly unfair. The incident involving the Royal Niger Company (RNC) - the 1895 sacking of Akassa - should underscore this position. The Akassa people (of now Bayelsa State) were a great people with thriving agriculture and commerce. Indeed they were in trading contacts with merchants in areas as far off as Liverpool. To ensure that they had a complete



monopoly of trade in Akassa, the RNC ensured, by force of arms, that the people were cut off from what they knew best to do. The result was massive starvation, disease and death.³ The trade then was about palm oil. Today there is still resource conflict in the region and it is still about oil, only this time it is not palm oil but crude oil.

Oil TNCs use judicial processes to present themselves as law abiding corporate citizens while ensuring that they do not accept judicial decisions that are against them.⁴

Exploration/prospecting

This phase of oil business is marked by seismic activities that involve the use of dynamites and other explosives. These are either detonated in the bowels of the earth through water bodies or dry land. These explosives have direct impact on the aquatic stocks in the area as well as the fauna. Aftershocks are known to sometimes cover as much as a radius of 10 kilometres. The blasts have been known to have impact on the auditory systems of sea birds and mammals finally affecting their ability to community and procreate. Other side effects are noted in diminished food supplies, increased cases of hypertension and endocrine imbalance⁵. The ultimate impact is on the fish supply on which the economy of the local people hangs.

Exploitation & Transportation

Oil spills, pipeline explosions and resultant conflicts mark the exploitation and transportation stages. Pipelines are routinely left to rust and rupture before efforts are made to replace them.

Oil spills are never adequately cleaned up. Cases in point here can be found in Nigeria's Ogoniland. The Ogoni people expelled Shell from their communities in 1993, but spills that occurred long before then already dotted the landscape and are testimonies to the destruction wreaked on their land by Shell.



The cleaning up of the Ogoni environment has been one of the demands of the Ogoni people. A recent testing of the underground water at Botem Tai in Ogoni by ERA showed serious contamination by hydrocarbons, heavy metals and sundry toxic substances.

Natural remediation may take generations to return the environment to its natural state. In many cases spills are “cleaned” using contractors who have no skills for such technical actions. It is not surprising that they often set whole forests on fire in a bid to wipe out the evidence of the spills. Examples abound in AGIP and SPDC areas of operations.

The Aleibiri forest was set on fire to hide SPDC’s spill after crude efforts to clean the spill proved ineffective. AGIP’s spill at Etiema, a community close to Ogbolomabiri (headquarters of Nembe West LGA of Bayelsa State) was traced to her pipelines that were constructed in 1972 and have not since been upgraded or replaced. The people have seen many spills but nothing like that of 13 May 2000.⁶ By the end of the day the crude oil had spread to communities such as Igbeta-Ewoama, Iwokiri, Agbakabiriyo, Sabatoro, Kemenini, etc. AGIP hired some youths to clean up the spill using faulty mechanical pumps. The faulty pump generated a spark that ignited the crude oil and killed at least six youths.

Angola

Angola is a prime example of a richly endowed nation that has found her riches a curse rather than a blessing. The nation has some of the richest mineral resources in Africa. Oil activities commenced in the 1960s here. Over the years, civil wars have torn this nation apart and this has put virtually every national endeavour in reverse gear. It is remarkable to note that because crude oil here is produced offshore (mostly from the fields off Cabinda), the production pace has remained high.



The war in Angola, as in many other countries in Africa, is a war of resource control. Going offshore has meant a negation of corporate responsibility to the real owners of the resources and assurance of unchecked gains.

Fuels accounted for 94.8% of national exports by value in 1991. The total annual output of crude petroleum in 1998 was 268 million barrels per year. The offshore fields have up to one billion barrels reserve. The TNCs at work here include ELF, ExxonMobil, BP, etc.

Sudan

Sudan has a shorter history of oil extraction but because of the massive war in the oil areas it can be compared to the Niger delta. “Southern Sudan – where most of the oil is – has long been a zone of extraction rather than of development. In fact, since the resurgence of civil war in the last two decades it has gone backwards in terms of development and social provision.”⁷ The method favoured by the Sudanese government to keep the oil fields and pipelines quiet is that of “expelling civilians from the areas of Talisman’s operation to create a no-man’s land around the wells...if it were not for oil development, the army would not be displacing civilians from these areas”⁸.

Displacement is effected by bombings and burnings of communities. This displacement, coupled with other violent situations, gives Sudan the honour of contributing one out of every eight refugees and displaced persons in the world. Moreover, many places suffer extreme hunger and villages devastated by militia raids are said to now be off the map. There are reports of instances where relief materials were being dropped and quickly followed by bombs.

More than 40 years of war in Sudan may appear to have nothing to do with oil since Sudanese oil only got pumped into the market in 1999 but long before the first well was drilled, deals were being made and speculators were already trooping to the banks with ‘oil’ money.



Cameroon

Cameroon has a wide range of natural resources including bauxite, tin ore and limestone. Natural gas is found near Douala, and offshore oil deposits are being exploited. However, what placed Cameroon on the oil resistance map of the world is not oil found in this nation but crude oil from the oil fields of neighbouring Chad. The 1000 km pipeline is running from Southern Chad to the Cameroonian Atlantic coast.

The pipeline is running through lowlands, forests and some of the rivers used by the local communities. Studies have shown that the consortium handling this pipeline may escape liability for environmental damage because of weak legislation in both Chad and Cameroon⁹. This situation has made many analysts believe that the presence of the World Bank is critical for the observance of basic environmental and human rights.

Congo (Brazzaville)

Offshore petroleum reserves have been exploited since 1975¹⁰. The Congolese offshore has interesting petrochemical infrastructure made of concrete. The N’Kossa concrete barge for liquefied natural gas (LNG) has held the record of being the largest concrete barge ever built.¹¹ This barge measures 200 metres by 36 metres and is 16 metres deep. This concrete monster weighs 110,000 tons.

This is ELF territory, following on the heels of French colonial “conquest”. Elf is working with BP, Shell and Statoil in developing new fields as deep as 2 kilometres. Design focus has been on multifunctional concrete barges that drill and produce simultaneously.



Equatorial Guinea

Mobil was the first oil TNC to obtain a license to prospect here. Until the discovery of crude oil, agriculture was by far the main source of livelihood in Equatorial Guinea. The rural economy has deteriorated under successive brutal regimes, with the potential for agriculture-led growth reduced as a result¹².

South Africa

The most worrisome problems here relate to highly polluting refineries. The health issues related to these refineries are constant challenges. More recently SAPREF's petrol pipelines in South Durban have been springing leaks of alarming proportions. In a recent leak, up to 71,000 litres of petrol was recovered from groundwater after the spill.¹³

As more finds are made, the areas of concern expand¹⁴

1. Tanzania - The Zanzibar government has authorised a Canadian company, Antrim Resources, to prospect for oil off Pemba and Zanzibar islands. License given since 1997.
2. Mozambique – A gas pipeline is planned to link Mozambique with South Africa.
3. Uganda – Prospecting still on. The Australian firm, Hardman, is the key player here.
4. Mauritania – with Hardman as the major TNC also.
5. Democratic Republic of Congo – is a new oil goal
6. Malawi – with activities in the lake



Livelihood Challenges

Time is long past when oil communities rejoiced at the announcement of crude oil finds in their territories. Today they receive such announcements with trepidation. From experience it has heralded environmental and human rights abuse of monumental proportions. In Nigeria there is more attention to environmental impact assessments (EIA) and their scrutiny. Case in point is the reaction of the local community to ELF's presentation of an EIA on its recent oil field (Amenam Ikpono FDP, OML 99) in Nigeria. The areas of worry were telling¹⁵:

1. Lack of fisheries study. The people see fisheries as a strategic resource of livelihood of the inhabitants of the coastal areas of the project.
2. Non-reference to the naturally rich shrimp and sediment in the microbiological study.
3. Unacceptable low level of attention paid to the coastal vegetation and soils that they see as ultimate points of impact when spills occur.
4. Inadequate baseline studies as well as inadequate level of participatory research/dialogue with stakeholders.

Offshore Oil: Offshore Contracts

The media frequently reports on communal conflicts over lack of basic social services in communities where crude oil is exploited. However, there are other levels of conflicts that are just as prominent and equally fundamental. This has to do with who wins the contracts in the oil fields.

Shell's 1000 metres deep Bonga oilfield lying 120 kilometres off the Nigerian coast was discovered in 1995 with investment decisions



reached in 2000. The field is set to begin production in 2003. The oilfield has a recoverable oil deposit of 600 million barrels.

Federal legislators are unhappy that the contracts for works on the oilfield were all given to foreign companies.¹⁶ A Shell spokesman said recently that the company is “not concerned about federal legislators threatening to bring a halt to the work on the Bonga Main find over the award of five major contracts to foreign firms... We’ve engaged some group of senators and House of Representatives members in a debate and they are looking into the details. I don’t think they will take a decision that will not be in the interest of Nigeria.”¹⁷

The controversy over these contracts eventually led the national assembly to set up a body to investigate the award of contracts in the Nigerian oil industry.¹⁸ Shell’s current position is that Nigerian firms will have a share of contracts during the production stages.

Burning Gas

The people in most oil communities in Nigeria live with gas stacks that flare gas 24 hours a day at temperatures of 13-14,000 degrees Celsius. These gas flares produce 35 million tons of CO₂ and 12 million tons of methane, more than the rest of the world. This makes the oil industry in Nigeria the single biggest source of global warming in the world).¹⁹

Indiscriminate gas flaring has been the lot of the people of the Niger Delta for about 40 years now. In 1989 alone Nigeria flared a reported 617 billion cubic feet of associated gas, releasing 30 million tons of carbon dioxide in the process²⁰.

The effect of gas flaring has been dramatic: continual noise, acid rain²¹ and retarded crop yield, corroded roofs and lung diseases. Nigerians have been told that the various facilities and projects such as the proposed West African Gas project would greatly reduce gas flaring. The way this would be achieved has not been transparently presented



to the people. What is obvious is that the gas being flared is associated gas whereas much of what the new gas projects plan to utilise are from new gas fields and are not associated with crude oil production.²²

The spectre of rising sea levels due to global warming is more ominous for the Niger Delta that is a naturally subsidence-prone territory. Although scientists generally dispute the warning that sea levels will rise by 2 metres by the year 2100, it is strongly believed that at the rate of subsidence of the Niger delta, that net rise in sea level will be exceeded. Measurements at the site of a tank farm showed a subsidence rate of more than 2.5 cm/year.²³ A one-metre rise in sea level could flood a land area as large as 18,000 sq. km and force millions of people to relocate. It is estimated that up to 80% of the population would have to relocate if/when this scenario plays itself out.²⁴

Conclusion: Points to Ponder

Oil and gas extraction has been done with little or no environmental mitigation provisions. These methods ensure huge profits for TNCs and leave an equal deficit to the local communities. The question is what will it take to return the environment to its natural state? The environmental costs are evidently discounted from the accounting books. These unbalanced balance sheets need to be revisited.

Oil was first pumped in commercial quantities in West Africa from a well in Oloibiri in 1958. Up to now, the area has no all season roads. The well itself yielded all the crude it could and is today garlanded by silent bushes and a plaque erected there by General Olusegun Obasanjo, Nigeria's president. Generally, it is held that living conditions in oil communities are worse than they were before the onset of oil.

Today's world is interconnected and interdependent. The problem is that the linkage has remained a lopsided one. Conflicts in Africa are in the main traceable to extractive activities. Diamonds in



Sierra Leone, oil in the Niger Delta and Sudan, diverse minerals in the Democratic Republic of Congo, etc. From the West these conflicts are usually seen as “African problems that require African solutions”. That must be seen as true in a certain sense. “ The history of externally driven solutions has not delivered durable peace on the continent...²⁵”

Tropical oil producing countries have become critical sources of cheap energy resources. With less rigorous environmental legislation, the TNCs derive excessive profit by plundering the land irrespective of the safety of the people and their environment.

We can conclude that:

- This apparently cheap resource is so because of the intrinsic subsidy provided by the space to operate mindlessly.
- Debts occur in every unfair relationship where one is benefiting and the other is losing. A crude example is when a robbery occurs. The robber owes the robbed a debt that may be paid back in kind or through penalties secured through a judicial process.
- In the oil and gas sector as well as in other spheres, TNCs are expanding and merging for greater expansion and greater influence while at the same time the World Bank, IMF and related institutions are encouraging shrinking of public corporations. The TNCs are swallowing up governments, weakening them and re-colonising these nations.
- TNCs are the warrant agents of Northern governments. They are the hands of Esau “behind” the voice of Jacob. But the people see that the governments are trying to protect the oil and gas companies’ installations, “or knocking down a protest action...”²⁶
- One of the problems of conceptualising ecological debt with regard to oil and gas extraction is located in the internal political equation of the countries involved. Because these TNCs operate



“better” under repressive regimes²⁷ the entire process is non-participatory. And because the people at the end of the burning sticks are so oppressed, they often question the legitimacy of the governments under which they are forced to live.

- There is agitation by local peoples for a say in the extraction of resources from their communities. In Nigeria this has given rise to a demand for **Resource Control** by these local peoples. The argument is that since they (the people) live on the degraded lands and waters, they would be in a better position to negotiate with TNCs over the methods of resource extraction as well as being in a better position to utilise the accruing resources for development and meeting of real needs²⁸.
- Inter ethnic conflicts are deliberately generated in and between oil and gas communities. A report on the Nigerian environment highlighted some “key indicators” to monitor, including: “The emergence of regional political movements or cross-ethnic coalitions based on concerns about public health and environmental degradation. The rise of such groups, a rarity in Nigeria to date, could signal a move towards political instability on a national level.²⁹” It adds, “escalating violence could also prompt oil companies to request US or foreign government assistance”³⁰.
- The same report highlights the corrupt nature of oil TNCs when it states, “Oil revenue is often diverted into military-controlled accounts, and oil companies give kickbacks to secure licenses”³¹.
- Analysis of environmental costs and compensations are not mere technical exercises. They require political decisions and the will for this is currently in short supply. According to Jose Navia³², “a political decision is also involved is environmental impact evaluation; and even the methodologies used in such evaluations are not foreign to cultural and political influences.”



- Loss of species, destruction of habitats, environmental dislocations, impoverishment of whole people groups, and subjugation for profit all constitute ecological debt.
- Mega consumption in the North, mega degradation in the south: that is the wheel that rolls in the debt.
- Exportation of global warming through fossil fuel consumption adds to this debt.
- Alternative energy sources must be developed and popularised. The stranglehold on the alternative energy industry by oil and gas TNCs must be broken to save our planet and reduce the ever-increasing ecological debt.
- Ecological debt is a debt long overlooked. It must now be placed right on the table. It is time for international negotiation processes and dialogue on this massive debt owed the South by the North. A debt owed to humanity by the ambitious TNCs. It is a debt owed to our collective yesterday and our collective tomorrow.
- There must be a moratorium for at least ten years on all new oil exploration while a massive environmental audit is carried out in all existing oil and gas fields. The audit will reveal what actions need to be taken to restore our devastated environments. It will also show components of what debt needs to be addressed.
- We must also demand a moratorium on “debt” servicing or repayment until the ecological audit and debt assessment. This will clear the picture about who really is the debtor.
- The ecological debt balance sheet is as huge as the sky!



Notas

- 1 Bassey, N, "CHANGE," paper at Global Greens' RIO + 10 workshop, Canberra, June 2001
- 2 The Executive Summary, of the report on *Sierra Leone, Diamonds and Human Security*, Ian Smillie et al, opens with this important statement: 'This study is about diamonds – small pieces of carbon with no great intrinsic value – which have been the cause of widespread death, destruction and misery for almost a decade...'
- 3 Pakenham, Thomas, **The Scramble For Africa**, Abacus History, London, 1992, p464
- 4 Shell filed a suit against Olomoro community claiming \$25,000,000 (Twenty-five million dollars). When Shell's oil spill devastated the four Burutu communities of Sokebelou, Ofogbene, Obotobo and Ekeremor in Delta State in 1982, the people resorted to the law courts for redress. The ruling in favour of the community came 15 years later. The court ordered Shell to pay the communities a total sum of US\$ 235,000. Shell officials boasted then that they would never pay any compensation as a result of the case. They went on to appeal against the ruling in a court located in Benin City. Today it does appear that the court is now being viewed as an arena of intimidation, harassment and spite.
- 5 Bravo, Elizabeth, *Oil That Flows, Seas that Bleed*, in *The Oil Flows The Earth Bleeds*, Bravo, E. (ed.) Oilwatch, Quito, 1999
- 6 ERA Field Report # 61, *AGIP'S MILLENNIUM FIRE ROASTS SIX TO DEATH*. 18 May 2000
- 7 Peter Verney, *Oil and Conflict in Sudan. A Sudan Update Report*, December 1999
- 8 Talisman is a Canadian oil TNC
- 9 See for instance, Bronkhorst, S. A. (ed.), *Liability for Environmental Damage and The World Bank's Chad-Cameroon Oil and Pipeline Project*, NC-IUCN, Amsterdam, July 2000.
- 10 "Congo, Democratic Republic of the", *Microsoft® Encarta® Encyclopedia 2001*. © 1993-2000 Microsoft Corporation. All rights reserved.
- 11 See Ivonne Yanez, "Oil in Deep African Waters," published in *The Oil Flows The Earth Bleeds*, E. Bravo (ed.), Oilwatch International, Quito, 1999. pp165-177.
- 12 "Equatorial Guinea", *Microsoft® Encarta® Encyclopedia 2001*. © 1993-2000 Microsoft Corporation. All rights reserved.
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- 14 The main focus in the paper is Sub Saharan Africa
- 15 Bassey, Aniekian "Akwa Ibom Rejects Report on New Oil Field Project", *The Guardian* (Lagos), Wednesday, August 22, 2001. P5
- 16 The firms are from South Korea, Monaco and Britain.



- 17 Akinmuti Tola and Ogbodo John-Abba, “Shell Makes Another Oil Find as Govt, Chevron Sign Pact”, The Guardian (Lagos), August 23, 2001. P. 63
- 18 Owuamanam, Jude, Saturday Punch (Lagos), “Shell Bonga Oilfield Project Gulps \$1.5billion.” November 17, 2001. pp 1-2.
- 19 Watts, Michael, *Contested Communities, Malignant Markets, and Gilded Governance: Justice, Resource Extraction, and Conservation in the Tropics*, in People, Plants, & Justice, Zerner, Charles, ed. New York, Columbia University Press. 2000. p.25 See also Ashton-Jones Nick, *The Human Ecosystem of the Niger Delta—An ERA Handbook*, ERA, Benin City, 1998 for detailed analyses of the Niger Delta situation
- 20 See Rowell, A. *Green Backlash (Global Subversion on the Environment Movement)*, Routledge, London, 1996. p. 291
- 21 See ERA’s Report titled “sHELL in Iko”
- 22 *PIPEDREAMS –The West African Gas Pipeline Project and the Environment*, an ERA/Oilwatch campaign publication (November 2000), raises reasons why it is believed that associated gas will continue to be flared in the Delta while gas projects will be largely based on non-associated gas. Some of the reasons are that (1) well productivity for non-associated gas is much higher than for associated gas the possibility of using associated gas. (2) Capital costs for treatment and drilling equipment to develop non-associated gas are distributed over larger reserves in specific gas fields than for associated gas with crude oil. (3) Additional recovery costs are introduced for associated gas when it has to be compressed from atmospheric to pipeline use. In all, it is cheaper to produce non-associated gas. Because the oil business is expectedly driven by a chase for profits it stands to reason that they will protect their pockets while the people roast beneath their fiery gas flare stacks.
- 23 Awosika, L. F.; Ibe, A. C.; and Udo-Aka, M. A. *Impact of sea level rise on the Nigerian Coastal Zone*. In Titus, J. G. (ed), *Changing Climate and the Coast*, Vol. 2 US EPA Washington D.C. 1989
- 24 Rowell, A. op cit. P. 291. It is also estimated that property damage will reach \$9 billion.
- 25 Ero Comfort, *British Foreign Policy and the Conflict in Sierra Leone in Sierra Leone, One Year After*. CDD Strategy Planning Series 5, London, December 2000. p.116
- 26 van de Pol, Yehudi David Dimitri, *Neo-Colonial Business or Global Responsible Enterprise? Shell in Nigeria, a strategic analysis*, Thesis, Sociale Geografie, Universiteit van Amsterdam, August 1998. p. 19
- 27 They provide the best climate for profit and corporate irresponsibility.
- 28 See, for example, 100 Reasons Why We Must Control Our Resources, by Ijaw Youths Council, Nigeria, 2001
- 29 CIA, DCI Environment Centre, *Nigeria: Environmental Stresses and their Implications Over the Next Decade*, May 2000. p.2



- 30 Ibid p12. This means that TNCs could go above sovereign Southern governments to invite US or other foreign armies to intervene at their pleasure. Already, local newspaper reports have it that the US military have been invited to protect oil installations in Nigeria. Who sent the invitations?
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Texaco's Ecological Debt*

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Introduction

Texaco is probably the company that has accumulated the greatest ecological debt with Ecuador. Its operations brought with them destruction and pollution for wide areas of the jungle in the Amazon region, the extermination of indigenous peoples and the impoverishment not just of the region, but also of the country.

Life is immeasurable, thus a price cannot be put on it. Nevertheless, it is and should be possible to establish sanctions for those who destroy it. A price cannot be put on a dead river, but it is possible to calculate how much it would cost to substitute the services it provided.

In Ecuador, indigenous people and peasants are suing the company for damage caused during its operation.

Furthermore, some social organizations affected directly or indirectly by Texaco's activities have announced a boycott on the company, to make the Ecuadorian population refuse to buy any of its products.

* Article presented during the “*Globalization, Ecological Debt, Climate Change and Sustainability: A South-South Conference*”, held in Benin, in November 2001, organised by Acción Ecológica from Ecuador, FoE Benin and FoE International.



We must take on the fact that Texaco affects us all, that we are all creditors of Texaco's ecological debt with Ecuador.

Texaco Ecological Debt File	
Ecological debtor:	CHEVRON TEXACO
Creditor country:	ECUADOR Orellana and Sucumbíos Provinces
Creditor peoples:	Cofán, Secoya, Siona, Quichua, Huaorani, Tetete, Sansahuari (extinct) and peasants displaced to the colonization zone. There are approximately 30,000 people affected directly by operations.
Affected ecosystem:	Tropical Rainforest. Ecuadorian Amazon. Amazon, Andean and coastal ecosystems where the SOTE (trans-Ecuadorian oil pipeline) crosses.
Intervention period:	28 years
Company history:	Texaco is a North American company, created in Texas in 1926. When it opened its offices in the Petroleum Building, Houston, Texas, it put up a pirate's flag on the roof. On the fluttering flag, as black as crude oil, was a skull and crossbones, with a pirate's patch over the hollow of an eye. It was as if they were indicating what they were ready for, their willingness to bring an end to anything hindering them from achieving their objectives.

Ecological extent of the Damage

Texaco was the first company to start oil activities in the Ecuadorian Amazon, in 1967.



Texaco extracted nearly 1.5 billion barrels of crude oil. It built 22 stations, drilled 339 wells in an area that currently covers 442,965 hectares. It spilt tons of toxic material, maintenance waste, and more than 19 billion gallons of production water (with six times as much salt as seawater, and with hydrocarbon and heavy metal remains) into the environment. Its burners burnt two million cubic metres of gas daily.

There are 235 oil wells still functioning, currently operated by Petroecuador, who inherited Texaco's dirty technology. According to reports, 5 million gallons of production water are spilled into the environment daily as well as countless amounts of waste from maintenance and other oil activities. Waste from oil is applied to roads to control dust and "maintain them", thus providing a permanent source of contamination for crops sown around the roads. Every day tens of millions of cubic feet of gas are burned as waste, thus destroying a natural resource and polluting the air.

Production water contains a large quantity of pollutants including hydrocarbons like benzene and other polycyclic aromatic hydrocarbons (PAHs) these have a direct relationship to cancer and produce skin mutations and irritation. It also contains heavy metals and levels of toxic salts.

Atmospheric emissions include gases that produce the greenhouse effect, are forerunners of acid rain, and other pollutants that in their majority contain extremely toxic dioxins.

Apart from routine and deliberate releases and emissions into the environment, accidental spillages have been very frequent. During the time that Texaco operated the trans-Ecuadorian oil pipeline, approximately 16.8 million gallons of crude oil were lost through spillages.

Texaco is responsible for impacts on peasant communities, especially on their health, and for great economic losses due to the death of animals and crop destruction. Direct responsibility is attributed to them for the cancers that affect people living near petroleum installations.



The incidence of malnutrition in the area is among the highest in the country, due to contamination and destruction of resources. Cases of cancer are also among the highest and increasing, due to the chronic pollution.

Cultural Extent to the Damage

Texaco is responsible for the acceleration of the extinction process of peoples such as the Tetetes and the Sansahuari, who lived in the area where Texaco set up petrol fields. It is responsible for irreparable damage to the Siona, Secoya, Cofán, Quichua and Huaorani indigenous peoples, who have been displaced from their ancestral territory. Their way of life and thousand year-old culture has been affected and countless illnesses have been caused, including: cancer, miscarriages, intestinal, respiratory and skin infections, nervous disorders such as loss of memory, dizziness and permanent headaches.

The Tetete culture was wiped out and other indigenous peoples from the area have been reduced to ethnic minorities. Cultural patterns of feeding and life have also been affected.

Apart from abruptly breaking up the way of life of the Amazon people, Texaco has generated poverty outside the area it through its destruction of natural resources with medicinal, nutritional, domestic and recreational uses. When Texaco started its oil exploration the area was a primitive rain forest. Now, in the tributaries of the rivers of an ecosystem recognized around the world for its biological wealth, one that contains 20-25% of the world's freshwater reserves, many families no longer find pure water or sufficient food.

Traditional health, decision-making and organizational systems have been weakened.



CAN ECOLOGICAL DEBT BE QUANTIFIED?

Life is immeasurable, thus a price cannot be put on it. Nevertheless, it is and should be possible to establish sanctions for those who destroy it. A price cannot be put on a dead river, but it is possible to calculate how much it would cost to substitute the services it provided.

All the costs presented in this publication are referential in that they allow us to measure unseen spending, things that we are not used to valuing.

Even though the calculations are incomplete, and in many cases inaccurate, they do allow us to think about the true magnitude of damage caused by Texaco.

Texaco's debt with Ecuador

1. Debt for Unpaid Oil

Texaco extracted approximately 1.5 billion barrels of crude oil. It never paid for oil resources as the payments it made were only for extraction costs.

Oil took millions of years to be produced. In Brazil a team of scientists calculated the value of the commodity known as petroleum, applying a formula of working time, workforce and raw material. They concluded that the figure that should be used to value crude oil is one million dollars per gallon (Dos Santos L., personal communication, 1999).

To use another reference, if we had sold Coca-Cola at the current price, the State would have obtained **\$107.1 billion** for this same quantity of barrels (the price of a barrel of Coca-Cola is currently \$71.4). Nobody can question the fact that charging the cost of Coca-Cola for oil is ridiculous, as it devalues the latter, but nevertheless, if it had been so, Texaco would now owe us **\$87.6 billion**.



Ecuador received an average of \$13 per barrel for the sale of oil extracted, that is to say \$19.5 billion over the 26 years of operation.

Coca Cola costs six times more than oil, despite the fact that oil took millions of years to be made in the depths of the earth, is a non-renewable resource and the highest valued energy source.

2. Debt caused by Spillages

During its 26 years work in the Ecuadorian Amazon, it is calculated that Texaco leaked 30 million gallons of crude oil. Only 16.8 million gallons were registered by the General Environmental Office in relation to the breakage of the principal oil pipeline (SOTE), and the rest is a conservative estimate of leakages from secondary lines and the mismanagement of wells.

To calculate the cost of cleaning up these spillages, it is worth comparing them to others in which remediation measures have been taken.

The largest petroleum spillage in the history of the USA happened in the Prince William Sound, caused by the Exxon Valdez Company in 1989. In this case **10.8 million** gallons were spilled.

Cleaning up the spillage of Exxon Valdez along the Alaska coastline cost over \$7 billion. In spite of this investment, fisherman from the same coastline and scientists claim that the work was incomplete.

A simple mathematical calculation leads us to conclude that to clean up the spillages caused by Texaco in the Amazon, at least **\$19.444 billion** would be needed: this is an amount higher than the current external debt of Ecuador. In fact it would be likely to cost much more, as cleaning up tropical jungle and freshwater, including wetlands, is more difficult and costly than cleaning activities in the sea. (Kimerling J. com pers).



3. Debt for Wetland Pollution

Behind each station there is at least one marsh covered in oil. These can be from 1 to 15 hectares in size, but the average is 10 hectares per station. These areas were previously tropical rainforest or tropical wetland.

Texaco affected a minimum of 220 hectares of wetlands, if we take into account only those in which large stations were found; of course many smaller wetlands exist around the wells or in stations.

To recover the wetlands is impossible. Different experiences demonstrate that the cure can be worse than the illness, and this is confirmed by Petroecuador workers. Nevertheless, according to the Biology Department of the Catholic University (Pallares com. pers.), the remediation for 1 m³ of marshland would cost no less than \$600.

For 220 hectares of wetland of one metre in depth, multiplied by \$600, the cost to Texaco would amount to **\$1.320 billion** only for the remediation, which is completely separate from restoration work.

4. Debt for gas Flaring

During its operations, Texaco burned the gas associated with crude oil.

The gas burned contains SO₂, SH₂, NO₂, NO, CO₂, methane, ethane, propane, butane, pentane, heptane, CO. One secondary result of combustion is the generation of DIOXINS, which are highly toxic.

Texaco burnt a total of 248 billion cubic feet daily (Kimerling, 1993).

In order to understand the magnitude of the disaster, we can compare it with domestic gas. Every 15 kg cylinder contains 1.03 cubic feet of gas. If the gas burned had the same characteristics as domestic



gas and had been used, it would have meant that Texaco had burned 240.776 billion cylinders.

According to different governments of the time, gas has been a subsidized product. They have said officially that the real cost of each cylinder would reach \$20, meaning that Texaco burnt **\$5 trillion in real terms**.

At this moment in time, the subsidized price is \$1.70 per cylinder, and so the **240.776 billion** cylinders burned would be equivalent to **\$409.319 billion**, that is to say, 30 times the external debt.

5. Debt for Deforestation and Biodiversity Loss

Texaco caused the deforestation of 1 million hectares through seismic lines, heliports, stations, access roads, camps and as an effect of the colonization that their operations involved.

To calculate the use of one hectare of land several studies have been done. According to Bennet (1991), it is possible to obtain \$6,520 annually from one hectare of forest. This sum is calculated from the value of using medicinal plants and non-wood products from the forest. According to the Yale University study in Jatun Sacha (Napo-Ecuador) the output of three plots per year, using non-wood products from the forest were: first plot \$3,107 per year, second plot \$2,497 per year, and in the third, \$1,125.

This figure does not include the losses invoked by potential earnings that could have been obtained, generated in the tropical forests through medicinal plant discoveries, active principles for the development of new medicines, cosmetics and other products.

According to RAFI in 1995, the pharmaceutical industry obtains **\$47 billion** a year from the biodiversity that comes from the South.



According to the same study, if a family sells wood it could earn an average of \$164 per year. If it dedicates its labours to livestock farming, it can earn \$540 per year, or \$339 through agriculture.

The use of 1 million hectares could have meant **\$6.520 billion** per year, which in 26 years would have been **\$169.520 billion**.

6. Debt for Dead Fish

During the exploration phase, the use of dynamite caused the massive death of fish. Judy Kimerling (1993) calculated that an average of 500 fish died per explosion.

Every kilometre at least one explosion in a river was carried out. This meant at least 30 million dead fish. The prices of Amazon fish, according to the Arca de Noe Aquarium in Quito, vary between \$0.50 and \$35. An average of all the dead fish would thus be **\$532 million**.

7. Debt for Water Used

Texaco used freshwater for its operations, in both the cooling systems and in its camps. They never paid for the use of this resource.

In the camps an average of 200,000 litres of water were used daily. One petroleum worker used an average of 100 litres of water per day for his/her activities. One litre of water costs 0.20 cents, thus Texaco used \$80,000 of water per day. During the 9,490 days this would add up to **\$759 million**.

8. Debt for Sand Used

Texaco used sand extracted from rivers in its infrastructure, moving hundreds and thousands of trucks. In the 339 wells with an average surface area of one hectare, platforms of 0.50 depth were built,



amounting to 5,000 cubic metres. Each truck holds an average of five cubic metres, that is to say 1000 trucks per platform. Each truckload, at the current cost, is worth \$20 to the Municipality, and for private use it is worth \$80. For each well \$20,000 sand was used but not paid for, multiplied by the 339 wells that exist we reach the total of **\$6.780 billion**.

Sand was used for roads in the same way. According to information from the *mingas* (voluntary communal labourers), one truck “trails 3 metres”. This covers half of the road, thus to cover 1 kilometre, 666 truckloads are needed. For the 500 km of roads we reach the figure of 333,333 truckloads, to be multiplied by \$20 per load. This is equivalent to a debt of **\$6.660 billion**.

9. Debt for Wood Used

Thousands of planks were used to cover roads, most of them of fine tropical wood. Along the roads 8 planks (using planks of 2.50 by 0.25 as a reference) were used for every metre. Along the 500km of road 4 million planks were used. The current price of a plank is between \$3-6, and so the equivalent price is **\$24 million**.

On the platforms, the planking required the use of 16,000 planks per platform; this is equivalent to 5.424 million planks, which at the current cost would add up to **\$30 million**.

10. Debt for Wild Animals hunt

Each worker ate on average one whole wild animal per week. Across the 26 years of operations, with an average of 2000 workers, and considering the working period of 22 days on for every 8 days of rest, the workers must have eaten 1 animal per week, which multiplied by 42 weeks of work per year, and by 2,000 workers over 26 years, gives us a total of 2.184 million wild animals.



One wild Amazonian animal in a zoo in the USA has a cost of more than \$1,000. To this we have to add dead animals such as snakes, birds, monkeys and others. If we add all these figures we arrive at the quantity of **\$2.184 billion**.

11. Debt for River salinization

According to Petroecuador reports, 19 billion gallons of production water were spilt into the environment during Texaco's operations. This put a large part of Amazonian rivers out of action. The salt in the production waters contains heavy metals, and has a toxic effect even in minimal concentration.

Only production water contains concentrations of sodium salts of between 150,000 to 180,000 ppm (parts per million). That is to say that these waters are up to five times saltier than seawater, which contains 35,000 ppm (Ecological Action, Monitoring Manual No. 3)

These salty waters have been discharged into rivers and marshes in the Amazon, first in perforation sites and later from separation stations.

The current cost of desalinisation of seawater is calculated at \$0.38 per litre, according to Friends of the Earth Middle East. However it is impossible to take out the other salts highly toxic to human health that are present in this water.

For human consumption, bathing, food, drink and other uses, a minimum of 7,500,000 litres of water is required for the approximately 150,000 inhabitants of those districts whose water was affected by Texaco. This would cover the 50 litres per person per day needed to maintain a basic standard of dignity. On the current market, 20 litres of water cost \$2. This means that in order to satisfy the water needs, \$750,000 would be needed daily. Compensation for only ten years would thus be calculated at **\$5.475 billion**.



12. Health Debts

Production water has high levels of sodium salts, chloride, sulphur, calcium, cyanide, magnesium and manganese. Depending on the geological structure, one or another can predominate. These contaminated waters affect the water, rendering it useless for human consumption, and creating the ideal medium for the proliferation of different illnesses that local inhabitants cannot cope with.

Furthermore, Texaco gave away chemical tanks to local people to allow them to collect and store water.

The highest incidence of cancer and leukaemia in the country has been registered in the area opened up and worked by Texaco, where it reaches 31% as opposed to the national rate of 12.3%. The most frequent cancers are stomach, leukaemia, liver, intestine, womb and bone.

In a study carried out in the areas affected by oil extraction, 445 cases of cancer near installations have been identified (Maldonado, 2002). Further unreported cases could exist at greater distance from oil wells and other infrastructure.

Cancer is an incurable disease if it is diagnosed late, and even an early diagnosis does not ensure successful treatment. In the Metropolitan Hospital the average cancer treatment costs \$20,000; in the USA this figure is \$47,000.

To treat the 445 sick individuals, the amount required would be **\$20.915 million**.

In this section we have not included the compensation that should be paid for deaths caused by cancer or other deaths from contamination, drowning, intoxication, asphyxiation etc., which could be calculated according to what insurance companies pay to family members.



13. Debt for Badly Paid Work

Texaco paid its workers in Ecuador much less than those in the USA with the same functions.

Work in the jungle was great luxury for the North American workers, while conditions were very hard for Ecuadorians, occupied at the beginning in opening access roads (Cabodevilla, 1997).

Texaco did not want to have its own payroll, and so contracted auxiliary operations out to other companies; in this way it was able to evade all labour obligations.

The many auxiliary companies occupied more than 4,000 workers, almost all of them in the work of opening jungle access roads (Cabodevilla, 1997). Access road workers could never make any kind of complaint, although there are reports of accidents, over long working days, no social security and in some cases slave labour (workers were only paid with food).

If a complaint were to be made now, the average cost of an hour's work in the USA for oil fieldwork could be used as a reference, or the Ecuadorian rate could be used. In the USA they are paid \$15 per hour, in Ecuador the OCP currently pays \$0.40 per hour. This means that the working hour in the USA is worth **37 times its value in Ecuador**. Supposing that the 2,000 field workers had received \$70 a month, we arrive at the figure of \$21.842 million. If we consider that the company should maintain the same salaries for the same work in both countries, Texaco would be indebted to these workers to the tune of **\$786.312 million**.

14. Debt for Genocide

Life is priceless, and even more so is the life of whole peoples. Genocide must be sanctioned as the biggest crime against humanity.



Indigenous peoples were decimated. Their basis for survival was destroyed and illnesses that acted like biological extermination weapons were introduced. Many indigenous people died of flu, an illness against which they had no resistance. In the case of the Tetete and Sansahuari people, there were no survivors.

The Jewish people have succeeded in sanctioning the German state for genocide committed against them in the Second World War, and in getting compensation recognized. They made the claim for a fund of \$1.25 billion to be created by 18 governments as compensation to survivors. They demand \$5.5 billion as payment for the unpaid work carried out by prisoners, and also \$5 billion in instalments to unpaid and contracted insurers.

If we calculate only the \$1.25 billion for seven extinct peoples or threatened with extinction in the area under Texaco's influence (Tetetes, Sansahuari, Siona, Secoya, Confán, Huaorani, Quichuas), this company would have to pay **\$8.750 billion**.

15. Debt for Benefiting from Ecuador's external Indebtedness

The external debt of Ecuador, according to Alberto Acosta, grew almost 22 times in ten years: at the end of 1971 it was \$260.8 million, and by the end of 1981 it reached \$5.8698 billion. These years are vital as it was during this period that the infrastructure that would benefit Texaco was built. By 1991, external debt had risen to \$12.802 billion.

This debt represented 16% of GDP in 1971, 42% in 1981, and by 1991 it was 111% of GDP

The servicing of external debt also experienced a spectacular rise: in 1971, \$15 out of every \$100 exported was committed, and ten years later this figure rose to \$71 in every \$100.

It is necessary and possible to investigate how many of these \$5.2 billion of external debt served Texaco and its interests (through



building infrastructure and other related interests). It use as a reference the minimum that Texaco could have benefited from our indebtedness, we will take the debt of the first year only (1971-1972), that is to say **\$83 million**.

16. Debt for Carbon Emissions

Texaco extracted 1.5 billion barrels. It is calculated that one barrel causes 0.112 tons of carbon (Oilwatch 2000), which in turn causes 168 million tons of CO₂.

According to Joan Martínez Alier (2000) “a plausible price for the cost of cleaning up carbon per ton is \$20”. This quantity, multiplied by the 168 million tons, means that Texaco should invest **\$3.360 billion**.

Texaco’s parcial Ecological Debt

DEBT	AMOUNT
For unpaid oil	\$87.6 billion
For spillages	\$19.444 billion
For cleaning up wetlands	\$1.320 billion
For gas burning	\$409.319 billion
For deforestation and biodiversity loss	\$169.520 billion
For dead fish	\$532 million
For water used	\$759 million
For sand used in platforms	\$6.78 million
For sand used in roads	\$6.66 million
For wood used on roads	\$24 million
For wood used on platforms	\$30 million
For wild animals hunt	\$2.184 billion
For salinization of rivers	\$5.475 billion
For illnesses	\$20.915 million
For badly-paid work	\$786.312 million
For genocide	\$8.750 billion
For external indebtedness	\$83 million
For carbon emissions	\$3.360 billion
TOTAL DEBT OF TEXACO	\$709.220667 billion



The sum of all these headings establishes that Texaco's debt with Ecuador reaches \$709.220667 billion, 51 times Ecuador's external debt!

This case can serve as an illustration of the scale of the damage caused by Texaco, and at the same time, can provide a guide for other peoples in the world to find new tools for their own struggles.



The Moratorium: a Way of Stopping the Growth of Ecological Debt*

*Esperanza Martínez
Oilwatch*

It is not easy to oppose oil activity, as it implies confronting the whole development model in existence.

In spite of environmental, social and cultural impacts being proven at a local as well as global level, and knowing that it is one of the main causes of deforestation and loss of biodiversity, opposing to it in Southern countries is a crime.

It has been proven that a relationship exists between the dependency of a country on the exploitation of oil and its subsequent development, which in the majority of cases is expressed in deadlock and impoverishment. There are records of oil countries that have gone from crisis to crisis, losing their resources and becoming ever more dependent, decapitalized and in many cases violent.

In Southern countries opposition to oil is a crime and in the North it is not seen as a popular proposal either; on the contrary, efforts of all kinds are made to guarantee access to this resource.

* Article presented during the “*Globalization, Ecological Debt, Climate Change and Sustainability: A South-South Conference*”, held in Benin, in November 2001, organised by *Acción Ecológica* from Ecuador, *FoE Benin* and *FoE International*.



Fossil fuel debt

Demands are made for the ecological debt of oil, gas and coal because of their local impact: deforestation, destruction of wildlife, river contamination, extinction of peoples, displacement of populations; and the global impacts such as climate change.

The petrol industry is one of the most polluting industries in existence. Social and environmental impacts are produced from the exploration, extraction, transportation and burning of fossil fuels. Recently, UNICEF the WHO and UNEP published a report in which they state that pollution kills approximately 5,500 children daily.

To put costs on destruction is practically impossible. However it is, for example, possible to use the clean-up costs of some events as a reference. The clean up of the Exxon Valdez spill in 1989, off the coast of Alaska, was over \$7 billion, an equivalent of a dollar for each barrel that was spilt.

The amounts requested in different lawsuits for compensation or damages vary from case to case, but always reach millions of dollars. This being said, those affected by the causes of pollution are never satisfied as the damage caused to them is immeasurable.

The chemicals used in hydrocarbon activities affect the environment, human health, wildlife, communal co-existence and agriculture. Furthermore, residues are generated in extraction activities. For each barrel extracted it is calculated that an equivalent of one whole barrel of waste is created.

Apart from pollution, deforestation is caused by opening up access paths, platforms or oil pipeline routes. It is calculated that for each drill hole, at least two hectares of wood must be cut.

To this debt is added the lack of recognition of the real price of a non-renewable natural resource, one that has taken millions of years



to be created. This would include the strength of nature's work, time, energy, etc.

On the other hand, hydrocarbon pollution has ceased to become a local problem and has turned into a global one.

In 1999 86.9 quadrillion cubic metres of gas and 152.2 million barrels of oil were consumed (The Institute of Petroleum, 2001) and 6 billion tons of carbon were released.

This has led to changes in the temperature of the planet, a rise in sea levels, melting of polar ice caps and glaciers, floods, droughts, more serious and frequent climatic disasters, and also a rise in tropical diseases. One of the disasters with the greatest impact is the change and decrease in water for agriculture.

Furthermore, oil has a relation to external debt in that it acts as a guarantee for in indebtedness, as a plaintiff in infrastructure investments and because the largest part of income for oil exports is destined to external debt payments.

It is not only about charging the money that they owe us, but trying to repair what has been damaged, to reconstruct areas in a way that allows communities to recover their self-sustaining capacity, and above all to stop the increase in ecological debt.

A growing debt

In spite of the knowledge that the burning of fossil fuels is the principal cause of climate change, and that its extraction requires the massive destruction of forests, in the last five years investments in fossil fuels have been 100 times greater than in other kinds of energy (Oilwatch, 1997).

It is also calculated that Multilateral Credit Agencies have investments in fossil fuels of around \$50 billion.



In the last ten years, the oil frontier has grown. 100 new countries have been incorporated into exploration activities and exploration and exploitation agreements have been drawn up for deep-sea areas.

1999 was the greatest year for discoveries in the last decade. It was not that drilling has increased, but that prospection techniques have improved. In the second half of the 1990s, 4.5 million barrels were added to the proven reserves, constituting an increase of 50% on that obtained in the first half of the decade.

New discoveries of gas have been greater than oil. In the second half of the 1990s, discoveries of new gas reserves were 85% higher than oil. Oil was found in 95 countries, and 50% of the total was to be found in ten of them

Proven reserves in different countries reach such high levels that they will never be able to be extracted owing to the fact that countries that have ratified the Convention on Climate Change have taken on a series of commitments that, although postponed, will inevitably have to be assumed. This will undoubtedly presume an obligatory transition to renewable energy sources. It is calculated that around \$4 billion tons of carbon exist, contained in fossil fuels found still under the Earth's surface (UK Petroleum Institute) ¹.

Nevertheless, according to the US Energy Information Administration (EIA) it is hoped that the world demand for oil will increase by 56% (that is, 43 million barrels a day) in the coming two decades.

On the other hand, the US Energy Department's Statistical Agency, in its annual prognosis, said that the world demand for oil would increase from its current consumption of 77 million barrels per day, to 119.6 barrels per day in the year 2020. This agency believes that oil will continue to be the predominant energy source, as it has been for decades. It also considers that production of oil, in both OPEC and non-OPEC countries, will increase thanks to new production



technologies that allow oil companies to access new hydrocarbon findings in distant and inaccessible places and in deep waters.

The moratorium on oil exploration

There are many ways of promoting the moratorium. One is the proposal of countries such as Costa Rica, which has declared itself an “Oil-Free Country”

Another is progressive application: a declaration to be free forever of activities of intensive extraction of natural resources, in ecologically fragile areas like in the two intangible areas declared by Ecuador.

This is also the case of indigenous territories with autonomous indigenous status, such as the Miskito peoples in Nicaragua, who have declared their land free of oil exploitation.

There are also ways through reduction of exploitation quotas, which obviously have an impact on the reduction of exploration, a mechanism that allows crude oil prices to be increased, by reducing supply.

Legal basis for the moratorium

- The Precaution principle, recognized in various environmental treaties and conventions, including the Convention on Biological Diversity, the Framework Climate Change Convention and the Rio Declaration.
- The right of individuals to live in a healthy environment, recognized by the Covenant on Economic, Social and Cultural Rights, 1966.



- The recognition of collective rights enshrined in Convention 169 of the ILO, which recognizes the right of people to decide what development model they want to follow
- The obligation established in Article 3 of the Climate Change Convention, which calls for measures to be taken to anticipate, prevent or minimize the causes of climate change, as well as to mitigate adverse effects.
- The governing objective of the Convention on Biological Diversity – the conservation of biodiversity.

Precedents already exist in international law of moratoria decreed for environmental, human health or public interest reasons. Included among them are:

- The international convention that declared the moratorium on the commercial exploitation of whales in 1986.
- The environmental protection protocol of the Antarctic Treaty, which in its Article 7 prohibits mining activities
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 1973, which applies a moratorium on the selling of species in danger of extinction.
- The moratorium on the commercial use of rBGH, as well as other genetically modified organisms.
- The bilateral agreement between the USA and Russia that proposes a moratorium on plutonium production.
- Finally, in several countries agreements protecting fishing and other aquatic species have been signed, either of a temporary or permanent natures; as well as moratoria on commercial tree cutting.



For this reason, the moratorium can be applied through the following mechanisms

1. **WITH RESISTANCE:** this is a way of executing the moratorium unilaterally. For this organizations with capacity to convene and mobilize are needed. Furthermore clarity and examples are required to identify the perversity of this activity.
2. **GOVERNMENTAL DECLARATIONS:** it is necessary to differentiate the conditions of each country. The situation of countries that own great quantities is of oil is completely different to those that hardly have resources for internal consumption, but who nevertheless suffer from the impact of fossil fuel consumption.
3. **IN INTERNATIONAL FORUMS:** In international forums, agendas and speeches gradually transform into laws and proposals for collective action. For this reason it is important to impregnate international forums gradually with the concept of the moratorium.

Note

- 1 According to Oilwatch (2000), each barrel of oil implies an average 0.12 ton of carbon.



Mining and ecological debt



Mining in Peru: A Wealth based on liabilities and Conflicts

Miguel Palacín Quispe
(President CONACAMI - PERU)

Peru is a country of extraordinary potential in agricultural diversity: it produces 128 species of domesticated plants with thousands of varieties, such as the 3,000 varieties of potato or 1,500 of sweet potato; 50% of the mountainous areas of Peru are covered in natural grazing land used for farming camelids (llamas, vicuñas, alpacas and guanacos) which are of great use for communities; over 7.5 million hectares are potentially suitable for industrial forests and forestry; the western Andean slopes have hardly yet been used for hydro-energy; there are natural and cultural spaces for tourism and such biodiversity that in plants alone there are 3,200 known native plant species with 31 different uses.

All of this is the origin of a country of megadiversity, home to 19% of the world's birds (1,073 species), 9% of its mammals (400 species), 9% of its amphibians, 175 species of reptiles and 1,200 species of sea and freshwater fish, before even starting to count the thousands of species of insects, molluscs and the impressive diversity of flora. The ecological dimension of Peru is borne from its own nature and reality, thus it constitutes an invaluable heritage, the conservation of which is our responsibility.

To this we can add the human presence across many millennia that has left the marks of its long existence in a setting of very peculiar characteristics, such as in coastal strips, Andean and high Andean zones, and in high and low jungle where ethnic groups with profound and valuable knowledge of their natural environment, who for more



than 5,000 years, with the cosmic vision of the Andean man (man, nature and biodiversity) have looked after the environment.

Mining is another important resource, and is one of the activities that from colonial times up to the present has been a priority for government. While the State prioritized other activities such as agriculture, fishing etc, it was mining that was questioned for the mechanisms that it adopted, and pollution. Legislation has favoured mining interests since the time of the Republic and has led to establishing important mining sites in focalised zones such as: Cerro de Pasco, Junin (Yauli), Huancavelica, Moquegua and the mountainous area of Lima, etc; all of which are exploited by small- and medium-sized private mining companies. The State had control of the large part of mining activities only until the 1990s, when transnationalisation of mining turned it into a priority activity under agreements signed by the dictatorship government with the World Bank and other world financial organisations. State structural adjustment prioritized private investment based on extractive industries such as mining, thus bringing transnational mining corporations into the country alongside a process of privatization, economic liberalization, flexibilization of labour and tax stability. Today, 11 out of the 20 world corporations are operating in Peru, across immense areas of land belonging to communities and indigenous peoples. They are exploring and exploiting mining sites principally for gold, copper and zinc, and in the process affect natural resources, farming land and water.

The mining boom and its impact

Between December 1993 and July 2000, mining has involved territory of 3326 of the 5680 peasant communities recognised by the Special Programme for Land Titling (PETT). 2978 communities have been affected by exploration activities and 348 are being exploited, surpassing the 4 million hectares under concession to total 24 million.

The dictatorship regime passed a new Constitution in 1993, liberalising the economy and violating the ancestral territorial rights of



communities to make them more vulnerable. Unconstitutional laws were passed (land law and mining rights) to strip the communities of their land, thus violating their autonomy over land ownership. One of many examples of violations of Convention 169 of the ILO is that no adequate procedures are in place to implement consultations of communities or indigenous peoples about the development of mining activities within their land.

State monitoring and control of environmental issues is very weak. The State, through its Ministry for Energy and Mines (MEM), is owner the or shareholder in mining companies, the regulator of policy for the mining sector, overseer of compliance with environmental laws, and at the same time the promoter of investment in mining. There is no institution that watches over the Ministry's activities in order to protect the rights and interests of affected communities, and for this reason the MEM decides everything to do with land, water and mining investment.

After the granting of mining concessions by the State, companies carry out an Environmental Impact Study (EIA) with an Environmental Consultant hired by the company. After a Public Hearing is held, the study goes to the Ministry for Energy and Mines for approval. This hearing is not a consultation but a meeting in which changes can be suggested to help "overcome" the imperfections of the EIA. The Ministry for Energy and Mines does not have the capacity to inspect the truth of the data of the environmental indicators recorded in the base line of the EIA and up to now it has not disapproved any EIA corresponding to a medium- or large-scale project that would imply its withdrawal. It is precisely these last conflicts, and the mechanisms employed by the state to approve the EIAs, that lack legitimacy and end up confronting the population, such as was the case in Tambogrande.

Mining was made priority as it has turned into the country's largest exportation sector; exports reach \$3.5 billion annually, representing 47% of Peru's total exports, but only contribute 4% of



national GDP. Tax contributions are 5%, with the remaining 95% paid by other sectors; furthermore the mining tax (*canon minera*) represents 0.7% of the value of exports, calculated at 20% of income tax. Those who signed taxation stability and double depreciation of assets agreements do not pay the mining tax, for which reason the amounts received by local governments are tiny compared to levels of mining exploitation, which is only useful in bringing fresh dollars to the country that are used in turn to import foreign products of all types, instead of contributing to the generation of employment, nor to the consumption of national products.

Mining environmental liabilities

Mining activities in Peru have enormous environmental and social liabilities, despite the existence of environmental protection laws. There are hundreds of basins, lakes, lagoons and cities contaminated and in permanent destruction, as well as conflicts between communities and companies for the control of land and water resources. A solution to all of this was attempted through the five-year application by mining companies of Environmental Adaptation and Management Programmes (PAMA) between 1997 and 2002, nevertheless as yet no satisfactory public results have been obtained.

The mining sector uses 207 cubic hectometres water per day for the 257 plants that process 120'111,959 metric tonnes per day, of which 164 are to be found on the Pacific slopes. The worst effects from tailings discharge is found in the Mantaro, Acari, Locumba, Cañeta and Moche river basins.

In the Mantaro, the consumption of these waters has caused the death of thousands of animals and the loss of farming land, damaging the precarious economy of communities. The river serves only to collect waste water and for the 21 concentration plants that discharge 45 million cubic metres of mining tailings annually: the result is that this river is the most polluted in the whole country.



The pollution of the National Chinchaycocha Reserve has led to the disappearance of flora and fauna as well as endangering the endemic species “El Zambullidor de Junin” and others whose home is found in the lake.

Poverty and social problems

The enormous expectations generated by the arrival of mining in these communities’ territory is based on the improvement of the standard of living of their inhabitants. For this reason many do not doubt in supporting mining companies and handing over their land, but soon after these same people show their discontent and rejection of the damaging effects that the hoped-for activity causes them. Effects include the contamination of their resources, the plundering of their land and water, the lack of promised employment, not purchasing local products, the rise in living costs and lack of contribution to the area’s development. The mining villages and regions have in fact become much poorer.

In her research, Annete Salis states that “in the majority of cases, the growing and impoverished rural population over-exploits natural resources in a short-term survival strategy. Poverty exists in more than just environmentally critical areas, while the environmental damage of greatest magnitude is not a product of poverty, but of a certain logic (within the fashionable primary export model) of exploitation of an environment considered as freely accessible property”. Suffice it to say that before the arrival of the Yanacocha Mine in Cajamarca, the region was fourth in the poverty ranking; after 12 years of Yanacocha the region is the country’s second poorest, according to the State’s own figures (FONCODES).

With reference to the social problems that mining brings, we only need mention the bars, canteens, brothels, crime, and prostitution that go hand in hand with mining; these have a negative impact on the culture of these villages: a liability with no price.



Impact on public health

In San Mateo de Huanchor (Lima), 5,000 families living in five peasant communities (San Mateo, San Antonio, Yuracmayo, Viso and Parac) have been victims of arsenic, lead and mercury intoxication from the deposit of tailings from “Mayoc”, which is found a short distance from the village. In spite of the administrative decision to bring mining activities to a standstill, and the recommendation to take away the tailings, thousands of tonnes of toxic material were still to be found metres away from the village, causing pollution and damage to the physical integrity of their inhabitants, particularly children. According to a Ministry of Health report in 1999, the blood and urine of children and adults contained levels of arsenic, lead and mercury that exceeded permissible levels.

A serious accident occurred on 2 June 2000 in the villages of San Juan, Magdalena and the Centro Poblado Menor de San Sebastián de Choropampa, in Cajamarca, along a distance of approximately 50 km. A spill of approximately 11 litres (equivalent to 151 kg) of native mercury caused the massive intoxication of approximately 1,200 rural adults and children. Owing to the peculiarity of native mercury - a silver-coloured liquid that quickly breaks up into drops - some children collected it in their hands and other receptacles. After seven days, the first cases of possible mercury poisoning were reported to the Choropampa Health Post, with the following symptoms: headaches, discomfort, itching, reddening of skin with eruptions. Poisoning could not be specifically determined as the respective analyses were still lacking, until later on when, in the face of massive intoxication, the State and Yanacocha mining company opted to give temporary medical attention instead of following the recommendation made to completely evacuate the population. To this very day the local population suffers the consequences of this accident caused by the Yanacocha mine.

Minera Yanacocha SRL, is made up of the shareholding of Newmont Mining Corporation of Denver, Colorado, USA which owns



51.35% through its subsidiary the Newmont Mining Capital Corporation. Similarly, Buenaventura Mines S.A. controls 43.65%, through its subsidiary Minera Condesa; finally the International Financial Corporation (CFI) of the World Bank owns the remaining 5%.

The World Bank concluded after all the evaluations that there is an OPERATIVE TECHNICAL INCAPACITY TO FULFIL ALL ITS RESPONSIBILITIES on the part of the competent technical authorities (Ministry for Energy and Mines, Health Ministry), and on the part of State officials there was no willingness to put the lives of hundreds of people before the political and economic interests that competent authorities maintained with the hub of Fujimori's corrupt government, a great ally of mining companies.

The Ombudsman's Office's considers that the case of the mercury spill that affected the communities of Choropampa, Magdalena and San Juan in the Province of Cajamarca, also affected the constitutional right of these communities to have their health protected; the health, energy and mining sectors did not issue adequate preventative or protective measures for the transport, handling, labelling etc. of toxic or dangerous products or substances, such as mercury in this case.

On the other hand, it is important to note that the quoted constitutional norm alludes to the right to the protection of health, that is, the guarantee of protection that consists of the right of each individual in a State to request a medical response both in the preventative and welfare aspects when that individual finds his/herself in danger or affected in health. These are laws that the very State officials violate.

Another case of the effect of mining activities can be found in the capital, in Callao, where it is estimated that 200,000 children living in human settlements, the poorest and most vulnerable zones of the Callao province, are contaminated with blood lead levels higher than



those permitted by national and international health institutions. This situation is of public knowledge, has been taken up by the media, municipal authorities and even State officials without the State having taken necessary or sufficient actions to prevent, protect or repair the damage to health, development, physical and mental integrity of the victims. The pollution was caused by mining companies when they installed deposits of mineral concentrates, stored in approximately 241,000 tones of lead and other metals per year. Because of this, the fundamental rights of these children become irreparable

The public health risks caused by pollution from the La Oroya foundry is alarming because of the contamination of metals such as lead, as well as arsenic and sulphur dioxide and other substances. It is known that lead principally damages the blood, central nervous system, reproductive system and the kidneys. Lead is particularly damaging to children, who absorb through the digestive or respiratory system a higher percentage of lead ingested, and who are more sensitive to its adverse effects, which present themselves through blood levels of 10_g/dl. Numerous studies demonstrate that exposure to lead, even in low levels, can cause diminished intelligence and physical development, as well as holding up neurological development and reducing hearing.

Chronic exposure to arsenic has been associated to several types of cancer (including lung cancer) as well as having reproductive and gastrointestinal effects, causing skin disease, damage to the nervous system and others. Cadmium damages the lungs, kidneys, liver and heart and is thought to be carcinogenic. Although the symptoms of exposure to metals are not acute, as they are often undetected, the damage it causes to health on a long term is severe.

Sulphur dioxide or SO₂ is a polluting gas that presents a serious threat to human health. It harms the respiratory system, worsens existing respiratory illness (especially bronchitis) and diminishes the capacity of the lungs to expel foreign particles such as heavy metals. This type of pollutant also brings as a result an increase in mortality, especially when there are high levels of particled material. The most



susceptible to the effects of SO₂ are asthmatics and people with cardiovascular disease. In the same way as the pollutants described above, with SO₂ the damage to health increases when the exposure period is longer, in that damage to the respiratory system is cumulative. Furthermore, SO₂ has severe environmental impacts through its contribution to forming acid rain. The presence of SO₂ and acid rain are sources of land acidification and cause significant reduction in its agricultural and productive quality. It also implicates a significant impact in surface aquatic ecosystems.

The critical health situation among the child population of La Oroya caused by lead poisoning is evident through the monitoring of blood lead levels in 346 children in three areas of the city. According to Dr Anna Cederstav, at the time of the monitoring, the effect of the lead meant that “18.3% of children should be urgently admitted to hospital for medical treatment and their habitat should be subject to environmental follow-up. (...) two children had such high levels (higher than 70 µg/dl) that they required chelation treatment immediately”

These are the most emblematic cases of the effects of mining activities on the health of individuals; the Peruvian State has been denounced for these cases by the Inter-American Commission on Human Rights (IACHR).

The authority responsible for control of and compliance with these programmes is the Ministry for Energy and Mines. This entity has violated its own laws in demanding the fulfilment of agreements taken on by mining companies, facilitating the execution period of the PAMAs on the passing of a new law, the PEMA (Special Programme for Environmental Management). Many companies that had not complied with carrying out the PAMA can take up the PEMA and fix a new time period to adapt their emissions to the maximum allowed in the national mining sector for themselves.



The Peruvian State's Violations of the American Convention on Human Rights

The Peruvian State has violated the American Convention on Human Rights, in particular the articles that consecrate the human rights of individuals belonging to peasant communities and living in mining areas, as follows:

1. Art. 4.1. Right to life
2. Art. 5.1. Right to physical, mental and moral integrity.
3. Art.11.1 Right to have dignity recognised
4. Art.16.1 and 16.2. Freedom of association
5. Art.17.1. Rights of the family
6. Art.19. Rights of the child
7. Art. 21.1 y 22.2. Right to property
8. Art. 22.1, 22.3 y 22.4. Freedom of movement and residence.
9. Art.23. Political rights: "Every citizen shall enjoy the following rights and opportunities: a) to take part in the conduct of public affairs, directly or through freely chosen representatives.
10. Art. 24. Equality before the law and without discrimination.
11. Art. 25. Judicial protection
12. Art.26. Economic, social and cultural rights (Work, cultural identity, development, free determination, health, adequate environment, peace, dignified life, among others).



The integral nature of human rights

Human rights, under the current conception, constitute a conquest for the men, women and children belonging to globalised and modern civilisation, having turned themselves into a constant demand by citizens for accountability from democratic states. From this, rights and protection mechanisms have been developed over history, as a supposedly effective reply that stands for non-violent and democratic co-existence in society.

The concepts that surround every human right have varied over time, in accordance with the development of the relationship between individuals and the State, inclining towards an interpretative expansion rather than doctrinal limitation. Ethical and political support is given to the idea of the dignity of the human being, his/her indemnity as such, and the social purpose of the individual.

Currently, in academic environments as well as in national and international spaces for the protection of human rights, there is no concept of the separation or division of rights, instead they are understood as integral, universal and interdependent. One human right consecrated in a national or international instrument cannot be treated separately or independently from other rights contemplated in the national or international norm; in fact the first right must be seen in an integrated manner, as a component of the rights of the subject, or subjects of protection. As far as the character of protector is concerned, this refers to the State. Human rights constitute a complex and varied system of obligations that must inevitably be promoted, guaranteed, anticipated and complied.

This integral approach has not just set out a new conceptualization of human rights, but has also allowed individuals or communities to access the courts and international protection mechanisms that belong to them, independently of how rights are positivised or divided in different treaties, pacts and conventions.



Proposals

- The State and mining companies must agree to eliminate environmental and social liabilities in the development of mining activities.
- Passing of a law that creates “Environmental Insurance” to cover disasters, accidents, and environmental liabilities caused by mining companies.
- Compliance with the PAMAs under the terms established, to which mining companies committed themselves.
- Public health evaluation of the populations living in areas influenced by mining activity.
- Implementation of immediate control and mitigation programmes for contamination coming from metallurgic, iron and steel mines, foundries etc. Incorporation of the right to participate in environmental monitoring and overseeing and the carrying out of mining activities.
- Recognition of the Committees for Community Environment Vigilance as a civil society monitoring mechanism for mining activity.
- Access to information, public participation and consultation throughout the exploration, environmental impact study, exploitation and closure phases.
- Social and economic impact studies to be held for mining projects.
- A preventative role must be assumed in not granting concessions in protected areas that are sensitive to the impact of mining activities, such as in the headwaters of hydrographic basins.



- The Ministry for Energy and Mines must be a regulator of mining policy and monitor compliance with environmental laws in the development of mining activities, while communities (civil society) must take on the role of environmental and social vigilance of the mining sector and the State.
- The World Bank must not finance mining projects, instead it should finance other activities that generate employment and diversify the economy, such as agriculture, agro-business and ecotourism.

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Environmental liabilities: ecological damages quantification and responsibility*

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1. Introduction

The term “environmental liability” has a curious origin, and like the concept of ecological debt, it derives from the language of economics. In a company, the term “liability” refers to the section of the fiscal year balance sheet where all debts and encumbrances that diminish the assets are expressed. Used in environmental terminology, the word refers to the entirety of environmental damages made without compensation, and compensatory costs transferred by the company to the community throughout history.

Often the legal context means that companies do not consider pollution or the environmental damage produced as a cost, and thus do not exercise any limitation on their exploitation activities other than those strictly motivated by economics. Naturally, in most cases companies only include costs for the effects of their activities on the environment and communities if a law exists that forces them to pay

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reparation or compensation for such activities. Such a condition is often missing.

A first step to correct this imbalance would be to suggest a legislative system that obliges companies to include in their liabilities not only financial debt, but also environmental debts that the company invokes with the community and the environment outside of any contract. Thus two kinds of issues arise: legal responsibility and the valuation of environmental liabilities.

When a company causes damage to a community the moral responsibility is clear, but to whom does the legal responsibility belong? Who should take responsibility for the cost of cleaning up these contaminated places and repairing the damage, when it is possible? And who has to pay the victims when damage is irreversible - society as a whole or whoever caused the pollution? Are environmental liabilities a public or private responsibility?

As far as valuation is concerned, how do you determine the impact of a polluting activity in a complex and highly uncertain context? And, given that in the majority of cases are about goods that are non-exchangeable on the market, how do we value environmental damage?

Thus the concept of environmental liabilities has social importance in that it can gather together consensus in different fields. Its success is being increasingly being confirmed in the context of the struggle of indigenous peoples and peasants, communities and NGOs; it is also becoming included in institutional and business spheres. Some Latin American environmental consultancies are starting to offer environmental liability estimate services. Furthermore, traditional economists could accept the idea of environmental liabilities as a synonym for external costs¹; their internalisation in business accounting is indispensable to achieving efficiency, the objective of their models.



Naturally, the influence of environmental responsibility on company decisions depends upon the possibility of establishing an obligation to pay for environmental liabilities. It is for this reason that it is necessary to individualize and strengthen the legal instruments that allow the more and more frequent vindication of the damage victims, so that companies consider the cost and risk of their environmental impact as something to be minimized

2. The problem of legal responsibility: Who has to pay for environmental liabilities?

2.1. How can you force companies to take responsibility for environmental liabilities?

The generation of environmental liabilities by companies would be reduced if a series of laws were created to require progressive reductions in pollution that they produce, through decontamination technology and increased efficiency in the use of materials and energy. Obviously, laws alone are insufficient and must be accompanied by institutions that guarantee respect for them, and by a system of sanctions for those who fail to respect them.

A national and international legislative system on environmental responsibility would create a strong incentive to produce less pollution, as it would contribute to companies' internalisation of part of the environmental costs and risks in their accounting. As a consequence, natural resources will not be considered as free goods, but would have a cost to be minimized. This system would mean that for companies it would be more expensive to create environmental damage than to invest in pollution reduction, and in this way they would be given the incentive to take measures towards minimizing their environmental impact.

Obviously the internalisation of environmental external costs as a way of achieving sustainability has its limitations: on the one hand a



certain degree of pollution associated with economic activity is inevitable; on the other hand, as is explained in the third paragraph, a significant part of environmental damage is irreversible and very difficult to evaluate in financial terms.

However, it is the political factor that must be taken into account above all. It is of course clear that the progressive inclusion of environmental external costs in companies' accounting has a very relevant economic and political price, and thus it requires a strong commitment on behalf of the institutions themselves. Furthermore, in the moment of suggesting an environmentally responsible regime, governments are submitted to pressure by powerful lobbies interested in keeping environmental legislation as loose as possible.

It is for this reason that the process of making companies responsible is very slow. For example, during the Johannesburg World Summit in 2002, "voluntary agreements" were given much more space than discussion about environmental legislation.

Nevertheless, the institution of legislation on environmental responsibility is a very important step towards greater sustainability and environmental justice. We can cite one example of national legislation as a good model: the Superfund.

2.2. The Superfund and the European directive proposal

The USA is the most advanced country in terms of environmental responsibility, thanks to the CERCLA legislation (also known as Superfund), a programme that imposes strict responsibility laws for cases of site pollution and deposits of dangerous residues. If the company that caused the damage is identifiable and still in activity, the Superfund obliges it to clean up the area. The onus of proof falls upon contaminating companies, who, if they do not want to pay, have to prove that not only is there no significant pollution, but also that no risk exists.



The problem of individualizing responsibility is particularly difficult when companies go through several owners or when they close down. In such cases, neither the old or new owners want to take responsibility for damage caused in the past and the State rarely has the resources or political will to do so (in this respect, legislation that is being passed in Chile relating to the closure of mining work is very interesting¹).

The Superfund resolves this question. In the case of dangerous residue deposits that are closed or abandoned on national territory (“orphan” sites, for whom nobody accepts responsibility), the Superfund finances cleaning operations through a surcharge imposed on oil and chemical industries. In over 20 years activity and with a budget of \$1.6 billion between public and private capital, the Superfund has cleaned hundreds of contaminated sites².

In Europe, a proposal for a European Directive on environmental responsibility was presented in January 2000³. This is an innovative document compared to current legislation, but still with many limitations, among them the non-retrospective nature of responsibility (as opposed to that of the Superfund). Moreover (once again in contrary to the Superfund), it does not cover damages unanticipated within the context of contemporary scientific and technical knowledge, that is, the time in which polluting activities are carried out.

With regard to the evaluation of costs, it is very difficult to determine the amounts that should be paid in reparation for environmental damage, as can be seen in the following section. The Superfund and the European Directive proposal are based on reparation costs that are relatively easy to quantify through economic valuation methods based on simulated markets. The Directive proposal also refers to some (not very specific) “equivalent alternatives”, which the responsible party would have to provide to those affected by the damage, if the reparation ends up to be too expensive. Nevertheless, the problem of irreversible damage remains in place.



The problem of jurisdiction also remains, in both the Superfund and the European Directive, as they are only valid within the confines of the USA and the EU. In other words, the Superfund and the future European Directive will not be able to be used to validate environmental liabilities outside the USA and the EU. A notable deficiency can thus be observed in international laws on the subject.

The ideal scenario would be for countries that have not already done so, to adopt integral legislation on environmental responsibility, perhaps using the Superfund and the proposed European Directive as possible models, especially if they were capable of imposing this legislation on foreign companies operating in their territory. Such legislation would have to be as homogenous as possible, in order to avoid the phenomenon known as “ecological dumping” – that is, the sale of a product at a very low price that does not include environmental costs, in order to ruin competition⁴. Perhaps in an ever more globalised economy a kind of “International Superfund” should be established, that is to say, an international legal system of environmental responsibility.

2.3. *Environmental damage*

The judicial process is a necessary complement to the legislative process for two reasons: in the first place, it can be the only way of partly compensating victims for environmental damage; in the second place a lawsuit for environmental damage can set a precedent that provides an incentive for companies to take measures that reduce their risk of ending up in a similar process.

Environmental damage can be pursued under criminal and civil legislation and in some countries through the legal definition of environmental damage⁵. Criminal legislation also typifies “ecological offences” in some countries. In all such regimes the *contaminating party* must be individualised and a cause/effect relationship must be established; cases of pollution of an imprecise nature, coming from



multiple sources are not considered. Normally responsibility is not applied retrospectively: only activities prohibited at the time of the mission are pursued under law, despite the fact that the perception of pollution changes with time and progresses with scientific investigation, information and awareness about risks.

Some cases exist of local communities starting to bring cases under civil legislation against companies for damage caused. One very recent example is that of Neuquén, an Argentinean province where the Mapuche people have sued Repsol-YPF for \$445 million for the damage they suffered in their territory as a consequence of hydrocarbon exploitation. Out of this figure, \$138 million correspond to compensation for the impact on psychophysical health, vegetation, fauna and the sociocultural environment and \$307 million to the cost of recovering the affected surface area⁶.

The problem is that often the national juridical systems of Southern states are not sufficient to protect their inhabitants; due to a lack of political and economical willpower and strength, businesses enjoy impunity. This means that in many cases it is more convenient for Western companies to transfer their most contaminating or dangerous activities to Southern countries, where environmental and labour legislation is less strict, salaries are lower and in the case of accidents, compensation to victims is lower. Often Southern States do not have the political strength with which to impose severe environmental norms due to the threats of poverty, external debt and the ease with which companies can transfer their production abroad.

The globalisation of production and commercialisation processes causes a political vacuum as transnational companies, who increasingly control the flow of resources between countries, have an enormous economic and political power; it is thus very difficult to impose respect for environmental laws upon them.

For this reason, in an ever more globalised economy, international law mechanisms that are the same for all countries (in



spite of their unequal political power and wealth) should complement national legislation; in this way multinationals would be legally recognized and penalised as responsible for environmental damage.

Unfortunately, international jurisdiction is still very scarce and wields little power. For example, the International Criminal Court, instituted in 1998, could be an adequate base to which appeals for environmental damages could be made, but its statute only allows it to judge individuals.

Today there is no existing international forum that can offer protection in a case of environmental damage. However, there have been cases in which victims of environmental damage have sued those responsible through the US legislation known as ATCA. It is a partially unexplored field, but one that could be a way of bringing to trial companies responsible for environmental abuse⁷.

2.4. *The “Alien Tort Claims Act”*

The ATCA (Alien Tort Claims Act)⁸, was introduced in 1789, but was hardly used before 1980. It hands to federal courts the right to concern themselves with cases of civil responsibility in cases of injury, which can be perpetrated by foreigners in harm to other foreigners, committing a violation of international common law (law of nations).⁹

The ATCA is a potentially useful mechanism for suing transnational companies, as often conditions in the damaged area are not right for impartial justice. There are cases of environmental abuse judged under the ATCA jurisdiction, although unfortunately up to now with little success.¹⁰

One of these cases is that of Freeport-McMoRan, a mining company that works in Irian, in Jaya or Western Papua, part of Indonesia’s sovereignty. This mine is the world’s main gold producer and third copper producer. The company has razed over 120 metres of the highest part of a mountain sacred to the local Amungme



population, destroying thousands of hectares of tropical jungle, devastating lakes and polluting water. The mine currently discharges around 120,000 tons of untreated toxic waste per day into the watercourse and plans to increase its discharges to 200,000 tons per day¹¹. The health and livelihood of the local population is seriously threatened. This case was presented to the Louisiana District Court under the ATCA legislation, but was rejected.

Another relatively recent case is that of Bhopal in India, where a second attempt under the ATCA was made in 1999. This is the case of Union Carbide, which in 1984 suffered a serious accident in one of its pesticides factories, directly killing 5,000 people and more than 20,000 through exposure to toxic emissions. Apart from this it caused chronic illnesses in approximately 120,000 – 150,000 people¹². Union Carbide rejected all responsibility for the accident and only accepted to compensate victims after five years of legal battles, granting \$350 to each affected party, an unquestionably derisory sum. The New York District Court rejected the judicial claim presented under the ATCA in March 2003 and today the sentence is awaiting appeal.

The most interesting case is against Texaco, the transnational company that extracted oil from the Amazonian jungle in Ecuador over 20 years (until 1992), digging 300 wells and creating almost 300,000 km of roads through the tropical jungle. Texaco has discharged massive quantities of highly toxic products into the water used by the local population to drink, fish and wash. It has filled storage tanks of extraction water with highly toxic residue. These deposits have often ruptured or overflowed, seriously polluting the environment and causing health damage in the local population¹³. The US court rejected the case, arguing that the Ecuadorian court would be a more suitable forum in which to decide on the case due to the greater ease with which it could access evidence and communicate with witnesses and victims.

There are two reasons for the frequent rejection of such cases under the *forum non conveniens* (inadequate forum) doctrine. The first is that the evidence and witnesses to the damage are not in the official



home country of the company, but in the country in which the damage occurred, thus the trial should be carried out there. The second is that the environmental offences are not immediate violations of international law and thus cannot be judged under the ATCA.

The ATCA is a very advanced piece of legislation, but is characterised by extreme arbitrariness. Whether the cases reach a judge or not depends upon many circumstances. For example, it is often the lawyer (who in a successful case wins a percentage of the compensation) who contacts the complainant and looks for evidence. Judges have a very strong decision-making power, and at the moment of deciding if they will concede jurisdiction to US courts, or send the case back, they refer to past cases (up to now unfavourable). Unfortunately in the USA (and less so in Europe) there is still no homogeneous legislation that regulates the whole area of environmental damage produced abroad by transnational companies.

3. The valuation problem: how much should be paid?

3.1. Limitations of financial valuation

There are many difficulties to be encountered in the financial evaluation of environmental damage. In the first place, ecosystems and the interaction of ecosystems with human society are characterised by their complexity and strong uncertainty, which must be taken into account. The effects of certain types of pollution on nature and humanity are very difficult to predict. Naturally the interaction between different parts of the said systems can exacerbate any disturbance in the balance and lead to irreversible changes.

Contamination is transmitted and accumulated along a food chain, and factors that increase the risk of illness are multiply and act cumulatively, often in the long-term²⁸. It is therefore very difficult to isolate the effect of every contaminating element and to establish a linear correlation between cause and effect. Our knowledge of the



working of ecosystems and the human body is too scarce for our estimates about the effect of polluting substances to be accurate, especially in the long term. For this reason, many warnings about contamination endangering the natural environment or human health that were not listened to within time, and thus the “precautionary principle” was not applied. Famous examples are DDT and asbestos²⁹.

Secondly, the expression of environmental damage in financial terms has inevitable structural limitations if we accept the idea of the immeasurability of values, or rather the “absence of a common unit for measurement” applicable to plural values³⁰.

What is the financial value of human life? Economists use a diversity of methods to express loss in financial terms, related for example with the price of life insurance, or the cost/opportunity of lost work. Obviously these measurements only reflect one part of the losses associated with death, and many other important aspects are not included. Furthermore, these estimates are all questionable as they clearly depend on income (thus the loss of life of a professional is much higher than a wageless worker). In this way we could pose the question, what is the financial value of the degradation of a landscape, reduction of biodiversity, loss of cultural roots, forced emigration, or illnesses suffered?

For these reasons it is clear that the financial evaluation of environmental damage is highly arbitrary. The figures that come out of such evaluation depend highly on suppositions and the methodology employed, and most likely do not reflect many other values of losses suffered.

Immeasurability destroys the very root of the concept of compensation. Can financial compensation be adequate in response to health damage and death, to the destruction of a cultural context, and irreversible environmental degradation? There are many cases of local populations refusing to discuss the amounts of money that would be offered to them in return for leaving their land to companies or to



mines. For example, the U'Wa of Colombia, as many indigenous populations, refused financial compensation offered by the Occidental Petroleum Company for the oil drilling and extraction, which they conceptualise as the “rape of the sacred body of our Mother Earth”¹⁴. It is evident that the issue is about two different value systems that happen to be incompatible³². The U'Wa have managed to get Occidental Petroleum to leave not by threatening to make compensation demands for environmental damage in the future, but by arguing for the value of what to them is sacred, and also for their indigenous territorial rights.

3.2. When and why can financial Evaluation be useful?

The choice and evaluation of an instrument must of course depend upon the objective for its use. If its purpose is the vindication of rights and making demands, it could be more effective to show the public a web of impacts, with both qualitative and quantitative indicators, each one in its own unit of measurement.

On the other hand, on a business and institutional level it could be effective to talk a quantitative and financial language. To present values in money could help to represent environmental damage in a way that would mean their true magnitude would be perceived in contexts in which financial language is normally used.

In the same way, financial evaluation of environmental liabilities is useful in a judicial context. In order to ask companies for compensation for their environmental liability it is essential to have carried out a valuation of environmental impact expressed in financial terms. Of course, in the civil and administrative law of any country, reparations for damages are conceived in monetary terms (while in criminal law there are sentences involving imprisonment, not redeemable in money).

Monetary compensation can be the only way of ensuring that victims of damages receive something, and that the crime does not



remain unpunished. It can be used as a way of redistributing earnings produced through the contaminating activity, as a partial internalisation of the external costs.

Another reason worth mentioning is that financial evaluation of environmental damage works as an incentive to business people not to start polluting, or at least to take precautions and introduce technological innovations that reduce environmental impact.

Furthermore, financial compensation and the process or negotiation that makes it possible, has a very strong symbolic value. It reaffirms the rights of local populations over their territory.

Nevertheless, there are some *caveat*. Financial compensation must be carefully managed so as not to create strong imbalances within the community receiving it, such as unexpected inequalities in income, corruption and conflicts. For example, it can often be more effective if the compensation money received is put towards trying to repair damages or offering services to the community than to if it is granted directly to individuals.

It is also worth ensuring that financial compensation is sufficiently high for it not to be seen as a *pigouvian* tax¹⁵, or as a pollution permit, but rather as a fine for damage caused. In other words, it must work to dissuade companies and seriously affect their balance sheets. Thus, the large fine imposed upon Exxon for the Exxon Valdez spill in Alaska in 1989 meant a considerable economic effect on the company, as well as providing a boost to the environmental movement¹⁶.

4. Conclusions

Financial valuation uses a very arbitrary calculation and the result depends, among other things, on the existing power structure. Normally the poor are compensated very cheaply. If an accident such as the one in Bhopal had happened in Western Europe, the



compensation provided to victims would have been much higher than \$350 per person, and this not just due to differences in acquisition power.

Furthermore, much environmental damage is irreversible and cannot be repaired. Damage to health, forced migration, the destruction of cultural contexts cannot be compensated. To a person that has been diagnosed with cancer, the amount of compensation offered by the company responsible is not the most important issue at stake.

Nevertheless, to ask for financial compensation for damages produced could be a way of making environmental liabilities ever more expensive and problematic, and at the same time, of recognising the right of individuals to live in a clean environment and have full use of their own territory.

The expression of environmental liability in financial terms, although it involves a significant loss of information (as well as being questionable from many points of view) could possibly become very effective politically and socially in that it is more immediate and simple. In this way the vindication of injustice could be accepted in governmental and business sectors, where the use of financial language is the norm. Above all, financial calculation is indispensable in a forensic context.

Nowadays, courts in Southern countries often do not have enough power to ensure justice to victims in the case of environmental damage; on the other hand an international forum in which companies could be sued for their environmental liabilities still does not exist. There is a long way to go to be able to force companies to take responsibility for their own environmental liabilities. A collective reflection between local populations, NGOs, and Northern and Southern institutions is necessary to be able to identify the most suitable legal mechanism to make the rights of the weakest be afforded greater value.



- 1 trans: *externalidades* - costs that a company transfers to society without compensating it.
- 1 <http://www.idrc.ca/mpri/documents/cochilco.pdf>,
http://www.idrc.ca/mpri/documents/quebecsymp_s.html,
<http://www.sonami.cl/boletin/bol1135/art8.html>.
- 2 <http://www.epa.gov/superfund>.
- 3 European Parliament and Council Proposal for a Directive on Environmental Liability with regard to the prevention and restoration of environmental damage, COM (2002) 17 final 2002/0021 (COD).
- 4 Ecological dumping is what transnational companies do when they transfer their most contaminating activities to countries in which they can invest less in decontamination and protection measures, thus they are able to sell their products at a lower cost and earn more on the international market than companies obliged to charge higher costs because of the environmental legislation of the countries in which they operate or have their central office.
- 5 For a compilation of the application of civil legislation to environmental damage in Europe, see: CMS Cameron McKenna, *Study of Civil Liability Systems for Remediating Environmental Damage*, 1996, available at: <http://europa.eu.int/comm/environment/liability/background.htm>.
- 6 <http://www.mapuexpress.net/publicaciones/repsol2.htm>.
- 7 On the limitations of the ATCA: Donald J. Kochan D.J., 2000, *Aspirin for a "Major Headache?" - Scaling Back Relief Under the Alien Tort Claims Act*, Federalist Society for Law and Public Policy Studies in <http://www.fed-soc.org/Publications/practicegroupnewsletters/internationalnews/aspirin-intv3i3.htn.htm>.
- 8 Herz R.L., 2000, *Litigating environmental abuses under the Alien Tort Claims Act: a practical assessment*, en the Virginia Journal of International Law, vol. 40: 545; M. Greco, *La responsabilità ambientale delle compagnie trasnazionali secondo l'Alien Tort Claims Act*, Politeia, Rivista di Etica e Scelte Pubbliche, Anno XIX, N. 70, 2003.
- 9 Common law is the definition of the entirety of uses and practices of nations. The Common law on which US courts are based is the Restatement (Third) of Foreign Relations Law, which defines among common laws those that veto torture, war crimes, genocide, disappearances, summary executions, arbitrary detention, forced labour, and cruel, inhuman and degrading punishment. Nevertheless the existence of other common laws can be demonstrated in the work of lawyers and commentators, in official documents and other indications of governmental action, international agreements, sentences of national and international courts and in the opinion of well-known academics.
- 10 www.earthrights.org.



- 11 <http://www.moles.org/ProjectUnderground/motherlode/freeport/freeport.html>.
- 12 <http://www.bophal.net>, <http://www.bophal.com>.
- 13 <http://www.texacorainforest.org>.
- 28 Chavas, J. 2000, *Ecosystem valuation under uncertainty & irreversibility*. Ecosystems 3:11-15.
- 29 European Environment Agency, 2001, *Late lessons from early warnings: the precautionary principle 1896–2000*, Environmental issue report No 22, Copenhagen
- 30 Martinez Alier J., Munda G., O’Neill J., 1998, *Weak comparability as a foundation for ecological economics*, Ecological Economics 26, 277- 286.
- 14 http://www.ran.org/ran_campaigns/beyond_oil/oxy
- 32 Martinez-Alier J., 2001, *Mining conflicts, environmental justice and valuation*, in Journal of Hazardous Materials, 86, 153-170
- 15 In traditional economic theory, the “optimum” quantity of pollution can be obtained through a tax system imposed on contaminating emissions. In this way, companies account for environmental damage they will produce in their own costs and are thus given the incentive to reduce them. In technical terms this is known as the “pigouvian tax” (after the economist who came up with the theory, Pigou).
- 16 For example, see: <http://www.epa.gov/history/topics/valdez>.



Mining Debt: A Victim's Point of View

Rowil Aguillon

Asia/Pacific Movement on Debt and Development

“No awanen dagiti baker ken maatianan dagiti karayan, ania serbi ti balitok?

Nga kasla aramidem ti ingin iti tapok, Maisubli kadi balitok ti ili?”

– A Cordillera Elder

(When the forests are gone and the rivers are dry, Of what good is gold?

The people are scattered as the wind do to dust, Can gold restore life?

The Asia/Pacific Movement on Debt and Development (APMDD) has defined ecological debt as the debt incurred by the industrialized countries and transnational corporations of the North towards the people of the South in the continuing plunder and exploitation of the ecology and resources of the South, and in the destruction of the planet due to their production and consumption patterns that dominate the global economy. Ecological Debt is the ultimate debt, not by one people against another, but by a definite class who works from one country to another, and has institutionalized a system of production driven by greed for profit. It is the sum total of exploitation and plunder of resources on the one hand, and the deprivation of the vast majority of peoples on the other hand. The net effect of ecological debt is the destruction of the material base of human survival-the earth.

Ecological Debt is hard to translate in terms of concrete monetary terms.

Existing laws provide for penalties and other forms of assurances for rehabilitation in cases where the environment is damaged and



destroyed. But as far as those who have been victimized are concerned, these assurances are not enough. In fact, funds are never enough because ecological destruction can never be paid.

How can one compute the dollar equivalent of destruction and despair? Can one come up with monetary value for scattered communities and denuded resources that affect present and future generations?

Economics of Destruction

Over the last four decades, the Philippine government has facilitated and presided over the fastest deforestation process one could ever imagine. By virtue of the partnership between local and foreign companies both in logging concessions and mining operations, the Philippine forest cover has been reduced significantly: from 9 million hectares in 1968, to 1.6 million hectares in 1996. On top of this deforestation process, the Philippine government has also invited global mining companies to engage in large-scale open pit mining operations all throughout the country.

The cases that will be described later will show how much suffering and misery has been inflicted on the peoples of the Philippines, all in the name of development and modernization.

It is important to note that many of the projects that will be cited are so-called priority development projects of the government. The objective of which is to boost the national economy, earn dollars, and pay the country's foreign debt. Moreover, these projects are meant to eventually eradicate poverty.

The logic is simple: destroy the earth to reduce the number of impoverished peoples. The result: many impoverished peoples and communities are now in their graveyards.



This process could not have been made possible without the support of the country's loyal patrons and mentors: the World Bank, the International Monetary Fund, and the Asian Development Bank. With programs such as Structural Adjustment and other conditionalities, the Philippine ruling elite is able to pursue a development and modernization process that has led to the transformation of rivers into dry lands, of forests into muddy grounds, and of self-subsistent communities into beggars and slum dwellers.

Indeed, the development process in the Philippines has gone a long way.

The Case of Mining

Traditionally, the mining sector has been a significant contributor to the country's economy. This sector of the economy must have also been important to the American colonial government because a mining law was enacted as early as 1905. Since early 1900s, large scale mining operations have proliferated all throughout the country for gold, copper, silver, coal, and other minerals.

However, due to the alleged major flaws in the country's policy environment, the mining sector began suffering a serious decline starting in the 70s. In the 90s, President Fidel Ramos wanted to fast-track the so-called industrialization process and he made sure that the mining industry would contribute significantly to his vision of a Newly-Industrialized Country. With that, the government in partnership with the Asian Development Bank, commissioned the East-West Center of Hawaii to evaluate the factors leading to the downturn of the industry. Upon the recommendations of the East-West Center and the Asian Development Bank, the Philippine Chamber of Mines came up with a set of recommendations which were later adopted by congress and incorporated into a new mining law, now known as the Philippine Mining Law of 1995 or Republic Act 7942.



The new law, and the package of financial aid that came with its passage, are clearly not meant to encourage small miners to go into the industry but for global mining corporations to extract the country's resources. Some of the benefits it promised to foreign companies were 100% ownership, tax holidays, 100% repatriation, exemption from environmental impact assessments, direct sale of gold to the international market, and other offers.

So effective and attractive was the new mining law that in one region alone (Western Mindanao), a flood of mining applications poured in from the world's biggest mining company Rio Tinto, with a total applied area of 500,000 hectares. In 1997, a total of about 9,299,121.78 million hectares were applied for large scale mining operations all throughout the country. About 99.9% of these are applications of foreign companies, mostly Australian, Canadian and British.

While the applications have triggered the sprouting of many protest actions and mobilizations throughout the country, the government and the global companies continued to campaign aggressively for support both from local residents and local government units. This explains why despite the protests, some applications were able to push through with exploration, and eventually operations.

Yet, many lessons have to be learned from the history of mining operations in the country-lessons that are too bitter to be remembered especially by those whose lives have been shattered and whose sources of livelihood have forever been destroyed. Unfortunately, the government's drive for dollars and foreign investments prevented it from learning the lessons of the past. In the name of development and modernization, the government, again, pursues a program that will only lead to more destruction and devastation, where multinational corporations and their local patrons reap gargantuan profit all at the expense of the people.



The End-result of Plunder

From Luzon down to Mindanao, various people's organizations and communities have documented different incidents of environmental destruction brought about by mining-incidents that are seldom reported, much less, investigated by the Department of Environment and Natural Resources (DENR). This is why the people have renamed the department as Destruction of the Environment Never Reported.

In all the so-called mineral development projects, the people have only seen devastation and destruction. The impacts have been disastrous and far-reaching. Below are specific cases that have occurred over the last 15 years.

- Mindoro, Luzon - The Japanese-owned Kanto International Marble Corporation caused serious damage to the environment resulting to soil erosion, heavy siltation of rivers and heavy flooding.
- Cordillera - Philex Mining Operations in Itogon spilled 11,000 liters of oil; the Lepanto Consolidated Mining Corporation drained acidic effluents into the Mancayan River (one of the four rivers of the Cordillera either dead or choked by mining wastes); and, Benguet Mining operations has transformed the municipality of Itogon into a virtual graveyard.
- Nueva Ecija, Nueva Vizcaya and Zambales - Due to heavy siltation, major river areas are now considered Class C or D (dying or biologically dead).
- Negros Occidental -Marikalum Mining Corporation was found to be dumping used oil into the Bulata Bay and tailing ponds are leaking mine wastes into agricultural lands in Sipalay, Negros Occidental. Philex Mining has also deliberately released tailings into the Sipalay River, causing fish kill and siltation. Both



operations have negatively affected the environment due to inundation by heavily silted rivers. Skin diseases among children and adults and cases of heavy metal poisoning have also been reported.

- Eastern Samar - Operations of the Heritage Mining Company have caused flooding and siltation of areas in the vicinity.
- Palawan - An old mercury mine threatens entire city of Puerto Princesa; affected areas were even declared to be under a state of emergency.
- Zamboanga Peninsula (Mindanao) - Philex Gold Philippines Inc. in their Sibutad operations has threatened the lives of residents in eight coastal villages with the siltation of the coastal areas; caused also serious damage to livelihoods; depletion of water supply; buried five hectares of ricelands in mud coming from the tailings pond.
- Surigao - A tailings pond of Manila Mining Corporation collapsed in 1995 and caused the death of five people.
- South Cotabato - Maughan crater of Mt. Parker collapsed due to mining operations, leaving 79 people dead.

The Case of Placer Dome

In March 1996, 3-4 million tons of metal-enriched and acid-generating tailings filled the 26-km Boac River in the island province of Marinduque. This was caused by a badly sealed drainage tunnel in an old mine pit that burst. The mined-out pit which is located in the high central mountains of Marinduque had been used as storage pit for the tailings from a new adjacent mine since 1992. The culprit was the firm Marcopper Mining Corporation.

Greatly affected by the Marcopper incident were the municipalities of Sta. Cruz (center of mining operations), Mogpog,



and Boac, all in the island province of Marinduque, 170 kilometers north of Manila.

Marcopper is the third largest mining company in the Philippines with a reported production of 30,000 tons of copper daily for the last 27 years. It began mining the Tapian ore body in Marinduque in 1969, and proceeded with San Antonio project in 1991 using the old Tapian pit for waste disposal.

The company is 40% owned by the Canadian firm Placer Dome Inc. (PDI) and 50% by a front corporation of former dictator Ferdinand Marcos called Performance Investment Corporation; since it was sequestered during the Aquino government, it is also partly owned by the Philippine government

Placer Dome is one of the top gold mining corporations in the world, second only as a mining corporation in its home country, Canada. In 1998, the company posted profits of US\$105 billion.

Placer Dome employs some 8,400 people in its 14 mines scattered in five countries in five continents. It has a reputation of coming into conflict with local populations in areas of operation. Like the Western Shoshone tribe in Nevada for polluting land; people of Strickland, New Guinea for dumping wastes in the river, and the people of Costa Rica. The company's Golden Sunlight Mine in Montana, USA is accused of cyanide leaching.

Marcopper has a 30-year history of mining disasters and environmental abuse in the Philippines. The 1996 tragedy got the national and global attention on Marcopper's culpability in destroying entire river systems, communities and livelihoods but actually, the trail of destruction can be traced as far back as 1969.

- In Sta. Cruz, Marinduque, Marcopper dumped 200 million tons of tailings in Kalankan Bay from 1975-91, creating 80 square km of tailings along the bay. This had the following effects:



- reduction of fish catch of at least 2,000 fishers; other uses of the bay adversely affected
- threatened the food security of 200 fishing villages for 25 years now
- covered houses and rice fields with dust storms
- metal contamination and chronic lead poisoning of victims that remain untreated until today

Marcopper responded, albeit inadequately, with the following actions:

- launching of a livelihood projects in the area;
- setting up funds for artificial corals and rehabilitating seagrass projects;
- ignoring any liability on reported health concerns;
- and, rationalizing health complaints as arising from Marinduque’s naturally mineralized environment.
- In the municipality of Mogpog, Marcopper dumped another kind of waste called overburden, creating practically mountains of waste here in the higher areas of Marinduque. It also built a dam in 1991 and made use of a watershed area as a dumping ground. In 1993, the dam collapsed causing heavy floods, siltation and contamination of the Mogpog River; eruption of skin diseases, plastic anemia, and metal poisoning of townspeople.

Marcopper’s response:

- gave a one-time assistance of \$11 - \$22 per household (1993)
- dredged some parts of the river but left the sludge on the banks of the river



- built a one-meter increase in an already existing dike in one of the villages
- In Boac, the capital of Marinduque province

In 1996, the worst environmental mining tragedy in Philippine history occurred when 3-4 million tons of waste equivalent to 1.6 million liters of waste or 300,000 dump trucks of sludge spilled into the river because of an old badly sealed tunnel being used by the company. Because of this, the whole island of Marinduque was declared a calamity area.

- The Boac river died instantly
- Health problems:
 - The PDI admitted in 1997 that exposed sulfur in the tailings has started to oxidize, causing the formation of toxic sulfuric acid and potential release of heavy metal such as cadmium, lead, mercury, zinc and arsenic.
 - A Department of Health study made between 1996 and 1997 confirmed heavy metal contamination due to the use of the river as disposal site for run-off from Marcopper since 1970.
 - UN investigation identified unacceptable levels of heavy metals in some parts of the river and they also pointed to toxic wastes leaching into the river through the faulty waste rock siltation dam.
 - Costs calculated by a consultant of the Resources Environment Economic Center for Studies Inc.
 - US\$6 million dollars damage in agriculture alone in 1996
 - After three years, US\$19.5 million
 - Other key economic losses such as tourism, US\$14.4 million



In 20 years of its operations in the Philippines, PDI accumulated earnings estimated at US\$1 billion. Their contribution to the national reserves stands at US\$370 million. Taxes paid to the government amounted to a mere US\$100,000 in 20 years. Social projects have been estimated at only US\$40,000. Is these enough vis-à-vis the irreparable damage done to the people and environment of Marinduque?

Benefits or Misery

Despite the many tragedies associated with mining, the government decided to liberalize the sector in order to encourage more foreign investors to go into exploration and mining operations in the country. With that, the 90s saw a revival in mining interest in the Philippines.

But what is so tempting about mining?

There is actually great wealth in mining. In a document prepared by the Philippine Chamber of Mines (PCM) that was circulated among similar chambers in other first world countries, it was shown that in an average mining operation in the Philippines, a ton of ore can be extracted from three tons of earth. From this one ton of ore, one can extract 3.77 grams of gold, 105 grams of silver and sometimes copper at an average of 2.79% and zinc at 2.03%. Especially now that open pit mining has become the preferred method, a mining site covering 3,500 hectares can be completely mined in seven years, with an average production rate of 1,850 tons of ore per day.

A major interest in the Philippines is gold, where the economics is more attractive. In a 4,500-hectare, with a production rate of 1,850 tons of ore per day, a company can expect to extract in seven years some 179,600 ounces of gold. Multiply this by \$300 per ounce and the amounts are staggering. However, according to the PCM, 70-75% of the world's gold production goes to jewelry. Only a small amount goes



to industrial uses and gold reserves in central banks. So much of the earth's natural resources are destroyed to please the elite.

Reading the many papers and reports of mining companies and the Philippine Chamber of Mines, one would expect to see paradise in the mine site. Yet, for the people, whose lives have been severely devastated by the many tragedies, and whose future has been made bleak, mineral development simply means destruction and despair.

The billions of dollars extracted by multi-national corporations, and the few thousand dollars given to the national government in the form of taxes, as well as bribe, are never sufficient to justify the degree of destruction that mining has wrought on the environment and on the lives of the people. Yet, despite all these, the plunder continues.

The Cost of Destruction

There are at least four areas that should be considered in examining the ecological debt incurred from mining activities: the local mining sector, the global mining industry; the national government; and the affected people and communities. The whole history of mining in the country has only shown how disproportionate the proceeds are, with the bulk of the profit going to the multinational corporations and the pockets of accommodating government officials, while the bulk of the environmental damage and suffering are passed on to the people.

The existence of ecological debt is all too real and has caused untold suffering for peoples and communities. And the reasons why these things continue are:

1. continuing subservience of nation states to the dictates of global corporations and multinational corporations (MNCs)
2. balance of power favorable to the MNCs, highly industrialized countries and local ruling elites



3. persistence of a purely economic view as regards development
4. a playing field shaped and determined by those who seek to destroy the earth and risk its future, all in the name of profit
5. tendencies among civil society players to confine the engagement in debate and argumentation and reduce the arena of the struggle to lobbying and negotiation
6. polarized and fragmented people's movement, which provides for an opportunity for the neo-liberals to gain the upper hand in the political positioning.

Terms of Payment

Global mining giants, multi-national corporations, and the local ruling elite have to pay the price of destruction and devastation. But such payment can only be made in terms of actual liberation from a social order that is inherently destructive; hence the following premises:

1. The whole issue of ecological debt boils down to the question of control over resources by the people. Thus, ecological debt is largely a political issue; it is a question of power, both at the level of nation states and at the global level.
2. Ecological debt is difficult to monetize; there is no monetary value to erosion, poisoning, siltation, mudflows and flash floods; to shattered homes, broken communities, cultures eradicated.
3. Current production systems and the rush to generate profits entail a conspiracy against the earth and its future. No reason or theory or legal mandate is plausible enough to justify destruction and plunder.
4. Ecological debt is perpetrated not by a simple club of unenlightened persons. It is perpetrated by a certain class



through the institutions and structures that are deeply embedded in societies whose interests are irreconcilable and inherently contradictory to the interests of the majority of the dispossessed peoples of the world.

Given these, ecological debt can only be paid when the peoples shall have gained control over resources and over means of production, and when utilization of resources shall no longer be geared towards profit but towards the satisfaction of the needs of society.

For those who have caused the devastation and destruction, we shall give them this statement of account:

Exploited and Oppressed Peoples of the World, Inc.
100+ Southern Countries, 80% of the World Population
webpage: www.destroyedhomes.shatteredfuture.com

STATEMENT OF ACCOUNT

TO: G8, MNCs and MFIs
Re: Notice of collection of Payment

Date
Particulars
Amount

Since the Colonial Era

Mining

- a. Erosion access to and control over
- b. Siltation resources, economic dislocation,
- c. Forest Denudation and continuing powerlessness
- d. Poisoning and pollution
- e. Flashflood and mudflows
- f. Destruction of watershed
- g. Loss of livelihood



All these amount to loss of access to and control over resources, economic dislocation, and continuing powerlessness

Total

Destruction and Death

Note to the Statement:

Since you owe us so much and these debts cannot be translated in monetary terms, we demand that your payment be made in terms of outright departure from our lands and in terms of various restitution and reparation. We demand further that you pay in terms of breaking up your companies and giving them up in favor of your workers who have labored so much and who have been exposed to inhuman working conditions so that you may earn gargantuan profits.

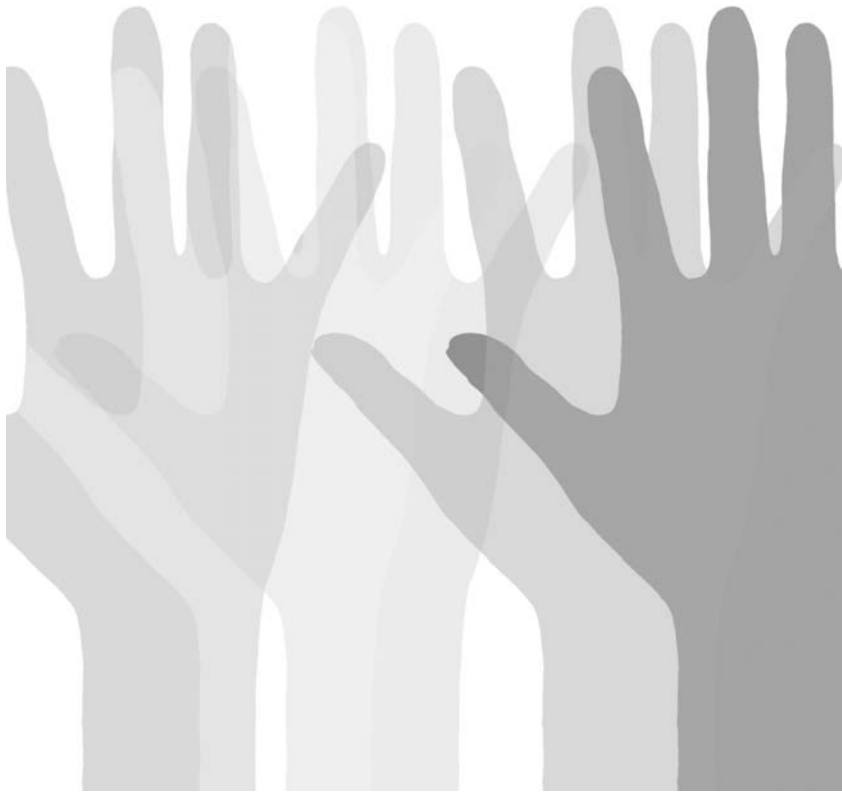
We demand further that Foreign Debt should be cancelled automatically.

Our liberation from your control is the ultimate payment. We can seek no less and we shall continue to collect this payment until that day when no one among us shall be poor and powerless.

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<http://jubileesouth.org/journal/mining.htm>



Biodiversity, biotechnology and ecological debt



Biopiracy: privatisation of the community sphere*

Silvia Ribeiro
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The term “biopiracy” is interpreted in a different way according to the person whom you ask. For some, it is the simple act of collecting biological materials without the “prior informed consent” of the communities of the area and/or country from where they are extracted, without respect for existing legislation or an agreement on “benefit sharing”, such as is indicated in the United Nations Convention on Biological Diversity. From this legalistic perspective, the signing of a “bioprospection” contract within the limits of the law, whether existing or to be created, would solve biopiracy. Moreover, so-called intellectual property “rights” (in their many permutations) would become a useful instrument that over the time in which they generate earnings for companies, would bring some economic income to the local communities that provided resources and knowledge about them.

For the large transnational companies that work with biotechnology in the pharmaceutical and agricultural field, who are also the main interested party and commercial destination for such biological resources, biopiracy is the unauthorized use or reproduction of their patented innovations. For example, if a farmer uses their patented seeds without paying royalties to the company. This can be done consciously or not, as in the case of the farmer whose field is

* This article was presented during the SEMINAR ECOLOGICAL DEBT AND BIOPIRACY held in March 2002 in Quito, Ecuador, organised by Acción Ecológica.



contaminated by pollen swept by the wind from other fields sown with patented seeds.

To prevent this, apart from drawing up laws and contracts with farmers, companies have developed detective corps that go around agricultural areas in the USA and Canada taking samples. Monsanto has already started over 460 court cases against farmers in these countries, and in March 2001 a Canadian farmer was ordered to pay more than \$75,000 for “biopiracy” after his land was contaminated with transgenic seeds patented by Monsanto, although the farmer was neither aware nor wanted such seeds, in fact he considered his land to have been damaged by such contamination.² In case the juries sentence against them, or intellectual property laws are insufficient, the very same companies that dominate these sectors have developed and now hold 70 technology patents so that their seeds become sterile in the second generation; thus biological patents with no expiration date (“Terminator” technologies) are established to prevent “biopiracy”.

For the ETC Group (previously known as RAFI) and many civil society organizations, biopiracy is the *appropriation* and privatisation of genetic resources and the knowledge of indigenous and local communities, especially in third world countries, by private companies, usually transnationals, and/or public institutions from the North. Biopirates use different intellectual property mechanisms to claim the use of tangible and intangible resources of communities located primarily in the South for them. Thus biopiracy is far from being a merely legal issue; rather it is a subject of social, economic and political justice, in its essence a question of ethics. It is basically about the privatisation of resources that have always been public, collective and for the good of humanity, for the benefit and profit of a handful of companies and institutions. Although a company or institution may have signed a contract that claims to follow national or international legislation, and although it includes a certain degree of consultation or participation of communities and/or states and “benefit-sharing” in some shape or form, it is still biopiracy. The protection and primacy of the rights of the principle actors in the biodiversity process and its



components – the indigenous and local communities - is not only completely insufficient, but also in many cases denies these fundamental rights, legitimates plundering and undermines the very bases on which the heritage of biological and cultural diversity were historically built.

To whom do the resources belong?

Over thousands of years and across the world, the base for the sustenance of humanity has rested on knowledge process around the means, adaptation, availability and creation of resources for food, medicinal use, clothing, shelter, aesthetical use and others. The processes that the members of diverse local cultures – indigenous, peasant, shepherding, fishing etc – have practised for their survival, are thus bequeathed to all humanity. It has always been an open, collective and free exchange process, except for certain restrictions relating to “sacred” or ritual knowledge, although these processes can also be considered as collective and public in that the function of such specialized experts (shamans, healers etc) are also roles with a social function. This free flow of knowledge and resources has allowed collective accumulation and permanent enrichment.

Cultural diversity interacts in a dynamic way with biological diversity, in the same way that agricultural and cultivated diversity interacts with wild diversity, in a reciprocal continuum in which all factors feed and nourish each other. This explains why the areas of greatest biodiversity on the planet coincide with areas of great cultural diversity. This process is not a fact of the past, although it is being seriously threatened by genetic and cultural erosion. It is calculated that the rural population of the Third World depends upon biological resources to fulfil 90% of its needs, 60% of the world population depends essentially on self-sufficiency for its food, and 80% of this population uses medicinal plants for its health care.³

Apart from such direct use, these resources and knowledge are also the base upon which scientific investigation and development are



supported, both historically and in the present; contributing to public, commercial and industrial research, or as part of agricultural, pharmaceutical or veterinary work, as well as many other areas.

Historical benefit-sharing from South to North and the recolonization of the South

Traditional medicines and indigenous and local knowledge have acquired a high commercial value on top of their intrinsic value. Approximately three quarters of prescribed medicines deriving from plants from around the world were first used by indigenous peoples, which permitted their subsequent “discovery” by laboratories and companies from industrialized countries. It was calculated in 1996 that the global pharmaceutical industry has annual profits of over \$32 billion thanks to the use of traditional remedies incorporated into prescribed medicines. Between 1950 and 1980, plant-derived medicines used in the pharmaceutical industry amounted to 25% of the pharmacy drugs sold in the USA. Currently, approximately 40% of clinical tests for medicines in the USA are based in some way on natural products. It is estimated that the total annual economic value of plant-derived drugs is over \$68 billion in the USA alone⁴.

For this reason it is not surprising that the hunters of biological riches are feverishly engaged in the “green gold” rush in the south, especially in zones of megadiversity⁵.

There is currently a renewed interest in the evaluation of natural products, especially for medicinal compounds. In 1980 the research budget of the US pharmaceutical industry destined no funds to the evaluation of superior plants. Nowadays it is estimated that more than 200 research companies around the world are evaluating compounds of animal and vegetable origin in the search for medicinal properties. This increased interest is due in part to new technologies that have revolutionised the possibilities for analysis and later application to pharmaceutical and other commercial products, and for the expansion



of intellectual property systems to areas they had never before reached, in particular to living beings and biological processes.

In the agricultural sector, the estimated value of the contribution of agricultural germplasm from the South to the North for four species (corn, wheat, rice, beans) and taking into account only the flows coming from the CGIAR system (Consultative Group on International Agricultural Research), the largest international network for public agricultural research, it is calculated to be \$5 billion annually. This estimate is surely modest, since in 1994 the then Secretary of State in the USA, Warren Christopher, argued in a letter to Senate that foreign germplasm meant an annual contribution of \$10.2 billion only in US corn and soy crops. The letter was meant to present arguments for the US signing of the CBD⁶.

Of course such looting did not start with what we now call biopiracy. The powerful groups of the North have looted biological and other resources and have benefited from indigenous and local knowledge from the South for centuries, particularly since European expansion. The “collateral damage” of this has caused considerable human, cultural and environmental devastation. Nevertheless, approximately two decades ago, a process started that could be characterized as a new technological, agricultural and industrial revolution, which is interfering even more profoundly in the creation process of natural and cultural diversity. In this revolution we can see three specific factors converge and interact; together they provide the conditions that are a *sine qua non* for biopiracy:

- patenting and other forms of intellectual property applied to living beings, and in general the system of monopolistic patents.
- the development of new biotechnologies and other related technologies.
- the increased vertical and horizontal economic and corporative concentration of power.



The conjugation of these factors is forming a true process of Southern re-colonization, as we see that the resources that the conquerors needed to take in material form can now be appropriated from a distance, without these new biopirates even needing to step foot in the place of origin of such resources.

Types of biopiracy: pirates and corsairs

It is not possible to give a precise date for the start of biopiracy (understood as the looting of genetic resources) in the world, as for many years it has been an underhand and illegal activity, or simply not recognised for what it is. Such is the case of the use of germplasm from the South in the agriculture of many Northern countries, which has an enormous unrecognised and uncompensated economic importance.

However, it is possible to point out a key moment in the 1980s, in part due to the qualitative jump taken by new biotechnology (genetic engineering, cloning, tissue culture, etc), and also the approval in the USA of the first patents on living beings. Both conditions – technology and monopolistic intellectual property laws – exacerbated the bioprospection activities of pharmaceutical companies and agricultural businesses in process of developing new products.

Information and resources obtained as well as the common base of biotechnological and biochemical research systems allow developments to come about in the agricultural and pharmaceutical fields. This contributed to a merger process between companies from the agrochemical and seed sector (which was already happening since the Green Revolution), and the pharmaceutical sector; lately the veterinary and genetic sectors have become involved, to form what ETC has denominated “genetic giants”.

Although bioprospection and biopiracy activities increased significantly in the 1980s, at the outset companies were more dedicated to a kind of casual exploration, without any pretensions to legalise what they were doing. They collected samples from areas of great



biodiversity, and searched for active components that had not previously been detected. Monsanto, one of the five biggest genetic giants, recruited among its own personnel for “those who were going to travel to some place exotic and who didn’t mind extracting a few soil samples for the love of science”. Their aim was to collect specimens for Monsanto’s agricultural prospection programmes. “You never know what you will find, or where you will find it... Everything is possible”, said Margann Miller-Wideman, Monsanto spokesperson.⁷

Other companies started to set up direct contacts with indigenous people and traditional experts in areas of great diversity and, shunning any kind of contract, paid them individual derisory sums for collecting and even sending plants that they considered useful or rare, with descriptions of their known uses.

More systematic, though by no means legal, was the biopiracy exercised historically and in the present day by botanical gardens in the North, who under the cover of scientific searches for their collections, that would supposedly benefit all of humanity, collected thousands of samples from Latin America and the rest of the South. These samples were repeatedly passed on to form part of the laboratories of multinational companies, for commercial use, patenting the compounds that were obtained from them. Some botanical gardens such as the Missouri Botanical Garden, the New York Botanical Garden and Royal Botanical Garden of Kew in the UK, are notorious for their collaboration, and even drew up contracts with large companies such as Pfizer, Merck, Phytera, Searle (later part of Monsanto and then of Pharmacia), Shaman Pharma (now Bristol Myers Squibb), DowElanco agriculture sciences and others, to provide them with samples from their collections for bioprospection purposes.⁸

Intellectual property mechanisms

The renewed interest of companies in genetic resources and indigenous knowledge from the South, the expansion of their



biological prospecting activities and the jungle in which they act (in all senses of the word), led to them also searching for ways to guarantee greater monopolistic rights for their activities and results. This was not only to protect their searching and investigative activities from other companies, but also from possible protests from affected groups or lawsuits brought by other institutions and even States.

One of the fundamental measures in this regard was the forceful and systematic lobbying of the multinational pharmaceutical industry, led by US companies, for the imposition of intellectual property regimes on living beings across the world.

It is a widely known fact that this group drew up the first draft of the chapter on intellectual property for the then GATT (now WTO) and managed to introduce the topic in the Uruguay Round. The result was the inclusion of TRIPS (trade-related aspects of intellectual property rights), whose Article 27.3(b) obliges all members of the WTO to adopt patenting systems for micro-organisms and micro-biological processes, as well as providing intellectual property systems for plant variety, through patents or *sui generis* systems. This last clause was interpreted by the majority of governments as adherence to the certification system of developers of new varieties of plants under the UPOV Convention (International Union for the Protection of New Varieties of Plants), which are not formally patents, but do have a very similar effect, especially since the laws of 1991. The TRIPS were approved in 1994 and a four to ten year term was allowed for Southern countries to implement them.

Governments of Southern countries tend to believe that if they enter into intellectual property and patenting systems, as the WTO and corporations demand, their countries will receive greater foreign investment, technology transfer will increase and technological innovation will be favoured and thus national research.

In actual fact, none of these expectations are fulfilled. According to recent studies, the application of intellectual property systems does



not have any effect, in fact promotes an adverse effect⁹. Globalisation and harmonization of patenting systems does benefit the corporations that can extend their market monopolies to more countries, and more effectively exclude potential local competitors. But foreign investment can also diminish, as corporations are equipped to protect their own technology and products in new markets, without necessarily making any transfer to the country involved, nor generating any new jobs. In some cases, in Argentina and Brazil for example, research and national development projects were discontinued in the 1990s as well as efforts to adapt imported processes to local conditions, as the acquisition of national businesses by multinational corporations (entered into the accounts as foreign investment, of course) meant that more sophisticated research was transferred to their head offices, leaving less specialized functions in these countries: national investment and technology transfer was thus affected negatively¹⁰.

A particularly illustrative case is that of agro-biotechnological research. An overwhelmingly majority percentage of this kind of research is carried out by subsidiaries of these same businesses, without any kind of technological transfer to the local country. When carried out by public institutions in our continent, it is generally financed by one of the giant corporations, the very same that benefit from the results. Likewise, there is no significant technological transferral, rather the minimum needed technology is transferred to be able to carry out fieldwork, adapting prior genetic constructions to agricultural varieties already adapted to the country, for example.

Intellectual property acts complementarily, as it is these very same multinational companies who make up the majority of those requesting and obtaining the new varieties developers rights in our own countries.

In short, despite the fact that the introduction of intellection property regimes is a very powerful instrument, and one that the majority of countries is in the process of implementing, they also lead to many problems: the wide majority of Southern countries accept



them as part of a negotiation package (believing to have negotiated to yield this in return for other aspects that benefit them, which in any case have not been fulfilled) but with a relative degree of awareness that they will not benefit from them. There are even UNCTAD¹¹ reports warning of the disadvantages of patent systems for the South. At the same time, the opposition and condemnation of many civil society organizations against such agreements has been and continues to be extensive. Nevertheless it continues to be the most powerful international “legal” instrument to impose intellectual property systems, but one that lacks legitimacy at many levels.

For this reason, other international agreements negotiated in the same periods, though seen to be less negative, went on to play an important role in legalizing and above all legitimising biopiracy. In this sense of legalization, and disguising reality, the UN Convention of Biological Diversity (CBD) plays a noteworthy role, despite the fact that the US considers it sufficiently “dangerous” never to have ratified it.

The Convention on Biological Diversity, sovereignty and the benefit sharing discourse

The CBD, in effect since 1993 after being ratified by 168 countries, has among its objectives the *conservation* of biological diversity, the sustained *use* of its components, and the fair and equal *participation* of the benefits obtained through its use. As part of this it includes the transferral of relevant technologies “taking into account all rights on these resources and technologies”.

Among the most significant clauses relevant to the subject of this article, it is established that States have sovereignty over their genetic resources, but that they must establish “adequate access” to them (Article 15). Article 8 (j) establishes that “subject to its national legislation”, the same State will “*respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their*



wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices”.

The fact of establishing that countries have “sovereignty” over the genetic resources that exist within their territory is presented as a success for third world countries, as if it were a fair revindication. Paradoxically, it can also work the other way round, for two basic reasons.

The first is that through the journeys of the first conquerors, and more recently of other travellers, scientists and botanical gardens, the largest part of “ex-situ” genetic resources (ie collections outside their place of origin), are found within institutions from Northern countries, in germplasm banks of agricultural varieties as well as in botanical gardens, aquariums, zoos and microbial collections. When the CBD declares that countries have sovereignty over the genetic resources in their territory, it automatically passes the control of resources originating from the South collected before its signature in 1993, to the Northern countries that hold them within their territory, allowing them to be sold, patented etc. Territory even continues to be “sovereign” until the moment in which each country ratifies the CBD. This fact is significant as although 83% of “in-situ” biodiversity and associated knowledge is found in Africa, Asia and Latin America, 75% of “ex-situ” resources and technology is found in countries in the North. This is not the result of the Northern countries having catalogued and collected their own resources, as in fact the large majority of the resources they hold come from the South and were collected before the CBD¹².

A second but equally relevant subject, is that the sovereignty of resources historically conserved, guarded and developed by indigenous peoples, peasant and fishing and other communities, is transferred to States. These same States have been instrumental in the legal and even warlike plundering of the cultural, economic, social, land and territory



rights of these same peoples and communities. Moreover, States' boundaries do not always coincide with the geographical location of indigenous peoples (which can be several within one State and/or extend to other States) and this means that the State is attributed with the right to trade resources and knowledge that form part of the heritage of an ethnic group that could at the same time be found in several other countries.

In the same way, although Article 8 (j) apparently recognizes the fundamental contribution and the right of these actors to resources and knowledge, they are conditioned to national legislation (once again within these same States), and establish the term “community” instead of “people”, the collective term recognized by the indigenous people themselves. This is important, as one (or several) communities can thus act as partners in bioprospection contracts, or grant any other kind of access, to resources that do not belong solely to their community or communities, but in fact form part of the collective heritage of indigenous peoples, which as already mentioned, can be found in many other zones or countries.

In this current context, and in the face of ever more public debates on biopiracy, access laws become the panacea or miracle cure to avoid “robbery”. However they only join forces with the ensemble of regulations that companies need to continue carrying out (now “legally”) their work of looting and privatising collective and public resources. Suffice it to say that no country in the North is discussing access laws to its own genetic resources, and that in fact the proposals for this kind of law are fundamentally based in countries with greater biological and cultural diversity – in the South.

In the 1990s, the so-called bioprospection contracts started, which claimed to be fulfilling the terms of the CBD. Some multinational companies incorporated concepts of consultation, legal access and “benefit-sharing”. Among the best-known early agreements (prior to the CBD, but while it was being discussed) is that of Merck with the National Institute for Biodiversity (INBio), a private entity in



Costa Rica. INBio promised to hand over 10,000 plant samples from the country, in exchange for \$1,135,000, some instruments, training and the payment of a percentage of royalties (the amount is confidential) in the case that some pharmaceutical were to be found from the samples given. The contract drawn up between Shaman Pharmaceuticals and an indigenous settlement from the Amazonian jungle in Ecuador was also “innovative”; the company agreed to provide some infrastructure improvements and a percentage of future royalties in exchange for obtaining samples and the knowledge about the uses of plants from the region. In both cases the blessing of authorities in the countries involved was given.

Other multinationals took up the example, with some variations, and started to apply similar schemes for involving indigenous communities and/or research centres or local universities, in exchange for some kind of “benefit-sharing”. In this way they managed to obtain knowledge as well as plant, micro-organism, insect and other samples more easily and with a greater information yield than any other way, which not only would have cost them more, but could never even have been achieved. In addition, they got legal coverage in countries where they were drawing up this kind of contract.

In any case, the scheme of plundering resources is the same, and for this reason we could suggest calling this kind of bioprospector “corsairs” instead of “pirates”.

In the era of piracy on the high seas, the English crown gave out looting permits to other vessels that plundered in favour of the crown. These were known as corsairs; they did the same as other pirates, but with the permission of authorities, to whom they were then required to account for all their earnings. In this way the famous pirate known across the world as Drake became called Sir Francis Drake in England, and became a “respectable” person.

One of the more refined ways of facilitating this kind of “legalized” agreement was constituted by the International Cooperative



Biodiversity Group (ICBG). The ICBG's programmes are managed by a consortium of federal US government agencies, including the National Health Institutes, the National Science Foundation and the United States Department of Agriculture (USDA). It grants donations to public and private research institutions that have bioprospection/biopiracy programmes in Southern countries. According the ICBG itself, its goals are the promotion of the discovery of pharmaceuticals derived from natural resources, the conservation of biodiversity and sustained economic growth in developing countries. They have drawn up a series of guidelines on the need to obtain consent from communities and local authorities and to establish ways of "fair share" of benefits¹³.

The typical structure of the ICBG is that host groups that receive donations are made up of a) US universities and/or botanical gardens (who are always the project coordinators and those who receive all the information and project materials); b) universities or research centres in the country where the bioprospection is to be carried out; c) in some cases international NGOs (WWF and Conservation International, denounced for their biopiracy activities in many countries); and d) a commercial partner, generally pharmaceutical or agro business multinationals. Glaxo-Wellcome, Bristol Myers Squibb, Shaman Pharmaceuticals, Dow Elanco Agrosiences, Wyeth-Ayerst, American Cyanamid, Monsanto have all participated in ICBG projects.

The operating structure of several of these projects has incorporated indigenous groups locally, through a national research institute of international conservationist NGO. Such groups provide their knowledge and facilitate the collection of samples, are promised future compensation as a modest form of reward, and in some cases are given the chance to be owners of the patents, which they then license out to third-parties. This is one of the most negative impacts, as it introduces elements that are completely external and harmful to their own cultures.

In this way the ICBG use public money to subsidize multinational companies, adopting altruistic language about the search



for medicines for all humanity and the cultural rescue of indigenous peoples. The results obtained cost them far less than what the National Health or Cancer Institutes and others spent previously in carrying out these “bioprospection” activities for themselves. Results are left with the US university partners and the enormous majority of the economic benefits stay with those companies that participate in the projects¹⁴.

The business context

As the genetic resources and knowledge associated to them make up the fundamental raw material of the industry applied to the health and food sectors, among others, it is important to be able to recognise those that manages and dominates these markets.

According to ETC Group research¹⁵, information available for 2001 shows that:

- The 10 biggest pharmaceutical companies control approximately 48% of the value of the world market, calculated to be \$317 billion.
- The 10 biggest veterinary pharmaceutical companies control 60% of the value of this market, which amounts to \$13.6 billion.
- The 10 biggest seed companies control 30% of the commercial seed market, amounting to \$24 billion.
- The transgenic seed of one single company (Monsanto, now property of Pharmacia) was used in 94% of the total area sown with transgenic crops in 2000.
- The 10 biggest agrochemical corporations control 84% of the market value of agrochemicals, calculated at \$30 billion.
- The 32 main supermarket chains control 34% of the global market of foodstuff distribution, with an estimated value of \$2.8



trillion. Of these 32, only 10 control 54% of the sales total, with a value of \$513.7 billion.

One of the most relevant pieces of information is that the main companies of each heading simultaneously participate in several of the others, in this way constituting true genetic giants (see the following table). The number indicates the positioning of main companies in the sector on an international scale.

Classification by sector based on sales for the year 2000, in US dollars

Genetic Giant	Agrochemicals LS	Seeds	Pharmaceutica
SYNGENTA (Novartis +AstraZeneca)	#1	#3	#4 Astra Zeneca #7 Novartis
PHARMACIA (inc MONSANTO)	#2	#2	#8
AVENTIS	#3 for sale	#10	#5
BASF	#4	Not classified	Sold its pharmaceutical division for \$6.9 billion
DUPONT	#5	#1	Sold its pharmaceutical division for \$7.8 billion 8/01
BAYER	#6	Not classified	#18 for sale
DOW	#7	#7	Not classified

Source: ETC Group, 2001

Moreover this exists in a world in which during the last 10 years we have witnessed an astonishing concentration of corporate power that stretched across practically all sectors of the global economy. The world value of corporate mergers and acquisitions increased from \$462 million in 1990 to over \$3,5 billion in the year 2000.¹⁶ Last year, business carried out outside national frontiers amounted to 35% of



mergers and acquisitions. The global value of mergers and acquisitions in the year 2000 was equivalent to 12% of the total of world economic growth.

It is estimated that countries of the OECD are owners of 97% of patents, and that global corporations possess 90% of all technology and patented products¹⁷.

A study carried out by Sarah Anderson and John Cavanagh, of the Institute for Political Studies, finds that of the 100 biggest economies of the world, 51 are corporations and 49 are countries¹⁸. A comparison between the corporate sales and the GDP of countries reveals that General Motors is bigger than Denmark, Wal-Mart is bigger than Norway and General Electric greater than Portugal.

Corporations are using their economic power to win enormous political power. While governments turn into the servants of corporations, rather than serving citizens, democracy and the meaning of national and international legislation is rendered hollow.

Some conclusions

Biopiracy, through its diverse mechanisms, is not just stealing of previously public and collective resources in order to privatise them through intellectual property systems, but is also a way of creating competition and conflict among the local communities and third world countries that have these resources. Furthermore, it suffocates the basic cultural elements of indigenous peoples and rural communities, introducing commercial and privatisation systems in the place of systems of generosity and free exchange that have been the historical base of cultural and biological diversity. The experience also shows that “benefit-sharing” agreements, whether or not the system in itself is incorrect, do not even fulfil the terms in which they are set out. Neither are there effective ways to control the final use that companies and institutions that sign contracts make of the resources they obtain.



Nor is it about these companies carrying out “research” for the benefit of humanity, as intellectual property systems inhibit rather than stimulate research; investigation is fundamentally subjected to commercial objectives, searching for profitable products for companies: for those who can pay for them rather than those who need them.

In the current context of corporate power and the privatisation of research and gene banks, public research also ends up handing over its results to the private sector, whether directly or through market domination.

Intellectual property systems as such are inherently unjust and contravene, for example, principles set out in the Universal Declaration of Human Rights, such as Article 27, which states: *“Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits”*.

The true system of conserving and sustainably using biodiversity and “sharing benefits in a just and equal way” resides in, among other things, not permitting any kind of intellectual property on living beings or technologies, and in the effective and integral affirmation (that is to say economically, socially, politically and culturally) of the rights of indigenous, peasant, fishing, forest communities, including the right to land and territory.

As far as this is not the case, all bioprospection will continue to be biopiracy.

Notas

- 1 This article, although finally endorsed by the author who assumes responsibility for its content, is the product of collective research and drafting by the ETC Group (Action Group on Erosion, Technology and Concentration), previously known as RAFI. For information on this subject and the ETC Group, visit <http://www.etcgroup.org>. The author silvia@etcgroup.org is particularly grateful for the contributions of Julie Delahanty, Hope Shand and Pat Mooney. Some of



- the concepts used are part of the document “Biopiracy in Mexico: the tip of the iceberg”, coordinated by Andrés Barreda and the CASIFOP team, Mexico, to whom I also thank for their ideas and generous collaboration.
- 2 For more information on this case, see “Monsanto against farmers: the Percy Schmeiser case”, Communiqué 5/4/2001, RAFI, ETC Group, <http://www.etcgroup.org>
 - 3 Alvarez Febles, Nelson / GRAIN (2000) *Biological and cultural diversity: Roots of rural life*. Complete document to be found at <http://www.biodiversidadla.org/documentos/documentos105.htm>
 - 4 Shand, Hope, (1997). *Human Nature: Agricultural Biodiversity and Farm-based food security*. p13 Rome, Italy: FAO
 - 5 Figures taken from “Gallery of shame of bioprospectors....or Guess who’s coming to pirate your plants! Bilateralism and Multilateralism”, *RAFI Communiqué*, November, 1994.
 - 6 RAFI, (1994) *Declaring the benefits: the North’s annual profit from international agricultural research*. Occasional Paper Series. Vol.1, No.3. Winnipeg, Canada. See also *The benefits of Biodiversity. 100 examples of the contribution by Indigenous and Rural Communities in the South to the Development in the North*. Occasional Paper Series. Vol.1, No.1, 1994. Available at <http://www.etcgroup.org>
 - 7 Heine, Kathy, “Treasure in the Jungle”, *Monsanto magazine*, No. 1, April, p. 22
 - 8 “Pharmaceutical companies make offers for Northern botanical gardens’ collections in an attempt to evade the Convention on Biodiversity”, *RAFI Communiqué*, July, 1996.
 - 9 Kumar, Nagesh, (1996) “Foreign Direct Investment and Technology Transfer in Development: a perspective on recent literature”, United Nations University.
 - 10 Nadal, Alejandro (1999) “World Investment Report Flawed on many fronts”, *South-North Development Monitor*, (SUNS), Number 45 17. Geneva, Switzerland
 - 11 United Nations Conference on Trade and Development.
 - 12 See “The geopolitics of Biodiversity: a biodiversity balance sheet”. *RAFI Communiqué*, Jan/Feb 1996. <http://www.etcgroup.org>
 - 13 More information on this programme available at: <http://www.nih.gov/fic/opportunities/icbg.htm>
 - 14 RAFI / ETC Group has done follow-up and published several reports on different ICBG projects and the resistance to them from local organizations in Mexico, Peru and other countries around the world. Apart from various communiqués about the Maya ICBG in Chiapas, these annual “Biopiracy Update” reports from 1994 onwards can be consulted at: <http://www.etcgroup.org>
 - 15 See “Globalisation S.A.”, ETC Group Communiqué # 71, July/August 2001, <http://www.etcgroup.org>
 - 16 Thomson Financial Services, “M&A in 2000: Fast start... fading finale”, 3 January 2001. www.tfsd.com



- 17 UNDP Human Development Report 2000, p. 84
- 18 Anderson, S. Y J. Cavanagh *Top 200, The Rise of Corporate Global Power*, Instituto de Estudios Políticos, 4 December 2000.



Paradigmatic Bioprospection Contracts: Between Promises and Reality*

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The objective of this document is to contribute to the critical discussion of bioprospection agreements that began to proliferate in this continent a little over ten years ago, promising new development and welfare for all through the conservation and use of tropical ecosystems. For this purpose, I have divided the work into four parts: the first provides a brief historical context of the term “bioprospection” and the way its principles took shape through the INBio-Merck contract in Costa Rica. The second part analyzes different types of bioprospection, according to the ways in which they are carried out/executed and their aims. These characteristics take us to the third part, which is about establishing a typology of the contracts of the last ten years. Finally, I will evaluate the extent to which the promises of different bioprospection models are complied with or not and present some conclusions.

1. The Historical context of Bioprospection and the Inbio-Merck Model

At the beginning of the 1970s, it was argued that one of the most powerful reasons for conserving tropical forests was the countless

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number of potential medicines to treat as yet incurable illnesses to be found within them. However, almost two decades later, towards the end of the 1980s, Thomas Eisner, an entomologist from Cornell University in the USA, thought a basic support was missing for this argument to be able to pass from being a plain declaration to a practice.

In early 1989, Eisner believed he had arrived at the solution to this problem, when he imagined the case of a tropical country being associated to one of the large pharmaceutical companies in order to systematically shift through its native species in search for potential medicines. The guest company would enjoy immediate access to the wealth of the tropical forest¹ and the country of origin would receive a part of the earnings for allowing such access, providing the raw material and adding value to it. This economic incentive would in itself help conservation of the forest, concluded Eisner. What would also contribute to conservation would be the “non-invasive” techniques used, given that it would only be necessary to extract tiny quantities of biological, plant, animal or micro-organism material, thus no harm would be caused to the forest.

Eisner called this searching for new resources for industry “chemical prospection”, which derived from the existing concept of mining or oil prospection (Lyons 1991). Later the term changed to “bioprospection”² as the systematic search for new sources of sealable products deriving from elements of biodiversity opened up to consider not just chemical extracts from wild and domesticated plants, animals and micro-organisms, but also their genetic properties.

Some people suggest that the practice of bioprospection has existed since prehistoric times, but we must understand clearly that Eisner’s concept went further than that of the hunt for natural products for use by mankind, and incorporated the idea of sophisticated and modern work³ carried out jointly by a highly industrialized company and a tropical country. This association would justify sharing earnings and incentives with the country of origin in order to support *in situ* efforts towards the conservation of tropical ecosystems.



Chemical prospection, as Eisner conceived it, was first put into practice through the agreement signed in September 1991 by the powerful US pharmaceutical company Merck and the National Biodiversity Institute (INBio) in Costa Rica, in which Eisner played the role of intermediary (Lyons 1991:27). This agreement was set up before the signing of the Convention on Biological Diversity during the World Conference in Rio de Janeiro in 1992. This Convention did not even mention the word “bioprospection” and became a model to be followed.

The INBio-Merck agreement and later agreements are presented as models of joint efforts between countries in which each side wins in both economic and ecological terms. Behind this model is a clear ideology, whose time for discussion is not the present, but which is shown in the ideas presented below:

- In order to save the forest it must be sold, as it is the market that offers the best incentive to maintain biodiversity.
- It is necessary to transfer resources in the public domain to private hands to avoid the so-called “tragedy of common goods” which suggests, in short, that when common goods belong to everyone and no-one there is a tendency not to care for them, and thus for them to be eroded or made extinct.
- The model appears to continue supporting the old recipe of the sixties and seventies that indicates that, for under-developed countries to get out of their situation, they need to follow the example of industrialized countries. In this concrete case, sustainable development will be achieved with, among other things, the proliferation of contracts such as the one between INBio and Merck. This will mean the transferral of technology from industrialized countries as well as the financial income granted by the provider country for the sale of forest resources. In this way, the whole industrial process, given time, will be able to be carried out in under-developed countries, which ironically are the richest in biodiversity.



2. Types and aims of Bioprospection

In the ten years following the signing of the INBio-Merck agreement many trial agreements have been written, some closer to the Costa Rican model and others with new proposals. In order to be able to evaluate the fulfilment of all that bioprospection promised and promises, or whether in fact it has proved to be a new kind of economic and cultural domination, we believe it important to analyse these agreements in detail, establishing a typology based on similarities and differences to then determine the points in which peoples and countries rich in biodiversity lose control of their resources, in spite of the promises made.

Practices have shown us that the social actors involved in the agreements as well as the conditions for handing over materials, access frequency, costs and the need for re-supplying, among others, differ depending upon the **type** of bioprospection and the **aim** to which it pretends. Let us look more thoroughly at the relationship between the types and aims of bioprospection from which different arrangements of social actors derive.

2.1. According to the type of bioprospection, which can be random or intentional⁴.

- a) Random bioprospection is the act of collecting plants and animals to “see what can be found”. There is no higher degree of deliberation in planning what will be collected. This method has a low percentage of success but all the same through this method the National Cancer Institute in the USA discovered Taxol, which is used to treat breast and ovarian cancer.
- b) Intentional bioprospection can be one of three types: the **phylogenetic**, through which the line of close relatives of plants that have been detected as having pharmaceutical interest is sought. The **ecological** type searches for plants or animals that



live in particular habitats and present characteristics such as immunity to certain predators, or observes the behaviour of micro-organisms in extreme conditions, such as in thermal waters. Lastly, the **ethnobotanical** type is oriented by traditional knowledge. (Cfr. Balick y Cox 1997:37-38);

Some think that the most effective bioprospection model is the ethnobotanical (see table), while others defend the idea that at present the development of new pharmaceutical products depends more on phylogenetic information (Reid 1994:53). It can also be the case that the techniques are combine: they can be guided first by traditional knowledge and then pass through a phylogenetic search. Whether it takes one or another form, what is sure is that the possibilities of a compound turning into an effective pharmaceutical product are very limited – oscillating between 1 in 80,000 and 1 in 250,000 (Feinsilver 1996:126) – for which reasons companies are currently directing their efforts towards botanical medicine, dietary and nutraceutical supplements⁵, which require less control and thus are easier to introduce on the market.

2.2. According to the aims, bioprospection is carried out to find new medications and agricultural, chemical or industrial products

3. Classic Examples of Bioprospection and Social Actors

In this section, under the previous classification, I will typify classic examples of bioprospection and the social actors that take part in them. I will start with models that are said to be “exclusively scientific”, which theoretically and automatically eliminate the participation of local communities, claiming that traditional knowledge is not needed in exploration work based on phylogenetic or ecological techniques. Among these models we have also those whose aim is to find pharmaceutical or industrial products (examples: INBio-Merck, UNAM-Diversa), and those who are looking for new or better agricultural products (US Department of Agriculture).



A second type of bioprospection is one that uses ethnobotanical guides; these can be divided up into those related to individuals in a community or indigenous peoples in an “institutional” way (for example, the so-called ICBGs), and those directly related to communities (eg. Shaman Pharmaceuticals). These projects seek pharmaceutical products but also natural and nutraceutical medicine, now known as “dietary supplements” or “dietetic”.

At the end of this section I will briefly analyse the differences and similarities in these models.

3.1. *Main Actors in “Scientific-Pharmaceutical-Industrial” Models*

All contracts of this type are governed by the Convention on Biological Diversity. In the absence of national legislation on access in Mesoamerican countries⁶, the contracts drafted up to the present have basically been achieved thanks to political influences of national signatories and with agreements guided by their own initiative.

PARTICIPANTS:	INBio-MERCK AGREEMENT	UNAM-DIVERSA AGREEMENT
Southern research centre	National Biodiversity Institute (INBio)	National University of Mexico (UNAM)
Northern biotechnology company	Merck Pharmaceuticals	Diverse licences to:
Transnational company	Merck Pharmaceuticals	Dow Chemical, Roche Bioscience, Sigma-Aldrich, etc.

In the case of the INBio-Merck agreement, there is no intermediary biotechnology company because Merck is in charge of the last two stages of chemical prospection and the eventual sale of any successful product once INBio has carried out the initial stages. Using this model, samples were taken from public conservation areas, an



advance payment was set up of which 10% was given to the Environment and Energy Ministry and the rest was administered by INBio, a private association. Merck also transferred some technology to INBio so that it could carry out the task efficiently. In exchange, the US company received a determined quantity of samples of interest, and retained the intellectual property rights of future products.

As far as the UNAM-Diversa agreement is concerned, the latter is a relatively small biotechnology company, with patented technology for the extraction of microbes in so-called “extreme ecosystems”, such as jungles, deserts, volcanoes and geothermic sites. Its method employs the cloning, sequencing and expression of compounds purified directly from environmental samples, in a way that means they only need a small sample taken from a single collection. Neither do they need to establish microbe cultures.

The contract states that Diversa would give UNAM equipment worth \$5,000 and would pay \$50 per sample, also promising them a 0.5 payment of royalties on net sales of a future pharmaceutical-type product on the market, and 0.3% if it was a chemical product. The contract also alludes generally to intellectual property and technology transfer. (Text of the Popular Condemnation for the UNAM-Diversa Bioprospection Contract).

A previous similar contract was made between the same company, Diversa, and the Yellowstone National Park in the USA, under which the conditions for the Park were much more favourable: the promised payment was of \$100,000 over five years, and the promise of royalties fluctuated between 0.5 and 10% (The Edmonds Institute 1999; Pollack Andrew 1999). In Costa Rica, Diversa also signed an agreement with INBio in 1995, renewed in 1998, in which it is stated that INBio will use its own techniques and the technology patented by Diversa to look for structural enzymes and proteins of interest to biotechnology, crop protection and pharmaceutical products. INBio guarantees that it will not use this technology to collect and process samples for other companies. All DNA sequences that INBio isolates



for Diversa will become property of Diversa, and in a magnanimous gesture, the agreement states that all the micro-organisms collected from sites will continue to be property of Costa Rica (!) (See: www.biodiv.org/doc/meetings/COP-6).

As Diversa only starts the search process and does not bring to completion the subsequent industrial or pharmaceutical products, once it can count on the control of the resources, which is to say the intellectual property of the microbial genomes of interest, they licence them out to the highest bidder. In 1998, it was reported that Diversa had entered into strategic alliances with DowChemical Co., Finnfeeds, Roche BioScience and with Sigma-Aldrich Co. (BusinessWire: HealthWire 1998). The enzyme of a microbe from Yellowstone is producing yearly sales of more than \$100 million to the Swiss company that owns the patent (Milstein 1999). In 1999, Diversa had discovered and obtained more than 500 enzyme patents.

A point in common to the two bioprospection models analysed here is the absence of public entities from the USA, from where Merck and Diversa are from, and the complacent *laissez-faire* style of southern governments towards this type of agreement. As far as civil society is concerned, the position of Costa Rica has hardly been effective in questioning the bioprospection that continues to be tolerated in the absence of approved Access Laws. In the case of the UNAM-Diversa agreement, one group of non-governmental organizations have started to take a very active role denouncing and requesting its annulment from the Federal Environmental Protection Prosecutor (PROFEPA), on the grounds that neither UNAM nor its biotechnology institute “have the power or the right to rule on Mexico’s genetic resources as it does not have control over the, nor are they agents of those who having such control, could have conceded it to them” (www.ceccam.org.mx).

Outside the Mesoamerican area, in the USA, civil society also successfully opposed the agreement between Diversa and Yellowstone Park. In 1999, a federal judge suspended it based on its environmental impact, but also because “The introduction of commercial



bioprospection in national parks represents a dramatic change in the policy of the Parks Service, in Yellowstone and more generally” (Milstein 1999:2).

3.2. Main Actors in “Scientific-Agricultural” Models

Agreements of this type will soon be governed by the International Treaty on Plant Genetic Resources for Food and Agriculture, known as the Seed Treaty, now signed by 52 countries and awaiting ratification by the respective Congresses. For the moment, access has continued to be granted widely in the area without the defined participation of the provider State under whose sovereignty they are found, but instead through arrangements between parties. In the case of *ex situ* resources (collections, botanical gardens, herbariums), a type of contract known as an Agreement of Material Transfer is used; in the case of the hunt for *in situ* resources for agriculture, the procedure is similar to that of pharmaceutical bioprospection, that is, under agreements or contracts between private individuals, whether they be institutes or individual collectors.

We will now analyse an access request to search for wild potato material with the objective of improving domesticated varieties. The location is a bi-national area in the frontier between Panama and Costa Rica and the relationship is established using the following outline:

In the previous access request, ignoring the fact that it is the provider country that should establish the rules, the interested parties get a head start by laying down the following conditions:



NORTHERN PARTICIPANTS

- United States Agricultural Department
- Academy of Science which finances
- Collaboration of 2-3 European research institutes
- International Center for the Potato

CONTRACT INTERMEDIARIES FROM THE NORTH

- University from USA or private researchers, for guiding the expedition
- field guide: company from the North mix of eco-touristic operator and researchers guide, settled in the Southern provider country's access zone

THESE WOULD SUBCONTRACT IN THE SOUTH TO

- Research institute from Costa Rica
- Research institute from Panama, or
- Local researchers (individuals)

1. Duplicates will go to each country participating in the exploration; in this case the USA, two European countries, the International Potato Agriculture Centre, Costa Rica and Panama.
2. The national system of phytogermplasm in the USA will multiply and administer the collected material
3. The management of intellectual property rights will be influenced by the multilateral system of the Seed Treaty, namely: that resources will be free and intellectual property rights will not be conceded on the parts and components of material "in the format received"; later they will become property of whoever modifies them.

This case shows us that certain concrete problems start to take shape, for example:



- Will the search for a theoretically “wild” relative to the potato to improve a plant that has been domesticated for hundreds of years and that is of great commercial interest be governed by the multilateral system of the FAO or through the bilateral guidelines of the CBD?
- How is it to be decided whether the material found is “wild” or product of the care and knowledge of the surrounding communities.
- Why are the interested parties those who will decide where the duplicates are to go and who is to multiply and administer them?
- Why are these same interested parties those who will lay down the rules of the granting of intellectual property, not the country that provides the resource together with the communities in which access is materialised?

Answers to these questions are urgently needed as permits such as the last one continue to be requested owing to the fact that phyto-improvers and genetic engineers continue to use original material from many of the crops of highest demand in the world, despite the advances of science.

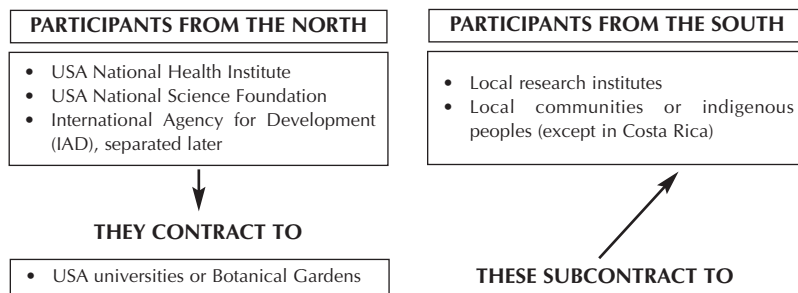
3.3. Main Actors in Institutional Scientific-Communitarian Models

In this model we will analyse the case of the International Cooperative Biodiversity Groups (ICBGs), characterised by their use of popular or indigenous knowledge mediated by a scientific effort with participants from the North as well as the South. Their work began to be developed in 1991 in the form of “research consortiums” for development financed by the US government. They had several interdependent aims: conservation of biodiversity, economic growth and human health. All of this was carried out through the hunt for plant- and local knowledge-based pharmaceuticals, with the exception



of the Costa Rican consortium in which, they insisted, the process followed no paths guided by ethnobotany (Feinsilver 1996:120).

Three consortiums worked bilaterally in Costa Rica, Peru and Surinam; two others worked multilaterally: in Latin America Argentina, Chile and Mexico took part; in Africa, Cameroon and Nigeria. Years later, in 1998, another agreement, known as the ICB-Maya, was signed in Mexico. Its typical organization was as follows:



As shown above, in the first instance, public institutions from the US contract universities or botanical gardens from the same country as collectors in charge. These subcontract research institutes from the source country who in turn will make contact with local communities in the search for plants or animals of interest. Each consortium received between \$400,000 and \$475,000 annually over five years, training was given to students and technicians and compensation was promised in the case of a successful drug being registered. Through this process they aimed to register traditional medicine practices, and they would prepare inventories and methods to extract material of interest in a sustainable fashion for specific projects. (Grifo 1996-a, quoted by Feinsilver 1996:120).

As far as intellectual property rights go, the panorama was not clear from the beginning. Francesca Grifo, Manager of the ICBG programme, stated in a presentation made in 1994 that depending



upon the country in which the agreement was being carried out and the stage at which the process was found, there could be commercial secrets, minor patents (if they existed), registered trademarks etc. She also recognised the problem of this kind of “protection” in the case of using indigenous knowledge. Also indicated, superficially, was the point that:

These agreements would mitigate the tensions between traditional scientific ethics, which defends the public right to access information, and the understandable right of commercial partners to keep all information that could have a commercial value as confidential while the protection given by the patent is pending. (Grifo 1996-b:17-19).

Subsequently, the directors of the ICBGs recognized that intellectual property rights are of no use in recompensing traditional knowledge, for which reason they agreed to grant fair and reasonable incentives to the communities in which the bioprospection is carried out, through contracts that guaranteed the flow of benefits as a crucial incentive to stimulate the conservation of resources in danger of extinction. (Grifo and Rosenthal 1996)

In bioprospection projects separate from those of the ICBGs, the National Health Institutes and especially the National Cancer Institute, have been changing the terms of agreements with provider countries. Very recently, in August 2002, as a result of pressure received, the National Cancer Institute modified its Memorandum of Understanding with the Provider Country and now recognises that protection through patents for all of its inventions will be developed together (NCI 2002). As can be seen, and in spite of the change in tack observed, it is the Institute that lays down the rules of the agreement, simply imposing on the provider country the obligation to seek patents, without finding out if this is the protection medium that they were looking for or not.

It is important to note here that the National Health Institutes have taken a leadership role in plant collecting across time, with around 50,000 samples collected between 1986 and 1999 in Africa, Madagascar,



Central and Southern America and South-East Asia. Contracts have been drawn up with the botanical gardens of Missouri, New York and the University of Illinois, who then, following the ICBG model that I comment upon here, subcontract to local institutions in the South. During this same period, 1986-1999, they also collected over 10,000 marine invertebrates and algae in the Indo-Pacific region, helped by the Harbor Branch Oceanographic Institute, the Australian Institute of Marine Science, the Universities of Canterbury and New Zealand, and the Coral Reef Research Foundation. (DTP/NPB-NCI)

Once they place all these samples in their deposits, research institutes or companies interested in accessing this enormous collection, must sign a Materials Transfer Agreement with the Institute, for the following reasons:

The National Cancer Institute considers the Deposit of Natural Products to be a national resource (...). Access to these programs (Open Repository Program/Active Repository Program) is subject to signature of the Materials Transfer Agreement in which the rights of all parties are protected (DTP/NPB). (Emphasis added)

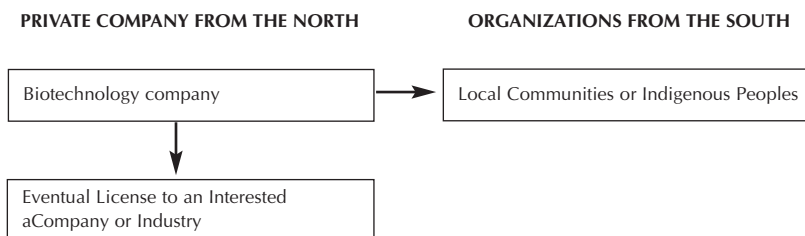
In this model we can see that the presence of public institutions from the north, in this case from the USA, fulfils a double function: on the one hand they certainly fulfil a social function through promoting research into illnesses such as cancer and AIDS; but on the other hand they are subsidising corporate research of medicines with public money (Feinsilver 1996:121). These institutions only carry out the search, the preliminary studies and the depositing of materials for them to be subsequently transferred to companies for industrialization and sale. The principal objective of these companies is profit, which has to reach such levels that although a medicine may have demonstrated its efficiency, if it does not reach a minimum level it is taken off the market. On the other hand, and under the same premise of profit, they fix prices of medicines whether or not they remain outside the possibilities of those that need them.



3.4. *Main Actors in the Ethnobotanical Model of Direct Relationships With Communities (Shaman Model)*

At the end of the last decade, a group of researchers in the US formed a small company called Shaman Pharmaceuticals, with the intention of doing things differently from the large pharmaceutical corporations. Steven King, Vice-President of Ethnobotany and Conservation in Shaman Botanicals stated that: “Large companies do not want to share their earnings with countries and cultures, and do not want to negotiate these contracts with countries. They want to have complete control over the processes” (O’Connor 2000).

Shaman started its work soon after signing the Convention on Biological Diversity, under the philosophy of carrying out bioprospection activities on a direct understanding with indigenous communities in a way that would mean that the contributions made by this company for taking advantage of their resources and knowledge would get to them effectively. The model they employed is as follows:



As can be seen, it is a simple model that does not eliminate the condition that the biotechnology company, in this case Shaman Pharmaceuticals, will control the patent of potential products and will licence the future sale of derived products to a third company of greater size

Despite its good will, the agreements between Shaman and indigenous peoples in Ecuador were strongly criticized for their unilateral terms and the scarce benefit they provided to the indigenous



peoples. On the other hand, although they invoke the Convention on Biological Diversity, in actual fact they were lacking on one of their fundamental principles which is to initiate access with the approval of the nation state under whose sovereignty all the resources of a country fall. Finally, the medicines obtained through these efforts— for respiratory and viral diseases, herpes and chronic diarrhoea produced by AIDS – did not pass the last tests of the US Food and Drug Agency (FDA) and Shaman Pharmaceuticals went into liquidation on declaring itself incapable of continuing to face its economic commitments.

What has Happened After ten Years of Bioprospection Following the CBD

The following are some aspects seen from the side of the executors of the models under analysis, especially of the ICBGs, which were subject to evaluation in 1997⁷.

- The ICBG Programmes report to have contributed to the training of professionals from the south, among this through short courses in which more than 425 people have taken part. (NHI 1997)
- Some programmes have contributed to the development of infrastructure, buying of vehicles, computers, laboratory equipment among others.
- They have published documents, chapters of books, summaries, databases, computer programmes on biodiversity, the chemistry of natural products and on policy around this subject.
- The ICBG evaluators recommended in 1997 that they start another cycle of funding of at least five years as some of the programmes found themselves making inroads to the discovery of new medicines. Moreover, in all cases critical biological information had been developed.



- The ICBG evaluators also pointed out that the process had allowed the integration of modern discovery of medicines with traditional methods.
- Nevertheless, they also point out that in order to ensure the continuous participation of ICBG partners in the revision of mechanisms and processes, they must with no exception, preserve the confidentiality of all information under private property, such as chemical structures and biological information, and should not endanger the patentability of the discoveries (NHI 1997).

It is now important to contrast the previous perceptions with others seen from a different perspective:

- Almost 11 years have passed since the signing of the INBio-Merck agreement and as yet no successful product derived from the bioprospection contracts analysed here has been reported.
- The prolonged nature of the search process for medicines is making the objectives of bioprospection change towards the hunt for fragrances, cosmetics, agricultural products (pesticides and natural herbicides), veterinary medicines, dyes, natural medicine products, dietary and nutritional supplements.
- Pharmaceutical companies can be found looking for other options such as combination chemistry and gene therapy, while strong voices are heard about the destruction of myths around bioprospection as a development and conservation process.
- In spite of the courses given to southern researchers, the technology transferred from the North is not the latest technology, and if it is shared, such as in the case of Diversa, it comes under the premise of payment of technological interest and under intellectual property laws.



- The least benefited are indigenous peoples and local communities who, in a best-case scenario, have generally only received a payment for samples and the work of looking for them.
- Disputes and differences between communities and generations within the same community have arisen.
- No matter how positive the ICBG evaluators consider the integration of modern work with traditional methods, it is certain that an irreconcilable conflict exists between traditional knowledge, cultural and survival aims, and the knowledge promoted to obtain products orientated to world commerce.
- Medicines, such as those for AIDS, are sold at prohibitive prices for those that need them and, with the exception of the ICBGs, all the other projects do not propose the search for medicines that will solve third world diseases.

Conclusions

In all the bioprospection models revised in this work there are differences in approach, use of techniques and participation of different social actors. Nevertheless we also find a series of similarities that allow us to outline and establish some conclusions on bioprospection as it is used today:

- The lack of trust towards southern research institutes of northern organizations starting the bioprospection process is noteworthy, as they establish responsibilities and operate with northern intermediaries who in turn subcontract to southern research institutes or universities at inferior prices, with the exception of Diversa and Merck who contract directly to INBio or UNAM, and Shaman which operated directly with communities.



- Models are thought out from north to south, from above to below; market logic and the rules, mechanisms and limitations that it imposes shows that what counts most is earning rather than social wellbeing or nature conservation. So much so that people continue to think, as in the times of Christopher Columbus, that we, the inhabitants of tropical lands, are white sheets upon which any essay written from the perspective of others can be dictated.
- In all cases, northern organizations demand control of intellectual property and on doing so, turn themselves into the real owners of the resources with complete authority to keep them at their disposal.
- The Convention on Biological Diversity clearly asks countries that are rich in biodiversity to facilitate access to their resources, and industrialized countries to share their technology. Ten years of experience show us that the pressure to comply with these requests is only received by tropical countries, to whom the explicit demand is made not to hinder access to resources and to accept the imposition of intellectual property upon products derived from them. On the other hand, industrialized countries are not questioned for the barriers they place on access to the patented technology that they transfer with great limitations and under the terms of intellectual property rights and technological interest which is applied at cost price.
- The sovereignty of states over their natural resources is questionable in the way the Convention on Biological Diversity is being implemented tacitly and explicitly, subordinating States to the whims and fancies of the market and impositions of the World Trade Organisation.
- Evidence from several fronts shows that the contracts are in no way fair and reasonable. One of the most visible fronts can be found in the prices that northern countries and their companies



put on the samples, the salaries they pay to local scientists, and the percentage of royalties when they exist. Less tangible is the one observed when these same countries or companies add to the control they already have on scientific and technological advances, the control of products deriving from the resources of biodiverse countries once they are extracted from them to be synthesised, domesticated or deposited in germplasm banks, collections and botanical gardens. The other control mechanism exercised is through control of intellectual property which is generally demanded by them in their own favour and under their rules. With this they enjoy a closed circle on raw material, science, technology and derived products.

- Bioprospection, as a hunt or exploration for new medicines, veterinary, agricultural and nutritional products is not bad in itself. The problem is the current mode of production in which is immersed the distortion of its aims and the conditioning of the methods used to achieve them. In this way, however much goodwill the designers of the models seen here had, or the apparent achievements reached, bioprospection loses its way on the path to sustainable development and degenerates the objectives of the Convention on Biological Diversity.
- Thus if I consider that bioprospection is not bad in itself, but rather it is the models currently underway that are, what corresponds is to make a 100 degree turn in its design and conception. This means opening the field for bioprospection managed according to the needs and perspectives of the very caretakers and multipliers of biotic resources and not from the perspective of those who make profits from them. There is no doubt that I am talking of a long, difficult and painful path, but with this basic principle in mind it is worth starting to walk it.



Notas

- 1 The elements and components of tropical forests are interesting for bioprospectors as they are particularly well endowed with chemical defences against the innumerable predators that they have to repel. It is not out of chance that a quarter of all prescribed medications in the USA are based on plant- and microbe-derived substances or are synthetically derived from such sources (Joyce 1991:38).
- 2 A preliminary combing shows that Monsanto was the first to use the word "bioprospection" when in 1991 it signed a multi-million dollar three-year agreement with botanical gardens in Missouri for the collection of micro-organisms from the soil as well as plants (Joyce 1991).
- 3 The first collection and initial sifting phases would be carried out in the country of origin, and the following phases, technically more sophisticated such as purification and characterization, would be carried out in the industry's home country (Eisner, Thomas 1989-90:32).
- 4 The type of bioprospection to which I refer is basically of plants; the investigation of the working methodology in the case of animals and especially marine resources is still to be done.
- 5 Nutraceuticals are nutritive plants (antioxidants) used in preventative medicine (Feinsilver 1996, quoting The Lancet 1994)
- 6 Mesoamerica is made up of Mexico, Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica and Panama.
- 7 An evaluation of the INBio-Merck agreement after six years of its signing can be consulted in: Rodríguez S. and Camacho, A. 2002.

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Agreement between Awa Federation-Ecuador with the U.S. National Cancer Institute: Ecological debt for Bioprospection*

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The home of the Awá nationality is found in northwest Ecuador and southwest Colombia, on either side of the frontier. The Awá territory is made up of wooded ecosystems, found in the last fragment of western tropical forests, in the Chocó biogeography.

The region covers 5,000 Km² and is spread over the Carchi, Imbabura and Esmeraldas provinces, but recognised Awá territory amounts to only 1,010 Km².

The Awá reserve contains extremely high biodiversity, in which are included two or three endemic centres. Out of the 25 life zones classified by Cañadas in Ecuador, 11 are found in the Awá region, which is made up of areas in the steep slopes of the foothills of the Western Andes going down towards the coastal area.

It is estimated that the region has some 6,300 vascular plant species, of which 1,500 (20%) are possibly endemic. The adjacent region in Colombia could have an additional 6% of endemism.

* *This article was presented during the SEMINAR ECOLOGICAL DEBT AND BIOPIRACY held in March 2002 in Quito, Ecuador, organised by Acción Ecológica.*



The Chocó Biogeography stretches along the length of the Pacific coast of tropical America, from the south of Panama to the North-east of Ecuador. The region is characterised by having the highest precipitation of Tropical America (8.000 mm per year), and is one of the planet's most biodiverse regions.

The Awá population numbers 3,000 people across 8 communities; they have grouped together to form the Federation of Awá Centres.

The formation of the Awá territory started in 1984 and was finished in 1988, and the Awá Confederation was put under the protection of UTEPA, a unit of the Exterior Relations Ministry. Some difficulties in recognising the territory included:

- The Awá people were not recognised by national society. Officially, their existence was only known about since the 1950s.
- The territory is surrounded by poor settlers, and conflicts have occurred between the two groups.
- The State considers Awá territory as wasteland, and thus an object of colonization. They proposed the building of the Chical-San Marcos - Tobar Donoso road as a priority for the area's development. The State was interested in the area's minerals, particularly gold, and later showed its interest in its biodiversity
- No law in existence recognised the special rights of indigenous peoples.
- Few members of the Awá people spoke Spanish

Owing to the proximity to Colombia, and to the fact that the Awá people were divided between the two countries, the Colombian and Ecuadorian governments signed a bilateral agreement for the Awá region, with three objectives: territorial demarcation, bilingual education and natural resource management.



The Awá use a wide variety of medicinal plants; there are a large number of Shamans capable of curing ills ranging from snakebites to mental illnesses. They divide illnesses in three categories: the first are minor illnesses produced by natural causes, cured with home remedies. The second type is caused by wood spirits and is cured through a three-day ceremony. Finally, there are illnesses caused by witchcraft; these are cured by the shamans.

The area is affected by serious deforestation. The forests have been described as one of the most threatened on the planet in terms of biological extinction. It is estimated that in 1945, the area was made up of 60.000 Km² of wood; current estimates indicate that only 6.000 Km² remain, a mere 9% of the initial area. This is a direct result of the fact that the forests are home to many species valuable to the wood industry.

The National Cancer Institute (NCI)

The National Cancer Institute was created in 1937 to carry out research into cancer. Research on new agents was started in 1955 when its chemotherapy programme was set up; today it is under the charge of the Developmental Therapeutics Program (DTP). During its first 35 years, 400,000 synthetic and natural chemicals were evaluated. Since 1960 they have started a programme to discover anti-carcinogenic agents in plants. At the outset the programme was limited to the USA and Mexico, but it was later extended to almost 60 countries.

In 1993, the NCI invested \$39 million, of which the National Cooperative Drug Discovery Groups Program used \$2.91 million for laboratory research, \$15.9 million in contracts, \$16.25 in scholarships and \$4.68.

At the start, the NCI randomly adopted bioprospection methodology. To achieve this it paid botanists around the world to send in a quota of plants every year. From this period there was one successful discovery, TAXOL, which is used in breast and ovarian



cancer and is an active principle isolated in the Pacific *tejo* tree. There are also 15 more active principles being evaluated in clinical trials.

In 1986 the NCI launched a more systematic and extensive programme of plant and marine organism collection in tropical and sub-tropical regions.

These bioprospection programmes were carried out in association with Botanical Gardens and other research centres. The programmes include:

- Missouri Botanical Garden - in Cameroon, Central African Republic, Gabon, Ghana, Madagascar and Tanzania.
- New York Botanical Garden - in Belize, Bolivia, Colombia, Dominican Republic, Ecuador, Guatemala, Honduras, Martinique, Paraguay, Peru and Puerto Rico.
- University of Illinois at Chicago - in Indonesia, Malaysia, Papua New Guinea, Nepal, Philippines, Taiwan and Thailand.
- Coral Reef Research Foundation - collects marine life in Australia, New Zealand, Papua New Guinea, Philippines, Thailand, Antarctica and the Caribbean.

Under each contract 1,500 samples of between 0.3 and 1.0 kg dry weight must be collected every year. In the case of plant collection, different parts of the plant must be included.

Up to now, some active principles with anti-carcinogenic or anti-HIV potential have been found. For example, halichondrin B, a sponge from New Zealand was isolated and an anti-HIV from a liana from Cameroon. Other anti-HIV principles were isolated from a shrub found in the west of Australia and a group of compounds called calanolides from plants in Sarawak-Malaysia.



Another area that interested the NCI was ethno botany, as they realised that they achieved a higher percentage of discoveries of new active principles when accompanied by traditional knowledge.

In September 1999, the NCI had more than 50,000 plants and 10,000 marine invertebrates and algae, the majority of them collected from the Pacific and Indian Oceans.

To screen the material collected, the NCI is able to establish contracts with third parties, for which purpose it has set up a Materials Transfer Protocol, establishing among other things that the property of the material belongs to NCI. It also establishes a confidentiality clause.

Intellectual Property Rights

The NCI has its own policy on intellectual property. They are willing to negotiate royalties for the patents that arise directly from agreements with the country from which the resource has come. The NCI is prohibited from establishing a specific percentage of “compensation”. It also establishes that the main source of raw material will be the country of origin; this ensures an economic income for the country, for example through crops cultivated.

Agreement with the National Cancer Institute

In April 1993, the Therapeutic Development Program of the Treatment Division in the National Cancer Institute (TDP/NCI), the New York Botanical Garden, the Federation of Awá Centres and UTEPA signed a research agreement for two years.

The purpose of this agreement was to collect and research plants within the territory of the Awá people in the search for new cures for cancer and AIDS. The collection would be carried out by scientists from the New York Botanical Garden.



Under the agreement, the TDP/NCI declared its interest in researching plants in Awá territory, and added euphemistically that it had decided to “collaborate” with the Awá Federation in its research. Years later, the botanical director of this project, Hans Beck, said that it had helped the Awá people “in the management of its resources and conservation strategies “.

The Agreement established that in its laboratories the TDP/INC would investigate anti-cancer and anti-AIDS activity in extracts of plants given by the Awá Federation (through the JBNY). If there was space in the TDP/INC laboratory, they agreed to invite a technician from the Awá Federation, for no more than one year, to work there or in another laboratory, under agreement of the parties involved. Salaries and other conditions would be negotiated in good faith.

In this respect, according to a WWF anthropologist, JBNY staff also brought over two Shamans to help them classify samples. He pointed out that on taking these Shamans out of their communities, they left the communities without protection as Shaman are the people who care for their well-being.

Under this agreement the TDP/INC is to seek protection for all inventions developed. The results of the research are to be kept confidential by all parties, and the results will not be able to be published, until the PDT does obtain a patent in the USA on any of these isolated agents. The patent will be referenced to this agreement.

If production and marketing licences for pharmaceutical companies were to come out of the research, the TDP/INC will “make the greatest effort possible to ensure that royalties and other forms of compensation will be provided to the Awá Federation or to individuals, with the quantity to be negotiated between the TDP/INC and the Awá Federation. This process can last from 10-15 years.

The royalties will depend upon the relationship between the marketed drug and the natural product that has been isolated. The Agreement says that: “if the invention” is the natural product (we ask



how it is possible to invent a natural product?) the percentage of royalties will be higher than if the natural product only provides a guide for developing the drug.

A fund is also considered to carry out infrastructure works, such as the building of health centres, but this point is not stated on the signed contract.

Acquisition of Raw Material

If a possibility to market any product were to arise, the raw material used must originate primarily from Awá territory. If the Federation cannot provide the required material in sufficient quantity, it will be paid to set up a medicinal plantation and other conservation programmes for endangered species at a cost to be negotiated. Will a social and environmental impact analysis for this plantation be done, we wonder? To cite some examples, will they stop sowing traditional products on which the food sovereignty of the communities depend in order to plant these medicines? Will the plantations be set up in primary forests? What will the impact on the zone's rich biodiversity be?

All aspects of this agreement will be applied only to the endemic species of the Awá territory.

If the TDP /INC were to require more raw material during the screening phase, the Awá Federation and the JBNY is under a duty to provide it.

If large quantities of raw material are required, the Awá Federation and the JBNY will investigate the massive propagation of the material within its territory.



The Federation's Obligations

Members of the Awá Federation will work together with the JBNY in plant collection activities, will sort out export paperwork and share knowledge on the medicinal use of plants to guide plant collection. Healers will provide information on how medicine is administered and the best season for collection.

The Awá Federation's scientists and its collaborators (the JBNY?) will be able to investigate active principles for uses other than cancer and AIDS.

Finally, the Agreement stipulates that if any conflict were to occur between the English and Spanish versions, the English version will prevail.

The Development of the Agreement

As part of the agreement, 17 members of the Awá people attended a course on traditional and Western medicine in Pasto, Colombia. They also learnt plant-drying techniques for their later export. Subsequently, they themselves were put in charge of carrying out the project.

In 1993, the Awá Federation and the JBNY signed an agreement: Regulations for Scientific Studies Carried out in the Federation's Territory. Some of the points included were:

- Written permission must be requested to carry out studies, including the objective, impact area, and the benefits to the Awá people.
- The request must be made two months in advance
- No more than five people will be allowed. (Berk and Ortiz, 1997, report that groups were made up of seven people)



- One group at a time
- Scientists must be accompanied by local guides
- Collection of animals, insects and plants for commercial purposes is forbidden (According to a WWF anthropologist, New York Botanical Garden researchers took insect samples).
- Only three specimens of each species can be collected: one for the Awá Federation, one for the researchers and one for the Tobar Donoso Project. Later the number was increased as the NCI asked its collectors to hand in at least five duplicates, one of which would be left with the Smithsonian Institute Natural History Museum and the other with the NCI Natural Products Repository (NPR) in Frederick, Maryland (NCI web site)
- They were forbidden from taking cultural objects
- Scientists should take their rubbish away with them
- Prices for services¹:
 - Entrance - 1.000 sucres
 - Guides and information-givers (shamans) - 700 sucres per day
 - Cooks, laundry and other workers – 500 sucres per day
 - Ecuadorian members of staff only need pay 500 sucres
- Giving of presents prohibited
- Anybody who does not respect the rules will be immediately thrown out
- The Awá Federation must be credited in publications



Results

Scientists from the New York Botanical Garden carried out six ethno-botanical inventories in three communities found at 200, 500 and 1100 metres above sea level. In each inventory they investigated medicinal plants, the knowledge of healers and collected botanical samples for plant collections and photochemical analysis.

All journeys made were accompanied by local healers.

1,500 plants were collected, 85% with ethno botanical information, including use, preparation, and contra-indications for each plant, as well as ecological information.

I have not been able to find information on the fate of these samples once they arrived at the NCI.

It is important to point out that the Colombian Government, when it learnt about this project, protested against the Ecuadorian Government, as this biodiversity and knowledge are shared between the two countries.

This Agreement is not found in the framework of the Andean Decision 391.

Nota

- 1 At that time, the local currency of Ecuador was the SUCRE. 5.000 sucres = 1 US dollar.

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Inbio and Ecological debt: A Successful Model of Biopiracy*

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The Inbio: what is it and what does it do?

The National Biodiversity Institute (Inbio) in Costa Rica is “a private institute with staff appointed outside the Costa Rican State, but with sufficient representation to be able to influence ministers, legislators, university authorities and other high-ranking officials from the governing class”¹. The name it uses makes most people think it is a public institution, but in fact it is not so, in actual fact it is a private entity that has benefited from national patrimony.

In February 1989, representatives from 16 public institutions and NGOs met in San José to formalize plans under discussion to create an institute for biodiversity. They suggested collecting and building up a biodiversity inventory, bringing together a collection within one entity, centralizing information on biodiversity and putting this information at the service of the country. At this meeting a planning commission that would draw up a proposal was formed; the commission was legalized through a decree issued by the then president Oscar Arias. In October 1989 the Inbio was created as a not-

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for-profit private association, with strong links to the governing class, and declared to be of public service.

At the time, international consultants made the following comments:

“The Inbio cannot be adapted and assimilated to a governmental organizational structure as it would hamper the achievement of the very purposes for which it was set up. (...) The aims of the Inbio are “to protect, understand and use our biological diversity” and its strategy must be aimed at achieving this efficiently. The wishes expressed by donors, who support the institution economically, and the urgent time period for natural factors, oblige the Inbio to look for flexibility and achievement in its strategies.”²

In this way, Inbio was born with the blessing of scientific and political sectors. It acquired significance with the transfer of the Neotropic Foundation’s database, and the same happened with the hundred-year old collection of the National Museum, due to it being engaged in construction works. They also obtained funds from the cancellation of debt for nature, tax exemption, land for its premises (this was returned) and vehicles. Moreover they started the biodiversity inventory and sold samples to the pharmaceutical company Merck. Later they were to win prizes and international recognition, for which their reputation grew. The training of informal taxonomists and its socio-environmental discourse also carry weight.

The contract with the pharmaceutical company Merck in 1991 positioned the Inbio as an international business player, receiving prizes, funding and a strong publicity campaign. It is important to point out that, despite being the main actor according to his functions and considering the sale of natural resources belonging to the State that was agreed, the Environment Minister was never present in this negotiation.

A million dollars were paid in advance to Inbio through their contract with Merck: \$100,000 was granted to the Ministry for



Environment and Energy which it would dedicate to the consolidation of the system for protected areas and possible new contracts and subcontracts. Important subjects for the country like “number of contracted samples, percentage of possible royalties, patent ownership, consequences of patenting on local communities, possibility of erosion of sovereignty”³ were never mentioned.

The mission of Inbio is “to promote greater awareness around the value of biodiversity, to achieve its conservation and improve the quality of life of the human being. The Inbio has organized five programmes or interrelated processes: inventory, bioprospection, conservation for development, information management and social management”⁴. Among the products emphasized by the Inbio are the “identification of new species for science, the most complete database on Costa Rican biodiversity available to the public, support to the National System of Conservation Areas, a boost to the country’s ecotourism sector, infrastructure development (Inbio-Park), products (books, games, educational material etc.) for knowledge transfer (“bio-literacy”), and the development of experiences in the search for sustainable use of biodiversity, are just some of what Inbio will contribute to the country.”⁵

Since the contract with Merck, the Inbio conceives itself as a partner rather than a supplier, as it adds a value of information and processing of samples collected. It defined as prerequisites “the commitment of the partner in covering all in-country research costs, to provide support equivalent to 10% of the budget destined to the state’s protected wild areas, to make monetary compensation in the form of royalties for products that reach the market, and in this way contribute to technology transfer, training of Costa Rican scientists, and in many cases, donate the necessary equipment and infrastructure needed to develop research”⁶. Up to the present day, the Inbio has signed almost 30 commercial agreements. Some of these prerequisites, which are also presented as benefits for the country, are logical in the framework of a commercial negotiation. For example, that the partner finances the research budget is logical, taking into account its financial capacity and



interest in the business. Monetary compensation is not certain due to the fact that a commercial product is not always obtained, and finally, the remaining prerequisites would have to be studied to understand their compliance, for example in the light of scientific equipment used by the partner in its premises and that transferred to the country.

As regards economic benefits, Nagod and Tverteraas⁷ offer information (in US dollars, for the period 1991-1999) of \$420,245 as contributions to the Ministry for Environment; \$856,248 to Conservation Areas; \$699,336 to public universities; and \$740.882 to others. Guevara⁸ maintains that the Inbio has provided “support to the conservation of protected wild areas, through direct payments to the Minae for an amount that in the year 2000 topped \$512.148, product of 10% of the research budgets. (...) economic backup to specific projects in conservation areas, universities and other groups for a total sum of \$2’256.259 between 1991 and 2000”. These figures show us that in 2000, public universities, conservation areas and others received a total of \$40,207, as the total until 1999 was \$2296,466. The MINAE obtained \$91,903. That is, they obtained \$132,110 in 2000, a figure that beats figures for 1998 and 1999, and is at least three times less than that of 1996 and 1997.

We can assert that the Inbio has consolidated itself as a model in the field of contracting and sale of biodiversity with various companies on a national and international level - this is in fact its greatest profit. It has benefited from its connections within governmental spheres, whatever the government to be found in office; it is in fact part of the elite that has controlled the Costa Rican state for the last ten years. It has made economic profit synonymous with benefits to the country, though its contribution in monetary terms has not been what was expected according to what was expressed in the agreement with Merck and for this reason we can say that it has sold off Costa Rica’s biodiversity on the cheap.



Bioprospection and biopiracy

The issue of access to genetic and biochemical resources, and the fair and equal distribution of their derived benefits, goes in hand with the subject of bioprospection or biopiracy. The first is one of the objectives of the Convention on Biological Diversity, which takes it on as an obligation aiming to allow every country to facilitate access to its resources, according to each country's sovereignty, acquiring in return diverse benefits as a product of access to and the transfer of technology. Up to now the world has not seen any greater distribution of benefits.⁹

The concept of bioprospection arose in response to two situations: the conservation and the commercialisation of biodiversity. In this way Eisner¹⁰, along with the ideas of Janzen, suggest a system by which genetically rich countries with little development in scientific investigation can carry out biological sample taking and take the first steps in the chemical monitoring of the properties of these beings. Countries with strong scientific development would be in charge of the last stages of identification of the properties of these sampled beings. It was claimed that these activities were of low environmental impact, and thus very compatible with conservation. This fact is not true, as we have news of the destruction of ecosystems through such activities, as well as the creation of monocultures of determined plants to be able to build up a reserve of them to carry out biological prospection¹¹. Furthermore, benefits related to technology and economic transfer would exist.

We could define bioprospection as “the systematic search, classification and research for commercial ends of new sources of chemical components, genes, proteins, micro-organisms and other products of current or potential economic value that are found in biodiversity”¹². We can confirm that it is indeed a commercial activity. In the same vein we maintain that bioprospection is the legalized action of accessing genetic and biochemical resources, as well as facilitating fair and equal distribution of benefits; a situation which up



until now has not happened. Furthermore, due to its legality, bioprospection cannot generate inequalities.

We can define biopiracy as the bioprospection that has been carried out up to now on our planet, that which has generated greater inequality, failed to respect the rights of communities and indigenous peoples, not benefited in any way the denominated suppliers (the economic side has not been significant) and failed to promote citizen participation at least in the determination of the terms of negotiations, among other aspects.

The ecological debt the Inbio

The Inbio carries out biopiracy in accordance to what is written above. The economic benefits that it has provided cannot hide this fact and in any case have not come in the quantity that the country was expecting, thanks to the hopes created by Inbio itself. Even so, this is not an issue of money. In this way, the Inbio has been running up an ecological debt, that is to say a responsibility with the rest of Costa Rican society (and not just in Costa Rica, but with other societies that possess the same biodiversity) reflected in the following:

- By carrying out its work through bilateral contracts, it has legitimated what in fact works like weapon on an international level, one that helps only deepen differences between contractual parties (usually the transnational company and the local community), bind existing inequalities to eternity, and promote social and environmental injustice;
- The Inbio has in this same way legitimated a package associated to accessing genetic and biochemical resources, made up in general of intellectual property rights and the production of genetically modified organisms. This new package benefits only those who already hold power;
- Has promoted the privatisation of what is collective;



- Biopiracy carried out by Inbio has not promoted national discussion on the use of natural resources as it has merely appropriated them through various legal instruments. It has not benefited anyone other than the Inbio and the Costa Rican elite that is alternated in government every four years, and for this reason it is not a sustainable activity;
- The Inbio was created by the same dominant class that has governed the country for the last 50 years, as a form of legitimating the commodification of nature;
- Biopiracy goes against communal control of natural resources;
- It is based on commercial and technocratic determinism¹³. It maintains that unless biodiversity shows that it can be valued, it is not worth anything: the “sell to save” principle. But to sell to whom, why, and with what cost? This leaves to one side other values, those that have sustained biological diversity on the planet: culture, religion, all of which go further than such mercantile simplicity.

The successful model of biopiracy that has been legitimated by the Inbio is full of unfulfilled promises that legitimate a development model distant from social needs.

Notas

- 1 Rodríguez, Silvia; “Conservation, contradiction and erosion of sovereignty: the Costa Rican State and natural protected areas”, Doctoral thesis, April 1993, Development Studies of Wisconsin University, Madison; p. 158.
- 2 Rodríguez Silvia, *op.cit*, p161. Rodríguez points out that also during this era and as a product of Reagan’s politics, greater economic support was given to private institutions under the supposition that they were more efficient than public ones, trying to hide their intention to promote privatization.
- 3 Rodríguez, Silvia; *op. cit.* p.177. For more details, please consult pages 174-185 in the same work.
- 4 Guevara, Ana Lorena; “The contributions of bioprospection carried out by the Inbio” in *Ambientico*, Heredia, Costa Rica, No. 100, January 2002 p7.



- 5 Guevara, *op.cit.* p.7.
- 6 Guevara, *op.cit.*, p8
- 7 Nagoda, Dag and Tverteraas, Andreas; Biodiversity inventorying and bioprospecting as management tools. A study of the impacts of the National Biodiversity Institute (Inbio) on biodiversity management in seven Costa Rican conservation areas, University of Oslo, 2001.
- 8 Guevara, *op.cit.* p. 9
- 9 Rojas, Isaac; “Biopiracy increases ecological debt”, in *Ambientico*, Heredia, Costa Rica, No. 100, January 2002, p. 5.
- 10 Rodriguez, Silvia; “Conservation and ...”, *op. cit.*, p152-157.
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Impacts of Transgenic Commerce: a Case of Ecological Debt*

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In May 2001 a peasant uprising of corn and rice producers took place, due to their low cost in the national market. Among other things the low cost was due to an import of 60.000 metric tons from the U.S. and with subsidising prices, that is, lower than those existing in the national market.

There exists two forms of corn production: small and average producers with farms to about 5 ha and traditional which cultivates for auto-subsistence these last are those that keep the greater corn biology diversity. 11% of the economically active population is related with corn cultivation (SICA, 2001). To this we must add the population, which cultivates corn for its subsistence.

In Ecuador, at a commercial level, the greater production of corn is developed on the coast (99.4 of the total), which has a cultivated surface of 186.400 ha, with a performance by ha in average of 2,69 TM/ha (SICA, 2001).

The insertion of cheap corn coming from the U.S. would be harming all the population, producing serious social impacts. Apart from harming national production, this corn import from the US

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could mean the entrance of genetically modified corn or transgenic corn.

Corn is the most domesticated and evolved plant in the vegetable kingdom. Its origin and evolution has always been a mystery because it has arrived to us highly evolved, without us knowing about any intermediate forms.

Since last century there have existed diverse theories to explain the origin and evolution of corn. The most popular one accepts teocintle of Chelco (*Zea mays mexicana*) as the direct ancestors of corn.

In Ecuador, more than 5,900 years ago, the people of Valdivia, who settled on the Pacific Coast, was already a totally agrarian society. These people traded with the North of Peru, Meso America, up to Western Mexico, where it originated from.

Around 3,000 b.c. an expansion of corn's cultivation (Alvarez, 1999) of the Valdivia's culture to Las Vegas, Chorrera, Chaullabamba, Monjashuaico and Cotocollao.

At present, Ecuador is one of the countries with the greatest diversity of corn kept in CIMMYT- the greatest collection of corn in the world comes from Ecuador (RAFI, 1992).

At present corn plays a very important cultural role in rural communities in Ecuador, with very important social and cultural implications.

The food complex of corn haricot bean, squash from a very old origin has kept itself almost untouched up until today. Corn gives to the haricot bean the necessary mechanical support it needs, and the beans fix Nitrogen on the ground improving its quality. Moreover, the three cultivations constitute complementary food for the peasants diet.

Corn is not the only basis of their nourishment but also a ritual and celebration food. Corn is used for everything: to celebrate a birth



or burial to elaborate the “chicha” for great parties, to share toasted corn to visitors, etc..

Corn is always present on the peasant’s table. When corn is not available, some women go and look for it where cultivation is later, to trade other products for corn.

Ecuadorian corn has contributed to the development of improved modern varieties of corn. According to the director of the germplasm CIMMYT bank, “the CIMMYT as well as national corn improvement programs in all the world, has incorporated elite sources of germplasm originating in Latin America and the Caribbean, as well as the improved varieties and hybrid development” (Nadal, 2000). In relation to this, the United States former Secretary of State calculated in 1993 that the “contribution” done by foreign germplasm to his country’s economy was of 7 million dollars per year. This gives us an idea of the “contribution” that Ecuadorian corn has given to their economy.

Corn Sales in the United States

There exists 140 million ha of cultivated corn in the U.S. from which the 20% of the total cultivated area (about 28 million ha) is transgenic corn.

One of these transgenic corns is called SarLink. This is a Bt (toxin Cry9C), which confers resistance to insects. This was approved by the Environment Protection Agency -EPA- of the United States, only for animal consumption, because it can present allergy problems in humans. The regulation also asked the company which produced it, that this seed, Aventis, that the corn could not go directly to human consumers of the meat that had been fed with this corn. The company appealed the EPA decision, at the same time that they placed the corn on the market.



The farmers that bought the StarLink seeds were noticed about these restrictions, but there is no system in the U.S. that separates conventional from transgenic corn, even less the StarLink one.

Halfway of the year 2000, the organization “Friends of the World” discovered the StarLink was present in many products made with corn, not only in the U.S. but also in other countries. The first evidence of the StarLink presence was in taco tortillas in Kraft’s Taco Bell (Eichenwald, 2000).

It is possible that now the corn Bt pollen has disseminated towards conventional corn while conventional grains develop. Although in some parts the StarLink meant 1% of cultivated corn, it was capable of contaminating 50% of the total crop. In some cases farmers had not sowed StarLink seeds, but were contaminated by their neighbours.

The Aventis company has had to face various law suits due to StarLink, including a class action in Chicago, where the company is accused of negligence and fraud with consumers by selling and producing products that have suffered allergic reactions, some of which have informed the FDA about this.

On the other hand, many farmers and corn merchants are waiting for Aventis to assume financial responsibility for their losses.

Since then, more than 300 products made out of corn have been removed from supermarkets, restaurants and grocery shops in many countries in the world, while proven they contain the StarLink toxin Cry9C and in other countries this import has been prohibited.

This has provoked a fall of corn’s exportation produced in the U.S. This export has decreased in 3,8 million metric tons in the year 2.000, compared to 1999 export. The main corn markets in the world have dramatically decreased their corn import from the U.S., among them Japan, South Korea, Taiwan, Saudi Arabia, Algeria, South Africa. Japan only cut its import in 2,1 million metric tons of U.S. corn.



What is Happening with the Transgenic-Corn

In spite of the mandatory provisions which the OMC forces countries to eliminate subsidies in the farming grounds, in such a way that all countries can compete under the same conditions, -avoiding unequal competition by means of placing in the market cheaper subsidized products-, the Northern countries continue to subsidize an agricultural system.

Table # 1
Corn Export from the United States
(Thousands of Metric Tons)

DESTINY	2000/01	1999/00	DIFFERENCE
Japan	11.869	13.985	-2.116
Mexico	4.521	3.777	744
Taiwan	3.870	4.362	-492
Egypt	2.806	2.664	142
South Korea	2.244	2.777	-533
Colombia	1.055	1.233	-179
Algeria	965	566	400
Canada	956	128	-293
Saudi Arabia	657	757	-100
Venezuela	632	656	-24
Israel	577	420	157
Turkey	322	615	-293
Morocco	281	400	-119
Iran	167	604	-437
Indonesia	157	55	102
Peru	118	412	-294
The Philippines	117	263	-146
Chile	33	517	-485
Malaysia	0	179	-179
South Africa	0	309	-309
Unknown Origin	313	388	-75
Subtotal	31.657	35.066	-3.409
Others	4.021	4.435	-314
Total	35.678	39.501	- 3.823



There has been an increase in the levels of farming subsidies in the U.S. Thus, for each dollar of export wheat, farmers receive US \$ 1,4 from their government.

But, what happens with the corn? Apart from the fall of corn's sales, there has also been a fall on its price. The department of Agriculture projected that the prices would be \$1.85 for each bushel, which is an inferior price to the one existing during the eighties economic recession. Analysts agree that StarLink was a fundamental cause although not the only one (McAuliffe, 2001).

To balance this fall on the prices, farmers have called on their country's Congress in order to ask for a 9 thousand million dollar loan to pay for "losses in the market". They have received US\$28 billions in subsidies since 1998.

The United States support two other subsidy programs through credits, when there has been a fall of price and are directed to oil, wheat, corn and other grains. These are a post-harvest and represent less than 85% of the average price, which a determined product has had in the market these last five years. If the product lowers these averages, the farmer doesn't pay the total loan, but pay on the basis of a calculation of the Department of Agriculture. The loan program due to payment deficiencies, compensates farmers, even though they haven't asked for a loan. Farmers who are eligible for a loan, and didn't ask for one, receive the subsidy anyway. In order to calculate the subsidy, the present price of the product is taken on account, and a specific method is developed by the Department of Agriculture. The annual payments are up US\$ 150.000 per person.

The National Association of Corn Farmers, propose that this plan be replaced by a program which take in account as a starting point the income, and the payments for farming transactions may continue, which was established in 1995 in order to help farmers in commercial transaction in high dependency markets.



Besides, the credit guarantee programs for commercial export (GSM-102 and GSM-103) who count with the amount of US\$ 5,5 million per year.

The GSM-102 guarantees the credit payments in a short term (90 days to 3 years) extended by financial institutions of the United States to banks chosen in countries who buy agrarian products in the U.S. It has been applied in countries of the Andean region, Central America and the Caribbean. The guarantees given, in the GSM-103 program, finance periods of more than three years.

Besides this, there is a supplementary program designed to support farmers who wish to expand, keep and develop markets for agrarian products in areas in the world where there is no financing without a payment guarantee. This program supports exporters in The United States who want to give short-term credits (180 days or less) directly to foreign buyers. This has been applied on sales in the Andean and Central American region. The assistance program to export (EEP) is a bond in order for the agrarian products to be more competitive in the international market. The bond was of US\$ 579 million in the year 2000.

The Markets Access Program (MAP) is a yearly US \$90 million fund, designed to encourage development, maintenance and expansion of agrarian products and similar ones in foreign markets. It supports market studies, promotion of agrarian products through fairs and others.

The consequence of this subsidy scheme is that the Southern countries will enter a totally unequal competition with a highly subsidized and industrialized Northern countries system. This causes social, economic and environmental impacts because it leads these countries into a gradual loss of food's self-sufficiency and a dependency on foreign food.

Even when all subsidies are removed from the agrarian system of these countries, they compete in the world market with 50 years of subsidized agriculture.



Another way of subsidy, which the government of the U.S. supports, is to buy the surplus agrarian products that haven't been able to be sold in the global market and sell them cheaply or donates them to Third World countries.

Food Aid

A Foreign Agricultural Service document (FAS) from the U.S., recognizes that it is a political move from this country to use food aid to increase the development of markets for their agrarian products. This is done through the PL 4806 Program, of agrarian products acquired by the Commodity Credit Corporations.

The aid, is the last non regulated export market which is available to U.S. farmers, because for poor countries, who face constant economic crisis or are victims of environmental disasters it would be very difficult to refuse this aid, for example, eve if it is transgenic products.

In 1999, the government of the U.S. donated 500.000 tons of corn and corn related products. It is believed that 30% of this help was part of genetically modified food. For this, very profitable contracts were given to some grain trades such as Archer Daniels Midland and Cargill, which profited from a third of the contracts (a total of 140 million dollars in 1999).

The World Food Aid Program doesn't know how much of this aid is transgenic, nor does it have a specific policy on this issue. It receives almost half of its annual income from the U.S. Its executive director is an ex- official of the department of Agriculture of the U.S. and is originally from the corn area of that country.

Analysing critically these aids given by The "Alianza Para el Progreso", what remains is a change in our cultural standards, but also a market of typically U.S. products.



Through Alianza para el Progreso, Ecuador is not self-sufficient in wheat any more and today we depend almost totally on imported wheat from the U.S. (Salgado, 2001). North American technicians would accompany these aid programs, in order to show how to consume products from that country. In this way great part of the aid money would return there, and we would assume a debt with them.

Food Aid has always been used in order to reach U.S. foreign policy goals. Thus for example: In the seventies during the Indochina war, 70% of the help would go to Vietnam, Cambodia and Laos: during the eighties it was directed toward El Salvador-during the civil war- and Egypt-which was its way of entering the Middle East- in the nineties towards Eastern Europe, to support the transition towards a market economy. Since the eighties, the help to other countries who implement structural reforms towards free markets was privileged (Salgado, 2001).

The European Community for a few years is worried about the tendencies that the United States of using food aid to dispose of food surplus in this country. This issue has been raised by the EC in negotiations on agrarian problems at OMC.

Almost half of the wheat export of the 1999/2000 harvests was food aid. In this communication, the EU proves that international prices are in direct correlation (91%) with donations made by the U.S. Food Aid increases when the prices lower, and this one decreases when the prices increase (EU Ambassador to the US State department, 2001).

In the case of transgenics, donations they are used to diminish the risks which agrarian U.S. politics could generate-in this case promote the massive use of transgenic seed- and pass it on to a group of consumers who by ignorance or necessity are “helped” through these programs. For these reason transgenic subsidized products are donated, who rejected from other countries and are sent to Third World countries as “cheap products” or “food aid”.



In studies made by the Net for a Free of Transgenics Latin America, corn donated by the U.S. to Bolivia was found (Ramos, 2001). Later, with the support of Friends of the Earth, donated transgenic corn was found in Nicaragua.

World Commerce and and Genetic Erosion

World commerce of corn produces genetic erosion, because it is based on only 4 varieties. 73% of corn's world production comes from one single variety, Dent, which is used as food for cattle and the manufacture of industrial products (starch, oil, alcohol, corn syrup, etc...) A second type is the Flint (hard), cultivated in places which require tolerance to cold weather, where germination conditions and storage are poor. The third Type is the Flour<(soft) used for human consumption, and the Pop, (popping).

In Mexico, which shelters 41 racial complex of corn and thousands of varieties, the genetic erosion in the bio diversity of corn has already been found, with the NAFTA negotiations (Nadal, 2000).

The main hypothesis in which this negotiation was founded was that Mexican corn producers are inefficient. The average performance of this harvest at a national level has traditionally remained under the 2 tons by ha, although many local Mexican varieties have a better performance than the best hybrid seeds from The US in the majority of environments where corn is cultivated in Mexico (Nadal, 2000).

Besides, the Mexican germplasm owns exceptional resistance characteristics towards abiotic "stress" conditions such as freezing weather, hail, draught, plague resistance, disease and great adaptability (Nadal, 2000).

With the fall of corn's prices, the capacity to use, keep and improve these genetic resources could irrevocably get lost.

Additionally, the introduction the U.S. corn has already produced a genetic contamination in Oaxaca, one of the original corn



centres, where the presence of transgenic corn was identified (UNOSJO, 2001). There are three types of hypothesis related to the origin of transgenic seeds found in Oaxaca.

- That they were introduced because indigenous peasants planted imported corn.
- Migrants brought seed from the U.S. and planted them in their communities.
- Some research centre introduced to experiment with them.

In Ecuador after 5000 years of use, conservation and creation of corn biodiversity and with a world commerce of corn with prices under the real production cost, the genetic erosion problem could be similar to the one in Mexico.

International Corn Commerce and Ecological Debt

The import of agrarian product (example Corn) subsidized or donated to a producer country, generates an ecological debt for the following reasons:

- Destruction of peasant's economy, because they cannot compete with prices which are lower than the real production cost.
- Cultural erosion and vanishing of productive systems in which these economies are sustained
- Peasants and small producers who are moved from this market can: migrate to the cities, broadening the misery belts, broadening the agrarian frontier at the price of natural systems or leave the country.
- Genetic erosion, due to the gradual disappearing of traditional varieties.



- Dependence. By depending of imports from a single country, the receptor country becomes more vulnerable (in political and economic terms)
- The receptive country has to over-export its natural resources because it needs foreign currency in order to buy food, which could mean the destruction of forests and biodiversity.
- The country loses food sovereignty, because it cannot decide independently over food policies.
- In the case of transgenic corn, its import can produce genetic contamination (as has been found in Mexico) negative impacts on health (resistance to antibiotics, allergies and other unpredictable impacts) and other environmental and social impacts.
- There exist moreover, an ecological debt which the U.S. has with all countries which are corn diversification centres, due to the non recognized use of germplasm, which has allowed to create all the varieties of hybrid and “improved” varieties, and lift up one of the most important economic sectors of that country.

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