

Environmental, Economic, and Social Problems
of Globalization within the
Context of a Sustainable Future

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“With the end of the Cold War and with the shift from what we might call the age of national security to the age of globalization...the true economic power in the world is no longer the United States, but a phalanx of 200 large companies whose sales are the equivalent of over one-quarter of global economic activity. It is these entities that more and more determine the working conditions, the health conditions and the environmental conditions of people around the world; in this regard they have more power than the military might of the United States by itself.”

--John Cavanagh, Co-Chair of the International Forum on Globalization

“Do we expect a system made for the elect to possibly judge correct, properly serve and protect?—Materially corrupt, spiritually amuck, oblivious to the cause, prosperously bankrupt!...Only two positions— victimizer and victims, both end up in destruction trusting this crooked system.”

--Lauryn Hill, Musician

“It has been said that arguing against globalization is like arguing against the laws of gravity.”

--Kofi Annan, Secretary General of the United Nations

“The companies roam the world with no checks and balances in search of misery and poverty and unemployment, because they will tell you in their own testimonies that naturally in those areas you will find the lowest wages.”

--Charles Kernaghan

“All too frequently, the poor in fertile developing countries stand by watching with empty hands and empty stomachs while ample harvests and bumper crops are exported for hard cash. Short-term profits for a few, long-term losses for many.”

--The World Health Organization, 2001

“Globalization, as defined by rich people like us, is a very nice thing... you are talking about the Internet, you are talking about cell phones, you are talking about computers. This doesn't affect two-thirds of the people of the world.”

--Jimmy Carter

“In its current form, globalization cannot be sustained. Democratic societies will not support it. Authoritarian leaders will fear to impose it.”

--John J. Sweeney

“Globalization could be the answer to many of the world's seemingly intractable problems. But this requires strong democratic foundations based on a political will to ensure equity and justice.”

--Sharan Burrow

Introduction

Globalization: This word conjures up a multitude of ideas and images in the mind. There is the information systems technology advertisement showing a man in Mumbai, India chatting via cell phone with a sleek New Yorker in ‘real time’ about business decisions affecting the Multi-National Corporation (MNC) they work for; the teenager chatting online with a friend from South Africa.

There have been some definite advantages of globalization as it has proceeded so far—I can order tea from China as I sit at my computer, or expect to eat familiar Pizza Hut Pizza if I visit Thailand. But these advantages pale in comparison to the rise in global economic inequality, deterioration of the environment, cultural disintegration, and social instability that globalization and its forces have triggered around the planet. Other images come to mind when one thinks about globalization in this way. The Korean farmer who recently stabbed himself in the heart at the Cancun meeting of the World Trade Organization (WTO) to protest harm done to Third World farmers as a result of the WTO’s agricultural policies comes to mind. The environmental destruction and human rights abuses in Nigeria associated with Shell’s oil exploitation there comes to mind and so does the increasing global trade in sex slaves from impoverished nations. The massive WTO protests in Seattle and World Bank protests in Washington, DC come to mind. Simultaneously, I gained interest in the idea of Sustainable Development as a means to protect the natural world which I treasure in a way that does not conflict with the very real and urgent needs of impoverished people around the globe. All of these conflicting images were the impetus for the past eight months of study I have completed on globalization and Sustainable Development.

What is Globalization?

Ali Mazrui of the University of Georgia defines globalization as “processes that lead towards global interdependence and the increasing rapidity of change across vast distances” (1). This definition by itself does not seem to be describing a malicious process—or for that matter, even a new process. Globalization has been around for thousands of years, ever since the first human groups started systems of trade and interaction with other groups. In the past this interaction has led to many positive exchanges and definitely some negative ones as well. Colonialism and its ever-present negative legacy can be viewed as forces of past globalization. But human population is so large, and interdependence so extensive, that globalization has dangerous power to trigger negative environmental, social, and economic consequences for all people and the natural world. These negative consequences need to be taken seriously. Globalization in the sense that economists and protestors use the term describes the increasing economic globalization infused with a Neoliberal economic philosophy—advocating decreased role of government and increased privatization of almost all aspects of social and private life. In this paper I generally focus on this definition of globalization while keeping the wider definition of globalization in mind. I discuss the implications and offshoots of this understanding of globalization as well.

What is Sustainable Development?

The term Sustainable Development has its roots in the United Nations Brundtland Commission of 1987. This was generally the first mainstream usage of the term. This commission defined Sustainable Development as “development which satisfies the needs of the present without compromising the capacity of future generations to satisfy their own needs.” The International Forum on Globalization (IFG) identifies ten principles of Sustainable Societies that are “mirror opposites of the principles that drive the institutions of the corporate global economy” (Cavanagh, Mander, et al 77).

- *New Democracy*

The International Forum on Globalization (IFG) identifies a core principle of Sustainable Development as the revitalization of local democracy through New Democracy. This principle stresses that governance systems should give those who will bear the costs the vote when decisions are being made. Governments should be clearly accountable to citizens, all citizens should have equal rights both in law and in practice, and government sovereignty should not be transferred to corporations.

- *Subsidiarity*

Subsidiarity involves the decentralization of political and economic power to local people. The IFG asserts globalization favors “economies based on export with global corporation in control. This brings destruction to local livelihoods, local jobs, and community self-reliance” (Cavanagh, Mander, et al 60).

- *Ecological Sustainability*

Economic activity must be ecologically sustainable. It must not degrade the integrity of the biosphere or ecological systems in the present or in the foreseeable future. This

should be of paramount importance in order to sustain human life, and maintain the diverse ecological web that human life depends on. There are of course a number of much less anthropocentric reasons why this is important that are also valid. But all people can agree that in the very least the environment is important to sustain our own lives.

- *Common Heritage*

Common heritage resources such as water, the air, fisheries, and genetic diversity must not be privatized as they are the birthright of all living beings and no person has the right to sell what is owned by everyone. Collective knowledge that humanity has accumulated is also considered Common Heritage. Public services that governments provide to address basic needs such as public health, education, and public safety among others must not be privatized because corporations are not accountable to citizens, as governments are. These are considered basic human entitlements and should not be threatened.

- *Diversity*

Cultural, economic, and biological diversity should be preserved. Diversity is the key to stability in any system. It ensures a number of possible solutions to any problem that may come up. To make the world a cultural and biological monoculture, as the present model of globalization threatens to do, undermines biological and social stability.

- *Human Rights*

The United Nations Declaration of Human Rights has established as a right “a standard of living adequate for...health and well-being..., including food, clothing, housing and medical care, and necessary social services, and the right to security in the event of

unemployment.” The present model of globalization has not ensured this right. Also, the transfer of power and obligations from governments to private corporations justified by Neoliberal economic philosophy undermines these rights. Although “many governments are corrupt and unaccountable, this does not lead us to the conclusion that the private sector is a better guarantor of rights”, instead it “reinforces our resolve to press accountability on governments at every level” (Cavanagh, Mander, et al 72). The UN also identifies the right to a safe and healthy natural environment as a fundamental human right—something that practices associated with globalization have damaged.

- *Jobs, Livelihood, Employment*

The right to choice and security in employment is another UN guaranteed Human Right. Certain trade policies associated with globalization have resulted in farmers being pushed off their land, and indigenous environments degraded. This often forces these two groups to move to cities and radically alter their way of life while denying them choice or security in employment.

- *Food Security and Safety*

Trade rules should recognize that food production for local markets must be valued very highly because of the importance of food security. Encouragement of retention of indigenous, rather than exploitation is important to maintain biological and cultural diversity.

- *Equity*

Under the current rules, economic globalization increases income and power disparity between the developed and developing world and within countries between rich and poor. Inequality is unfair and threatens social stability.

- *Precautionary Principle*

Under current economic and political rules products or practices that are potentially harmful to humans or nature may be in common usage for years before the scientific community establishes that they are a threat. Corporations that would like to market a product must first prove that it is safe.

It should be noted that I do not agree in full with all of the implications of these ten principles. For example, I do believe that Subsidiarity is important because it empowers locals to structure their communities as they wish, but I do not agree with the extent to which the IFG advocates Subsidiarity. The IFG claims that it is important to achieve “local and national self-reliance in meeting essential needs with local and national resources to the extent feasible” (Cavanagh, Mander, et al 61). I feel that this wording is too strong. Global trade can be very useful in that it maximizes comparative advantage. This should not be overlooked. The reason that global trade has caused problems is because externalities are not accounted for. It may be “feasible” to meet all needs within a national economy, but if it is still more efficient for another country to produce some needed goods, once externalities are taken into account, I have no problem with international trade. Still, the importance of security (for example, in food production a country does not want to be totally dependent on other nations because of the implications of potential geopolitical complications—for example the impact of sanctions on food availability) should be considered. Subsidiarity and efficiency are important.

Choice and security in employment is also a very important right, but once again I feel that the IFG left out an important caveat. Economics does change, and this can often have great benefits for humanity and the environment. Unfortunately, even this sort of positive economic change can put people out of work. In my opinion this principle should be revised to place importance on ensuring the capacity to transition to another form of employment if necessary. I believe it is also important to emphasize that economic changes should not redistribute social and economic power to inequitably to corporations or individuals, as is now often the case when developing countries globalize. I agree with the framework that these principles provide for a sustainable world, but not necessarily every single aspect.

Overview

This paper concentrates on three subtopics of globalization and then extrapolates from these examples to analyze the wider process of globalization. These subtopics should be evaluated with the goals of Sustainable Development in mind. It is necessary to study the contradictions between globalization and Sustainable Development in order to decide to abolish globalization, or how to reform the process to lead humanity to a sustainable future.

The first subtopic focuses on globalization's effects in Ecuador as the country opened up to the world market. The next subtopic examines biopiracy and the Trade Related Intellectual Property rights (TRIPs) system of the WTO. Finally there is a small section on globalized industrial agriculture. These subtopics represent a very small part of the phenomenon of globalization. Hundreds of papers as substantial as this would just begin to describe and analyze the full scope of this world-changing phenomenon.

Ecuador Meets the Global Economy

Alicia Duran Ballen, daughter of Ecuador's president:

"Do you think that was a fair trade?"

U.S. Embassy representative:

"That's how we got Manhattan, you know, with trinkets and beads."

"We came here to a naked tribe believing in demons and witchcraft and sorcerers and this controlled their whole life. Now, in this part of the tribe at least, there are Christian communities and the New Testament has really been dedicated, written in their own language. And we have a few readers in almost every clearing now."

Rachel Saint, Missionary

"The missionaries said to the companies, 'We have civilized them.... So for a percentage, we can stop the killing and control them.'"

Moi, Huaorani leader

"Why do rich countries come here? People from the richest and most populated countries come to the poorest to take its resources, to take and negotiate, to live their life better and leave us even poorer. But we are richer than they because we have the resources and the forest, and our calm life is better than their life in the city. We must all be concerned because this is the heart of the world and here we can breathe... So we as Huaorani, we ask those city people: Why do you want oil? We don't want oil."

Moi, Huaorani leader

Introduction

Ecuador has been the site of two controversial manifestations of the negative environmental and social implications of globalization. One is the currently ongoing lawsuit between 30,000 Ecuadorian Indians and TexacoChevron, and the other is the

IMF-backed plan to build the new OCP pipeline through the Ecuadorian Amazon as a means of ameliorating Ecuador's foreign debt woes. Ecuador provides a startling example of how, given the current global geopolitical and economic structure, integration into the world economy can instigate disastrous consequences for developing countries rather than the benefits that globalization advocates herald.

Oil History in Ecuador

Anti-globalization advocates could make a strong case based on Ecuador's history that economic globalization in Third World economies does little or nothing to help the average poor in these countries. It is clear that integration into the larger world economy, through oil exports and acceptance of foreign loans to finance infrastructure projects, (often to facilitate the exportation of oil) has had drastic economic, environmental, and social costs in this poor Latin American country that far outweigh the benefits that have accrued almost exclusively to political elites. Oil was first discovered in the Ecuadorian Amazon by Texaco in 1967. At the time it was "heralded as the country's salvation" (Jochnick 1). By 1974 it accounted for more than half of the country's foreign exchange earnings and about half of the national budget. During this time there was massive economic growth, as the economy grew to 10 times its pre-oil size. But, in an example typical of what happens when developing countries with unaccountable governments and nonexistent environmental laws globalize, this growth caused much more harm than good. The oil wealth was "quickly soaked up by military spending [and] inefficient public projects" that "did little to boost employment or to address poverty and basic welfare" (Jochnick 2).

The failures in government allocation of oil wealth pale in comparison to the environmental and social devastation in the region where oil exploration took place. The World Bank has described the situation there as “calamitous” (Jochnick 4). The Ecuadorian Amazon was (and still is in some ways) one of the most biologically and culturally diverse areas left on the planet. Although Ecuador comprises only .2% of land area it is home to 10% of all species on Earth, and was home to numerous Amazonian tribes. One article cites the results of oil development in the area as “local communities were devastated, forests were hacked down, and land and rivers fouled by waste oil and toxic discharge” (Jochnick 2). Admittedly, this speaks of devastation, but how much of it is exaggeration or loaded language? The numbers speak for themselves. According to the prosecutors in the current case of Rainforest Peoples vs. TexacoChevron, four million gallons of heavy metals (benzene, arsenic and lead) were discharged onto the land per day resulting in a total of 20 billion gallons of contaminated water released directly into the rivers and stream or stored in several hundred open toxic pits, some several acres in size. Also, 16 million gallons of crude oil were spilled onto the land (almost 3 times the Exxon Valdez spill). This resulted in “increased incidences of cancer, miscarriages, and respiratory problems in locals” as well as catastrophic losses of important agricultural land and livestock (Interpress Service).

Oil development in the region destroyed native culture through outright death and what can be seen as forced labor (the locals were forced to work for the oil company after their land was rendered useless by Texaco’s pollution). One Ecuadorian government study concluded that “oil development had placed indigenous groups ‘at the edge of extinction as a distinct people’” (Jochnick 2). One group, the Tetete, has actually become

extinct since Texaco commenced operations. This does not even speak of the tremendous loss of natural capital and ecosystem services associated with destruction of the extremely diverse forest. Sustainable use of rainforests through ecotourism, sustainable wood harvesting, carbon absorption, and medicinal production gives an impressive value of around \$2,400 per acre, giving a final value of around \$10 billion for the forest that was destroyed in Ecuador for a “few billion dollars worth of oil” (Jochnick 3).

Jochnick provides the best summation of Ecuador’s history with oil development, which was driven by globalization, in stating “with more than half of its [oil] reserves now depleted Ecuador has higher levels of poverty, inequality, debt and unemployment than it did before Texaco arrived and is facing its worst economic and political crisis of the past 100 years” (2). Ecuador’s growth rate in 1999 was -7%. What happened to all of the billions of dollars that were generated from drilling in Ecuador? How is it that integration into the world economy, touted by many as the only way developing nations can escape poverty, caused an increase in the poverty level from 50% to 70% (it is 90% in the area of the drilling) and an increase in under/unemployment from 15% to 71% when one compares pre-oil statistics with the present? The answer lies in a complicated amalgamation of colonial history, economic globalization, and the World Bank and IMF.

Ecuador + Oil + Globalized Economics = Destruction and Debt—Not

Development

Ecuador provides an excellent example of why integration into the world economy through the present model, given the present conditions, makes little sense for developing countries and a whole lot of sense for MNCs (Multinational Corporations). I

do not contend that Multinational Corporations are inherently evil, but I do believe that given the current economic culture and structure, it is unlikely that integration into the world economy will lead to social, economic, or environmental sustainability in developing countries. There are a number of factors which combine to undermine developing countries' ability to protect their citizens and environments from the negative aspects of development. Developing country governments often have little or no accountability to their citizens. The roots of this problem stretch farther into the past than one might expect—all the way back to 1492 when Columbus rang in the era of colonialism on the shores of the Caribbean. Colonial governments were extractive governments set up in the words of Cecil Rodes, founder of Rodesia, to “find new lands from which we can easily obtain raw materials and at the same time exploit the cheap slave labor that is available from the natives of the colonies. The colonies would also provide a dumping ground for the surplus goods produced in our factories” (Cavanagh, Mander, et al 66).

It doesn't take a very impressive leap of logic to realize that in many ways this still describes the economic interactions between developed and developing countries. Todaro and Smith, in their textbook *Economic Development*, identify dependence on exports of raw materials as one of the 6 fundamental characteristics of developing countries, with non-Asian developing countries relying on primary products (raw materials) for 71% of their exports (68). Surprisingly to many, slavery is still a very real force in the global economy. Much of this is a result of women enslaved as sex workers, but the arrests in Florida of farmers who brought illegal immigrants from Mexico and literally forced them to labor on their farms with no pay (to work off exorbitant fees for

the facilitation of their illegal immigration) is an example of modern day enslavement of peoples from developing countries (Cockburn 35). The increasing dependence on subsidized developed world agricultural products (often attributed to WTO rules) in the developing world is a direct example of how Rhodes described these nations as “dumping grounds” for surplus materials. I’ll speak more on that later.

These extractive colonial governments were partners with what is known as *comprados*—basically complicit members of the colonial populations. Many of the same native families that became enormously rich during colonial times have retained all of the political and economic power since then. This is especially true in Latin America, the region with the most unequal distribution of wealth in the world. Ecuador’s colonial history and current problems have made it “one of the world’s most corrupt and stratified countries with one of the weakest political structures” (Jochnick 3). A government run by members of society that are vastly wealthier and more politically powerful than the average citizen and that stand a lot to gain from MNCs (through corrupt dealings) has little accountability to the citizens. In Ecuador, citizens’ rights and the environment are trampled upon because there is no incentive for the government to protect their rights. The benefits of the globalization and exploitation of Ecuador’s oil wealth accrued almost solely to the elites, while the costs were bore by marginalized indigenous peoples and the environment. If the government and societal structure of Ecuador was atypical among developing countries and there was a high level of government accountability, the government may have pushed for sustainable development in the region rather than oil development, since this would have yielded greater benefit to all.

Capital flight is another phenomenon that explains why the mixture of globalization and oil yielded little positive results. This refers to the transfer of funds from one country to another. In Ecuador, this means that the revenues from oil exploitation leave the country because the project was owned by a MNC based in the United States. To add insult to injury, the profits that remain in Ecuador, which largely accrue to the wealthy, are often invested overseas in more stable economies. Globalization basically makes it possible to transfer the value of resources from one nation to another. Developing countries, desperate for money and with little economic and political power, are sure losers in this system.

Globalization in Ecuador created a situation where Texaco could extract oil wealth and be essentially accountable to no one except a few select members of the government. The unequal distribution of political power and lack of environmental laws allowed this MNC to commit what would in other countries and in the United Nations be considered environmental and social crimes with no fear of retribution (Jochnick 4). The victims of the plunder had no voice. Globalization in these circumstances will not achieve the tenets of sustainable development. Given the marred history of oil development and globalization in Ecuador, what is the present situation like? Is there any hope for retribution against Texaco? Is there any hope that new oil development projects will be more sustainable?

The OCP Pipeline

This example illustrates a destructive cycle often associated with globalization. Many developing nations are currently stuck in a trap of development as a means of

paying interest on their international debts. The loans were originally given to the nations to fund development projects beyond their means to increase the quality of life for the citizens. These funds were almost always squandered by elites or misdirected by advice from the World Bank and IMF that did not take into account cultural and regional considerations. Eventually, larger and larger loans were needed just to pay the interest on the original loans, triggering a downward spiral of debt (Cavanagh, Mander et al 38). The rapidly increasing third-world debt can be linked to the IMF's structural adjustment policies beginning in the 1980s. These policies "reoriented national economies to focus on debt repayment, and to further open their resources, labor, and markets to foreign corporations" (Cavanagh, Mander et al 38).

This process almost word-for-word describes what is currently happening in Ecuador. Ecuador has the largest foreign debt in the western hemisphere (\$16 billion). Approximately 25% of Ecuador's annual budget is allocated for debt service. They must pay \$1.1 billion this year—a significant amount given that World Bank figures put the total GDP for 2002 at \$12.4 billion (Jochnick 5). This is money that is badly needed to provide social services and sustainable economic growth in a country with an annual GDP per capita of \$950. This money could also be constructively used for conservation purposes in one of the world's most biodiverse countries. Nevertheless, the IMF has pressured Ecuador to increase its rate of debt repayment and they have identified oil exports as the way to accomplish this. The IMF has identified the 500km OCP pipeline as the panacea to Ecuador's debt repayment issues. Ecuador's Energy Minister has proclaimed "Without that pipeline, Ecuador has no future", echoing this sentiment

(McClearn 1). But, this opinion has been questioned several times by academics and environmentalists.

A consultant for the New York based agency LatinSource claims that the best-case scenario in Ecuador would provide for exportation of 600,000 barrels of oil per day. But he acknowledges that “most of that [revenue] will not accrue to the country—it will accrue to private companies that are not going to leave the money here in Ecuador...most of the rest—the government’s share—is earmarked to repay international debt” (McClearn 5).

The IMF’s stipulations regarding the OCP pipeline seriously call into question what its goals in Ecuador are. It is hard to see how the requirements that Ecuador open all of its oil industry to private foreign investment and that 90% of the government’s oil revenues be dedicated to debt service will further the IMF’s stated goals of “economic growth and high levels of employment” as stated in the IMF webpage. It could theoretically be argued that MNCs might be better prepared to glean the wealth from the oil than Ecuadorian companies or government projects. But, there is no disputing that this will ensure that much more of the revenue will be taken overseas and not benefit the Ecuadorian people, and that MNCs are less accountable to local citizens than Ecuadorian companies or the government. Should Ecuador wish to not adhere to these guidelines the country would find itself in an even rougher situation. Accepting IMF loans and subsequent conditions is often a prerequisite for other forms of foreign investment, which could help Ecuador, with proper legal and governmental institutions in place, to prevent exploitation.

The OCP pipeline poses similar threats to Ecuador as Texaco's actions in the past have. Although, it is unlikely that the results could be as horrific as with Texaco since there is a much higher level of international scrutiny with the OCP than there ever was when Texaco was operating in Ecuador. Nevertheless, there are major issues to contend with. For one, the proposed route of the OCP goes through the very sensitive and unique Mindo Nambillo cloud-forest reserve. This reserve is so diverse that it protects about 5% of all bird species on the planet and is an important watershed for local indigenous communities (*Economist* 1). In response to the threat, indigenous peoples have taken direct action to prevent and protest the construction of the pipeline. These actions have been met with violence from OCP employees and government representatives (*Global Aware*). This is symptomatic of the instability that will result when OCP workers clash with politically and economically marginalized traditional societies in a situation with little accountability. One observer predicts "The influx of construction workers will dramatically increase disease, crime, prostitution, rape, deforestation, food shortages, and exploitation of natural resources" (Hogue 12). Major players in the OCP consortium have already proven their lack of commitment to environmental and cultural protection. Global Aware notes that the OCP has had its environmental license revoked by the Ecuadorian government twice already, while the *Economist* expresses concern over the fact that Techint, an Argentine company part of the OCP consortium, has already been fined \$13,800 for illegal logging in Ecuador (Global Aware Website, *Economist* 1).

An economic threat posed by the OCP and the greater process of oil exploitation is the economic dependence on primary product exports. A diversified national economy is much more stable than one relying extremely heavily on one crude product export, as is

now the case in Ecuador. Alberto Acosta, a renowned Ecuadorian economist illustrates the threat of primary product export dependence:

“Under these circumstances, Ecuador will be what it has always been: a primary product producer. Petroleum appears to be a source of earnings that reduces the tension caused by a chronic trade deficit in the non-petroleum sector. The deal is to produce and transport the greatest quantity of crude possible. But desperation to increase oil earnings is driving Ecuador to ‘petrodollarization’ which means damage to the environment will increase dramatically alongside political tensions. In the current privatizing wave, whoever gains control over petroleum production gains the power of the state. The state will maintain the appearance of democracy while becoming increasingly authoritarian in practice. ... And in this context, the manipulation of information and intolerance spreads in Ecuador. Those who protest are threatened or attacked. ‘The OCP is because it is’ ... and meanwhile Ecuador advances toward the past.” (Acosta 8-10).

This threat posed by reliance on oil exports in Ecuador must be taken very seriously by this small nation. According to government estimates, the country’s reserves will last just 14 years, leading Bayardo Vobar, a consultant with the Institute of Economic Investigation in Quito to warn, “When the oil is gone, we will face absolute poverty” (Farnam 2). Further dependence on oil in Ecuador, which the OCP pipeline will stimulate, will ensure that the cycle of debt, environmental destruction, poverty, human rights abuse, political misappropriation of power, unsustainable resource use, and cultural disruption will continue for the foreseeable future. The government of Ecuador must

realize this. Developed countries should work to prevent the Third World from falling into this trap, rather than exploiting chaotic and desperate nations for economic benefit.

Rainforest Peoples vs. ChevronTexaco

Fortunately, action is being taken to address Texaco's toxic legacy in Ecuador. There is an ongoing class action lawsuit filed by 30,000 plaintiffs that are residents of the areas Texaco drilled in against the company for the egregious social, economic, and environmental harms caused by Texaco's actions in the region. The case is filed against ChevronTexaco in view of the fact that the two companies have merged after the alleged crimes. Cristobal Bonifaz is the lead attorney for the Rainforest Peoples. This native Ecuadorian, living in the US, has spent over ten years wading through the legal quagmire that this historic case creates.

Bonifaz initially sought to try the case in White Plains, New York—Texaco's headquarters—arguing that the decisions that caused the devastation were made in White Plains, and hence the case should be tried there. The validity of this was rooted in the Alien Tort Claims Act (ATCA) of 1789, rediscovered by Peter Weiss in the late 1960's as a way to potentially prosecute US soldiers for the My Lai Massacre in Vietnam (this case was never brought to court) (Press 2). This law “was originally designed to grant noncitizens access to US courts in cases involving a breach of international law, including treaties (the so-called "law of nations")--in part, at least, so that the United States could safeguard its global reputation by holding its own residents accountable for inflicting wrongs on aliens” (Press 3). Utilization of the ATCA for this case is reasonable in the American judicial system where corporations are given legal status as ‘persons’

(Press 3). In April 1994, Federal District Judge Vincent Broderick in an unprecedented ruling agreed to hear the case, citing the ATCA and other similar acts as justification for this decision. He died of cancer before the case could come to trial. The case spent the next eight years being shifted through the US and Ecuadorian legal systems after Broderick's successor refused to hear the case. Bonifaz had resigned himself to trying the case in Ecuador's notoriously corrupt legal system, when in May of 2003 the US Second Circuit Court of Appeals in New York ruled to enforce any judgment given by an Ecuadorian court or, if it seemed that the plaintiffs did not receive a fair hearing, try the case in the US (Lobe 1). This was a historic development in the struggle to hold MNCs accountable for environmental and human rights abuses. MNCs generally prefer to have cases of this nature held in local countries where they can delay the legal system or even use bribery to protect their interests (Lobe 2). In these cases it is often unlikely that the courts will rule against economically important MNCs for fear that the corporations will shift operations to an even weaker country with an even more malleable legal system. Even if the corporations are decided against they often do not pay damages, relying on their importance to the economy as a means of ensuring that the government does not enforce payment (Lobe 2). The US Second Circuit Court of Appeal's decision to ensure a fair trial and execution of potential rulings in this case heralds a new level of accountability among an MNC operating in a foreign nation. This case, which began court proceedings in the small Ecuadorian oil town of Lago Agrio last fall, can be described as one of the most important environmental lawsuits ever.

Rainforest Peoples vs. Chevron Texaco is historic because of the legal foundation it rests upon. The ATCA has been accepted by US courts in this case, with the

implication that, in Bonifaz's words, "a small court in a remote town of Ecuador has the same power over a 99-billion-dollar multinational corporation as a federal court in Manhattan" (Lobe 1). If rulings against MNCs in developing countries were considered legitimate in the US, this could seriously limit exploitation of people and the environment globally. The other aspect of this case that could become extremely significant, if Bonifaz wins, is the fact that his legal argument is based on the idea that what Texaco did violated international law—not domestic law. At the time of Texaco's actions, Ecuador had no environmental laws in place, and therefore Texaco did nothing domestically illegal (Jochnick 4). Additionally, Texaco was in direct cooperation with the Ecuadorian government. At first glance, this would seem to invalidate Bonifaz's case—not so. The 1972 Stockholm Declaration and the 1992 Rio Declaration, both signed by the United States and Ecuador, identify the "right to a clean and healthy environment as a fundamental and inalienable human right, and prohibits both state and private actors from recklessly endangering 'the environmental needs of present and future generations' as Rio states" (Press 5). These same international accords were used by the United Nations Security Council after the Persian Gulf War to designate Iraq as culpable for spilling less than a quarter into the Persian Gulf of what Texaco has spilled in the Ecuadorian Amazon (Press 5). Also, in both cases, burned oil heavily polluted the air. In this legal reasoning, the fact that the Ecuadorian government was complicit with Texaco in these atrocities does not absolve Texaco from guilt. Cooperation with a government does not legitimate an act. If one were to have cooperated with the Nazi government in the Holocaust, one would still be guilty of genocide—a violation of international law. For these reasons, the case of Rainforest Peoples vs. Texaco represents a truly historic event in the development

of international law, and a potentially huge victory in the move towards Sustainable Development. This case is still in progress and may go on for some time.

Achieving Sustainability in Ecuador

The present economic model in Ecuador is not on a sustainable path. Its divergence from sustainability will likely increase as Ecuador further integrates into the global economy, buys into the consumption mindset that the Western world is advocating (intentionally, or unintentionally) around the world, and increases the economic importance of crude oil exports. Many methods of achieving sustainability in Ecuador would be identical to things that need to be done worldwide, so will not be discussed here. However, there are some aspects of the Ecuadorian story that are emblematic of current problems in developing countries that hinder environmental and social sustainability.

Ecuador accurately demonstrates the tragedy and destruction that can result when developing countries with improperly formed legal and government institutions open up to the world economy. There were no environmental laws to prevent Texaco from dangerously exploiting the oil, and there was very little, or no, institutionalized means of protecting the rights of indigenous peoples. The lack of these institutions allowed Texaco to destroy the environment and literally exterminate some groups of native peoples. Only 16% of Ecuadorian citizens have faith in the judicial system. If the system is as ineffective as most Ecuadorians feel it is, then there may be little chance that Texaco be brought to justice in Ecuador. It is of essential importance that adequate institutions are in place when countries open up to the global economy or the benefits will often accrue

to foreign MNCs and the costs may be borne by disenfranchised groups and the environment.

In view of the harm that can be caused by prematurely opening up the global economy, the IMF, World Bank and other such institutions should make it a strict requirement that adequate institutions are in place before supporting or requiring mega-projects like the OCP that could endanger people or the environment. Perhaps if these development organizations had focused their time and money over the last 30 years towards creating environments in developing countries not just attractive to foreign investment, but also environments that would protect locals and the environment, the developing world would be in much better shape. Ecuador's national debt (\$16 billion) is clearly economically unsustainable for this small country. It is largely the impetus for such mega-projects as the OCP, and the corresponding problems. Nevertheless, the country should not be allowed to simply default on this debt—even though bad development advice from the lenders is partly responsible for the debt's size. Accountability is extremely important. There should be inquiry into things Ecuador could do in exchange for debt relief that would have a positive effect on its people, economy, and environment. Jochnick calls for writing off ½ of the debt in exchange for a correspondingly large protection of the Amazon. The Amazon rainforest provides a service to the rest of the world in the form of climate control and biodiversity protection. Protecting it in exchange for debt relief makes sense for all parties and would provide a useful hint to the Ecuadorian economy of how valuable its sustainable resources are.

The OCP pipeline should not be built. Its potential for all sorts of damage is foreshadowed by Texaco's destruction. Alternative, sustainable means of paying off the

national debt and stimulating the national economy should be sought out, with the help of the international community. This would give the developed world a chance to really back up all of our rhetoric about Sustainable Development. Of course, this would require a great moral leap of humanity in order for the developed world to get past its own economic self-interest, but supposedly some development organizations (like the World Bank) already exist primarily for these altruistic reasons. As the World Bank Mission Statement says, one of their goals is “to help people help themselves and their environment.” Plus, Ecuador has a lot to offer the rest of the world in the form of preservation of increasingly rare environmental and cultural diversity. It would also be a great step in the right direction for Ecuador and the world if Bonifaz and the Rainforest Peoples were to win the case against Texaco. Only time will tell if these small steps towards a sustainable future will be substantial enough and come in time to prevent ecological and economic disaster.

Biopiracy and TRIPs

One of the most contentious issues that has cropped up from the great clash and mixing of cultures associated with globalization is the issue of patents—especially patents of indigenous knowledge and DNA by Western corporations and government agencies. This bioprospecting, as proponents have labeled it, or biopiracy, as indigenous rights groups deem it, is enmeshed in a number of ethical and economic pitfalls. Most of the world's biodiversity is in developing countries—providing a vast untapped economic resource for medical, agricultural and biotech companies. For instance, according to the UNEP's World Atlas of Biodiversity, in the US alone, 56% of the top 150 prescribed drugs (worth \$80 billion annually) have their origin in nature. When it is taken into account that roughly 70% of the world's biodiversity exists in developing countries, where laws are often as weak as an underpaid official's resistance to bribery, it is predictable that foreign-based corporations seek these vast riches through available means (UNEP World Atlas of Biodiversity). In addition to the potential economic value of biodiversity, there are the equally huge genetic gold mines of what some critics would label 'uncolonized' agricultural seed germ plasm diversity and increasingly, valuable human genetic diversity stored in the cell lines of indigenous peoples. This genetic commons so crucial to the diversity and stability of life on Earth was once described by David Brower of the Earth Island Institute as "the last untapped wilderness on Earth" (IFG Report 85). This wilderness is no more. Corporations now reap profits and royalties on everything from neem trees to indigenous people's cell lines to high oleic acid sunflower seed varieties. All of these things have been taken directly from nature with little or sometimes no modification.

Texaco inflicted the destruction previously discussed in Ecuador because it was in its economic interest. Ecuadorian laws regulating Texaco's actions were few and far between, and when they did exist they were pliable toward the oil company's interests if money reached the right hands (Jochnick 3). Biopiracy represents another example where the lack of proper legal institutions creates a situation where it is in a corporation's economic interest to use practices that have negative moral, social and environmental impacts on developing countries. This is an overlooked, yet crucial fact that needs to be understood by the public in the modern world where economics is infused in every facet of life, culture and politics—*the fundamental reason corporations exist is to seek the greatest profits through any available means*. It is not necessarily that CEO's of corporations that commit heinous deeds are morally destitute (though it could be easily argued that this is likely). These CEO's are just doing their job—maximizing the profits of the company for shareholders. Corporations tend to ignore environmentally or socially protective policies unless it is in their economic interests. For the protection of all citizens, if we are to continue to operate in a capitalist economic system, there must be strict and effective regulations to make social priorities (like human rights and environmental protection) in the economic interest of corporations. It is possible that over time this will create a corporate culture of preservation, but it may not. In the meantime, corporations in competition with each other will remain in a sort of arms race, searching for the quickest, most effective way to maximize profits—with no regard to the erosion of human values. At the very least, there should be resistance to the pressure that corporations place on governments to create rules more favorable to their plundering.

Sadly, these rules already exist. The TRIPs (Trade Related Intellectual Property) agreement under the WTO allows corporations to, as Vandana Shiva says, “steal and control genetic resources through patents” (Anderson 118). This trade agreement, which generally legalizes and reinforces biopiracy or bioprospecting—whichever term you prefer—is at the heart of the debate. Whether the agreement really permits such blatant theft and manipulation will be examined later.

Biopiracy and related issues are relevant to a variety of concerns about economic globalization. I will overview and investigate as many aspects and implications of this as is possible in this paper. Biopiracy, TRIPs and their effect on agriculture involve trade issues, the developing and developed world, cultural disruption, labor issues and environmental concerns—in effect, a microcosm of many of the concerns about globalization as a whole. The concept of biopiracy itself must be studied, as well as its history and the view that it is just a modern day extension of colonialism. Some critics see the process of globalization as a colonialism-reinforcing process. It is also necessary to evaluate how the nexus of biopiracy and the TRIPs agreement reinforces biopiracy and the health, social, and economic implications of this for developing countries. Biopiracy and TRIPs have severe consequences for third world farmers and agricultural stability. This will extend more generally into an exploration of environmental problems created by globalized agriculture. What of the ethical quagmire biopiracy creates? Should people be allowed to retain full ownership of their very genes and traditional knowledge despite the benefits that MNCs claim they could bring to humanity? The TRIPs and biopiracy debate raises several important concerns regarding globalization that must be addressed.

Biopiracy as a Concept and Colonial Legacy

“The predatory cultural dimensions of Western imperialism, far from having disappeared, continue to countenance processes of appropriation in new areas and domains.”

-Kloppenburg, “Biopiracy, Witchery, and the Fables of Ecoliberalism”.

Biopiracy can best be described as the appropriation of knowledge, life-forms, and parts thereof by corporations that then patent the ‘pirated’ good and reap profits from its sales. It is by nature a word that is critical of this process which corporations might simply deem research—in which case they would see no ethical dilemma. Nevertheless, many activists and academics around the world are increasingly worried about this activity and what it will mean for the Third World. It is difficult to find literature on how the actual biopiracy process begins, but the typical example cited involves a foreign based corporation entering a developing country searching for traditional knowledge of medicinal or agricultural plants. Once some potentially valuable plants are found the MNC (Multinational Corporation) laboratories study the active properties of chemicals within the plant or see if it is valuable as a strain of a food plant. If it is considered valuable, the corporation will seek a patent to protect its ‘invention’. This seems simple enough; after all, if the corporation puts their work into the ‘invention’, according to Lockean philosophy it becomes their property. And if someone else, say a farmer, wishes to use their property (a patented seed) the corporation should be paid for this, right?

Alas, the process is not so clear-cut. The invention could be the process of extraction of a chemical from the plant, the plant strain itself (altered or unaltered from its

original form), or even a characteristic of the plant (or whatever it is that is being patented—genes are up for grabs as well). This raises some serious questions to be discussed in depth later—does it really constitute a new *invention* when often all that is happening is that a chemical from a plant is being isolated and given a Latinized name? Additionally, the patenting corporation claiming invention of the chemical in the plant that enables creation of a new medicine to treat malaria first investigated this tree because of awareness that locals had been using the tree for the same purpose for thousands of years. These are the two assumptions that underlie the term biopiracy. One, corporate ‘pirates’ are claiming ownership to something that cannot really be owned. It is stated that this cannot be owned because often what is patented is considered a part of the global commons—no more legitimate for privatization than the oceans or air. Biopirated knowledge and species are sometime considered a part of the common heritage of mankind or something that nature has invented, and hence no human can lay claim to. This is one of the assumptions of the concept of biopiracy. The other assumption is that the corporations’ supposed ownership has roots in their theft of indigenous knowledge.

Claims that this occurs are not just assertions of radicals. The United Nations *Convention on Biological Diversity (CBD)*, signed by the international community in 1992 at the Earth Summit defines biopiracy as *bioprospecting regarded as the perpetuation of the colonial habit of plundering other countries' biological resources without fair and equitable compensation, resulting in environmental, economic and social detriment* (Kate 1995). The CBD emphasizes “the fair and equitable sharing of the benefits arising out of the utilization of genetic resources”, as well as conservation and sustainable use of biodiversity as its three goals. Shiva claims that patenting life forms

has “serious ramifications for biodiversity conservation and the environment” (Shiva 87). The United States Supreme Court opened the door for the life patents that fuel biopiracy’s drive in 1980 when it ruled in *Diamond vs. Chakrabarty* that a modified bacterium was patentable (Singapore Academy of Law). With global Intellectual Property Rights (IPR) laws heavily based on US law and custom, biopiracy has potential to do enormous damage. Biopiracy, which the CBD acknowledges is occurring, is a threat to the three primary goals of the CBD, and hence must be addressed to protect the interests of the 183 nations (with the notable exception of the United States) that have ratified the CBD.

As the CBD definition of biopiracy implies, many see the process as an extension of Western-style colonialism that has been occurring for over 500 years. Shiva draws a connection between the ideologies that justified colonization of and destruction of native lands to ideologies justifying biopiracy (Shiva 2). Just as natives did not ‘improve’ the land and hence laid no claim to it in the eyes of colonialists, indigenous shamans have no claim to medicinal values of a plant they may have discovered if they do not work to ‘improve it’. This improvement is defined as standardization for Western-style sales and recognizes no value in traditional medicine. Just as Westerners defined Christianity as the only non-primitive religion, commercialized Western science is the only non-primitive knowledge system (Shiva 4). These concepts legitimize biopiracy as a duty of MNCs just as colonization through Christianity was legitimized as a duty of colonizing nations. Shiva calls for resistance to this “ultimate colonization of life itself” (Shiva 5).

The Human Genetic Goldmine

Biopiracy represents not only new territory for commercial exploitation, but also new conceptual territory for the human mind. It represents the infiltrations of Globalization into our most intimate experience—life itself. Although this SMP deals primarily with developing world issues, it should be noted that biopiracy, more than many other globalization issues, has the power to affect both rich and poor in developed and undeveloped nations. Developed nations are not searched for shamans with knowledge of medicinal plants. But if there is no regulation, all human bodies will be equally open for corporations to treat as genetic mines. In the realm of human genetic exploitation, it is more likely for developed country citizens to experience this as they are significantly more integrated into the medical establishment. John Moore, a cancer patient in the United States, discovered this as he unknowingly had his cell lines patented by his own doctor (Shiva 5). The citizens of Iceland may or may not be aware that their government recently sold every one of their DNA sequences to a private company (Suzuki and Holly 127). The Human Genome Project has the most potential for privatization of human genetics. Jeremy Rifkin, head of the Foundation on Economic Trends says of the project,

“Already corporations are seeking patents on every one of these human genes as they’re isolated. Within just a few years, a handful of companies will literally control the genetic blueprint of our species. They will have claimed all one hundred thousand genes as their private property in the marketplace, meaning that any human being that needs access to those genes for medical, screening, or therapeutic purposes will have to pay for that right. The genes of the human species will be controlled as intellectual property, as patents, by a few global companies” (Suzuki and Holly 128).

This loss of ownership of our own blueprints would be a loss of autonomy and individuality unlike anything in human history. Control over our own lives would be threatened via genetic discrimination. For example, companies could screen potential employees for health risks before hiring, or health insurance companies could deny coverage to people with genetic risks. This would unfairly penalize millions of people. Privatization of human genetic information would give corporations and governments control over the most essential and fundamental aspect of human life. It is not a new thing for governments or companies to hold control over essential things for the continuation of human life, but the control of the recipe and description for human lives is a novel and dangerous possibility.

It is theoretically possible to prevent personal genetic exploitation by refusing modern medical treatment and government genetic surveillance. But to do this would involve giving up much of the stability of the modern lifestyle. As corporations begin to define more and more of what the status of our present society is and where it is going, we are tacitly forced to cede more and more of our lives to their control. The modern economic system is amazingly complicated, to the point that one cannot know the actions (especially with regard to genetic practices) of corporations that one patronizes. To refuse to support biopiracy, genetic modification and genetic exploitation would mean to refuse the economic system—a near impossibility in most of the world. That is why it is extremely important that all humans educate themselves on these global issues, almost solely controlled by corporate interests. If we as a global community feel this is a good thing, then by all means it should proceed, but if we feel it is not, then a lot of work needs to be done. Either way awareness is crucial so that we may make informed decisions.

Empowered citizens in developed countries must take into account the interests of the developing world's citizens that are out of the range of information, but fair game for exploitation.

TRIPs, Biopiracy, and the Neem tree

The Trade Related Intellectual Property Rights (TRIPs) treaty was created by the World Trade Organization (WTO) in 1995. When this 146 member global trade organization passed the TRIPs treaty it opened the doorway to tremendous growth in biopiracy. Most of the member countries of the WTO had previously banned patents of biological resources but TRIPs makes it mandatory to allow some of these patents (Khor 7). TRIPs effectively raised the potential profit margin for biopiracy several-fold through its legitimization and outright encouragement.

The Neem tree, native to Africa and India is seen as one of the most productive veins in genetic mining thus far, and provides a valuable case study for how TRIPs has endorsed biopiracy and some of the issues with biopiracy. Neem trees have provided “wide ranging medicinal and environmental properties [that] have been used, at no cost, by indigenous people for over 4,000 years” (Jere-Malanda 1). This tree, dubbed the Tree of the 21st Century by the United Nations, has 135 different useful, safe compounds including useful in treatment of malaria, leprosy, intestinal worms, respiratory disorders, rheumatism, STD's, ulcers and other disorders. Recent research has shown Neem may have useful properties in the fight against AIDS. Neem is almost the perfect tree for the developing world—drought resistant, salt-tolerant, and extremely useful. This “village

pharmacy” is resistant—locusts once attacked every species of tree in Sudan except Neem due to its insecticidal properties (Jere-Malanda 1).

The Indian Neem tree has already been harvested for patentable material, with 70 patents so far by Western companies (Jere-Malanda 1). African Neem is on its way to similar exploitation. MNCs have the potential to make vast profits from such a useful tree—especially given the recent infatuation in developed countries with natural medicines. TRIPs has streamlined the process for MNCs to get patents on Neem products. Under this trade treaty, they can patent the processes used for extracting its useful properties rather than the tree itself. Jere-Malanda claims that the implications of this process-based patenting is that “where the traditional healer offered his service for a minimal and affordable cost (even free), the cost of the patented version (likely to come with a Latinised scientific name) will be out of reach of most Africans” (1). This highlights a very controversial ethical aspect of TRIPs to be discussed later—how much of the patenting is just giving Latin names to chemicals known and used by traditional groups? Additionally, the hypocrisy of using indigenous knowledge to patent something and then charging royalties for the same indigenous group’s use stands in stark contrast to foundational economic and social ethics—namely that people should reap the benefits of the work they do, not others. On one side of the debate, Western corporations claim they have made the discoveries themselves and that they are providing valuable jobs for locals. On the other side indigenous groups and anti-biopiracy activists see the Neem example and others as clear-cut theft (Jere-Malanda 1).

Although biopiracy has been an issue since the early 1990’s (and has been practiced since colonialism began), TRIPs has drastically increased its prevalence and the

patentability of life-forms and genetic material. There are significant environmental, economic, and social issues associated with this globalized patent system in the developing world.

Economic Issues

There are a number of economic concerns associated with biopiracy and TRIPs in developing countries. The debate over whether TRIPs will hurt or help the world's poor is a complex one. Advocates of TRIPs assert that the agreement could provide local job creation and that the benefits of GMO's and other fruits of life patents could drastically improve living standards in the poorer countries of the world through increased agricultural productivity. Opponents of TRIPs and associated biopiracy argue that stealing indigenous knowledge, patenting it, and selling it back to its creators will do nothing to improve the lives of the world's poor. One side sees biopiracy as improvement on nature, while the other views it as disenfranchisement of indigenous rights and plain theft.

If viewed in a narrow way, the proponents of TRIPs seem to make a good point. After all, improved crop yields would be a clear-cut way to improve life for billions of poor people. But this view ignores the fact that these improved crops or at least their antecedents were often used by the world's poor in the first place. This view also overlooks more nuanced economic effects of TRIPs. The most obvious negative economic effect is the loss of potential profits as the indigenous knowledge that leads to biopiracy is effectively stolen and used to benefit a corporation rather than locals. Martin Khor, of the Third World Network calls this "reverse transfer of technology" where the

“poor developing countries...are transferring knowledge and thus technology to the rich developed world” (Khor 8). The irony of this is that biotech MNC’s often talk of their products marketed to the developing world as if they are a gift of technology. Biopiracy often leads to a situation where the patenting of a product leads to the sale at a higher price of that product back to the developing country where it originated (Khor 8). This can lead to a drain on valuable foreign exchange reserves as countries have to pay foreign corporations for the right to use a product they have always used, thus exacerbating the debt crisis (Khor 8). MNCs, after receiving a patent for the pirated product in their home country, can apply for patents in the country of origin, thereby depriving the local producers of their local market.

Biopiracy of seeds inflicts severe economic damage on farmers. Seeds are both the origin and end product of farmer’s crops. This is untrue of hybridized seeds protected by the TRIPs agreement and being sold to developing countries. MNCs have been known to take traditional seed varieties, slightly alter them and patent the new seed. Consequently farmers that originally grew the seed cannot legally grow or save their own seed anymore and must buy from an MNC. Hybridized varieties do not produce seeds suitable for replanting. Through this process, MNCs ensure future profits by “circumventing natural constraints on the commodification of the seed” (Shiva 49). Farmers lose their own intellectual property, lose the economic stability of common seed banks (these violate patents), and are forced into increased dependence on foreign corporations. Beth Burrows of the Edmonds Institute forcefully describes this, saying, “Farmers have to go to the corporations like to masters on the manor” (Weinberg 23).

Critics of TRIPs see biopiracy as the continuation of Colonialism and a return to a sort of economic serfdom for many of the world's poor.

Texmati rice, a blend of Basmati and long-grained Texas rice patented by RiceTec Inc. (Patent No. 5663484), provides a good case study of how farmer's can lose control of their seeds. RiceTec was able to take out 20 patents on the strain that were so far-reaching that RiceTec effectively gained patent rights over the original basmati rice varieties (Research Foundation for Science, Technology, and Ecology Report). This patent caused economic damage for developing world farmers in two ways. It deprived them of community-owned intellectual property and any potential economic gain, and prevented farmers from "free use of their own seed" (Research Foundation for Science, Technology, and Ecology Report). The Indian government challenged the patents and eventually 15 of the 20 patents were overturned, but at substantial cost.

This alludes to another economic drain associated with TRIPs and biopiracy. Challenging patents can often be prohibitively expensive. An indigenous group in a developing country could not possibly challenge one of the world's largest corporations in an international patent dispute court. The economic obstacles are insurmountable. On the rare occasion that patents have been challenged, it has been on behalf of a national government or government department as in the case with Texmati. The Council for Scientific and Industrial Research (CSIR) of India recently successfully challenged a patent on turmeric that gave the patenting party rights to general use of turmeric for healing wounds. To claim that this was intellectual property was absurd since turmeric has been used for healing wounds in India for centuries. The key to the success of this challenge was that the traditional use constitutes 'prior art' (Magnus, Caplan, McGee

271). While it is great that the patent was overturned, it must be noted that this was an extremely commonly used traditional medicine in the world's second most populous country. The implication is that "cultures whose practices are not documented will not be recognized, even if they are quite common and well known locally" (Magnus et al 271). An additional problem with the international patent regime is the prohibitive costs of obtaining a patent in the first place. According to a *New Internationalist* article from September 2002 initial patent costs would be a minimum of \$21,000, with at least \$250,000 needed if the patent is challenged (19).

Another obstacle stacked against patenting of traditional knowledge by traditional groups is political power. Money finds its way into politics in whatever way whenever possible, and international patents are no exception. The United States has fiercely protected the profit margin of its corporations from threats to their patents. This prompted 60 NGO's to lodge a formal complaint over the United States' actions which have been "destabilizing fragile economies, democracies and ecologies" (South-North Development Monitor (SUNS)). The complaint was triggered by an April 21st 1997 letter sent from the US Secretary of State to the Thai government regarding a Royal Thai government law allowing Thai traditional healers to register their medicines under patent regimes. In response to this, the United States' letter claimed, "Washington believes that such a registration system could constitute a possible violation of TRIPs and hamper medical research into these compounds" (SUNS). Protection of MNCs by developed countries could put the last nail in the coffin for indigenous peoples to get any just compensation for, or control over their intellectual property. Their challenges are formidable.

There are a number of significant economic consequences for the world's poor associated with biopiracy that the biotech corporations do not advertise. These include the loss of potential local, domestic and international markets for traditional knowledge, being forced to pay royalties for one's own knowledge, the loss of the seed as a means of production, and the prohibitive costs of protecting traditional intellectual property.

Environmental Issues

The direct environmental consequences of biopiracy and TRIPs are not as severe as the economic and social issues. Nevertheless, the environmental consequences of the larger agricultural system of which biopiracy and TRIPs are a part are enormous—possibly the greatest threat to sustainability on the planet. These consequences will be examined later.

The most direct environmental consequence of biopiracy and TRIPs is the loss of biodiversity—mostly through loss of agricultural diversity. This is definitely a social food security issue but has environmental implications as well, as the loss of any genes is the loss of biodiversity which keeps the ecological web healthy and stable. As Shiva explains, “When seeds are covered by patents...and market forces combine with IPR protection to shift seed supplies from the farmer to the corporation, farmers' rights as breeders and innovators are undermined and the incentives for on-farm conservation are undone, leading to rapid genetic erosion” (Shiva 98).

The other major threat posed by biopiracy and the consequent introduction of genetically modified organisms is the possibility of ‘superweeds’. This form of biological pollution concerns the creation of herbicide and pesticide resistant plants. It is

possible that crops genetically modified to resist pesticides and herbicides (so these chemicals can be applied liberally on farm fields, which also has obvious environmental consequences) can hybridize with their wild relatives, often pests, and hence transfer the resistance gene (Shiva 92). This possibility disproportionately threatens developing countries as they have the world's highest biodiversity and hence the highest possibilities for hybridization (Shiva 93). There is some merit to concern about this Frankenstein-like possibility, given the sad history of failures when humans introduce exotic species to improve agricultural productivity or for aesthetic or cultural reasons. These sad examples range from the fifty sparrows released in New York's Central Park (someone wanted to introduce all the birds in Shakespeare's plays to the park) that have now taken over the bluebird's niche in North America to the nutria introduced on Maryland's Eastern Shore that now threaten the health of the Chesapeake Bay by literally eating the wetlands. The almost infinite examples of species introductions gone wrong alludes to another major threat associated with introductions of Genetically Modified Organisms (GMOs)—traditional reductionist biology fails to understand the complicated interactions in the biosphere, and hence what can go wrong. GMOs need adequate risk-assessment before their introduction. These concerns apply to both biopirated GMO's and legitimately created GMOs. Environmental issues surrounding biopiracy have more to do with globalized agriculture and GMOs in general, aside from the loss of biodiversity associated with the transfer of seed control from farmers to corporations.

Social Issues

“The corporate, cultural, and scientific versions of the modernist fable share a common feature: they assign agency almost exclusively to their own narrators and are either

unwilling or unable to recognize the interests and voices of those whose lives and societies they forcibly engage”—*Jack Kloppenburg*.

Extensive social disruption in traditional societies is associated with biopiracy. Biopiracy and TRIPs have sufficient impact to threaten the stability and health of communities in the developing world. Corporations can obtain patents for the use of an indigenous-used medicinal plant for the same purpose that indigenous people have been using the plant for. Consequently, a traditional healer treating his clients in the community would be violating a patent and thus a disincentive for protection of public health is created. This deprives poor people in much of the world of any form health services, as western style medicine is usually unavailable or prohibitively expensive. The United Nations estimates that 80% of people in developing countries rely on medicines largely based on local plants and animals. Even if western medicine is available, people are still being deprived of the right to choose their style of health service. Martin Khor cites another threat of this process as “the erosion of traditional knowledge and so of conservation and the sustainable use of biodiversity” (2). TRIPs eliminates the incentive to preserve the very knowledge that the patents are supposed to protect. Additionally, by turning seeds into a nonrenewable resource that must be bought from a corporation, TRIPs “represents a major threat to local seed production and regional food security” (Zerbe 658). It is logical that subsistence farmers would fare better from dependence on local community seed-banks than on distant unaccountable MNC’s, yet TRIPs and biopiracy have reversed this. Dependence on MNC’s for seeds creates a cycle of dependence. The top five agri-biotech corporations also control 60% of the global pesticide markets. These corporations often engineer their seeds to require more inputs

such as pesticides and fertilizers. The entire process removes control of farming from the hands of the farmers and places it in MNC's.

Biopiracy and TRIPs force a greater level of integration with western society upon traditional societies. The most obvious disruption would be the bioprospecting medical researcher, showing up in traditional areas of the world asking people what plants they use and taking samples of their blood and mucus with what cannot by any reasonable stretch of the imagination be called informed consent. A medical researcher, without the sensitive training of an anthropologist could create social havoc by interacting with very traditional societies normally cut off from the wider world.

A less obvious disruption happens after the traditional society has its intellectual property appropriated by a foreign corporation. If the original innovators of the patented intellectual property wish to collect some form of recompense for their stolen ideas, they must further integrate into a foreign culture's modes of operation. The San bushmen of southern Sudan are one of the most traditional societies left on the planet, still living a largely hunter gatherer existence. Through a chain of other companies, Pfizer obtained a patent for the Hoodia plant which the San traditionally use as an appetite suppressant on long treks. Pfizer hopes to make in the range of \$2 billion annually from an anti-obesity drug based on this plant (New Internationalist 16). The San sued and an agreement is now being debated that would allow some traditional use of the plant, limited scholarship opportunities and royalties of less than 1-2% of profits. Given the fact that the plant is entirely the San's intellectual property, this agreement benefits them little for what they have been forced to contribute to Pfizer's research. The important part is to recognize the

amount of change the San were forced to go through in order to sue Pfizer. This is a significant social impact of TRIPs—forced adaptation to western legal systems.

TRIPs Meets the CBD

Another controversial aspect of TRIPs is its clash with the Global Convention on Biological Diversity (CBD). The CBD, created as a result of the Earth Summit in 1992 in Rio de Janeiro, seeks to conserve and promote the remaining biodiversity on Earth for its intrinsic and human values. Biodiversity possesses value too limitless to put a price tag on—nevertheless economists still attempt this. One study published in the journal *Nature* estimated the total value of ecosystem services (basically interactions between biodiversity and non-living factors of the global environment) at somewhere between \$16 and \$54 trillion annually (Environmental Literacy Council). The study projected that to artificially provide these ecosystem services would require an increase in global GNP by \$33 trillion over the current GNP of \$18 trillion (National Science Foundation). Basically this means that recreating these free ecosystem services would require almost two times as much output as everything humans produce on Earth per year. The CBD seeks to protect the foundation of the economy and human existence itself.

Genetic Resources Action International (GRAIN) asserts that TRIPs “threatens to make the CBD impossible to implement” (GRAIN). The primary conflict exists because TRIPs provides private intellectual property rights protection for the South’s biodiversity, while the CBD provides for collective community ownership of the same biodiversity. GRAIN points out that the CBD is just as legally binding as the TRIPs agreement and calls for a resolution to this issue. The CBD, first ratified two years before TRIPs

existed, was the first international treaty to replace the view of genetic resources as a common heritage of all humans, with the idea that national sovereignty was paramount in governing biodiversity (Zerbe 303). While recognizing these national rights, the CBD called for “fair and equitable sharing” of the benefits of biological resources for all involved parties (Zerbe 303). In fact the Convention explicitly acknowledges that respect for local communities and their rights is the best way to preserve biodiversity (GRAIN). GRAIN claims that the CBD says that in a legally binding way, all signatories must clearly protect local rights, fund conservation and sustainable use programs in the South, and ensure that patents promote and do not hinder the objectives of the CBD. Consequently, TRIPs would need to be adjusted so that its patent protection ensures biodiversity preservation, rather than destruction—as is now generally the case. The CBD also dictates that legal standing should be given to community intellectual property rights, something which TRIPs does not provide for. GRAIN additionally posits that the CBD calls for indigenous groups’ unrestricted ability to use, develop, exchange freely biodiversity, since this practice is one of the cornerstones of biodiversity protection—the stated goal of the CBD.

There is a clear contradiction between these two international treaties that needs to be addressed. It seems that the most plausible explanation would be to work out a system so that the goals of the two treaties flow seamlessly together. If this could not work, then the CBD should be given primacy in international law as it was developed first and explicitly discusses biodiversity while TRIPs only discusses patents as a broad topic. One potential stumbling block with this could be the lack of specificity in the CBD

which outlines goals, principles and objectives rather than providing stringent requirements.

Another problem in the reconciliation of the two treaties could be the United States' refusal thus far to ratify the CBD, which has been signed by 183 countries. One article in the *Nation* criticizes the United States' practice of protecting the rights of corporation's access to biodiversity patents, yet the US "still resists ratifying the [CBD]...which would recognize indigenous peoples' intellectual property rights" (Weinberg 23). With the majority of the world's political and economic might on its side, the US might be able to halt any sort of reconciliation for the 170 countries that are signatories to both treaties. The Convention on Biological Diversity provides a basis in international law for the condemnation of biopiracy and for the sustainable use and equitable sharing of biological resources.

What is Wrong with Biopiracy through TRIPs?

Biopiracy and TRIPs are intractably enmeshed in a number of ethical and legal concerns. They can be seen as results of an incompletely globalized economic and legal system. International economic integration and trade has accelerated at an exponential rate leaving inadequate time for proper or coherent regulation. International law is also in its infancy. For better or worse, globalization is occurring and we are caught in a very awkward stage of its growth. Although this survey of biopiracy has focused on problems associated with it (after all, this SMP focuses on problems associated with globalization), I do not intend to ultimately label biopiracy and TRIPs as wrong or right, but rather would like to raise ethical and legal issues with which each side of the debate must contend.

Accepting the premise that globalization is imminent (which this paper does not necessarily do) is there anything really wrong with biopiracy? The strongest argument on the pro-biopiracy (they would call it bioprospecting) side is that this practice allows valuable medical and agricultural knowledge to be spread around the world as MNCs basically mass-produce and effectively package traditional knowledge. This is a compelling argument, yet by no means does all biopiracy create products vital to human health.

What about anti-obesity drugs? While obesity is fatal in some Western countries, it is almost invariably a self-inflicted, easily preventable disease. Does obesity merit the theft of traditional knowledge when it could also be solved by eating less junk food? Additionally, biopiracy does not really lead to the spread of knowledge around the world, but rather products. As the hybrid seed example shows, this can create a cycle of dependence on a few large corporations which clearly is not in the interests of the world's poor. Also, the appropriation of traditional medical knowledge and its packaging subsequent to patenting often eliminates a formerly affordable traditional medicine and replaces it with a possibly more effective, yet prohibitively expensive version. It is highly questionable that this is an effective way of improving the lives of the majority of the world that are poor. Still, the appropriation of this traditional knowledge does provide new medicines for the West and could conceivably lower costs of medicines to make them more affordable for the world's poor. But in the meantime, patents that restrict traditional use of medicine obviously do more harm than good. The medicine based argument for bioprospecting/biopiracy does have some merit but is limited in its relevance to all forms of biopiracy, and there are still substantial ethical concerns.

The strongest argument the anti-biopiracy side has concerning the biopiracy and TRIPs debate is simply that every human society generally condemns theft. Anti-biopiracy activists see the practice as obvious theft that the thieves rationalize in a manner reminiscent of colonialism's rationale of its conquests. It does seem fundamentally wrong to steal intellectual property from traditional societies and make enormous profits off of it. Corporations could argue that these societies give their consent, but this is dubious. For example, Larry Proctor bought a bag of beans of the species *Phaseolus vulgaris* in Mexico with useful characteristics, patented all yellow beans of this species and proceeded to make money from his sales of this traditional variety in Mexico (Magnus et al 269). There is now an ongoing patent case about the validity of the patent. Did the Mexican that gave Larry Proctor the beans give his consent? Possibly, because he in no way stipulated what Proctor could do with the beans, but should this be considered legitimate consent? Should not the person giving consent have enough information to give informed consent? It would seem so, but then another issue arises. For a New Guinean tribe to give consent to a western pharmaceutical company to use their unique genes to make an AIDS vaccine, the would-be consenter would have to become educated about not just TRIPs and patent laws, but the wider world. This would be a serious threat to a fragile culture—an outcome certainly not desirable. This is a definite conundrum of resolving the biopiracy issue—informed consent means forced western integration, while uninformed consent validates theft. The western world has extended its influence to the point that legalistic procedures worldwide are generally consistent with western values and procedures, but most of the world's poor and disenfranchised do not know how to operate in this system.

Perhaps all forms of biopiracy/bioprospecting should be prohibited. Alas, this is an unlikely prospect, given the difficulty of regulation and the money involved, and it may be undesirable as well. Many people would probably feel that the appropriation of an indigenous person's genetic information is abhorrent to be used to make more attractive cosmetics, but people might feel differently if the plague broke out and threatened the lives of half of humanity. Would it still be wrong? Of course, the indigenous person owns their genes and generally should have the right to control what they own, but is this true if he or she can save three billion people? The situation might be viewed differently if it was a wealthy eccentric medical researcher hoarding a cure that he or she had found. Perhaps there should be some sort of practice of eminent domain regarding genetic resources if all other use were prohibited. However, if this were the case it would be difficult to determine exactly when this eminent domain could be used. Possibly a utilitarian view of genetic resources would be best—if the benefit of the appropriation of a genetic resource leads to more gain than loss for humanity it is acceptable. In this case very many cases of biopiracy would be acceptable, given the often minute populations of indigenous peoples. Also, this view is inconsistent with reality. To make it consistent, the rich minority of the world would have to agree to share their resources with the poor, and it would be justified for hundreds of thousands of Americans to take a small part of Bill Gates' fortune. As attractive in some ways as this sounds, the international patent system will never operate on these principles. These are all difficult questions that I do not pretend to have the answer to. Nevertheless, they need to be addressed.

One worrisome claim that the pro-TRIPs camp purports is that these sorts of patents are necessary to stimulate medical research. They argue that researchers have no incentive to put in work unless they can realize substantial profits from this. This makes economic sense in the rationalistic, self-interested world of laissez-faire economics, but is this really the way the world works? Shiva asserts that this view “negates the creativity of traditional societies and the modern scientific community, in which the free exchange of ideas is the very condition for creativity, not its antithesis” (13). Laissez-faire economics are increasingly criticized for adjusting reality to fit economic models, rather than the reverse, so maybe Shiva is right and self-interest is not necessary for medical research. It would be logical that extreme genetic patent protection is necessary to stimulate medical research if research was done primarily by individuals instead of groups of scientists building on one another’s ideas, but this is not reality. Two heads are better than one. If each scientist were to protect his or her discovery from usage by anyone else there would be a major loss in medical technology, not a gain. The larger question is whether this extreme genetic patenting would benefit society as a whole. Myriad Genetics, a Utah-based biotechnology company illustrates why this would not benefit society. This corporation obtained patents for two genes that can be used to predict development of breast and ovarian cancer, as well as proteins related to the genes, and any further medical use of them. (*New Internationalist* 25). These patents have prevented any other firms from doing these types of tests, and to add insult to injury, Myriad Genetics only allows testing at its one facility for \$2700 per test (*New Internationalist* 25). In this case, patents have ensured that a technology that could be used to save lives is only available to the wealthiest people. The *New Internationalist*

fears that “with drug companies rushing for patents on genes, a similar situation may arise with drug development, to say nothing of the stifling of research on any patented genes. Companies could carve out monopolies around ‘their’ genes, marketing their own drugs at steep prices and controlling research for the lifetime of the patent” (25). If TRIPs continues to allow patents on genetic materials as wide-ranging as it has in the past it will certainly have a negative effect on medical research and medical access, as corporations create genetic monopolies restricting scientific cooperation.

There are numerous legal concerns associated with biopiracy and TRIPs. One is obviously the issue of whether or not corporations are getting adequate consent for usage of traditional intellectual property. Clearly, some sort of internationally recognized form of consent should be stipulated. There are also the contradicting requirements of the CBD and TRIPs that were discussed earlier. These problems need to be addressed so that neither agreement is flouted. Lastly there is the fundamental issue of whether corporations can ever legitimately claim a patent on traditional and indigenous intellectual property, and if not, if indigenous intellectual property patents should be allowed under TRIPs. Patents of bioprospected material should not be allowed if it is established that the material is rooted in ‘prior art’. Prior art basically means that someone has used the invention before, or had the idea before, and hence the claimed invention, is not an invention at all. Clearly, any biopirated intellectual property is an example of prior art. Most cases of overturned patents involving biopiracy were overturned because evidence of prior art is established. Unfortunately, indigenous groups are often so far removed from the legal system that no effective challenge can be made to the patent. Additionally, the cost is prohibitive. Corporations get patents on traditional

intellectual property because these are free ideas. Corporations will continue to steal this knowledge and claim it as their own unless a system is set up to prevent it. The patent system needs to provide a way for indigenous group's intellectual property rights to be protected at a minimal cost to the affected group.

The rapid speed of globalization has allowed for a number of ethical and legal inconsistencies and concerns to build up in the international patenting system. These issues need to be resolved with adequate input from everyone in the new 'global village' if the patent system is to have any real legitimacy. With yet another issue of globalization, power needs to be wrested from those that would control it for their own benefit and a productive global discussion should take place on how to design this new global village and what the rules will be, if globalization should proceed.

Commodification of Life and Nature

Analysis of TRIPs and biopiracy tends to revolve around a crucial question that environmentalists must deal with—that of the commodification of life and nature. Biopiracy is fundamentally about commodification of nature's genetic inventions for private gain, and TRIPs is a means of regulating this process. Given the increasing privatization of much of the global commons, should environmentalists join this trend or refuse to put a dollar sign on the environment?

This question is applicable to those concerned with biopiracy and preservation of indigenous knowledge. With increasing westernization around the world, traditional healers may soon find themselves out of work. New, western goods and ideas are often perceived to be more desirable than traditional ways when they first enter a culture. This

could represent a threat to indigenous knowledge as people in traditional communities turn to western medicines, crops, etc. Conceivably, placing a western-style economic value on indigenous knowledge could stimulate its preservation and further development by giving this knowledge value in the new system and the old. But, as biopiracy shows, so far commodification of indigenous knowledge has threatened this knowledge as it restricts traditional users' rights to utilize their own knowledge. So, commodifying indigenous knowledge would only lead to preservation if it were to occur in a way so that the benefits would accrue to original developers of the knowledge. This would require some sort of TRIPs stipulations allowing for indigenous intellectual property rights patents that would be practical for use by indigenous groups. In order to be practical, I would imagine they would have to be open to non-western science and recognize less explicitly stated, more nuanced cultural traditions, instead of just western legalistic procedures. This is a formidable challenge, but worthwhile, and in fact dictated by the Convention on Biological Diversity's stipulation for "the sustainable use of [biodiversity's] components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources" (Convention on Biological Diversity).

Commodification of genetic resources is happening at juggernaut-like speed. Indigenous groups could take a principled stand against this process, but this may be ill-advised. It would likely not prevent privatization of their indigenous knowledge and genetic heritage and might ensure that they reap no benefits when their knowledge is appropriated for others' gain. As discussed earlier, the type of benefits available might be more of a burden to indigenous groups resulting in further dissolution of their culture—so privatization is also not an entirely desirable alternative, even given

unavoidable usurpation of their genetic resources. But it does seem wrong for communities to accept no compensation for their intellectual property. In the end, for many communities and farmers, western cultural invasion may be imminent, and sad as it is, it might be reasonable to accept payment and use this to protect their rights and interests in a changing world. In the end, the decision to participate in commodification of genetic resources, or refusal, is obviously a decision for each community or farmer to make. But it is essential that the options of compensation and the right to refuse biopiracy exist.

The wider question of commodification of the environment is important for any conservationist or environmentalist. Nearly everything in the world is coming to be seen in stark economic terms. The global commons is being sliced up and privatized with zeal reminiscent of social elites acquiring former state enterprises during the fall of Communism. If we wish to justify preservation, is it necessary to do so in economic jargon—seemingly the new global language of the 21st century? Of course, wetlands' ability to cleanse water can be given an economic value (albeit through very complex calculations), but can the more ephemeral values of inspiring mountains or calming forests be translated into economic language? I think not. Nevertheless, the economic values of the environment should be recognized. These values do provide a compelling reason to protect the natural world, but it is not the only reason. This fact should not be overlooked.

There needs to be a non-political, non-economic revival of spiritual, aesthetic, and moral values, with subsequent respect from political and economic sources of power. The attitude of commodification associated with westernization and economic

globalization is a dangerous threat to universal human values. Churches, mosques, temples, and synagogues are clearly worth more to humanity than the economic value of their building materials, or their property values. This should be recognized, and not dismissed because there is no dollar sign along side of these values. The fact that the Holocaust was wrong should be understood in more than just economic terms, just like the forests of the world need to be preserved for more than just their ability to stave off the economic destruction of global warming.

Environmentalists should recognize and advocate the economic values of the natural world. This is a valid means of preservation, but not the only reason. As Noah Zerbe wrote, “Advocating the expansion of private property and market relations as solutions to the environmental degradation is, thus, akin to proscribing the disease as the cure” (317). Nature and human life should not be reduced to commodities.

Conclusion

Biopiracy and TRIPs, symptoms of globalization, definitely constitute a threat to the principles of sustainable development. Biopiracy is somewhat invalidated by its association with a colonialist mentality, justifying the exploitation of indigenous peoples in the name of science, progress, or simply because in the minds of the appropriators, the West is the best. The wounds of colonialism still have not healed. TRIPs and biopiracy, reminiscent of colonialism, must be protested if they are rationalized by this same flawed and destructive world view. A ‘Global Village’ cannot be built on a foundation of exploitation.

There are also significant concerns associated with biopiracy and TRIPs in the realm of human genetics. There is the ever-present moral issue; “Is it right to tamper with the fundamental makeup of life”? Additionally there is the concern of privacy and consent. In the developed world, people often do not have the ability to give informed consent, as was exemplified when the US National Institute of Health patented an *unmodified* cell line of a New Guinean woman without her informed consent (Kloppenborg 4). The patent was later withdrawn because of heavy protests. The unlikelihood of potential critics becoming aware of these sorts of patents indicates that there are probably many similar examples that have slipped through the cracks without the chance for public protests. This example demonstrates the miniscule degree to which biopiracy is regulated. The fact that a United States government institution could patent something which has a very questionable basis for patenting in the first place, of an indigenous woman on the other side of the planet—not even a citizen of the patenting country—is astounding. There is no historical precedent for this sort of surreptitious resource extraction without consent.

This is a phenomenon in developed countries as well. The US Company Biocyte owned an EU patent on all umbilical cord blood cells from fetuses and new-born babies born in European hospitals, giving it exclusive rights to use the cells without permission from the donors (Ho and Traavik 3). This patent was later challenged and overturned, but the fact that it was issued in the first place indicates a lack of concern for the privacy and rights of the unknowing donors. The least controversial examples of TRIPs and biopiracy’s interactions with the human genetic goldmine are often morally dubious and on shaky legal ground, while the most extreme examples represent an unbelievable threat

to individual privacy and sovereignty. Unchecked biopiracy of human genetic resources treats humans like inanimate veins for valuable genetic ore, like the New Guinean women mentioned earlier. Some would argue that these examples are not morally contentious, but perfectly reasonable given the mode in which our economic system operates. This view assumes no intrinsic value in human beings (or the natural world for that matter). Tom Regan clarifies the argument against this philosophical standpoint. In his explanation, adherents to the utilitarian philosophy believe that what has value about humans is the “satisfaction of an individual’s interests, not the individual whose interests they are” (80). Consequently, if an act will satisfy more people’s interests than it will harm, it is morally right. This view leaves very little room for human rights or rights to existence for other living things. Utilitarianism sees human beings as “receptacles” for interests (Regan 80). Therefore there is nothing wrong with the US National Institute of Health biopirating the New Guinean woman’s cell line because it could possibly be in the positive interests of many people. Regan argues that this philosophy is wrong, and argues instead for the intrinsic value of human beings and all sentient beings in stating “to treat the other in ways that fail to show respect for the other’s independent [intrinsic] value is to act immorally—is to violate the individual’s rights” (81). I agree with this philosophical stance, and believe it accurately describes the way humanity really functions. It would feel very wrong to almost all people to kill one person because that one person was annoying to 150 people. This would feel wrong because almost all humans have a fundamental respect for the right to life. Rights provide a check for the utilitarian view and should be respected because what often seems to be in the interests of many people is not. All people’s rights to their very genetic makeup need to be

respected. To protect the rights of all people, TRIPs should not provide a framework for legalizing theft of genes. There should be strict and explicitly stated regulations on this type of exploitation. International trade treaties need to work for people, not the unregulated drive for profit.

There are a number of economic, environmental and social threats associated with biopiracy and its subsequent legitimization through TRIPs that run counter to the goals of sustainable development. The theft of indigenous knowledge limits freedom for the world's poor to use their own intellectual property and deprives them of a valuable asset. The subsequent 'improvement' of this indigenous knowledge undermines developing countries abilities to maintain economic, environmental and social health and stability. Nearly all benefits associated with TRIPs will go to the wealthy of the world—not the means for a fair, just and equitable global village—with the weight of the costs borne by the poor and unrepresented. The economic, environmental and social concerns of TRIPs and biopiracy need to be given serious weight and the problems ameliorated.

The matter of the conflicting aspects of the CBD and TRIPs needs to be resolved. In the present situation, the stipulations of the CBD, a treaty that should have at least equal international legal weight with TRIPs (possibly more weight because it was created first), are tossed aside in favor of TRIPs. Upholding the statutes of the CBD or at least finding a workable solution between the two treaties would provide the international community with an opportunity to prove that money and power are not all that matters in international politics. The CBD largely benefits developing countries (through protection of indigenous intellectual property rights, etc.) and all humans insofar as having a healthy environment, while TRIPs mostly benefits corporations of the developed countries.

Another integral part of the functioning global village globalization advocates talk so much about would be the respect for law, and the inability to bend laws with money or power. If these advocates wish for the people of the world to have the same vision for the future they need to prove that all people will benefit through the sanctity of law. The CBD must be respected because it is of vital importance to preserving human life on the planet. Proponents claim that TRIPs can save lives by stimulating medical research, but even if this were true, this is nothing compared to the task of protecting the integrity of the biosphere, which the CBD undertakes. A solution to the contradictory implications of these two treaties needs to be found.

So, in the final analysis, what is a desirable solution to this exploitation of indigenous wisdom? As the preceding pages have shown, this is obviously a very complicated question. But there are some reasonable conclusions that should be made. I believe that the underlying principle that should guide anyone's actions who wished to seek a solution should be respect for the indigenous groups' rights to use their own intellectual property in whatever way they deem necessary—within reason. I add this last caveat because it does seem reasonable that if a plague were sweeping the planet killing nearly everyone that a sufficiently legitimate institution should have the ability to appropriate a cure for this disease if the group that retained the cure in their traditional knowledge refused to sell it for mass production to save the rest of humanity. Of course that is a strictly hypothetical situation.

I believe the ideal solution would create a biopiracy prevention requirement in TRIPs. For example, if a corporation wanted to take out a patent on a plant, animal, or derivative thereof, the corporation would have to demonstrate to a diverse, unaffiliated

panel that the product that would be patented was not a product of indigenous intellectual property. This would have to happen solely at the patenting corporation's cost. Proving this sort of thing would probably involve testimonials by anthropologists with relevant knowledge about indigenous groups in the area that the genetic resource is endemic to. If it was demonstrated that the to-be patented item is based on indigenous knowledge then consent from the indigenous group must be sought out. If consent is not given, that decision should be final—no patent permitted. If consent is given, a benefits sharing agreement should be worked out between the two parties by a third party to bridge the gap between the developed world and the indigenous world. This would require the enlistment of possibly numerous NGO's, anthropologists, academics, and representatives from the country of origin. These deliberations would have to proceed in a very culturally sensitive fashion, recognizing the fragility of indigenous cultures and the right for these groups to retain a distinct identity. If this stipulation were introduced into TRIPs it could seriously decrease incidences of biopiracy, and it would align the TRIPs treaty with the CBD's goals of "the sustainable use of [biodiversity] and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources" (Convention on Biological Diversity "Objectives").

It is crucial that even when patents are granted, ability to use indigenous knowledge locally is not restricted. As Shiva observes in the collection of globalization essays, *Views from the South*, "Robbed of their rights to freely use local capital, because that is the only capital they have access to, the poor in the Third World will be pushed to extinction" (121). Respect for the local culture and its ability to utilize local genetic resources is of paramount importance as this leads to cultural decay, undermines

biodiversity protection, and indigenous knowledge could play a key part in a sustainable future.

Even if this more desirable patent procedure was used, it is still likely that some instances of biopiracy would slip through the cracks unnoticed. Obviously, indigenous groups could then present a legal challenge to the validity of the patent, but as previously discussed, this can be prohibitively expensive. I propose a minor increase in the patent fee that corporations must pay for patents on genetic resources that should be put aside in a fund. This fund could be used to pay for a portion or all of the legal costs of an indigenous group challenging a patent potentially rooted in biopiracy. While many corporations that have never biopirated, and would not, would find themselves paying in order to protect against a crime they would not commit, if this is necessary to implement the CBD and move towards sustainability then it must happen. Additionally, this is a small price to pay as atonement for previous examples of biopiracy, and can be seen as a token of gratitude to the indigenous groups who have developed and cultivated extremely useful things. Obviously for these regulations to be helpful the global patent system would have to be standardized to the point of inclusion of these stipulations—but not necessarily anymore than that. Global problems demand global solutions. But when possible, local knowledge generally possesses a more nuanced understanding and should be respected in patent laws.

An Indigenous intellectual property rights system need to be formally recognized under TRIPs. This system should understand the challenges as far as cultural sensitivity in granting these types of patents, and the patents should be consequently of a different nature. For instance, since the intellectual property is often owned by an entire

community, the entire community should have some share in the patent rights. This is one of the surest ways to combat biopiracy. It could be argued that this could stimulate increased integration by indigenous groups into the wider world, for profit gain. But, it is fundamentally up to these individuals and communities as to how they wish to live. If they wish to globalize their communities, there should be a system that allows them to protect their rights and inhibit exploitation in what is surely a new and unfamiliar cultural environment. Indigenous patent rights could also provide an effective incentive for the preservation of local knowledge that could be used to move humanity closer to sustainability.

Biopiracy violates the rights of indigenous peoples and everyday citizens. The process has substantial economic, environmental, and social harms associated with it. It is a threat to a sustainable future. The TRIPs trade treaty needs to be revised to protect indigenous rights and prevent biopiracy. Additionally the TRIPs and CBD treaties should be streamlined to mitigate contradictions in the two agreements. Biopiracy and TRIPs exemplify many of the challenges that globalization presents towards sustainable development. Hopefully these challenges can be transformed into opportunities for new creative and practical global solutions to these global problems.

Globalized Industrial Agriculture

Agriculture and food production are integral to the well-being of individual countries and the world as a whole. Unfortunately, agriculture is also frequently a channel through which the global South is exploited, and agriculture is an increasingly virulent threat to global environmental and cultural sustainability. The present model of globalized industrial agriculture is one of the greatest threats to sustainable development. It is a problem that is getting worse and needs to be addressed.

The dominant theory in modern economic discourse, Neoliberalism, can be seen as in the most extreme sense the cause of the problems with agriculture, and at the least as an exacerbating factor. Indeed, the International Forum on Globalization identifies Neoliberalism as synonymous with the status quo model of globalization (Cavanaugh and Mander 19). In general, Neoliberalism argues that an economic system with the least amount of government interference will function the best and most efficiently. Proponents differ somewhat on how small a role government should play, but the overwhelming sentiment is that governments should exist primarily for the protection of property rights. In a world like this, such basic things like health, education, and national defense are privatized. The world we live in is increasingly similar to this model. The idea is rooted in the belief that the profit motive will ensure the greatest level of efficiency. Government restrictions on trade would be largely abolished in the name of comparative advantage—each country or region produces what it can create at a relatively lower cost given what else it could be producing with its resources (its opportunity cost). In theory, Neoliberalism seems to promise a better world. After all, greater efficiency in food production would mean more food for more people with less

effort. In reality things are not this simple, as the case of globalized agriculture exhibits. Neoliberalism is the mantra of the ‘globalizers’—the WTO, IMF, World Bank (to an extent), and other multilateral economic institutions—as they push for more deregulation, more open markets, and the other controversial symptoms of globalization.

There are three aspects of this issue that I will examine. First is the disenfranchisement of the Global South through agricultural trade wars. Next is industrial agriculture’s incompatibility with cultural sustainability. And finally, I will elaborate on industrial agriculture’s incompatibility with environmental sustainability.

Disenfranchisement of the Third World through Agricultural Trade Wars

The collapse of the most recent World Trade Organization (WTO) talks in Cancun, Mexico demonstrates the controversial nature of agriculture under the dictums of the WTO. This event was significant as a major turning point in the short history of the WTO. One scholar proclaimed afterwards that “Business as usual is over for the WTO”

because the genuine demands of the developing countries were not on the agenda (Wallach 1). The mutiny of the developing countries, led by the G-21 of developing countries (including half the world’s people and 2/3 of the world’s farmers), is truly the first significant organized rebellion in the WTO against the demands of the developed world. The WTO is rhetorically grounded in Neoliberal theory. It is supposed to be a way of streamlining and enforcing the goal of deregulation of the global economy. In

practice this has not been what has occurred.

To mitigate opposition to the WTO when it came into existence in 1995, proponents promised billions of dollars in economic growth and a reduction in poverty to

the world's poor, which has not materialized, leaving the developing world and the poor in the developed world "suffering severe economic, environmental, and social harm after implementing the global body's mandates" (Wallach 1). This can be attributed to the vast difference in geopolitical power between the developed and developing countries involved in the WTO and the way that the entire multilateral economic institution system is infused with a degree of Neoliberal hypocrisy. Developed countries like the US and Western Europe often have not implemented the same economic reforms that they force on developing nations in the name of liberalization. Desperate developing countries feel as though they must accept the WTO and its dictums to alleviate dire problems like poverty, and they often did not fully understand what they were signing in the first place but did so at the behest of development agencies (Khor 9). To the contrary it would be political suicide for leaders of developed nations to accept or implement some WTO rulings that could seriously hurt powerful lobby groups (such as citrus farmers in Florida) or MNC's. The result is developing country markets open to foreign investment and cheap industrial imports that out-compete local markets, with little or no benefits for the poor because of the retention of developed world subsidies and tariffs. Martin Khor explains this through a third world scholar's statement that the WTO "has been a unique negotiation in which most of the concessions have been made by developing countries without getting anything but meager concessions in return...because of the massive gap in economic and political strengths of developed and developing countries" (20). This has resulted in disturbing statistics like the fact that the Least Developed Countries' (LDC) share of world trade is 45% less than it was before the establishment of the WTO (Wallach 3).

The straw that broke the camel's back and caused the collapse of the Cancun talks was the US and Western Europe's refusal to scrap their programs (or at least cut back) of agricultural subsidies. These subsidies can make it impossible for Third World agriculture to compete on a global scale. For example, the US government subsidizes more than the full costs of soybean production, ensuring an artificially low price on the world market (Shiva 99). This puts local farmers out of business as they can no longer compete on the domestic market because of artificially cheap imports and have no chance of competing on the international market. The developed world is in a favorable geopolitical and economic position compared to the Third World. Consequently, revered economic liberalization agendas that supposedly will help all people often become hypocritical as the Third World is forced to open up to exploitation by the developed world with little or nothing in return. Lori Wallach sees this not only as unfair, but also as a threat to the globalizers' own agenda. She observes "Either those desperately defending the status quo (Neoliberalists) will come to realize that their failed project is over and that change is inevitable, or their ideological intransigence will cause autarchy following the current system's inevitable implosion" (4). She concludes that trade can be beneficial, but it must respect local authority and autonomy, and what is important is what the rules are and who is writing these rules (4).

Industrial Agriculture's Incompatibility with Cultural Sustainability

Globalized industrial agriculture does not lend itself to protection of cultural diversity or social stability. Industrial agriculture has led to increased production costs and falling commodity prices leading to millions of farmers being pushed off the land.

Vandana Shiva asserts that WTO rules have driven millions of farmers off the land and has ensured that agriculture is in the hands of global corporations (105). These farmers usually move to the city where they attempt to find work in factories with some degree of success. Of course this is not always possible—today there are more than 100 million former Chinese farmers roaming the cities looking for work (Gill, Chang and Palmer 2). More mainstream development theorists have posited that migrants to so called sweatshop jobs in developing countries are doing so because these jobs so criticized in the West often pay much more than the farming they are used to. This may be quite true, but does not address the question of whether this is because sweatshops are such good jobs or if they have only recently become relatively good given globalized industrial agriculture's effect on Third World farmers. The whole process should be assessed—and it may still be the case that sweatshops would have been better jobs even without the recent effects on traditional agriculture.

Nevertheless, developing country farmers losing out to foreign agriculture giants in an unfair global market means a loss of traditional culture that is often based on agricultural production. This is a loss of humanity's collective heritage. But, it should still be emphasized that traditional farmers are not there to remind the rest of us of more simple ways of life—if they choose a different way of life that is fine. But, farmers and national governments should have all the information before they open up to industrial monoculture-based agriculture.

This oft-touted solution to underdevelopment comes with a number of social threats. In general, the shift from traditional agriculture to industrial monocultures means increasing income inequality as many small farms morph into a few very large farms.

The switch from traditional food crop varieties combined with the dependence on MNC's which are obedient to shareholders instead of citizens means decreased food security (Shiva 95). For instance, what if farmers in an 'Axis of Evil' designated nation suddenly are cut off from the complicated production inputs (fertilizer, hybridized seeds) that they receive from MNC's because of trade sanctions against their government? The country would find itself in a geopolitical-induced famine.

Neoliberalist development organizations and trade bodies, by advocating openness to MNC's can contribute to Third World farmer indebtedness as government support for local farmers is cut, turning corporations into "moneylenders, extension agents, seed suppliers, and pesticide salesmen rolled into one" (Shiva 95). This cycle of indebtedness led to 500 suicides in one region of India in one year (Shiva 95). Third World farmers are told by development organizations to abandon farming for local production and take up cash cropping by growing flowers, shrimp, or cotton for the international market. Profits from these ventures, which are often foreign owned, may largely accumulate abroad while displacing peasants from their lands (Shiva 94). The shift from localized traditional agriculture to globalized industrial agriculture holds few benefits for Third World farmers. This process can lead to dependence, decreased food security, and cultural disintegration. The problem is exacerbated by the frequent hypocrisy in organizations like the WTO where government support is cut for Third World farmers and retained for giant agribusiness corporations in the industrialized world.

Industrial Agriculture's Incompatibility with Environmental Sustainability

The strongest argument against globalized industrialized agriculture comes from its extreme environmental threats. The *Ecologist* calls Industrial Agriculture “the single largest threat to the Earth’s biodiversity” (*Ecologist* 1). It should come as no surprise that plowing over large areas of natural habitat and replacing them with giant pesticide and fertilizer-intensive monocultures is an environmental threat. There is the obvious loss of crop diversity as globalized agriculture standardizes and simplifies our food consumption choices by growing those crops that lend themselves most easily to massive production schemes (*Ecologist* 1). This deprives present and future generations of food choices and is the most direct sense of biodiversity loss as certain crops are abandoned and their genetic heritage lost. A more peripheral effect of massive agriculture projects is the loss of habitat as forests, grasslands, and wetlands are cleared and permanently altered to make room for agribusiness. In Canada, 85% of wetlands lost have been a result of industrial agriculture, while in the US 27% of total land area is utilized for industrial agriculture (US Fish and Wildlife Service 1).

Advocates of industrial agriculture often argue that the tremendous amount of land needed to grow food is all the more reason why industrial agriculture should be promoted, as they claim that it is intensive and offers increased yields. The *Ecologist* disputes this claim citing government studies that show that smaller (27 acres or less) or smallest farms (4 acres or less) can be 10 times and 100 times more productive, respectively, compared to large farms (6000 acres or more) (2). Industrial agriculture can achieve higher yields of corn per acre than a smaller organic-style farm could on the same amount of land. But this is misleading because the total amount of foodstuffs on the smaller farm per acre is much higher. While the industrial agriculture operation

would only grow corn on that one acre, the small farm might grow 15 types of foods. Because of industrial agriculture's intense and simplistic mode of production it leaves much less room for native species to survive in its fields compared to sustainable agriculture (*Ecologist* 2). Smaller sustainable farms often achieve higher and more diverse yields than monoculture operations while closer resembling natural habitat. The US Fish and Wildlife service claims that "the effects of agriculture on the natural environment can be tempered by adopting more sustainable management practices" (2).

The lack of sustainable management erodes the land and erodes future generations' potential to produce food. The United Nations implicates "overcultivation, overgrazing, deforestation, and poor irrigation practices" (all symptoms of industrial agriculture) as the cause of desertification which threatens over 1/3 of the Earth's surface (UNCCD). Desertification is the human induced transformation of arid and semi-arid lands into desert. Obviously food cannot be produced very effectively in deserts; therefore the desertification of the Earth's surface threatens present and future generations through biodiversity loss and loss of productive agricultural land. Desertification even threatens international stability. Over 135 million people are at risk of being displaced by desertification and half of the armed conflicts that occurred in 1994 were rooted in environmental causal factors associated with desertification (UNCCD). Topsoil loss as a result of improper land management is another huge threat to a sustainable future. It is estimated that 80% of the world's agricultural land suffers from moderate to severe erosion (Sundquist 13). Industrial agriculture threatens the environment and human health.

To finally lay to rest the myth of the efficiency of globalized industrial agriculture, it is necessary to look not only at crop yields, but also at inputs and externalities. This model of food production has not provided a sustainable present and will not provide a sustainable future because of its deleterious environmental and economic characteristics. Before this model of agriculture continues to spread around the world, displacing peasant farmers and eliminating their knowledge and crop varieties it needs to be seriously examined within the context of sustainability. Industrial agriculture with its requisite fertilizers, pesticides, heavy machinery and international transport actually requires substantially more energy than organic agriculture to produce the same quantity of food. Once these needed inputs and their consequent environmental damage is taken into account industrial agriculture becomes a model of inefficiency. For example, if all components of agriculture inputs and outputs are viewed in their most simple units (units of energy—all of which represents stored energy from sunlight), it is revealed that 300 units of inputs produce 100 units of food in industrial agricultural systems. In organic, biodiversity-intensive agriculture, 5 units of inputs is required to produce 100 units of food (Suzuki and Dressel 118-119). This is possible because sustainable agriculture channels nature's work for human goals, rather than completely dismantling a natural system and starting from scratch using all human inputs, as industrial agriculture does. Agriculture will continue to pose a grave environmental and human health threat as long as it is associated with such drastic negative externalities. It is extremely important to achieve the most efficient form of agricultural production—but in determining what is efficient all inputs and externalities need to be taken into account. Otherwise we will continue depleting natural capital, and deprive future generations.

What Should be Done?

The solutions to most of these problems exist. The major obstacle is just finding a way to circumvent vested interests in the status quo. The WTO is a potentially very useful trade-regulating body. Unlike many international organizations it allocates one vote for each country with no discrimination based on wealth or population. This could be very beneficial in standing up for the rights of developing countries if power were truly as equitably distributed as it should be in the WTO. Unfortunately the developed nations are in a much better bargaining position, and therefore it is not uncommon for a small concession by them to be traded for a much larger concession by desperate developing countries. Additionally, developed country governments can be so beholden to powerful MNCs that it is politically impossible for them to implement fairly the dictates of the WTO. The problem of unfair agricultural trade policy in the WTO is extremely difficult to provide a simple solution for. Increased participation by NGO's and other organizations not beholden to commercial interests could help with this problem. Additionally, subsidies should not be abolished for developing countries if developed countries refuse to do the same. I cannot offer other solutions, but firmly believe that the WTO should not be abolished. Trade is not by any means a negative thing, and regulation of trade is crucially important. The problems that have cropped up from trade are a result of trade occurring in an environmentally and socially damaging way—not trade itself.

The obvious means of ameliorating globalized industrial agriculture's incompatibility with environmental and cultural sustainability is to abolish this model of

agricultural production. But, currently there is little incentive for farmers to switch to more sustainable modes of production. In the current economic sphere switching to a more localized, sustainable model produces a smaller amount of a diverse array of products, thus making it hard to compete on the international market with giant agribusiness firms. Sustainable agriculture becomes relatively more expensive as the environmental and cultural damage done by industrial monoculture operations is not factored into product costs. This creates a distortion of the true costs of products. It demonstrates a failure of the Neoliberal model—deregulation in this instance creates incentives for inefficiency and short term gain at the expense of future generations and public health. There needs to be some way of representing the true costs of industrial agriculture to society, and consequently discouraging it. There are two ways to do this. The first and more traditional way involves more extensive government regulation of industrial agriculture operations—thus forcing these operations to find more sustainable modes of production. The drawback of this method is actually identical to one of the Neoliberals’ critiques of government regulated economics. It creates inefficiency. Bureaucracy is prone to bribery, stagnation, and inordinate complication. Bureaucracy can create a system so complicated that neither the regulators nor the people they are regulating fully understand its dictates. The other option is to create a system of environmental pricing, thus adding the costs of externalities into the actual costs of products. This would greatly decrease the cost differential between sustainably produced agricultural foods and foods produced through industrial agriculture. This concept of environmental pricing will be discussed in more depth in the Conclusions.

Conclusions

Is Sustainable Development Possible?

There are clearly established economic, environmental, and social problems with the ways that globalization has occurred and is occurring. The topics I have covered in this paper are but a mere shadow of the scope of the dangers, threats, and challenges to this distinctly new way that we are organizing global politics, economics, and culture. It is obviously imperative that these issues be dealt with for the good of all humanity and the Earth. But, the disheartening question arises: Is it possible to adequately address these issues? Is Sustainable Development a realistic goal to channel globalization towards? If not, is it more plausible to somehow collectively scrap the idea of globalization and proceed towards Sustainable Development's goals from there?

If human life as we know and enjoy it is to continue into the future, and for the Earth to remain a bountiful, diverse and hospitable place, we *must* work towards the principles of Sustainable Development. With very few exceptions, environmental statistics are deplorable and getting worse. Almost all positive change we have achieved has been offset by the ravenous appetites of greater populations and increased per capita consumption. The causes of environmental problems are as pervasive in every aspect of life as the effects of globalization are. It is an all encompassing problem that demands solutions that are all encompassing. Hence, globalization can be seen as the perfect vehicle for positive environmental and social change. The world political and economic systems that define globalization can, if altered in the right way, trigger enormous positive change. Of course, drastically scaling back the global economy and the consumption lifestyle would be the ideal way to cancel out environmental degradation.

We would not travel as far, would produce locally, and live simply. But, environmentalists must wake up and smell the economy—this ideal is unlikely to happen. Change demands direct action (like EarthFirst! Actions), awareness raising (like the Sierra Club and Amnesty International), carefully reorienting economic and political systems for positive change, or some combination thereof. Globalization of the world economy and societies has released a juggernaut-like force that cannot be undone. The trick is to reverse the nature of that force from negative to positive. We may find in the end that this is the most practical path to lead humanity to that simpler lifestyle which will allow the continuation of our species and the health of the Earth.

Despite all the negative statistics and trends, Sustainable Development is possible. In the midst of WWII, the idea that only three years later there would be exist the United Nations, one of whose stated goals is “to save succeeding generations from the scourge of war” may have been unfathomable (United Nations Charter). The UN does have shortcomings, but overall it has been a force of tremendous positive change. The fact that such a noble world governing body exists is a testament to fact that humanity can rise above selfishness when confronted with a dire threat and do things that make one proud to be a human. The negative aspects of globalization and environmental degradation represent a dire threat even more virulent than WWII. I firmly believe humanity can rise to the call of duty and implement Sustainable Development—I just hope it happens before it is not too late.

Conflicting Paradigms: Status Quo Globalization and Sustainable Development

The three subtopics I have discussed in this paper demonstrate the glaring contradictions between the present globalization model and the principles of Sustainable Development. Here is a short overview of these contradictions.

- *New Democracy and Subsidiarity*

The International Forum on Globalization (IFG) identifies a core principle of Sustainable Development as the revitalization of local democracy through New Democracy and Subsidiarity. Essentially, this means decentralizing power to local areas with the idea that local communities care the most about their local resources and communities and will be good stewards. Accountability is important. The principle of New Democracy was not in place in Ecuador. A foreign MNC with no accountability to locals, and no sense of connection to the local environment had no problem destroying a vast region of Ecuador's rainforest. In general, the more power over local areas is given through economics to MNCs, the more this will occur.

- *Ecological Sustainability*

The three case studies discussed were all obviously ecologically unsustainable.

- *Common Heritage*

This principle meaning prohibition of privatization of global common resources such as the oceans and genetic resources is in direct opposition to the privatization involved in biopiracy.

- *Diversity*

Texaco destroyed enormous cultural and environmental diversity in Ecuador. Biopiracy and Industrial Agriculture additionally undermine, exploit, and destroy genetic and biological diversity.

- *Human Rights*

The Rainforest Peoples vs. TexacoChevron case has its legal foundation in the fact that Texaco violated the basic human right to a clean and safe natural environment. The effects of Biopiracy and Industrial Agriculture also clearly threaten this human right.

- *Jobs, Livelihood, Employment*

This principle was violated in Ecuador because once Texaco ruined the local environment, indigenous peoples could no longer live as they had been and were forced to work for Texaco in order to feed their families.

- *Food Security and Safety*

Biopiracy and Industrial Agriculture undermine food security through increasing dependence on agriculture MNCs that are not accountable to communities or governments.

- *Equity*

By opening more of the world to privatization, globalization and its processes allow greater exploitation and increasing inequity. Ecuador's inequality increased dramatically after opening to the world economy.

- *The Precautionary Principle*

This principle was not relevant to the situation in Ecuador, Biopiracy, or Industrial Agriculture.

Solutions to the Economic, Environmental, and Social Problems of Globalization

There is no one silver bullet to neutralize the problems and challenges of Globalization. A multi-pronged, complicated approach would be essential to deal with

the myriad complexities. But, through my research, I have arrived at a few general guidelines that I believe could do enormous good and help put humanity on the right track. These facets of a grander solution-strategy are applicable to the subtopics of globalization discussed in this paper as well as the overall phenomenon of globalization. Globalization is not inherently bad—what should be avoided is its associated problems like exploitation of the world’s poor, environmental degradation, and cultural disintegration.

The problems Ecuador has experienced after entering the global economic system demonstrate the importance of institutions and sequence in development. For globalization to bring benefit to a developing country proper legal, political, and economic institutions must be in place. Otherwise globalization will result in destruction and exploitation. MNCs will take advantage of nonexistent or unenforceable environmental and social laws, a weak judiciary system unable to successfully prosecute such a powerful economic entity, and governments unaccountable to people and susceptible to bribery. This is an ideal situation to reap incredible profits—the primary function of corporations. The unfortunate consequences of this are environmental destruction, death and marginalization of indigenous and other marginalized peoples, and stripping of natural assets. Once institutions are in place, the economy should be gradually integrated into the global economy—the exact opposite of the failed ‘shock therapy’ prescriptions favored by the IMF in the former Soviet Republics.

Creating successful institutions in developing countries is a formidable challenge. But, it is crucial to reducing poverty and creating functional economies in developing countries. Non-Governmental Organizations (NGOs) have been extremely successful in

promoting this sort of positive change so far. These grassroots organizations have high levels of interactions with locals. The most successful employ the Nobel-Prize winning economist, Joseph Stiglitz's, idea of reaching deep down in to local societies to fully understand all complicating factors (88). Locals must be actively involved in the creation of strategies to create institutions and trigger development. A sense of ownership in the process gives people pride and the drive to be good stewards of what they have created—not what has been dictated to them from a distant and unaccountable development agency (Stiglitz 88). This sense of ownership is consistent with the IFG's principles of subsidiarity and New Democracy.

Development agencies like the World Bank should learn from the success of NGOs and apply their tactics to their own operations. Developed nations, possibly through the UN, should provide funding to increase the ability of NGOs, rather than give development aid to often unaccountable and corrupt heads of state in developing countries. I also believe that there should be stipulations in WTO accords and other trade agreements requiring institutions of a certain quality in developing countries before liberalization and globalization of their economies. The IMF and World Bank should require institutions of a certain caliber as preconditions to funding development-oriented megaprojects such as dams or oil pipelines. But requirements like these alone will not help, the World Bank and IMF (if the IMF continues to be involved in development—not its original purpose) need to get representatives into these countries on the ground to really understand the situation and then help locals find ways to solve problems, instead of dictating what should be done from offices on another continent. Opening a developing country's economy with inadequate institutions to globalization to help

people in dire poverty will almost never help those people. It will just lead to the exploitation of these people and their environment. Some of these recommendations would be difficult to implement, but they are crucial to achieving Sustainable Development.

The Rainforest Peoples vs. TexacoChevron court case in Ecuador illustrates another very important step towards a sustainable future. The combination of the Alien Tort Claims Act (ATCA) and the violation of the UN designated Human Right to a safe and healthy natural environment as a legal foundation for the case shows great promise if Bonifaz wins this case for the 30,000 plaintiffs. This case could mean much greater accountability for US MNCs operating in developing countries. The further development and codification of international law to effectively prosecute globalization-related human rights abuses and violation of environmental treaties is imperative to a sustainable and fair future. Presently there is a highly developed world economy barely regulated at all by a very weak system of international law. International law should be at least as fully formed as the world economy. Clearly, further development of international law would require further development of *appropriate* international governance—international government bodies should only deal with international issues.

For specific recommendations on amelioration of the problems of biopiracy, refer to the biopiracy section of this paper. Issues that should be addressed include the contradictions between the Convention on Biological Diversity (CBD) and TRIPs (Trade Related Intellectual Property Rights), indigenous patent rights, and others.

The present situation where the global economy is stronger than any sort of global governance is a recipe for disaster fast coming to fruition. MNCs are operating in the

economic equivalent of the Wild West. Rules to protect the environment and the poor are few and often un-enforced while regulations that benefit the economically powerful are brutally enforced as the TRIPs example shows, often with consequences that affect billions of people. But, economies are not intrinsically bad, and global economic, political, and social interaction could hold major benefits for humanity. In fact, I believe that the most powerful tool for moving the global economy towards sustainability is economic in nature. Most of the threats to sustainability that the global economy poses are simply externalities unaccounted for in the economic system. Owners of fuel-inefficient vehicles directly contribute to global warming and lung problems, yet these costs are borne by society as a whole, or unlucky victims—not the perpetrators. These costs of these externalities need to be included in product costs as a way to dissuade consumers from purchasing, and producers from making, these goods.

The Neoliberal criticism of governments and bureaucracy for their inefficiencies is somewhat justified. If socially desirable goals can be included in economic activity, this can bypass the inefficiencies of governments. The two ways to address externalities associated with the economy are through legal or economic means. To sue every person that buys an SUV for the amount of damage they do to others or to future generations is obviously impractical. But, to calculate the costs to public health and the costs of environmental remediation to offset the effects of one more SUV, and then tack this cost onto its price tag is complicated, yet much more practical. With an environmental and public health pricing system, not only the most egregious offenders, but all who damage the environment and public health would pay for the degree of damage they cause. Perhaps if SUV owners had to pay for this damage Americans would be buying less,

rather than more SUVs, which would have significant benefits in view of the fact that SUVs produce 50% more climate threatening CO₂ than the average vehicle (GreenerCars.com). The true value of ecosystem services, such as CO₂ sequestration by the Amazon rainforest and other such services should be calculated as well. The positive externalities of elements that rejuvenate or protect the environment should be given correlating economic value. Although I personally reject the idea that everything in the world should be reduced to pure economic value, currently, economic value is the main system of valuation in the world. Plus, there is nothing wrong with assigning economic value to the natural world; it does not degrade any of its other values.

The effects of introducing an environmental pricing system would be phenomenal. Global trade would most likely be reduced once it became accurately economically represented. When the cost of environmental damage is taken into account, importing plastic knives from Chinese factories to the US would most likely no longer make economic sense. This would do quite a lot to offset the problem of pollution in the world's oceans caused by tankers shipping goods around the world. The oceanic shipping industry emits as much polluting nitrogen oxide into the atmosphere as the entire United States (Clarke 1). All polluting industries would lose significant shares of the market if their true costs had to be paid. This would simultaneously greatly expand the demand for environmentally friendly products. Monoculture-produced agricultural products would probably become more expensive than organic, sustainably grown foods. Global trade would likely shift from being products-oriented to ideas-oriented. It is impossible to overstate the ways in which this would alter the global economy from an environmentally destructive path to a sustainable path. Very few people would buy paper

produced from old-growth forests if recycled paper were less expensive. Very few people would live in Las Vegas—a desert city where water will soon need to be imported hundreds of miles. Those doing the damage should bear the costs, not society as a whole.

If positive externalities associated with ecosystem services were given economic value, landowners in the Amazon rainforest would have much more incentive to preserve their forests, rather than burn it and use the degraded land for raising cattle as is now happening at an alarming rate. Inequality between nations would be greatly reduced. Most of the world's biodiversity and climate-stabilizing forests, elements with very real positive economic value not presently valued, exist in developing countries. Simply preserving nature would be given economic value. This is crucially important. The present economic system is undermining the potential to produce things essential to human life because it gives no value to the natural world that the economy depends on for every physical product.

The environmental tax representing the environmental cost added onto each product should be put into a fund for the mitigation of environmental problems. This would make an amazing amount of money available for the rejuvenation of the environment.

Obviously, setting up a system of this nature would be a significant task. But, it is both possible and essential. The initial step of establishing the environmental costs of every product would be a daunting task. But, from there the system would function just as the economy now does. This would be a global effort and would have to happen through a global body. The WTO already regulates several aspects of trade and would be a likely candidate for this. The UN would probably have to play a part as well. For the

process to work, the global scientific and academic community would have to establish what would be a sustainable global lifestyle—one that would meet the needs of the present without compromising the needs of the future. It would be a massive, but worthwhile effort. The products could have a tax added onto their costs representing the amount by which they deviate from this ideal. As previously stated, this money should be deposited in a fund for dealing with environmental problems. A change like this should be phased in gradually, perhaps with 10% of the environmental costs added onto products each year, or maybe starting only with products that could easily make the change. I believe an environmental pricing system holds enormous potential for moving towards sustainability. It would allow the true costs and benefits of all elements of the economy to be fully recognized and incorporated into everyday economic activity, thus allowing an almost natural transition to a more sustainable global economy.

This same idea could be applied to protection of global human rights in a similar way. The global community would have to decide what an ideal human rights world would look like—which it already has through UN designated Human Rights. Next, economic practices that undermined these human rights goals could be fined accordingly. In this way, if a 'sweatshop' pays wages to its employees that are low enough that they would undermine the workers' basic Human Rights, the products could be taxed correspondingly. This would encourage the factory to increase wages and provide money that could be put into UN programs to improve the lives of impoverished people. This type of system would be especially useful in cases where the basis for prosecuting for violation of international law is questionable. The application of a Human Rights valuation system should be explored for potential.

The environmental and human rights pricing system I have proposed is a world away from the reality of economic globalization today. It would be a formidable challenge to implement these ideas, and even then they might not work out perfectly. But, even if the environmental taxes added were only 80% of the true environmental costs being imposed, this would be a huge step in the right direction. Despite the fact that this world of recognizing environmental and human rights values is much different than the present, it is important to outline several visions of how to achieve Sustainable Development—this is just one such vision that I believe shows particular promise. Something must be done to move the world towards Sustainable Development. It is crucial for the survival of life on Earth as we know it and it is morally imperative.

Conclusions

A multi-pronged strategy involving governments, economists, environmentalists, civil society, indigenous groups, and ordinary people is needed to help move the world towards a sustainable future where human rights are recognized and the natural world is utilized in the present so as not to impede the rights of future generations or further degrade the amazing natural heritage we are a part of. A quick survey of the solutions I have proposed will show that I believe globalization is both the problem undermining Sustainable Development and the solution to the problems associated with the status quo global economy. A globalization of ideas, law, civil society, and governance is needed to match the globalization of the economy. Joseph Stiglitz, author of *Globalization and its Discontents*, at the end of this important book, stresses that

“we [humanity] are interdependent—globalization is a fact of life. With interdependence comes a need for collective action, for people around the world to work together to solve the problems that we face, whether they be global risks to health, the environment, or economic or political stability. But democratic globalization means that these decisions must be made with the full participation of all the peoples of the world” (258).

The idea of a ‘Global Village’ is not a bad one. The world ‘village’ conjures up images of different and diverse people working together in an idyllic environment to live their lives as they wish and help their neighbors when necessary. But, this idyllic social order is not what globalization has created. Globalization as we know it is heading towards a global serfdom where people and resources are stripped of identity and individuality and forced through the system imposed on them to work for the benefit of a few feudal lords. Today’s feudal lords are the economically and politically powerful, subverting democracy and the freedom of others for their own selfish desires—almost always at the expense of nature. This is not a vision of a sustainable or stable world. The destructive cycle must be broken. A globalization of the interests of the poor and disenfranchised, and ordinary people is necessary to counter the system of globalization that has protected the interests of the few at the costs of the many. All peoples of the world must unite in the pursuit of admirable goal, while still maintaining regional identity and pride, yet respecting others’ rights to do the same. There is no other sustainable option, and the consequences are dire.

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