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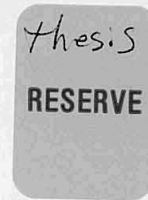
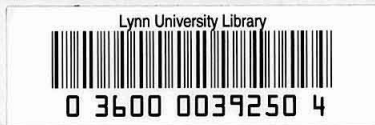
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WILKES,
ROBERT



LYNN UNIVERSITY

HOW IS BRAZIL GOING TO DEVELOP
A SUSTAINABLE ENVIRONMENT?

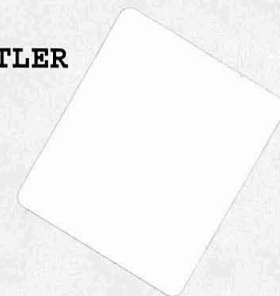
BY

ROBERT G. WILKES

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BY

ROBERT G. WILKES

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INTRODUCTION

Social and environmental problems along with costly consumption patterns have catapulted the concept of "sustainable development" into the limelight. Sustainable development has emerged from U.N. agencies to become the cutting edge of social and economic reform. The premise of this concept is that "future prosperity depends on preserving natural capital - air, water, and other important ecological factors. This will require balancing human activity with nature's ability to renew itself (Smith 1992)."

Sustainable development also requires increasing the flow of financial and technological cooperation from the industrialized countries to the developing world. This concept recognizes that growth is necessary in order to eliminate staggering poverty levels, which leads to the depletion of valuable resources (Smith 1992).

Because financial support from industrialized countries is crucial to the survival of developing nations, the rate of economic growth is central to the concept of sustainability. According to Nitze (1993) "The central goal is economic development that leaves future generations with a stock of environmental amenities (ie., topsoil, clean air, drinkable water, forests, species) no less, and preferably more, abundant than those enjoyed by their

predecessors." To achieve this goal countries must be educated about how to change from the resource-depleting, environmentally destructive development patterns of the past.

Brazil is a country that has been hampered by several environmental and economic problems. Overpopulation is a concern of government officials with human population growing at a rate of 1.9%, there are now over 159 million people living in Brazil. Approximately 41 percent of the population dwells in poverty (Brazilian Embassy 1993).

Deforestation and inefficient consumption of natural resources are also a problem in Brazil. Resources that biologists term "renewable" are being carelessly destroyed and are not given time to renew. In recent years the burgeoning population and the disregard for natural resources has contributed to a rapid deterioration of Brazil's environment. The deterioration of the Amazon has caused such problems as declining rainfall and rising temperatures which if not addressed will become more severe (Brazilian Embassy 1993).

The economic outlook for Brazil is dismal if the country fails to address several problems. Currently, inflation is extremely high and, Brazil has the worst income distribution in Latin America (Hinchberger 1994). The enormous disparities in income levels are

a constant source of social and political tensions. Brazil's economic base is also limited by the fact that only seven million of approximately forty million workers pay taxes.

BRAZIL'S ENVIRONMENT

As the most populous and largest nation in Latin America, Brazil is a land of extremes. It contains one-fifth of the world's freshwater, and also its most extensive rainforest. Brazil has one of the largest economies in the developing world. Yet despite its abundant natural resources and considerable wealth, the nation has an income distribution problem that is among the worst in the world. One third of its people live in poverty while four percent of the population owns more than half the land (Hackman 1992). Millions of people live in squatter settlements on the outskirts of cities such as Rio de Janeiro. According to Hackman (1992) " These numbers are increasing daily as cattle ranchers, loggers, and miners invade on the country's rural expanses and dispossess local inhabitants."

How is Brazil going to develop a sustainable environment? What role do the Non-Governmental Organizations have in assisting Brazil towards the goal of a sustainable environment? In 1992 Brazil hosted the U.N. Conference on Environment and Development (UNCED).

This summit aimed to settle intensifying international pressure to protect the world's natural resources with a mandate to address the devastating poverty conditions of much of the Third World. This was an attempt by a Non-Governmental Organization to address increasing environmental problems.

Decreasing population growth in Brazil will play a big role in the development of a sustainable environment. According to Alex Desherbinin (1995) of the Population Reference Bureau, "Brazil's expected population by the year 2010 is 179.7 million, and by the year 2025 the estimated population could be 200 million. The estimated doubling time of the population is 40 years."

With the total fertility rate in Brazil at 3 births per woman, birth control methods must be introduced in Brazil in order to control population. Desherbinin says "steps must be taken to control population growth not only in Brazil but in all of the developing world."

More than 90 percent of population growth takes place in the developing world. This means when the population of more than 5 billion doubles by the next century, there will be an extra 4.5 billion people in nations where it is already difficult to secure jobs, food, safe homes, education, and health care (Ausubel 1993). The concept of sustainability makes little sense unless the impact

of rapid population growth on the physical resource base is considered. According to Pearce and Warford (1993), "Population trends for the developing world provide a dismal picture so far as sustaining people at an acceptable quality of life is concerned."

Brazil must decrease population growth through education, family planning, and the empowerment of women. In doing so, Brazil will lead the charge towards decreasing population in the developing world and will take a big step towards sustainable development.

Alleviation of poverty and extreme income disparities are central to sustainable development. The economic stagnation of the 1980's has caused Brazil to lose ground, and the country desperately needs to make significant progress in this area. Uneven income distribution has adversely affected overall human welfare. An estimated 58 percent of all Brazilians are either poor or poverty-stricken. Rapid creation of new jobs is the key to reducing income inequalities (Hackman 1992).

BACKGROUND ON BRAZIL

In order to fully understand Brazil's immediate needs for the future, it is necessary to examine the country's present troubles

and in some cases the history of those troubles. Brazil's status as a part industrial power, part Third World nation is a relatively new phenomenon. Since World War II, Brazil has grown from an agrarian society to one of the world's most diversified economies. With a gross national product of \$260 billion in 1986, Brazil was the West's eighth largest economy. By 1987 it had slipped to tenth, with a growth rate of 1.3% (Wirth 1993).

Today, gross domestic product is \$414.1 billion. In 1991 a National Reconstruction Plan was introduced to promote growth and investment and reduce the role of the state. State monopolies in ports, communications and fuels were reduced and agricultural and industrial subsidies ended (Wirth 1993). A sixth economic plan was introduced in 1993 to cut spending and accelerate privatization.

Until recently, sustained industrial growth induced a national transformation. This transformation is best illustrated by the urbanization rate. In 1940, only 31% of all Brazilians lived in cities. By 1980, 67% lived in cities, and by 1990, 76% lived in urban areas (Wilson 1994). During the 1940's, Brazil imported nearly all the manufactured goods it consumed. Brazil has since become an exporter of machinery, manufacturing equipment, automobiles, aircraft, weapons, shoes, textiles, steel and chemicals.

During the 1970s, industrial goods replaced agricultural products as the country's leading exchange earners. This expansion was made possible by the construction of hydroelectric plants to fuel factories, highways to move raw materials and finished goods, and the installation of modern communicational systems (Wirth 1993).

Even though industrial development is important for Brazil, agriculture remains essential to the national economy. As a result of new crop cultivation, the distribution of new techniques, and the expansion of acreage under cultivation, Brazil has avoided its dependance on sugar, coffee and rubber that once dictated its economic fate (Wirth 1993).

Brazil has several major agricultural products, and leads the world in the production of coffee, sugar and oranges. Other products include soybeans, cotton, corn, tobacco, cocoa, rice, potatoes, beans, nuts, bananas, black pepper, grapes and tomatoes. Cattle raising has also achieved notable expansion, and has resulted in Brazil as the 4th largest producer of meat in the world. Brazil has also seen growth in the dairy and leather industries. This wide variety of agricultural productivity has in turn created related industries such as orange juice and instant coffee (Europa World Yearbook 1993).

Another major part of the Brazilian economy is the mining of high grade minerals. In addition to gold, silver and precious gems, Brazil is among the world's top producers of iron ore, manganese, bauxite, uranium, nickel, tin, lead, and chrome.

Brazil's top three imports are: 1. mineral products 2. products of the chemical and allied industries 3. machinery and mechanical appliances electrical equipment. The country's top three exports are, 1. tobacco 2. machinery and mechanical appliances 3. mineral products. Brazil's principal trading partners of imports are, 1. United States 2. Germany 3. Saudi Arabia 4. Argentina 5. Japan. Their principal export partners are, 1. United States 2. Netherlands 3. Japan 4. Germany 5. Italy (Europa World Yearbook 1993).

Brazil's evolution was financed with foreign credits and foreign investment, leading to excessive debt. Brazil's debt has escalated to \$110 billion in 1992, making the country the largest debtor in the Third World. The growth of Brazil has come to a halt and the country is suffering from a persistent economic crisis along with political instability (Wilson 1994).

In 1992 Brazil reported hyperinflation of 20% a month. However, other reports calculated it as high as 50%. In 1992 the Collor administration adopted a series of economic packages

designed to boost the economy and relieve inflation. These economic packages will continue to be implemented under the newly elected Cardoso administration (Wilson 1994).

In the last ten years , Brazil's currency has changed back and forth between the cruzeiros and the cruzados, as the government tried one hopeless manipulation after another. Currently the currency is the cruzeiro real of 100 centavos which was introduced on August 2, 1993 to replace the former cruzeiro (Wilson 1994).

In 1992, the Collor administration announced a plan concerning the economy. The economy was de-indexed and wages were no longer adjusted for inflation. Private and business bank assets were frozen and seized by the government, which promised to repay depositors at a later date. The overnight fund, an investment mechanism many depended on for daily yields to compensate for losses due to inflation, was abolished. Because there is little confidence in the national currency, Brazilians make contracts in U.S. dollars or OTNs, a national treasury bond that serves as a unit of measure to compensate for inflation. In Brazil, there are very few businesses that will accept credit cards because inflation erodes the value of money so fast that normal credit arrangements guarantee loss (McCrary 1994).

Recently, debt-for-nature and debt-for-social swaps of various

kinds have been proposed to ease Brazil's inflation-inducing debt burden. Debt-for-nature or debt-for-social swaps may involve official debt relief conditional on support of nature or social management. Chambers and Whitehead (1993) suggest "On the surface, these plans seem to have solutions, but many critics believe that debt swaps mainly serve creditors by guaranteeing some return on loans which lenders recognize will never otherwise be paid." Many Brazilians refuse to accept debt swaps because in doing so would be to recognize the validity of these debts. Those who take this position argue that the debt was illegally contracted by the military dictatorship without the consent of the public, and that the public has ended up paying the debt in the form of hunger and misery (Chambers and Whitehead 1993).

GOVERNMENT

Under the 1988 Constitution, Brazil is a federal republic comprised of 26 states and a Federal District (Brasilia). Legislative power is exercised by the Bicarmel National Congress, comprised of the Chamber of Deputies and the Federal Senate. The number of deputies is based on the size of the population. Election is by a universal adult ballot. Executive power is exercised by the President (Fernando Henrique Cardoso), elected by

direct ballot for a term of five years. The President appoints and leads the cabinet. Each State has a directly elected Governor and an elected legislature (Europa World Yearbook 1993).

The New Constitution embodies a democratization process that Brazilians have longed for after decades of dictatorship.

New Constitution:

1. Mandates equal rights between men and women
2. Mandates children's rights
3. Political and artistic censorship
4. Consumer protection
5. Freedom from unlawful arrest and seizure
6. Ideological end
7. Right to collective bargaining
8. Guaranteed paid maternal leave of 120 days
9. Work week of 44 hours
10. Equal rights for rural and urban workers
11. Right to vote at 16
12. Freedom to organize political parties
13. Integrated national health care system
14. Rights of indians to occupy their traditional lands

(Wirth 1993)

Most of these items exist only on paper. In reality many of

these reforms have not occurred. Indian territories have not been demarcated, women must present proof of sterilization to get many jobs, and poor, mostly black street children are murdered by death squads in every major Brazilian city. The biggest hurdle is land reform, which many social activists believe underlies the country's economic, political, and social problems (Wirth 1993).

The Collor government, filled with corruption and scandal, and incompetent in dealing with economic problems, suffered impeachment before completing its five year term. In October, 1994, Fernando Henrique Cardoso was elected President. His administration faces many threats, including social explosion and chaos (Robinson 1994).

SOCIAL CONDITIONS

The southern states of Brazil enjoy comfortable, orderly conditions. However the rest of the country just barely scrapes by in conditions of squalor. While the standard of living has improved along with Brazil's economic growth, social and regional disparities have widened. There are more wealthy and middle class Brazilians than ever, but the poor have multiplied and gotten poorer.

In 1983, the richest 20% of the population held 65% of all wealth generated in the country, compared to 55% of all wealth in

1960. Currently, over two thirds of all fertile land is controlled by 5% of the population. These trends have increased, and many middle class people who are burdened with inflation and job loss, have learned how easy it is to slip into poverty (Wirth 1993).

The poverty takes its toll on everyone, but children suffer the most. Fifty nine million children live in families stricken by poverty. Sixty percent of all children a year old or less live in houses without running water or sewage systems. Counting both children and adults, 45% of all Brazilians live without water, sewers, sanitary facilities, or electricity.

Eight million children in Brazil between the ages of 7 and 17 years old are not in school because many of them must work to support their families. It is estimated that only 250 of 1000 school children reach the 8th grade. According to Wirth (1993) "Children leave school because either their families lack resources to send them or the children choose work over school because the schools are not worth going to."

Illiteracy and ignorance is the result of the growing lack of education in Brazil. Recent government research showed that twenty six million adults, approximately 18% of the population, cannot read or write a simple note. Some researchers in Brazil believe that as many as 60% are functionally illiterate. Of these, 36%

live in the northeast region of Brazil (Wirth 1993).

Inflation is a primary contributor to the social problems occurring in Brazil today. The immediate effect of inflation is the buying power of consumer's has decreased dramatically. The result is hunger, which is a major social problem in Brazil. An estimated two-thirds of the population suffers from malnutrition, cited as the cause of many deaths (World Press Review 1994).

Health problems stemming from poverty and malnutrition include deaths from diseases which are not ordinarily fatal. The number of children vaccinated against preventable childhood diseases has declined, following decades of progress in public health. All of these factors contribute to the economic deficiencies of Brazil.

BRAZIL'S STABILIZATION PROGRAM

While he was Finance Minister, Fernando Henrique Cardoso launched an economic stabilization program with the twin objectives of balancing the federal budget and de-indexing prices (Crespo 1994). This is the seventh attempt in eight years by the Brazilian government to decrease their inflationary problems and create market stability.

This economic "adjustment program" is divided into three stages. The first was completed in February of 1994 when Congress

approved Cardoso's request for a "social emergency fund" which will divert more tax revenue from states, cities and social security receipts. The objective is to eliminate the \$22 billion deficit under the original federal budget (McCrary 1994).

Stage two, which went into effect on March 1, 1994, established a new inflation index called the Unit of Real Value (URV). Starting immediately with wages and long-term business contracts, all values will be expressed in a fixed URV amount. The number of cruzeiros comprising that amount will increase daily, in the line with the dollar/cruzeiro exchange rate, but the URV itself will remain constant (McCrary 1994).

Stage three of the plan will occur when the "fixed Value" concept of the URV is well accepted in the market place. At that point, the cruzeiro will be replaced by the URV. From then on salaries and prices should remain stable, except for genuine increases due to productivity improvements (McCrary 1994).

Many Brazilians who have witnessed the failure of seven economic plans realize the Cardoso plan may be their last chance. According to the government of Brazil, things are different this time. Crespo (1994) indicates "Brazil has ample foreign exchange reserves of nearly \$37 billion, putting the country in better position to implement currency reform than Argentina was at the

onset of its economic reform in 1991 when it had only 6 billion."

Central to the whole process is Cardoso's ability to achieve new constitutional reforms that would restructure the country's tax system, balance the federal budget, and put privatization on track. Brazil's structural reforms cannot be carried out until the 1988 constitution, which prohibits the privatization of oil and telecommunications, is rewritten. Crespo (1994) indicates "in mid-1993 a study of constitutional reform was begun that was to focus on eliminating federal monopolies in key sectors of the economy, including oil and telecommunications, overhauling the social security system and rebalancing geographic representation in Congress." Economists agree that these issues remain critical if the government is to balance its budget in an economy that is not burdened by inflation (Crespo 1994).

BRAZIL'S FUTURE

Brazil's internal lack of consensus on economic and Constitutional reform has prevented progress towards greater market liberalization and economic stabilization. As a result, Brazil continues to experience rising inflation and unemployment, inconsistent economic growth, and persistent trade and investment barriers.

According to Roberto Steinfeld CEO of Banco Cindam in Rio, "Although Brazilians are ready for constitutional reform, the politicians are not." Politicians are holding onto their jobs because they have all become extremely rich from the power that they have held it is no surprise that they are unwilling to let go of that power (Crespo 1994).

Brazilians, however, are optimistic, believing stabilization may only be one step away. Alexander Bialer, manager of GE operations in Brazil, sees many opportunities if the economy stabilizes. He believes that "all of a sudden, Brazilian business would be very similar to business in any other part of the world." Also optimistic is Olacyr de Moraes, CEO of the Itamarati group. He believes that "unless there is some serious event, this time we will create a new state with very little inflation, and this is possible because of the strong entrepreneurial spirit, large industry, and strong agriculture in Brazil that is ready to take a leap (Crespo 1994)."

Still, the success of Brazil's economy is on the shoulders of the Administration who must ensure the success of the stabilization plan, as well as push for constitutional reform. Hopefully, Brazilians will achieve the economic reward of market stability, which will release Brazil's enormous capacity for growth.

DEBT-FOR-NATURE-SWAPS

A new concept called debt-for-nature swaps can serve the dual purpose of reducing debt and preserving the environment. This idea concerning environmental preservation for Brazil and the developing world is a relatively new concept. Many environmental problems can be addressed by utilizing the debt-for-nature concept. To overcome Brazil's inability to fund preservation projects, nongovernmental organizations have initiated this new form of conservation agreement.

Debt-for-nature swaps occur in many different forms. One type of swap involves the central bank of Brazil converting foreign debt into local currency or local bonds, which are then held by local environment groups for investment in preservation projects (Hansen 1989). Another type of swap involves environmental quality rather than preservation. According to Chambers and Whitehead (1993) "An environmental organization may purchase Brazil's debt on the secondary market and resell it at a discounted price to a multinational corporation in order to support environmentally sound corporate investment."

In addition, debt-for-nature swaps may involve official debt

relief conditional on government support of environmental management. Chambers and Whitehead (1993) recommends this type of swap "because it simultaneously reduces the level of environmental degradation and debt burden."

Of great concern to many Brazilians is the rate of Amazon deforestation and the irreversible effects it has on bio-diversity and global climate change. This concern is well justified since within the legal Amazon of Brazil, deforestation averaged around 21,000 square kilometers per year from 1980-1990 (Brazilian Embassy 1993). The idea of debt-for-nature swaps as a solution to reducing both the debt crisis and the tropical deforestation problem is very appealing to many Brazilians.

Corporations are indirectly involved in debt-for-nature swaps because many NGO's have used corporate donations to engage in swaps. Most corporate aid is in the form of cash donations, which can then be used to finance debt-for-nature swaps or any other preservation project of the NGO. However some large financial institutions such as American Express have become directly involved by helping to arrange the purchase of debt, or by donating debt to NGO's to support swaps. The corporations who involve themselves in debt-for-nature swaps are building goodwill with the general public and potentially attract a greater number of customers (Asher 1991).

Brazil has several incentives to engage in a debt-for-nature swap. First, consider the incentives for repayment of their foreign debt. In general, repayment of foreign debt assures Brazil future access to capital markets. The failure of Brazil to relieve current debt could lead to limited access to capital markets in the future. Second, benefits to tropical rain forests as well as the environment will be immense. A debt-for-nature swap permits greater research into the development of the environment, and allows greater flexibility in the use of future resources (Chambers and Whitehead 1993).

The value of debt-for-nature swaps as tools to improve environmental conditions is limited because the debt burden of Brazil is not the sole source of environmental degradation. However, the delay may allow innovative and permanent solutions to the deforestation problem as well as other environmental concerns. Possibly the greatest benefit of debt-for-nature swaps is the effect they can have in spurring new forms of preservation (Hansen 1989).

ADDITIONALITY

Another idea which can serve to foster economic growth and

promote environmental preservation is the concept of additionality. Additionality concerns finance, particularly the notion that developed countries (the "North") should either individually or collectively pay the costs for sustainable development undertaken by developing countries (the "South") (Jordan 1994). Brazil can utilize this concept to achieve a more sustainable environment. Brazil and other developing countries insist "the money should be on top of, or in addition to, all financial aid currently passed from the North to the South (Jordan 1994)." The United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992, served to showcase the issue of additionality and raise its political status. Brazil and other developing countries made it perfectly clear that "their support for environmental protection agreements were contingent upon the provision of significant quantities of additional finances, or additionality (Jordan 1994)."

Basically, the South would agree to the environmental protection measures sought by the North only if accompanied by new aid, not money redirected from existing North-South transfers of aid. Without commitments to additionality, the South feared that existing North-South transfers would either decline in real terms or be redirected to problems that are not of the North's immediate

concern. Along with the official development assistance which is the core of the additionality debate, politics has extended the debate to involve other issues such as trade and debt. Additionality is thus a term used for a variety of problems. The additionality debate must be solved in order for Brazil to receive quality assistance in their fight for a sustainable environment.

As sustainable development and the threat of global environment change have garnered more political attention, the developing countries have sensed a new opportunity. This opportunity as Jordan (1994) states " is an opportunity to reassert their demands for significant wealth redistribution and the democratization of international political institutions."

Coinciding with these political debates, discussions have grown among scholars of international relations about how to improve the process of international environmental governance, particularly, the negotiation, ratification, and implementation of international environmental agreements, such as protocols and conventions. One mechanism is to offer reluctant parties some form of inducement or side payment. Side payments can take many forms, including financial aid and access to technology. Because of the developing nature of Brazil, these inducements can be very appealing (Jordan 1994).

A consensus has emerged among governments that some additional finance is needed by the South, including Brazil in order to develop more sustainably. However, a number of critical questions remain unanswered. Questions such as, from where will the additional money come and how much is required?

How much additionality is required by the South for it to develop more sustainably? For many years the South has asked for additional finance, but has failed to specify how much is needed. The UNCED secretariat estimated the cost for sustainable development to be \$600 billion per year from 1993-2000. The developing world would provide the bulk of this money. However, the developed nations would have to contribute \$125 billion of additional grant and concessional (low-interest) financing. This figure is double that of which is currently being given (Jordan 1994).

Clearly, the implementation of sustainable development strategies in Brazil and other parts of the South will require some additional finance, but exactly how much is uncertain. According to Johan Holmburg of the international institute for environment and development, "although some additionality is undoubtedly justified, it is likely to be on a more modest scale than suggested by estimates and debates in the UNCED (Jordan 1994)." Holmberg

(Jordan 1994) says "several local primary environmental initiatives such as energy conservation can be implemented in developing countries such as Brazil at little or no cost."

Where will the money come from? The South has indicated that it will not and cannot pay. According to the developing world, the North has been the prime instigator of global and environmental change and should therefore take the lead in paying for the mitigation and adaptation programs. The South's financial demands reflect these sentiments. "Resources for environmental protection should be both new and additional; they should be disbursed on a grant or concessional basis, and they should be free of conditionality (Jordan 1994)."

Additional resources for Brazil and other developing countries can be made available in many ways. Transfers of resources such as side payments, the transfer of aid and technology, loans from multilateral development banks, and private investment flows are a few examples. If extra resources are to be given to the South, decisions have to be made as to which form is most appropriate. Ultimately, the decision to provide extra resources rests with the donor countries because they are under no obligation to make resources available or to utilize a certain form.

Additionality would provide Brazil and the developing world

with the finances required to achieve sustainable development. For additionality to be possible, revisions in regulatory and economic policies will have to be made. Developed countries must provide the South billions in aid, while their industries share the latest technologies. In order to make this all possible, a new global compact between rich and poor nations will be needed (Smith 1992).

NGO'S CONTRIBUTION TO SUSTAINABLE DEVELOPMENT IN BRAZIL

The burden of providing Brazil with the billions of dollars necessary to achieve sustainable development will not fall entirely to the Brazilian government and other nations. Non-Governmental Organizations (NGO's) such as the United Nations, World Bank, and smaller NGO's such as grassroots organizations (GRO's) can contribute enormously to the effort of sustainable development in Brazil, partly because of the extent of their reach. During the last 20 years, NGO's have rapidly spread and now reach about half a billion people in the developing world. Most NGO's focus on poverty and environmental degradation rather than on population and family planning. However, the NGO's that focus on family planning have had a large impact on government policy (Fisher 1994).

Grassroots organizations which are made up of local members

have formed in Brazil to improve and develop their own communities. Most of these organizations have been promoted by outsiders. Faced with environmental problems and increasing poverty these different GRO's are organizing networks with each other to improve their geographical region. Women have been particularly active in organizing GRO's (Fisher 1994).

Grassroots support organizations (GRSO's), another type of NGO, are intermediary organizations that work with and channel financial support to GRO's. GRSO's are working in Brazil in such fields as enterprise development, health care, women's rights, population control, and environment protection. These GRSO's are usually staffed by paid professionals and middle class volunteers.

NGO's have advantages over governments and international donors in their ability to improve the environment. Fisher (1994) indicates that people "seem to trust NGO's more than they trust their governments or foreign donors." She also says, "because of their ties to GRO's, grassroots support organizations are more adaptable to local circumstances than are government outreach programs."

A third advantage is the GRSO's have ties to alternative sources of funding, such as international NGO's, that are not always available to governments. Finally, the most important

advantage of NGO's is the expanding ties with each other. GRO's GRSO's, and their networks are spreading throughout the developing world. By creating local initiatives, these networks can lower costs and help spread new ideas.

NGO's can increase attention to population growth and support family planning services. NGO's can also assist in the funding needed to increase the education of women. According to Fisher (1994) "there is strong evidence linking level of education achieved by women to fertility decline." Many women in Brazil know about contraception and want to plan the size of their family but have no access to family planning services. In addition, Fisher (1994), says "the link between women's employment and declining fertility is even stronger than the link between fertility decline and education because of the power of individual advancement." Women's employment and education, proper family planning services and the support of NGO's can build a foundation for fertility decline in many parts of Brazil. GRO's, GRSO's and their networks can play a major role in many of these efforts.

FAMILY PLANNING

Family planning plays a central role in a sustainable development strategy. Family planning is a big factor in

reproductive health care because it allows women to plan for healthy reproductive lives. By controlling the number and spacing of the children they bear, women can ensure that pregnancy does not deteriorate their health or the health of their children, especially when facing compounding problems such as malnutrition and various infections (Lee 1994).

Family planning also saves lives. By helping women bear their children during the healthiest times for both mother and baby, family planning helps prevent the deaths of infants, children, and mothers. Not only does family planning save lives, but it significantly decreases levels of maternal and child illness, thus decreasing health costs. While improving women's education family planning decreases poverty and reduces population growth. Education improves literacy rates while expressing the importance of a limited number of childbirths per woman. Family planning enables couples to decide for themselves when to have their children as well as how many to have (Population Reference Bureau 1991).

The use of family planning enables women to delay motherhood, to space births, to avoid high risk pregnancies, and to stop childbearing when a woman has achieved her reproductive goals. It is important for Brazilian women to receive counseling that fully

explains the risks, benefits, effectiveness, and appropriateness of all family planning methods so they can make informed choices throughout their reproductive lives (Population Reference Bureau 1991).

Childbearing is safer if women receive prenatal care and trained medical assistance. In addition, childbearing is safer for women who are between the ages of 18 and 35, have given birth fewer than five times and do not have existing health problems (Population Reference Bureau 1991). Family planning can help mothers avoid risks and meet the conditions for safer childbearing.

Family planning is cost-effective health intervention that has immediate benefits for women and their families while benefitting the environment in which they live. For Brazil, investments in family planning can better the country as a whole by substantially reducing high fertility and by relieving the pressures rapid population growth puts on many social sectors including health, education, and employment (Population Reference Bureau 1991).

EMPOWERMENT OF WOMEN

One crucial piece of the development puzzle is the empowerment of women. The ideas and participation of women are essential for

planning appropriate, comprehensive, and effective development programs. Unless Brazil empowers women, educates them, cares for their health, and allows them to enter a life rich in opportunity on an equal basis, poverty will persist, population will continue to spiral out of control and the population will suffer. Brazil must make men and women equal before the law by correcting disparities and promoting women's needs more actively than men's until equality is reached.

Commitments must be made towards strengthening the role and status of women. These commitments must create access to education and basic reproductive health services, including family planning as a universal right for all. These commitments will not be made merely because Brazilians want them, but through legislative changes, increased information, and redirection of resources.

Traditionally, women in Brazil have had restricted access to equal rights. According to Brundtland (1994) "there are few investments that bring greater rewards for the population as a whole than the investment in women." However, women are still being discriminated against in terms of access to education, productive assets, income and services, involvement in decision making, and equal treatment in working conditions and pay.

Women's education is the single most important path to higher

productivity, lower infant mortality, and lower fertility. Brundtland (1994) indicates "economic returns on investment in women's education are generally comparable to those of men, but the social returns in terms of health and fertility by far exceed what we gain from the education of men."

An effective development strategy must include economic opportunity for women and the elimination of legal and social barriers to sexual equality. Brazil must close the sexual gap in education and politics, while increasing the earning power of women. Education and employment help to make women more powerful and increases the chances for a sustainable environment (Golden 1994).

OTHER RECOMMENDATIONS FOR A SUSTAINABLE FRAMEWORK

Brazil must move towards sustainability in order to achieve economic and social order. Attempts towards sustainability will fail unless better progress is made to integrate the viewpoints of three disciplines:

* **Economists** must seek methods to maximize human welfare within the constraints of existing capital stock and technologies. Economists in Brazil must understand the

importance of natural capital (Munasinghe 1993).

* **Ecologists** need to stress preserving the ecological subsystems which are viewed as critical for the overall stability of the ecosystem. Steps toward maintaining the resilience and adaptability of natural life support systems must be taken (Rees 1993).

* **Sociologists** must emphasize that the key actors are human beings, whose pattern of social organization is critical for devising solutions to achieving sustainable development (Cernea 1993).

Along with the integration of these viewpoints, Brazil should have goals for a sustainable society.

Economic goals should include:

- * Employment creation
- * Equitable income distribution
- * Technology exchange, not simply technology transfer
- * Economic self-reliance at the community and national levels

(Viederman 1993)

Ecological goals should include:

- * Population stabilization

- * Ecological stability that will fit with increased general self-reliance and rely much more on renewable and recyclable supplies of resources
- * Technology assessment, management, and regulation, with particular attention to unintended consequences in the medium to long term.
- * Environmental protection through higher concentration on resource and waste repository constraints
- * Focusing first on waste reduction and then on waste management
- * Balancing ecological debt
- * Maintaining bio-diversity

(Viederman 1993)

Social and cultural goals should include:

- * Equity and justice, emphasizing needs over wants
- * Maintenance of cultural diversity, including respect for all races
- * Strengthen communities through the participation of individuals and the social groups in the conduct of their own affairs
- * Revitalize communities within urban settings

- * Revitalization of sustainable rural communities through the development of environmentally sensitive and economically productive agriculture and environmentally sound industrial development

(Viederman 1993)

Political goals should include:

- * Reorganize the Constitution and include the legalization of the systematic transfer of state assets to the private sector
- * Political security, calling on the participation of global communities in defining the problems and developing solutions, so as to protect from internal threats and to meet the needs of the inhabitants
- * Strategic security, so that communities are able to defend themselves against external threats, coercion, or invasion, whether economic or political

(Viederman 1993)

Unfortunately, before 1988 and the implementation of their new Constitution, the environmental movement in Brazil was centered around ecological issues, and less around economic,

sociocultural, and political goals. The Brazilian approach has been narrowly focused rather than through a system that has structure. In order for sustainable development to occur in Brazil, these goals and disciplines must be integrated together to fulfill the needs of future generations (Viederman 1993).

The new constitution in Brazil established laws and regulations dealing with environmental protection, which is now being taken more seriously, and must be taken seriously if Brazil is to attain a sustainable society.

Summary of basic regulatory framework:

Constitutional provisions - The Constitution devotes a chapter to environmental protection. It establishes that everyone has the "right to an ecologically-balanced environment, which is essential to a healthy quality of life." The burden of defending these rights is put upon communities, as well as on the government. The preservation of the environment is one of the basic principles which manages the economic order system of the constitution. State and federal governments have the power to legislate on issues related to the protection of the environment and the consumer (Brazilian Embassy 1993).

Specific Areas Regulated:

Environmental impact studies - The proponent of a project which may cause significant damage to the environment must prepare an environmental impact study. The evaluation and results must be summarized in a report to the corresponding state environmental agency for approval (Watanabe 1993).

Air Pollution - Federal and state legislation establish standards for air quality and composition. They establish regulations for suspended particles, sulphur dioxide, carbon monoxide, and for stack emissions released by plants and other generators (Watanabe 1993).

Solid and hazardous waste - Federal rules provide that hazardous waste must be treated, stored and disposed of safely, under the supervision of the state environmental protection agency. All projects designed to treat and dispose of solid waste are subject to federal and state laws. Solid wastes may not be disposed of into any water collection system (Watanabe 1993).

Enforcement:

General - Enforcement of environmental protection legislation is made in Brazil by government agencies, the district attorneys and environmental protection private associations.

Pollution control and environmental protection - State and environment agencies have jurisdiction to control the quality of waters, establish standards and limitations governing pollution of the air, water, and soil, monitor polluting act standards and limitations, and request the temporary or permanent shut down of serious violators (Watanabe 1993).

Liabilities - In Brazil polluters are subject to strict liability, joint and several. According to Federal Law "without prejudice to the application of the penalties provided for in this article, the polluter is obliged to indemnify or repair the damage caused by it to the environment and to victims regardless of fault (Watanabe 1993)." Joint liability is established in article 1518 of the Brazilian civil code which provides that each responsible party may be sued for the entire amount of the damages (Watanabe 1993).

These regulations on environmental protection have good intentions. However, a greater number of laws and better enforcement is needed. According to Watanabe (1993), "Brazil needs to establish a comprehensive and systemized code of environmental protection."

Due to the concept of sustainable development there are

other various solutions that aim toward a sustainable society. These solutions include infrastructure development, new technology, biotechnology, and conservation of tropical forests (Smith 1992).

According to studies by U.N. agencies, infrastructure that is properly done could help Brazil recycle more than fifty percent of their paper, glass, plastics, and metals (Smith 1993).

New technologies have developed many new products including air conditioners, furnaces, refrigerators, and lighting fixtures, that are from fifty percent to several times more efficient than the old ones (Smith 1993). This type of technology must be acquired by Brazil so they can install cost-effective equipment, which will reduce demand.

Along with better technology, Brazil must develop a new model for growth. This new model should involve creating an emphasis for small businesses and sustainable farming, forestry, and wildlife management. Growth in the past has been geared toward dam and road projects, ranches, and mining, all of which destroy ecosystems and do little to help those who are poverty stricken (Smith 1993).

This process of change toward sustainable development will have a big effect on the future of Brazil, yet in the past,

Brazilian leaders have been passive in dealing with these issues. If sustainability does improve and gains momentum, it will offer huge opportunities and pose big challenges for Brazil.

CONCLUSION

It is clear Brazil must undergo massive change on many levels in order to work towards a sustainable environment. Realistically, these changes cannot all occur quickly because many traditionally-held social issues and beliefs are involved. For instance, family planning cannot be achieved without first educating Brazilians about the drawbacks of overpopulation and poverty. Also, Brazil should spend money on advertising campaigns and education to promote the empowerment of women. Because women have been treated essentially as second-class citizens for so long, Brazil must take an aggressive stance in promoting equality of the sexes.

Other changes must occur within Brazil's troubled economic structure. Before Brazil can expect to receive billions of dollars in aid and support from NGO's and other countries, it must address the country's present financial problems. For example, Brazil must seek ways to stabilize the economy by decreasing inflation, revising the tax system, and addressing income disparities. Until

Brazil begins to show progress in these critical areas, the goal of sustainability cannot be achieved.

Brazil could also move closer toward a sustainable environment by continuing to diversify its industries. By not depending solely upon agricultural endeavors as it has done for centuries, Brazil can increase its position in the world marketplace.

Sustainable development can occur if Brazil systematically takes an active approach in solving the country's most pressing problems. Strong leadership will be needed to bring about the necessary changes. Brazil should ultimately strive to achieve a balance between sound environmental practices and sustainable economic and social development. Brazil can begin by focusing on the future -- a prospect that looks bleak if the country continues down its present destructive path.

"As Inflation Burns, Brazil Fiddles." World Press Review, April 1994, 20-21.

This article outlines the problems the Brazilian economy is having with inflation. Gives ideas on what Brazil should do to bring inflation under control.

"Amazon." Brazilian Embassy, June 1993.

This article from the Brazilian Embassy talks about the rate of deforestation in the Amazonian regions of Brazil.

Asher, Joseph. "When a Good Cause is also Good Business." Bank Marketing, 23 June 1991, 30-32.

This article gives the advantages for corporations to engage in donations to NGO's to support debt-for-nature swaps.

Ausubel, Jesse H. "2020 Vision." Sciences, November 1993, 14-19.

This article gave interesting information on future development and population growth. Explains the urgency for reduction in population growth.

"Brazil And The Environment." Brazilian Embassy, June 1993.

This was a solid source of information. gives information on the Brazilian environment, and gives ideas about the relatively new concept of sustainable development.

Brundtland, Gro Harlem. "The Solution to a Global Crisis: Empowering Women." Environment, December 1994, 16-20.

Brundtland writes about the importance of women to the stabilization of the environment. He talks about the importance that educating women has on lowering fertility rates, and also about equal rights for women in the developing world.

Cernea, Michael. "The Sociologists Approach To Sustainable Development." Finance and Development, December 1993, 11-13.

Cernea looks at some sociological views that could enhance sustainable development. the article outlines sociological ideas that can help sustain the environment.

Chambers, Catherine M. and John C. Whitehead. "Environmental Preservation and Corporate Involvement: Green Products and Debt-for-Nature Swaps." Review of Business, Summer/Fall 1993, 17-21.

This article was about the advantages debt-for-nature swaps has for both corporations and governments. the article explains several types of swaps and their benefits. This article was very beneficial to the research process.

Crespo, Mariana. "Sleepless in Sao Paulo." Financial World, June 1994, 52-59.

This article gives information about Brazil's stabilization program. Explains the importance of reducing inflation and balancing the national budget of Brazil.

Desherbini, Alex. Interview, Population Reference Bureau
22 January, 1995.

In this phone interview with Mr. Desherbinin he gave some critical statistical facts about the population of Brazil. He expressed concern about the speed at which the global population is growing.

Europa World Yearbook. London: Europa Publications Limited, 1993, 569-593.

This book is filled with statistical information on

various countries throughout the world. Gives information about the history, present government, legislation, trade, and other general aspects of each country.

"Family Planning Saves Lives." Population Reference Bureau,
September 1991, 1-16.

This small booklet from the Population Reference Bureau contains information stressing the importance of family planning on individuals living in the developing world. Information on child survival, maternal survival program costs, and implementation of family planning is given.

Fisher, Julie. "Third World NGOs: A Missing Piece to the
Population Puzzle." Environment, September 1994, 6-11.

Fisher writes an excellent informative article about Non-Governmental Organizations ability to assist developing nations in attaining a sustainable environment. Explains the advantages NGO's have over governments in their ability to improve the environment.

Golden, Arthur. "Solution: Power to the Women." San Diego Union
Tribune, 30 August 1994, A-5.

This article in the San Diego Union Tribune explains the importance that women have in solving the global population crisis. Golden writes about the concept of empowering women.

Hackman, Sandra. "After Rio: Our Forests, Ourselves."
Technology Review, October 1992, 33-40.

This article explains the economic and environmental problems that Brazil is faced with. Problems from income distribution to poverty is explained.

Hansen, Stein. "Debt For Nature Swaps - Overview and Discussion of Key Issues." Ecological Economics, 1 February 1989, 77-93.

The debt-for-nature concept is explained. Hansen also discusses the value debt-for-nature swaps has on improving the environment. The article was very informative.

Hinchberger, Bill. "Brazil." International Business, December 1994, 42.

Hinchberger gives an economic profile of Brazil. He reports about the economic problems that confront newly elected President Fernando Henrique Cardoso.

Jordan, Andrew. "Financing the UNCED: The Controversy Over Additionality." Environment, April 1994, 16-32.

Jordan writes a very informative article about the concept of additionality. He explains the basics of the additionality concept and provides both positives and negatives on its ability to decrease environmental problems.

Lee, Elizabeth. "Women's Reproductive Health." Population Reference Bureau, July 1994, 4-5.

Lee Expresses the importance of family planning on the health of women and their children. She explains some of the problems that result from the lack of proper family planning.

McCrary, Ernest. "Brazil: One More Run At The Monster." Global Finance, June 1994, 109-116.

McCrary outlines the economic adjustment program implemented by the Brazilian government in an attempt to decrease Brazil's inflation problem. McCrary also expresses the importance of Constitutional reform and market organization.

Munasinghe, John. "The Economist's Approach To Sustainable Development." Finance and Development, December 1993, 16-19.

Munasinghe writes an interesting article analyzing Economic ideas for a sustainable environment. The article covers the positive and negative effects that economics can have on the environment.

Nitze, William A. "The Economic Case For Sustainable Development." Issues in Science and Technology, Summer 1993 29-32.

Nitze gives his views on economic methods that should be used if developing countries want to achieve sustainable development. This article offers several interesting views in which Brazil could follow in their attempt to sustain development.

Pearce, David and Jeremy Warford. Economics, Environment, and Sustainable Development. New York: Oxford University Press, 1993.

This book took an in depth view into sustainable development. The Authors cover many areas including the effects of increasing population growth and methods to prevent unsustainable growth.

Rees, Colin. "The Ecologists Approach to Sustainable Development." Finance and Development, December, 1993, 14-15.

Rees stresses the importance of our ecological systems for the overall stability of the global environment. This article gives examples of the abuse that our ecosystems take on a daily basis.

Robinson, Danielle. "Back To The Brink." Euromoney, November 1994, 125-130.

This article explains the impeachment of the Collor Administration. Robinson also analyzes the economic threats that the newly elected Cardoso Administration faces.

Smith, Emily T. "Growth vs. Environment." Business Week, 11 May 1992, 66-75.

Smith writes an excellent article on our global environmental problems. She explains the new concept of sustainable development, and what it will take to achieve.

Viederman, Stephen. "Sustainable Development: What Is It and How Do We Get There." Current History, April 1993, 180-185.

The article explains the concept of sustainable development. Viederman utilizes his article to express goals for our society to have for the future in order to preserve the Environment.

Watanabe, Kazuo. "Brazil." Environment Risk, September 1993, 46-49.

The article gives an overview of the current economic and environmental status of Brazil. Watanabe gives a summary of the Brazilian Constitution, along with certain laws and regulations concerning the environment.

Wilson, Steve. "Cha-Cha-Changing." Journal of Business Strategy, October 1994, 57-59.

Wilson gives examples of the changes Brazil has gone through over the years. The article was extremely informative and very interesting.

Wirth, John D. State and Society in Brazil: Continuity and Change.

London: Westview Press, 1994.

Wirth writes an very informative book about Brazil. He covers the history of the country and its progress over the years. Wirth explains the economic and political status of Brazil. This book was extremely helpful to the research process.