Environ, Sci., Hokkaido University	15 (2)	109~130	Dec. 1992

Environment and Development and their International and National Implications

Pablo Gustavo Martinez Lestard
Department of Regional Planning, Division of Environmental Planning,
Graduate School of Environmental Science, Hokkaido University
Sapporo 060 Japan

Abstract

Part One : The International Dimension of the Environmental Question .

The main purpose and central objective of this part is to demonstrate the interconnections existant between the economic development process in the global context, and its influence on the environmental problems in developing countries, especially in Latin America.

Sustainable Development is a process of change in which the explotation of resources, the direction of investments, the orientation of technological development, and institutional changes are all in harmony and enhance both current and future potential to meet human needs and aspirations.

Within the concept of Confused Development in the developing countries,the following items can be identified:

1) Development without infrastructure.
2) Development without participation.
3) Development without consideration of women.
4) Development without consideration of the environment.
5) Development without consideration of the poor.
6) Development without dissemination of knowledge.

Thus considerations of the international dimension of the environmental macrosystem must consider the following aspects:

1) Environmental problems disregard national, political, or administrative borders.
2) Problems are not solved by an accumulation of various environmental policies ; rather, solutions lie in coordinated environmental policy.
3) The Third World contains 75% of world resources;in many cases these natural resources having been degraded by wrongful strategies related to the development of the First World.

Three case studies are presented to illustrate the dynamic linking environmental problems and international interests:

1) The Hamburguer and the Tropical Rain Forest.
2) Exportation of Toxic Chemical Products.
3) Genetic Resources and Their Importance.

Part Two : The National Dimension of the Environmental Question.

In Argentina, as in all Latin American countries,there is one mode of development seen transnationally. This is feedback loop of "society-economy-nature". Specifically in Argentina the garbage management problem in Buenos Aires City and Greater Buenos Aires .

The following general recommendations were developed:

-Adoption of a new economic-ecological model, "Ecodevelopment", in which the equilibrium is a tantamount importance.

-Promotion of "environmental education".
-Modification of environmental legislation to allow for punishment of those who commit crimes against the nature and the environment.
-Incorporation of an environmental chapter in the Argentinian Constitution.
KEY WORDS ; Non-Governmental Organizations, Confused Development, Sustainable Development, Environmental System, Sustainability of Ecosystems, Economic Crisis, Transnational Development Mode, Environmental Policies,United Nations Conference on Human Environment, Urban Garbage Management in Buenos Aires City and Greater Buenos Aires, Metropolitan Area Ecological Belt Authority, Hazardous Solid Waste, Style of Development.

INTRODUCTION

When the World Commission on Environment and Development headed by Gro Harlem Brundtland, Norways Prime Minister, put together a report called "Our Common Future" for the United Nations General Assembly in 1987, the idea of "Sustainable Development" was formally developed for the first time.

Among several issues the Bruntland Commission covered was a review of Global Development in the developing countries. The Commission also defined the function of Non-Governmental Organizations (NGOs)-that of linking government decisions with peoples requirements worldwide. This reflected the main directive of Non-Governmental Organizations-that are concern with environmental problems and their relationship to the process of development.

The integration of economic development and environmental factors into the laws and into decision-making systems within countries has to be matched at the international level. The growth in fuel and material use dictates that direct physical linkages between ecosystems of different countries will increase. Economic interactions through trade, finance, and investment will also grow and heighten economic and ecological interdependence.

Sustainable development requires the unification of economics and ecology in international relations and national affairs, as presented in this paper.

Part One : The International Dimension of the Environmental Question

The main objective of this part is to prove the interconnections existant between economic development processes in the global context, and their influence on environmental issues in developing countries, especially in Latin America.

Some aspects of the concept of 'confused' development in developing countries are revealed in the following six items:

1) Development without infrastructure:

The efforts in international development during recent years have implications which could accelerate real development, even in the difficult years to come.

Most techniques with cost effectiveness available at present, such as immunization, oral hydration, and biogenetics might become useless without efficient supporting systems for the majority of people in the developing country concerned.

To encourage responsible self-government, the people of a nation must develop their own infrastructure, with emphasis on the fact that competent personnel and a highly -educated population form the principal core of development.

2) Development without Participation:

"Sustainable Development" depends on the promotion of peoples capabilities, improvement of their own lives, and their ability to exercise control over their own fates. External aid cannot be an indefinite central fixture of a society which is to develop on its own.

Even in agriculture or industry, in water supply or housing projects, it has been demonstrated that there is an important distinction between those kinds of aid which enable and those which disable civil rights.

3) Development without Consideration of Women:

The women of a developing country hold the responsibility for most of harvest production and trading ; they also process the harvest by making food as householders, they carry water and combustibles, take care of young peoples nutrition, health and education. Nevertheless, until recently this effort has not be rewarded with aid for development. Most technology, investments and credit aid have been the exclusive preserve of men.

This disequilibrium is hard to correct because it is part of a similar injustice in all countries.

But the inefficiency involved in this prejudice will mean great losses in development investments. The effects of female education in relation to such development issues as family planning and the health of children have been often demonstrated.

4) Development in Disregard of the Environment.

Just fifteen years ago, environmental problems were considered the inheritance of industrial nations and not that of the developing countries.

This was a fallacy. Now, deforestation, erosion, sliming processes in lakes, droughts and floods, and industrial catastrophes such as the Bhopal tragedy, have all proved that the Third World has environmental problems too.

At the same time, a growing preoccupation with the ozone layer, global warming, and unknown consequences of tropical rain forest destruction should have made clear by now that environmental issues are of global concern.

Therefore, the Report by the World Commission on Environment and Development emphasizes that environmental matters must be considered as a priority for all development plans.

5) Development without Consideration of the Poor.

The achievement of the goal of reaching the poor is a major objective in social development ; during the last ten years almost all development initiatives, large or small, appeared to have been struggling with the same problem. Even the most direct approaches, aiding the poor through elementary education, adult special instruction, rural teaching, and supplementary food, have often been unsuccessful.

There is no one answer for this problem ; as pointed out above, the human impact on the environment must be considered in development planning and thus the poors representation must have increased weight in decision-making.

6) Development without Dissemination of Knowledge:

Contemporary experts in today's development sciences should here accept part of the the guilt for failures in development efforts.

Partly because research and development have been focussed on too many pilot -projects of small scale, and partly as many development plans were proposed without clear priorities or failing to sufficiently consider the political contexts of the projects, many well formulated plans have been filed only for potential application or failed owing to a lack of political backing.

Briefly, then, proposed plans should be : accessible, on a large scale, low in cost, high in impact, and attractive politically.

Towards Sustainable Development

"Sustainable Development" is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The satisfaction of human needs and aspirations is the major purpose of development.

The essential needs of many people in developing countries are-for food, clothing, jobs -that are not being met.

Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life.

A society may in many ways compromise its ability to meet the essential needs of its people in the future, by overexploiting resources, for example.

Large sections of the population may be marginalized by ill-conceived development.

Settled agriculture, the diversion of watercourses, the extraction of minerals, emissions of heat and noxious gases into the atmosphere, genetic manipulation and commercial forestry, are all examples of human intervention in natural systems during the course of development.

Until recently, such interventions were small in scale and impact. Recent interventions are more drastic in scale and impact, and more threatening to life-support systems both locally and globally.

This need not happen.

At a minimum, sustainable development must not endanger the natural systems that support life on Earth ; the atmosphere, the waters, the soils, and the biota.

Economic growth and development obviously involves changes in the physical ecosystem ; every ecosystem everywhere cannot be preserved intact.

In general, renewable resources like forest and fish stocks need not be depleted provided their rate of use is within the limits of regeneration and natural growth.

But most renewable resources are part of a complex and interlinked ecosystem, and maximum sustainable yield must be defined after taking into account system-wide effects of exploitation.

As for non-renewable resources, like fossil fuels and minerals, their use reduces the stock available for future generations ; but this does not mean that such resources should not be used.

Sustainable development requires that the rate of depletion of non-renewable resources should foreclose as few future options as possible.

In essence, sustainable development is a process of change in which the explotiation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.

Although the concept of an "Environmental System" or 'Ecosystem' has been extensively developed, the same cannot be said for the development of the concept of an environmental macrosystem of international perspective (the "ecosphere").

For that reason it is necessary to consider the following facts:

a) Environmental problems disregard national, political, or administrative borders.

b) These problems are not solved by an accumulation of various environmental policies ; rather, solutions lie in coordinated environmental policy.

c) It is necessary to preserve the inheritance of natural resources, and an adequate environment for the coming generations of the world. The Thirld World contains 75% of world resources ; in many cases these natural resources having been degraded by misguided strategies related to development in the First World.

Three case studies are presented to illlustrate the dynamic linking of environmental problems and international interests, as follows:

1. The Hamburger and the Tropical Rain Forest

Over the past few years, the United States has developed a growing demand for beef, especially lean beef.

This means that the cattle raised on grassland are in high demand, these cattle ending up principally as hamburgers and sausages.

As beef has been one of the most inflationarily priced foods in the American food basket, the United States Government has authorized beef importation from Central America, where the cost of cattle rearing is half as much as in Montana or in Texas.

Central American cattle raising is done on grassland that previously supported tropical rain forest.

Since 1950, the extension of grasslands in Central America has increased 2.5 times, while exports, principally to the United States, have risen 3 to 4 times.

Meanwhile, Central American meat consumption, historically low, has fallen still further more.

The United States Government estimates that the savings through these imports mean a benefit of US$ 0.05 per hamburger, a total saving of US$400 million per year.

On the other hand, this production process has deteriorated the Central American environment, through massive deforestation stretching from Southern Mexico to Panama.

In 1960 forests covered 60% of the region mentioned above, but today they cover about 33%.

If this degradation continues, all of the regions forests will be elimated by the late 1990s.

There is a similar chain of events in the case of the Amazon. A vast area of this region is being used for grazing ; the cattle being used for beef for European consumption.

During the Falklands/Malvinas War, Great Britain cancelled imports of Argentinian beef, representing a very significant quantity of meat.

Brazil immediately took over the position as beef supplier for Britain, and actually is now trying to become the world's foremost meat exporter. In other words, the Brazilian, the British, and other Governments are subsidizing Amazonian deforestation.

The demand for beef from industrialized countries is increasing by 4% per year, a rate that is significantly higher than any other food demand rate.

2. Export of Toxic Chemical Products

Herein is addressed the all too prevalant problem of chemical products export from developed countries, especially from the United States, to developing countries, chemical products whose use is often banned within the borders of the countries of provenance.

These exports are mainly made to developing countries, countries which lack strict environmental laws, as well as the technology and adequate infrastructure required to evaluate the harmful effects of those chemical products on the population and on ecosystems.

Many multinational enterprises protect their own economic interests by exporting such chemical products ; maintaining production using outdated technology and equipment, while at the same time building environmentally-safe production processes for new products without any environmental risk, intended for sale in developed countries.

Nevertheless, export of all kinds of agricultural products from Latin America and other regions to United States and Europe makes unintentional use of international trading as a feedback route for information regarding hazardous chemicals, because those chemical substances forbidden in developed countries have been used in agriculture in developing countries, closing the economic circuit.

Sometimes, contamination of agricultural products by banned substances means restrictions on imports, appearing as non-tariff trade barriers against international trade by developing countries, based on environmental standards.

In some cases, there is a decrease in price of these products, because they are contaminated, yet in others, this problem of contamination is conveniently ignored, to keep an adequate provision of agricultural product in developed countries.

In both cases, the production of such controversial chemical products defeats the application of regulations in international trading, dictated as a result of a consistent environmental policy.

The German Republic has taken a position on environmental issues, through an advanced environmental law, that forms a model for other countries worldwide.

In fact, if the use of a chemical product is banned in Germany, it cannot be made and exported.

However, one of the most important multinational companies with headquarters in Germany, has built a branch in Brazil, taking advantage of the absence of environmental

standards in that country.

This branch makes a killing by exporting to Third World countries products that cannot be made in Germany. This case is particularly notorious because this company spends a lot of money in new technologies and innovations.

Another important aspect of the international dimension of the environmental problem is related to international pollution.

The increasingly serious phenomenon of acid precipitation, one form of which is acid rain, is harming broad areas around the world.

But there are other kinds of transborder contaminations taking place in surface waters, groundwaters, air, oceans, forests and so on.

There is also the fear that certain pollution problems are reaching threshhold levels, such as the increase of CO2 in the atmosphere, the deterioration of the ozone layer, and of the combined general Greenhouse Effect, with subsequent effects on human health, harvests, and other matters related to ecosystem stability.

Finally, the export of high risk activities and industries can damage vast regions of the global environment and the health of thousands of people, such as in the Bhopal tragedy in India.

3. Genetic Resources and their Importance

Tropical forests cover just 7% of the worlds surface but nevertheless hold 50% of all of the worlds species, with their corresponding genetic resources.

These forests are being eliminated so fast that in 50 years there will be only remnants ; this will mean the extinction of millions of species worldwide.

The tropical rain forest genetic resources contribute to the welfare of humanity through the contribution of germplasm to breeding in agriculture, to medicine, to industry, and so on. Millions of people suffering from cancer are helped every year by means of drugs produced from a medical plant abundant in Madagascar.

Millions of women worldwide control their fertility by using steroids extracted from a plant indigenous to Mexican forests.

Moreover, there remains a huge, as yet uncharacterized and unexploited reserve of valuable pharmaceutical resources in the tropic forests of the world.

The destruction of tropical forest mass happens in order to satisfy international economic relations, these relations demanding a high quantity of these resources for consumption in developed countries.

These relations determine the excessive deforestation carried out by multinational corporations in the developing countries.

Since the Irish Potato Famine it has been demonstrated time and time again that developed countries could not sustain high productivity in their harvests, much less increase them, without a constant infusion of vegetable and animal germplasm coming from tropical countries. It is easy to imagine a situation, for instance, where United States corn production is threatened by a disease or a pest infestation. Just a 20% loss of harvest would translate into a US$2 billion dollar financial sacrifice. This situation would be

avoided with the introduction of resistant genes from Mexican strains of corn.

Similar scenarios can be imagined for rice, wheat, and other essential crop plants.

The Third World tropical countries are just becoming aware of the importance of wild genetic resources, having large stocks of something whose value is increasingly rapidly on the market in developed countries, particularly with the rise of genetic engineering.

If this economic circuit and marketing of seeds, plasm, and species were cut or interrupted, the First World economy would suffer serious trouble.

This is one of the few areas in which developing countries have control over an asset as essential as the developed countries hold on technology.

Unfortunately, if food production in industrial countries is affected, many developing countries will suffer as well, owing to the development of dependencies in food production between the developed and developing countries.

Linking The Environment, the International Economy, and Development

There are two conditions which must be satisfied before international economic exchanges can become beneficial for all involved.

The 'sustainability of ecosystems', on which the global economy depends, must be guaranteed ; and the economic partners must be satisfied that the basis of exchange is equitable. For many developing countries, neither condition has been met, although economic and ecological links between nations have grown rapidly.

International economic relationships pose a particular problem for poor countries trying to manage their environments, since the export of natural resources remains a big factor in their economies, especially those of the least developed nations.

Growth in many developing countries also requires external capital inflows. Without reasonable flows, the prospect for any improvements in living standards is bleak. As a result, developing countries will be forced to *overuse the environment* to ensure their own survival. A mere increase in flows of capital to developing countries will not necessarily contribute to development.

More external funding is also required, but it must come in ways that are sensitive to environmental impacts. The reduction of poverty itself is a precondition for environmentally sound development.

The Economic Decline in the 1980's

During the 1980s, economic growth rates declined sharply or even turned negative in much of the Third World, particularly in Africa and in Latin America.

Deteriorating terms of trade, rising debt sevice obligations, growing protectionism in the developed market economies, and stagnating flows of aid, have caused severe external payment problems.

Austerity programmes laid down by the International Monetary fund (IMF) as a prerequisite for extending credit became particularly onerous after the debt crisis.

As a result, growth was cut back and many social objectives fell by the wayside,

including those having to do with employment, health, education, environment, human settlements and housing. The decline in the 1980s has aggravated pressures on the environment in many ways, as follows:

-General recessionary conditions and austerity measures have brought sharp declines in per capita incomes and have meant increased unemployment.

This has forced more people back onto subsistence agriculture, where they draw heavily upon natural resources, and thus degrade them.

-Severe programmes inevitably include government cutbacks in both the staff and expenditures of fledgling, weak environmental agencies, undermining even the minimal efforts being made to bring ecological considerations into development planning.

-Conservation always takes a back seat in times of economic crisis.

As economic conditions have worsened in the developing countries, and debt pressures have mounted, planners have tended to ignore environmental planning and conservation in both industrial and rural development projects.

The Latin American Economic Crisis

The debt crisis remains a threat to international and financial stability but its main impact so far has been on the process of development, both in its ecological and economic aspects. Of the total world debt of around US$950 billion in 1985, 30% was owed by four countries ; Argentina, Brazil, Mexico, and Venezuela.

In the 1970s , Latin America's economic growth was facilitated by external borrowing.

Commercial banks were happy to lend to growing countries rich in natural resources. Then major change in international conditions made the debt unsustainable.

A global recession restricted export markets, and tight monetary policies forced up global interest rates to levels far exceeding any in living memory. The crisis forced developed nations to adopt austerity policies in order to cut back on imports.

As a result, Latin American imports fell by 40% in real terms over 3 years.

The consequent economic contraction reduced per capita gross domestic product by an average of 8% in the larger Latin American countries.

Much of the burden was carried by the poor, growing poverty and deteriorating environmental conditions becoming clear.

The net transfers from seven major Latin American countries to creditors rose almost US$39 billion in 1984.

This massive drain represents 5 to 6% of the regions Gross Domestic Product, around a third of the regions internal savings, and nearly 40% of export earnings.

It has been acheived by adjustment policies that impose severe and regressively skewed cuts in wages, social services, investment, consumption and employment, both private and public, aggravating social inequity and widespread poverty.

Pressures on the environment and resources have increased sharply in the search for new exports.

A substantial part of Latin America's rapid growth in exports are raw materials, food, and resource-based manufactured goods.

So Latin American natural resources are being used not for development or to raise living standards, but to meet the financial requirements of industrial country creditors.

The present situation is not consistent with sustainable development, and urgent changes are needed to help Latin American countries ; the impact of the present crisis is only comparable with the Great Depression of 1929-1932.

Maintenance and protection of the environment will make an essential contribution to the improvement of the standard of living, to employment, and to social welfare.

There is One Transnational Development Mode

Without doubt, there exists a pattern or mode of interaction between society and nature that prevails in the world today.

This mode is characterized by:

1. Overexploitation of the regeneration capacity of natural systems.
2. Concentration of power and money within a small elite.
3. A high development of that elite, to the detriment of the majority of the population in a developing nation.

This basic development mode is not particularly different between capitalist countries and the former communist countries (which recently moved away from socialism to free market economies).

Although in the Eastern European nations there were various economic modifications, especially in production systems , lamentably the society-nature relation was not carefully developed.

As proof it is sufficient to analyze, for instance, reports written by United Nations Development Programme about extensive water, earth, and air pollution in Eastern Europe. The society-nature relation was broken.

No other situation could be anticipated, when considering the manner of meshing essential elements in society and nature .

The results of the application of technology to satisfy high demands for productivity in ecosystems are as environmentally deteriorative when transnational corporations pursue big gains over short periods of time as when a centrally planned economy tries only to achieve a goal previously stipulated in an economic plan.

In both cases, environmental issues were not accorded the importance in decision making that they must receive.

In this way, the pattern of development that has extended over the globe is homogenous and does not respect natural and social diversities.

As a result, such transnational development has marked ethnocentric connotations, because it stems from the dominant Anglo-Saxon current, for example, the American pattern of development.

The result of this success is that Latin American, African, and Asian cultures are being marginalized, because they have to borrow some characteristics from the prevalent culture, abandoning some of their own. They must do this in order to survive.

But actually some observers, especially in the developed North, point out that the

current development model does not hold promise of long term sustainablity.

Some authors, such as Ignacy Sachs, say that the world is not divided into developed and developing countries, but rather into "wrongly developed" and "fooled countries". Garaudy also says that a models characteristics cannot be universally prescribed ; according to him, underdeveloped is not synonymous with backwardness but is a collateral product of Western growth's dynamic.

Environmental Policies

In inspecting any environmental issue, such as soil erosion, urban pollution or deforestation, often the causes of these problems are found to be related to decisions taken by non -elected officials of the state.

It is in such bureaucratic sectors of the state where the most important decisions are often made, often independent of any formal environmental policy.

These circumstances can ultimately provoke environmental problems.

When reference is made to environmental policies, the emphasis is commonly almost exclusively upon activities and actions with a curative sense toward environmental issues. However, such activities and actions only address 'symptoms' of environmental problems, and do not attack the causes of these problems, and as such lack preventative value.

Definited construction of policies that would modify causes of environmental damage is the preserve of traditional sectors of authority holding decision-making power, and any change would implicate breaking the 'status-quo', the prevalent development mode.

Moreover, setting up the issues in this manner, it is easily seen that the environmental sector is considered as simply one more sector amongst state sectors.

This pattern occurs in the majority of countries. Thus, environmental affairs are relegated behind seemingly more urgent economic and financial problems.

The Third World external debt carried provides a good example of an international economic problem which rules, influences, and conditions all productive policies within the debtor nations, and delays or interrupts solutions for environmental issues.

Additionally, there is the situation in which policies that directly influence the onset and progression of environmental problems are not the so-called environmental policies, but policies related to productive and political activities, and these in turn are strongly determined by the existance of an international economic order which prevails, advances and homogenizes.

A different approach to this issue would be fundamentally the following ; policies effective in solving environmental problems should necessarily include economic development policies (in all sectors) formulated in such a manner to include environmental and ecological points of view.

Thus, these economic development policies, therefore, *environmental* policies, have an undeniable international dimension. If this is not recognized, the dynamic gestation of environmental themes cannot be understood with precision, and national and local decisions concerning development are also impeded from being efficient in solving problems.

Finally, adequate environmental considerations must be formulated and included into

the nations foreign policy, in relation to matters such as financial questions, international trading, technology, and national security.

The international dimension of environmental problems related to development issues indicates that important technological changes ongoing in the industrial societies, such as in biotechnology, computer science, communications robotics, and cybernetics will result in large shifts in the articulation of society and nature.

These shifts will have various impacts on natural resource utilization, on land use, on the environment in general, and especially on employment and other aspects of society.

New issues will arise in environmental issues and development topics.

A transitional period is soon to come, and it may be difficult and confusing to manage. Therefore development planning and its relationship with the environment should be characterized now, with renewed perspectives.

Conclusions on The Internationalization of the Environmental Question

All crisis periods - and it is without doubt the present mode of civilization is in a moment of actual crisis - are at the same time periods granting great freedom for change.

This means that the order of things in development actually affecting environmental issues must be changed, or at least an attempt made to change them.

This is possible only if the phenomenon in development processes as they exist at present are sufficiently understood. In particular, development mechanisms that do not function or function poorly must be identified.

But the attainment of this knowledge is not only the responsibility of the Third World, but that of those who hold power and great economic capacity, the First World nations.

Among the many practical things that can be accomplished, the economic-environmental interaction must be inspected and characterized, especially in Latin America, and after that, new topics may be included in our negotiations and dealings with the Northern countries.

For instance, we must incorporate the following efforts in such negotiations:

1) To improve the international consciousness of the international dimension of the environmental crisis, and the inclusion of that view in all international negotiations, especially in those related to technology.

2) To begin prospective studies about natural resources for establishing new policies and strategies in their exploitation, at the national level and when establishing regional agreements.

3) To assign to the genetic natural resources the supreme value they truly represent, and to impede their free circulation in international trading, instead of bartering such resources in exchange for technology.

4) To alter external debt payments by setting up clear restrictions on unsuitable exploitation of ecosytems at risk just to service debt.

5) To include environmental issues in discussions related to national security and defence, as a new theme in foreign policy.

Part Two : The National Dimension of the Environmental Question

The Permanent Ecological Assembly was created in 1989, with a head office in the Argentinian National Congress.

This is a forum which was founded when Argentine was undergoing hard economical, ecological and social crises, perhaps the most severe within the last 80 years.

The Permanent Ecological Assembly has presented itself leading discussions on Argentina's environmental themes.

These negotiations involve politicians, legislators, ecologists, scientists, students, Non -Governmental Organizations members and citizens, all sharing the common toil : to improve the Argentinian environment.

As the environmental crisis worsens, PEA's members are addressing the following topics:

- Constitutional Reform and Environmental Law
- Environmental Legislation
- Hazardous Nuclear Waste Management
- Deforestation and Erosion
- Improved Citizen Representation in Preserving the Environment
- Pollution
- Endangered Species, Destruction of Fauna
- Energy Crisis
- Environmental Education
- Relation with the Media

The Government of Argentina has agreed to the principles of the United Nations Conference on Human Environment, held in Stockholm in 1972.

These principles are explicit enough to show the Argentina Government's obligation on Environmental Issues.

Principle 13 ;

In order to achieve a more rational natural resource management, and then to improve the environment, States should adopt a coordinated policy for their development planning, in order to guarantee development compatible with environmental protection, improving the living standard of the populace.

Principle 17 :

Education on environmental questions, for younger generations as well as for adults, without overlooking the poor, is essential in order to enlarge the base for informed opinion and responsible conduct of people, enterprises, and communities in environmental protection in its full human dimension. Also essential is that the media does not contribute to environmental damage ; on the contrary, it must disseminate educational information on the need to protect and improve the environment.

The acceleration of the world environmental crisis in the last twenty years as reviewed in *Our Common Future* serves notice that the time has come for a marriage of economy and ecology. Its brief was to reexamine the critical environment and development problems on the planet and to formulate realistic proposals to address them, and to ensure

that human progress will be sustained through development without bankrupting the resources of future generations. But nothing of this nature has been done in Argentina in the recent past.

For that reason, the creation of the Permanent Ecological Assembly in the Argentinian National Congress makes for a show of solidarity with present and future generations.

Considering that the Permanent Ecological Assembly avoids the fluctuation of power, there exist great possibilities to achieve environmental goals, through negotiations organized by the Assembly. In great measure, the multiplication of these initiatives all over Argentina, will afford a participatory interaction which, instead of useless rhetoric, will contribute to prevent Argentina from misguided development strategies of the sort that have caused tragedy in societies considering themselves 'developed'.

I. Urban Garbage Management in Buenos Aires City and the Greater Buenos Aires

As Jorge Hardoy and David Satterthwaite have written in their book *The Third World Cities - the Environment of Poverty* , garbage represents one of the three large environmental impacts encountered in urban centers in developing countries.

The other two are air pollution and chaotic urban growth of cities in developing countries. The question of urban garbage management is still a thorny issue even in developed countries.

Obviously, it is clear that in developed countries there are more alternatives in addressing the urban waste problem, but is also known that in industrialized centers there is also a higher rate of waste accumulation than in urban centers in developing countries.

Both situations illustrate the same reality ; that garbage exists, and its quantity is increasing.

We should remember that the garbage appeared along with humans on this planet. It is a product of activities using various technologies to get materials, or to manufacture goods or services required by society. In this respect, the production of garbage resembles a 'catharsis' of a society which wastes materials without any other reason than the enjoyment of greatest comfort.

The process of garbage collection, management, procedure and deposition is a complex service and generally is expensive. Garbage management includes the following steps:

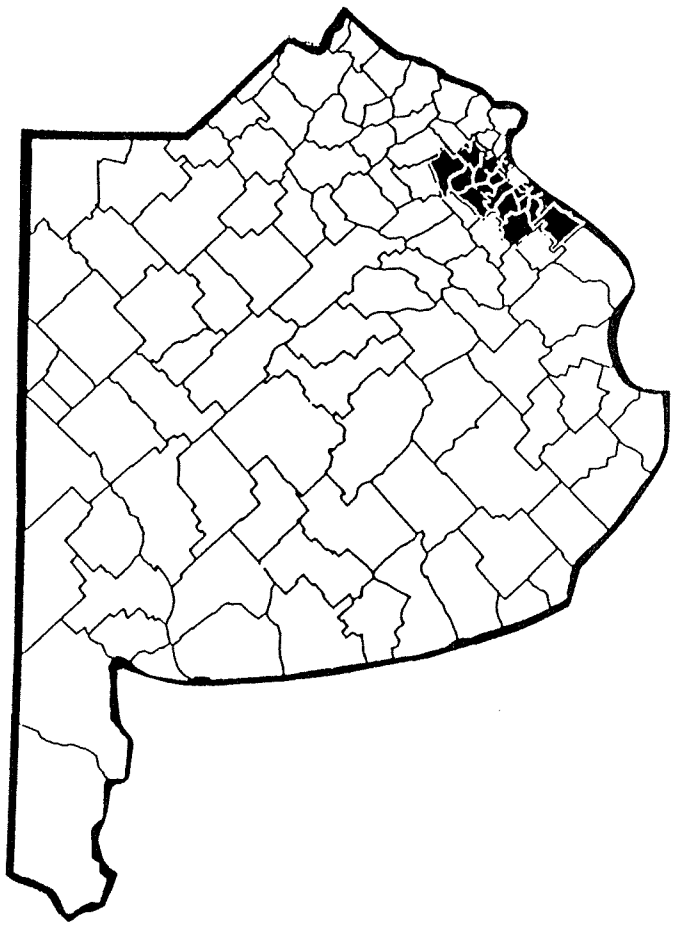
- Generation and Disposal
- Collection and Transportation
- Concentration and Transfer
- Classification and Recovery
- Treatment
- Final destination

With small variations, all specialists in garbage management use schemes like this for planning activities related to collection and treatment of urban garbage.

The system is more complicated than it seems, because of which special studies are necessary to satisfy the population's needs efficiently.

The Metropolitan Area is composed of Buenos Aires City and the 22 municipalities of

- APPENDIX:



Municipalities of the Greater B.A

Almirante Brown, Avellaneda, Berazategui, Berisso, Ensenada, Esteban Echeverría, Florencio Varela, General Rodríguez, General San Martín, General Sarmiento, La Matanza, Lanús, La Plata, Lomas de Zamora, Luján, Marcos Paz, Merlo, Moreno, Morón, Pilar, Quilmes, San Isidro, San Vicente, Tres de Febrero y Vicente López.

Figure 1 BUENOS AIRES CITY AND GREATER BUENOS AIRES.

the Greater Buenos Aires Region. This region being the largest urban area in Argentina ; it is readily imagined that the garbage management problem in this area needs special attention.

In 1977,the Metropolitan Area Ecological Belt Authority was created, whose main purpose is "the ecological preservation of the Metropolitan Area, waste elimination, pollution control, groundwater treatment, and soil preservation".(See Figure 1).

But its principal function is related to urban waste management, of both household and industrial wastes, through sanitation works, and the dumping in special landfills (sanitary landfill).

The Metropolitan Area Ecological Belt Authority (MAEBA) holds the responsibility for waste treatment through safe final dumping in special landfills.

According to statistics from its Operation Planning Office, this means an average of 198 000 tonnes of garbage a month, and 8,000 tonnes per day. This means that each one of the 12 million inhabitants who live in the area generates an average of 650 grammes per day, 20 kg per month, and 240 kg per year of garbage. (See Figure 2).

This is just considering the quantity of garbage which enters the system legally, and

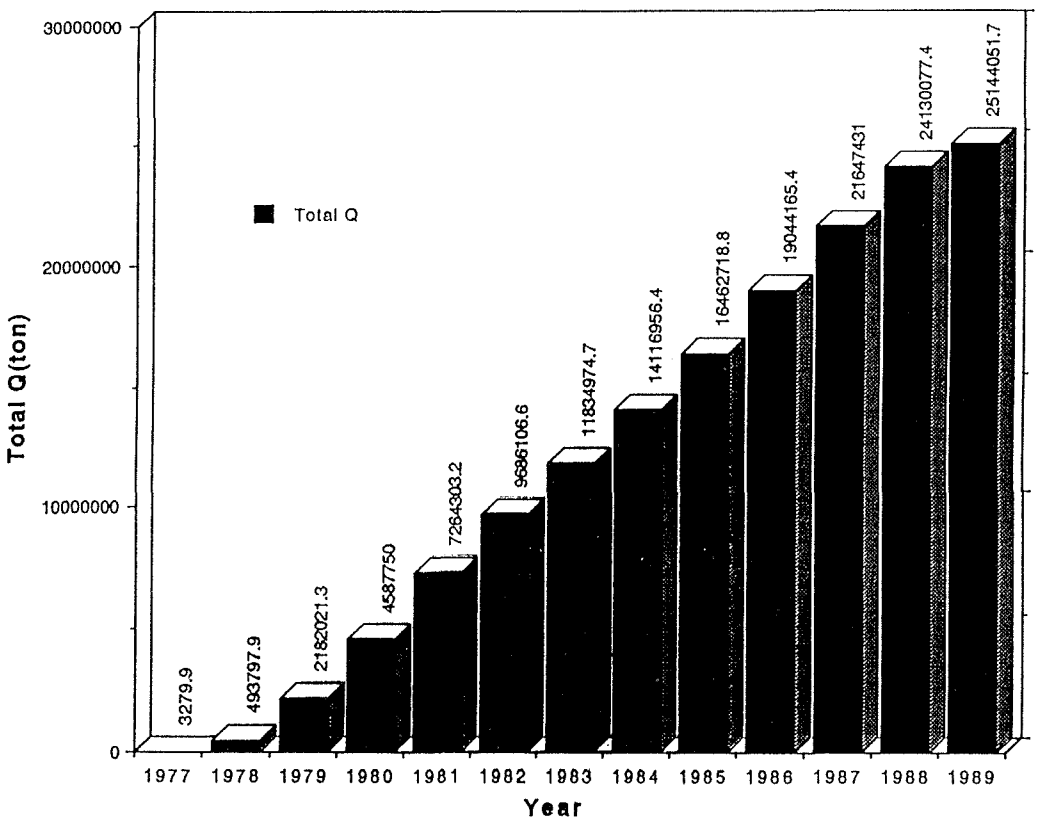


Figure 2 TOTAL WASTE DUMPED ON METROPOLITAN AREA ECOLOGICAL BELT AUTHORITY ANNUALLY.

does not include garbage dumped in the thirty illegal dumps in the Region.

We can make various estimates of illegal dumping, but the most important lies in economic cost.

Many municipalities of the Greater Buenos Aires complain about the collection system ; in fact, to maintain an efficient collection system is very expensive for many municipalities.

The private collection and disposal firms form one alternative : consider the example of the private firm Manliba.

The Municipality of Buenos Aires has contracted this private company to collect its urban garbage, for which Manliba receives 5% of the Municipality's Annual Budget.

The majority of the municipalities of Greater Buenos Aires have a similar system, they contract out to a private company to transport garbage to MAEBA landfills.

Actually, this Authority has 4 final disposal centers:

- North Landfill (for Northern municipalities)
- Santo Domingo Landfill (for the following municipalities ; Avellaneda, Almirante Brown, Berazategui, Florencio Varela, Lanus, Lomas de Zamora, Quilmes, and Buenos Aires City).
- Gonzalez Catan Landfill (for the following municipalities ; Esteban Echeverria, La Mantanza, Merlo, and Moron).
- La Plata Landfill ; (for the following municipalities ; La Plata, Berisso, and Ensenada).

There are three transfer stations in Buenos Aires City, located in Pompeya, Flores, and Colegiales ; all of the garbage dumped there is specially treated in trucks transferring it to Santo Domingo Landfill.

There are some interesting statistics which show that not all of the municipalities accomplish their agreements with the MAEBA. Thus, for instance, the Municipality of Esteban Echeverria has not delivered its urban garbage since January 1988 ; the same situation is happening with the Municipality of Florencio Varela. What underlies this situation? (See Table 1 and 2).

The collection system and transport is expensive, and some municipalities dont agree with MAEBA dispositions.

Some years ago, the Mayors of Lanus City and San Isidro City complained against the system.

Their threats to break their agreement with MAEBA were stopped by the Buenos Aires Provincial Governor, who threatened to cut federal co-participation money, therefore they didnt leave the system. However, there are some municipalities which still dont belong to the system, perhaps for strange economic reasons, of uncertain benefit to the community.

At present, Esteban Echeverria is one of the most polluted areas in the Region, suffering diseases, and illegal garbage dumps.

Lanus, Berazategui and Lomas de Zamora are also heavily polluted.

Table 1:
Total Waste Dumped on Metropolitan Area Ecological Belt Authority Annually

Year	Total (tons)
1977	3279.9
1978	493 797.9
1979	2 182 021.3
1980	4 587 750
1981	7 264 303,2
1982	9 686 106,6
1983	11 834 974,7
1984	14 116 956,4
1985	16 462 718,8
1986	19 044 165,4
1987	21 647 431
1988	24 130 077,4
1989	25 144 051,7

Source : Based on CEAMSE Annual Report. 1990. Buenos Aires, Argentina.

Table.2:
Total Waste Disposed on Metropolitan Area Ecological Belt Authority (South Great Buenos Aires Area and Buenos Aires City).

MUNICIPALITY	1986	1987	1988
Almirante Brown	74 975,7	61 657,7	65 921,97
Avellaneda	88 030,63	81 753,13	71 012,8
Berazategui	16 862,18	13 719,44	9 628,16
Esteban Echeverria	19 136,57	16 721,6	.....
Florencio Varela	3 855,61	1 183,15	400,6
Lanus	80 136,28	66 968,63	68 719,63
Lomas de Zamora	68 795,77	44 528,19	51 316,37
Quilmes	65 167,72	70 281,65	56 229,08
Buenos Aires City	1 045 809,25	1 079 015,99	1 049 445,64

Source : Based on CEAMSE.Annual Report 1990.Buenos Aires.Argentina.

Garbage Management

Garbage is heterogenous, and varies according to provenance and quantity dumped. Garbage can be quantified as follows :

-Housing garbage
-Commercial garbage
-Industrial garbage

Household garbage has a variety of different components, paper, cardboard, newspapers, magazines, food refuse and so on.

If we consider the Southern Greater Buenos Aires area, we see that the garbage is composed of mostly food refuse, papers, cans, plastics, glass etc. It is called "wet gar-

bage" ; and the disposal of 1-2 kg generated per day per capita of this garbage poses a significant problem.

The first step consists of an analysis of the kind of garbage being disposed. The MAEBA holds exclusive responsibility for landfill management and, of course, its authorities and technicians use the landfill method.

A landfills basic parameter is volume. This depends on the area of the site, the depth at which the refuse is placed, and the ratio of soil cover to refuse.

Since the refuse generation rate is measured in tonnes, an additional parameter that influences the capacity of the landfill is the in-place density of the refuse and soil.

Historically, the site for landfill was the nearest quarry or hole in the ground. The refuse was used to fill the excavated volume.

Little concern was given to the availability of cover material. If soil were available, a final cover of sorts was applied when the fill was completed.

Now it has been realized that an environmental impact study must be done before dumping of the refuse as landfill, in consideration of potential groundwater contamination.

An assessment is vital because pollution of the water supply by infilration from the landfill can cause disease, for example, metahemoglobinemia in children.

In the final analysis, the sanitary landfill technique is used around the world because installation costs are relatively cheap (US$10 per ton).

There are some interesting cases, some of them successful, related to urban garbage management, as in Spain, the United States, and in Japan.

The method is very simple : there is a special schedule for collecting different kinds of garbage separately, each day a different class of garbage being collected.

If these cases were to be taken as examples for Argentina, there would be many positive results ; the collecting sytem would be accelerated, and recycling would be greatly facilitated.

The hazardous waste problem must also be considered. This is waste (solid and liquid) produced by industry, that can severely damage human health.

According to MAEBA 1987 report, there are 7,300 factories located in the Greater Buenos Aires Area, generating annually 350,000 tonnes of hazardous wastes, 250,000 tonnes of toxic sludges and another 50,000 tonnes of solutions. These industries do not treat these toxic wastes before dumping, a crime against public health and national security.

These pollutants come from different origins and are of different composition : pesticides, fertilizers, plastics, chemicals, oil, etc.

In Argentina, the situation is very dangerous, as there is no legislation concerning these pollutants, allowing for cases as just mentioned.

For instance, the Reconquista, the Matanza,and the Riachuelo rivers are victims of these crimes without punishment : 600,000 tonnes of hazardous wastes are dumped annually into these rivers, from various discharge points.

Argentina needs laws controlling hazardous wastes and governing treatment plants as soon as possible.

Finally, it is well known that the Buenos Aires City and Greater Buenos Aires produce 1000 tons per day of poison wastes. This represents a great threat to the health and life

of the population.

Hazardous Solid Waste in Buenos Aires City and Greater Buenos Aires

- Arsenic : in highly concentrated doses arsenic is lethal ; among its principal characteristics is its accumulation and its damaging effect on the central nervous system and the larynx ; it can also induce cancer of the skin and the liver.

These wastes come from chemical and steel factories.

- Polychlorinated biphenyls : These produce cancer and are accumulative ; the toxic syndrome includes skin pigmentation, visual problems, and fatigue.

Polychlorinated polyphenyls appear in many industrial wastes.

- Lead : Lead produces saturnism, nervous disorders, circulatory problems, and intestinal diseases.

It is particularly toxic for children, inducing juvenile cerebral diseases.

We can find lead in metallurgic refuse, plastics and so on.

- Mercury : Mercury is also accumulative and destroys nerve cells.

It is present in poisonous refuse, paper factory refuse, and chemical factory refuse.

- Chromium : This metal is a significant mucous membrane irritant, affecting also the nervous system.

It can be found in chemical industry refuse and in spent batteries

General Conclusions about Environmental Problems in Argentina

The Argentine ecosystem has limitations related to its support capacity, and of course, it is not isolated from global ecosphere interactions.

But these ecosphere interactions are at present prescribed, because they constitute a particular style of development, in common with other Latin American countries.

As Osvaldo Sunkel pointed out in 1981, that style of development is "increasingly prevalent and transnational".

The development model from northern nations has been copied (and wrongly) by those persons in authority in Argentina during the last 30 years.

But that model was inappropriate, and it is vital to appreciate why.

It is impossible to reproduce foreign models intact in Argentina, because every ecosystem has different and peculiar properties, particularly in respect to ecosystem productivity.

The use in developing countries of development models designed for use in developed countries, for example the application of a particular technology, carries a high risk of being inappropriate for the developing country in which the model is employed.

Moreover, Argentina needs to execute a large environmental inventory, done as accurately as possible to show not only what Argentina has and does not have, but to illustrate crimes against the environment, and indicate educational, economic and social features incompatible with sustainable development.

With this inventory in hand, the appropriate development model can then be selected.

The Ecodevelopment model is probably the most suitable model for Argentina, as it gives priority to the equilibrium between society and nature.

Finally, as a brief, the following general recommendations can be developed:

- Adoption of a new economic and-ecological model
- Promotion of environmental education
- Modification of environmental legislation to allow for punishment of those who commit crimes against nature and the environment.
- Inclusion of an environmental ammendment in the Constitution of Argentina.

REFERENCES

1. Acot,P.(1978) :"Introduction to Ecology", Mexico ,Nueva Imagen .
2. Agarwal,A.(1981) "Water Sanitation and Health for All ?" International Institute on Environment and Development/Earthscan , London .
3. Ballinger (1981) "Energy in a Finite World ; A Global Systems Analysis", Cambridge,Mass..
4. Banage,W.B.(1986) "Policies for the Maintenance of Biological Diversity" prepared for World Commission on Environment and Development .
5. Bank for International Settlements (Basel : 1986) "International Banking and Finantial Markets Developments".
6. Beddington,J.R. and May,R.M.(1982) "The Harvesting of Interacting Species in a Natural Ecosystem", Scientific American.
7. Beijer Institute (1987) "Energy ,Environment and Development in Africa",Vols.1-10,Uppsala,Sweden ; Scandinavian Institute of African Studies, 1984-1987.
8. Bertrand,M. (1985) "Some Reflections on Reform of the United Nations", Joint Inspection Unit, United Nations.
9. Bowman,M.J.and Harris,D.J.(1984) "Multilateral Treaties : Index and Current Status" London ; Butterworths.
10. Brasseur,G.(1987) "The Endangered Ozone Layer : New Theories on Ozono Depletion",Vols.29,No.1.
11. Brown,Lester (1986) "State of the World 1986", London ; W.W.Norton.
12 Brown,Lester (1987) "Sustaining World Agriculture", in L.R.Brown et al.,State of the World 1987, London ; W.W. Norton.
13 Caldwell,M.(1976) "Socialism and Environment", Barcelona ,Gustavo Gilli.
14. Commowealth Working Group (1985) ", Technological Change", London, Commonwealth Secretariat.
15. Department of International Economic and Social Affairs (1986), "Doubling Development Finance : Meeting a Global Challenge, Views and Recommendations of the Committee on Devemopment Planning", New York, United Nations.
16. Department of International Economics and Social Affairs (1986), "World Population Prospects : Estimates and Projections as Assessed in 1984", New York, United Nations.
17. Department of International Economics and Social Affairs (1982), "Estimates and Projections of Urban, Rural and City Population 1950-2025", New York, United Nations.
18. Deutsch, K.W. (publisher) (1977), "Eco-social systems and eco-politics. A reader on human and social implications of environmental management in developing countries", Paris, UNESCO
19. Ehrlich, P.R. et al. (1975), "Man and the Ecosphere", Scientific American, Madrid, Barcelona, Blume.
20. FAO (1952), "Yearbook of Food and Agriculture Statistics", Rome.
21. FAO, (1985), "Production Yearbook", Rome.
22. FAO, (1984), "Land, Food and People", Rome.

23. FAO, (1986), "Food Outlook", Rome.
24. FAO, (1985), "World Food Report", Rome.
25. Furtado, Celso, (1976), "The Club of Rome", Sintesis, Mexico.
26. GATT, (1986), "International Trade 1985-86", Geneva.
27. Interamerican Development Bank, (1986), "Economic and Social Progress in Latin America", Washington DC, 1986.
28. IMF, (1986), "World Economic Outlook".
29. Maldonado, Tomas. (1972), "Human Environment and Ideology", Buenos Aires, Nueva Vision.
39. Odum, E.P., (1972), "Ecology", Mexico, Interamericana.
40. OECD, (1985), "The State of the Environment in 1985", Paris.
41. Olivier, Santiago (1981), "Ecology and Development in Latin America", Mexico, Siglo XXI.
42. Sunkel, Osvaldo (1985), "Debt, Development and the Environment", World Commission on the Environment and Development, Sao Paolo.
43. Tamames, Ramon (1977), "Ecology and Development", Madrid, Alianza, Edit.
44. UNESCO (1985), "International Coordinating Council of Man and the Biosphere:. MAB Report Series No. 58", Paris.
45. UNITED NATIONS (1986), "World Economic Survey 1986", New York.
46. World Bank (1986), "Poverty and Hunger : Issues and Options for Food Security in Developing Countries", Washington ,DC.
47. World Bank (1986) "World Development Report 1986", New York ; Oxford University Press.
48. World Commission on Environment and Development (1987), "Our Common Future", Oxford University Press.