

# **The Effect of Globalization on the Prospects for Sustainable Development in Mexico**

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## **INTERNATIONAL FINANCIAL FLOWS AND THE ENVIRONMENT:**

The effect of financial globalization on the prospects for sustainable development in Mexico.

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An evaluation of the environmental implications of international financial flows in Mexico calls for complex discussion of the country's evolving political position in the regional economy. As the first Latin American nation to join in the United States' project to forge a "Free Trade Area of the Americas," the Mexican authorities wholeheartedly assumed a new role for themselves as ideological and political marshals, shaping a new policy environment in which institutional changes might occur. At the same time, and as part of the same process, pressures from international environmental groups with influence in the political processes in their own countries or in international organizations are also increasing their effectiveness in placing their concerns on the policy agenda in Mexico.

The process of Mexico's accession to the NAFTA in 1994 is a striking example of the heightened sensitivity of its leadership to the demands for greater "environmental responsibility" as part of the process of international integration. The environmental side agreement, with its new oversight and consultative institutions, were the price that the governments was "forced" to pay in exchange for the approval of the expanded free trade agreement; the new organizations were almost single-handedly imposed by the concerted efforts of the large US environmental organizations (ENGOS) who effectively channeled political energies in Mexico to this end. (Barkin 1994) [The Mexican government's anxiety about these ENGOS is clearly evidenced in its decision to abstain from bring the finding of the expert panel of the GATT on the issue of the tuna fish embargo to the full Council for a decision; by backtracking on this issue, the government was clearly demonstrating its priority for not angering the environmental community and its resolve to defend the "dolphin-safe" issue, rather than protecting the interests of the Mexican fishing community.]

This paper offers a discussion of some of the environmental impacts resulting from globalization. Mexico's remarkable reversal from its historic position of inward-oriented development to the wholehearted embrace of international integration was never subjected to domestic debate. [Save the exceptional and successful popular mobilization during 1979, organized from within the Colegio Nacional de Economistas, to oppose the then secret negotiations for Mexico's accession to the GATT during the Tokyo round; this policy initiative was abandoned for 6 years when economic and political conditions in the country were dramatically different. (Barkin 1979)] From our analysis, it is clear that, in spite of Mexico's heightened awareness of and sensitivity to environmental problems, the increased volume of international financial flows is having a significant deleterious impact on the environment.

## **I) The new importance of international financial flows in Mexico**

There have been significant increases in financial flows since 1990. The principal characteristics of these flows and some significant developments in the domestic economy can be summarized as follows:

a) The tremendous increase in the volume of financial inflows: with the recuperation of the Mexican stock market (BMV) from the "Black Monday" in October 1987, portfolio investments have increased sharply. These inflows are the result of important changes in international financial markets and the new importance of the "mutual funds" industry as a result of institutional changes within the United States; pension funds and individual investors were encouraged to diversify their assets and "emerging markets" were promoted as a "fast track" to high investment returns. In this context, the financial community in Mexico and the United States began working in concert to build public confidence in anticipation of the NAFTA negotiations, while policy makers were shaping the macro-economic environment to attract foreign investment as part of a campaign to reinforce the image of international responsibility.

b) These capital inflows were principally in the form of short-term funds. Much of the money was channeled into high-interest paper of the Mexican government, perceived as low risk instruments by the international financial community; the investors were continually reassured by constant privileged communication with the top-level economic and financial leadership of Mexico. The receipts from these inflows were used to ease pressures for resorting to international money markets to finance the growing foreign trade deficits; they provoked a dollarization of the domestic public debt, which was the proximate cause of the devaluation and loss of confidence in Dec. 1994. The high priority placed on servicing the foreign obligations is continually reiterated in public discourse and reinforced with a policy to assure a timely (and even anticipatory) servicing of the debt as part of a strategy to reduce the costs of new emissions; this has led to a systematic reduction in other areas of public expenditure.

c) Foreign direct investment (FDI) flows were being encouraged principally in a narrow group of export-oriented industries: maquiladora; automobiles; and computers. Total flows increased from about \$5 billion in 1990 to more than double that in 1994, falling somewhat after the crisis of December, 1994. There was a marked shift in FDI from tertiary industries to manufacturing, doubling from about one-third of the total during the period 1990-1996.

d) There was an unprecedented increase in the volume and value of international trade along with an apparent diversification towards the export of non-traditional manufactured and agroindustrial products. These numbers are greatly distorted by the inclusion of the total value of the products produced by the maquiladora sector, even when substantially more than one-half of these totals are temporary imports.

e) Private domestic productive investment continues at a standstill because of high internal interest rates and the continuing decline in purchasing power in local markets. Most of the reported

increase in domestic production can be attributed to improved use of existing capacity rather than the addition of new facilities.

f) There were important changes in the financial services industry in Mexico and in the behavior of individual families who were owners of domestic enterprises. A new approach to corporate financing and control led to a large number of new stock issues on the BMV, allowing the scions of industry to increase capitalization of their firms while reducing personal holdings, without sacrificing effective control over the enterprises since challenges to management decisions would be difficult with a widely dispersed shareholder base. This strategy was also important as a means of increasing the attractiveness of the BMV for foreign portfolio investors (individual and institutional), being drawn into the market for investment vehicles in the "emerging market economies."

## **II) The changing policy context of globalization**

The combined effect of the far-reaching institutional and policy changes implemented in the post-1985 period was to substantially increase the freedom of action of a small group of investors who were afforded privileged access to a very profitable segment of the Mexican economy. These reforms set the stage for a new period of "free-market" activity that has substantially polarized Mexican society and reorganized the geographic distribution of activity, placing increasing pressures on fragile ecosystems throughout the country and unsustainable demands on available land and water resources elsewhere. To facilitate the globalization of the Mexican economy, a number of important measures were taken that dramatically changed institutional arrangement

### **Institutional changes for globalization:**

a) The accelerated integration of Mexico into the global economy involved negotiating a number of important agreements: accession to the GATT in 1986; initiation of negotiations to join the NAFTA; the creation of the free-trade agreement with Colombia and Venezuela; negotiations with Chile, Mercosur, and most recently with the European Union. These negotiations were accompanied by a dramatic unilateral opening of the economy beginning in 1986; the removal of trade barriers accelerated in 1988, following a dramatic 157% increase in prices in 1987, as a tool of domestic inflation control, through the mechanism of unfettered consumer goods imports.

b) In 1989, the law to regulate foreign investment was substantially modified to facilitate direct ventures by foreign corporations without the need for domestic partners. Save in a few areas, where local capital or interests remained influential, (telecommunications, banking some petrochemicals, air transport...) foreign investors encountered a new permissiveness that allowed them much greater latitude in their Mexican operations.

c) The trade "apertura" created strong competitive pressures in the consumer goods industries that resulted in a severe contraction of employment and output, with displacement by cheap consumer

goods that effectively contributed to lowering the rate of inflation, but at the cost of a widening balance of trade deficit that was further heightened by a refusal to allow a free float for the peso in currency markets.

c) Agricultural protection were also restructured and substantially reduced. Irrigation districts were placed under the direct management and self-financing of users associations. Price supports and extensions services were dramatically reduced and the banking system virtually withdrew from financing all but the most profitable of crops. Only corn and bean support programs remained, and even these were used to systematically restructure production, encouraging production by the country's most modern farmers and discouraging continued cultivation by the nation's 4 or 5 million peasant families.

d) The controversial reform of Article 27 of the Constitution was designed to provide individual land titles to facilitate transfer of land rights and their sale to third parties. In the process, it put an end to the program of land distribution under the agrarian reform. Related changes in policy involved a decided change in the price support system; although favoring maize, it was redesigned to specifically promote production in the northern irrigation districts rather than in the traditional dry-land areas of the center of the country. More recently, the modification of the National Forestry Law confirmed a tendency towards encouraging private management of natural resources, historically under the control of the social (ejido) sector; this reform encourages a plantation approach to commercial farming, with tax incentives for private enterprises willing to engage in these activities.

e) Beginning in 1987, the Mexican government implemented a very strong wage-containment policy using an administered wage adjustment mechanism whose imposition substantially reduced the real purchasing power of minimum wages. Even though some industrial wages (for a shrinking number of workers) were allowed to increase at a higher rate, incomes declined markedly and profoundly affected many variables in the labor force, including labor-force participation rates (especially for women), increasing tertiarization, and probably international migration.

f) The heavy emphasis on stimulating the expansion of the maquiladora sector is particularly noteworthy. Employment has increased by more than 30% since the activation of the NAFTA, with only a very small part of this going to establish new establishments in the non-border region.

g) The public sector's holdings of productive enterprises was substantially reduced with a combined process of sales and closings. Whole sectors were sold or auctioned off, creating a new group of very wealthy people that was so exceptional as to evoke a commentary from *Forbes* magazine (July 1994) to the effect that the emergence of 24 multi-billionaires in just a few years is a rather remarkable occurrence in a market economy and must reflect the deliberate exercise of power for private benefit rather than the normal operating of the marketplace. The largest of these transactions involved the privatization of the telephone company and the setting of rules for the entrance of competition in long-distance service; the telecommunications industry was also opened to private investment (including joint ventures with foreign partners) that accelerated the introduction of new technologies.

h) Special attention was directed to the financial services sector. A first step was the reprivatization of the banking system, that had been nationalized in 1982. As part of the same process, the deregulation of the rest of the system permitted an important expansion of non-banking services, such as insurance, factoring, and stock trading, along with the introduction of new financial derivatives, such as options, futures and leasing. Of particular note was the fragility of the new groups, which became evident in the aftermath of the 1994 crisis.

i) Although not major elements of institutional change during the 1990s, the following two lines of "public" investment offered in concessions to private groups for construction and operation are illustrative of the types of projects that will have an important impact on the productive system and on the environment. They also raise serious questions about the way decisions are made and open the possibility for serious analysis by concerned parties that might contribute to a national debate on these crucial issues.

k) Great emphasis was placed on the physical infrastructure. Private companies were awarded concessions for constructing a quality toll-road system as part of an increasingly privatized and redesigned transport network. More than 6,000 km were placed in service since 1990. This network is important, not only for the impact that it has had in facilitating road transport, but also because it has reduced pressures to speed up the improvement of the rail system. Because of poor estimates of potential demand and high costs, the entire system proved a poor investment, and the government was forced to put the roads into receivership, while bailing out the companies with public funds. Even more serious, from a social perspective, however, are the serious questions about the way in which the route was chosen and the roads designed; the damage occasioned by hurricane Pauline in the Acapulco area, clearly shows the lack of adequate planning and engineering work to protect the neighboring communities from harm as a result of modifying the course of rivers and the topography to ensure a smooth high-speed ride for the lucky few who can afford the high tolls.

Other infrastructure projects are also worth noting. The privatization of the port system has begun to make its impact felt. Its administration has been transferred to private hands and is being modernized along with the installations; the improvement and expansion of containership facilities in Mazatlan is leading to a redeployment of cargo throughout the country. An ambitious infrastructure project that the government has labeled as crucial for its long term plan has yet to be implemented: a trans-Isthmus multi-modal transport and energy corridor in southern Mexico with complementary manufacturing and processing facilities; local opposition from peasant communities, together with questionable financial arrangements and opposition from the environmental community have been particularly effective in this regard. Similarly, a proposed Inter-Coastal canal from the Texas border to Tampico is unlikely to proceed because of opposition from environmental groups on both sides of the border and inadequate support from US interests.

The privatization of the energy generation and natural gas distribution has proceeded apace. While the national energy company (CFE) has retained responsibility for electricity distribution, several contracts have been let for new thermo-electric generation capacity. Local markets have been assigned to some companies to promote the expansion of natural gas use, as a mechanism for

reducing urban contamination. One particularly troublesome development is the recent award of a contract for a megaproject to produce nitrogen to maintain and increase production by injecting it into a large oil field in the Gulf of Mexico; the environmental problems posed by this questionable project add to the concerns raised by the enormous volumes of associated natural gas that are currently being flared in the region.

The debate surrounding the nitrogen project has opened a revealing window on policy making in Mexico. Because the nationalism surrounding the petroleum industry has encouraged the formation of several groups of Mexicans with considerable technical expertise, alternative proposals have emerged. The ensuing discussions have uncovered an especially alarming characteristic of the present decision-making process to promote modernization and growth in many areas where state policy determines technological choice, as in the electricity and petroleum industries. It would appear that a key motivation for selecting the technology might be its extraordinary profitability for the international consortium in which important domestic firms would participate as junior partners, as well as for the public sector officials. The alternative technology would afford substantial savings and reduce the environmental damage occasioned by present procedures but would strengthen the position of the petroleum workers, their union and traditional "low-tech" engineering firms.

### **The relationship between financial flows and macro-economic policy decisions**

Although the Mexican economy had already been in crisis for more than a decade, the liquidity crisis and debt moratorium that prompted the 1982 devaluation of the Peso and the ensuing macro-economic changes were clearly the most immediate antecedents of the turn towards the implantation of neo-liberal economic policies. During the first half of the new president's term (1983-1985) a series of measures were taken to bring public finances under control and the economy into balance. The resulting recession set into motion a series of struggles within the economy that eventually led to the whole-hearted adoption of the neo-liberal agenda. In the interim, however, the administration found itself obliged to negotiate stand-by agreements with the International Monetary Fund and submit itself to a periodic outside evaluation that was contained in an undisclosed (at the time) letter of intent about the process and objectives of economic management.

"Preparing" for Mexico's accession to the GATT was an underlying theme for policy makers from about 1985. Profound changes in domestic policy were required to move from the previous institutional arrangements, based on protected markets and highly articulated system of social balance among groups; a new group of economists set out to remake national institutions in the light of the new international orthodoxy, creating an economic structure guided by market signals that determined favored sectors and regions. A new process in which private investment decisions would harness the power of the marketplace to determine the characteristics of growth replaced the previous system of using public investment as a mechanism to determine the direction of change. Public policy making would be oriented to facilitating these decisions, attracting resources, and encouraging more investment by creating a favorable investment climate.

In order to implement this approach, the whole panoply of macro-economic decision making was brought into play. Inflation was considered to be "public enemy number one" and all public sector management tools were brought to bear in the struggle.

A) Fiscal policy would be evaluated in terms of the "competitiveness" of tax rates in comparison with alternative destinations for private investment; rates for corporate taxes were to be adjusted and exemptions well defined to attract international capital. One of the most significant elements in this package, although not new, was the virtual exemption of capital gains on the stock market from taxation; unlike similar profits from real estate dealings, gains and losses from trading on the BMV remain outside the purview of the tax system. Even with such a generous treatment of speculative gains from certain capital gains, tax evasion continues to be a major problem with the administration of each of the major sources of revenue: value added tax, income tax, and foreign trade levies; in fact, the government's own estimates put evasion of the VAT at as much as 47% of potential revenue.

Complicating the matter, there was little willingness to develop a coherent tax policy designed to promote new (re)investment and the adoption of new technologies that would be in accord with the needs of the community. Even more troubling was the commitment to decentralization of certain important functions; this was in large measure to reduce the size of the central government budget and bureaucracy. The most important services whose administration was shifted to the states were education and medical care; the problem with decentralization was that although resources were assigned to the states to continue these functions, there were insufficient resources, both financial and of trained people, to ensure a proper transition from central to local control.

B) Monetary policy was particularly concerned with the manipulation of the money supply and interest rates, although the Bank of Mexico also plays a major role in the administration of the foreign exchange reserves and their markets. Since the principal focus was on attracting foreign capital, little concern was shown for the high rates of interest for Mexican borrowers. The instruments of monetary policy continue to be used to assure an orderly functioning of markets for government debt instruments and to put tight limits on the money supply;

C) Foreign currency reserves and the exchange rate are managed with an eye to avoiding unruly variations in the value of the peso; in general, however, the authorities have a strong bias against devaluation (that might be considered a measure of their (in)efficacy). Although never openly discussed, after more than a decade of experience, it is clear that the lack of experience with this new approach, combined with sheer greed and corruption, led to many unfortunate decisions, to require the massive government intervention to rescue myriad firms and financial organizations that had made incorrect decisions or whose founding members has artfully decapitalized; this corporate welfare package now amounts to more than 13% of GNP, seriously affecting resources that might otherwise be available for social welfare programs and environmental management. [Of course, there is the question of whether these monies would have been used in such a socially desirable form!]

D) The major focus of domestic policy, however, was the level of real wages. In this new policy context, high labor costs were considered the single most important obstacle to achieving and



maintaining international competitiveness, and therefore in creating the 'climate' required to continue to attract foreign direct investment. Although some lip service was directed to the importance of promoting productivity, the state did not assume any responsibility for developing a significant policy with respect to technological or other innovations. The burden of industrial policy in this new world would be placed on controlling wages as a means for reducing costs and offering attractive profits to investors; to do this, political limits on wage raises were imposed throughout the economy. The decline in purchasing power of the minimum wages began just after the first round of adjustments to the crisis of 1976, but accelerated sharply with the formal establishment in 1987 of a system of a formally negotiated tri-partite incomes policy, known locally as "Pactos." During the first period (until 1994) wages for the organized industrial labor force actually rose in contrast to those for most other workers, but after that date even workers who were members of the core organizations began to experience important declines in real incomes.

As with many other aspects of Mexican political life, the macro-economic policy framework is in the process of change as a result of the 1997 elections. Although the government is still controlled by a strong executive, the increasing effective participation of the various opposition parties in the political arena is opening new areas of policy to debate. The most apparent is the discussion around tax policy, where the insurgent groups are seeking some adjustments in tax policy that might benefit the poorer groups. Similarly, the change in the government of Mexico City is raising expectations of important changes in the way in which public participation may affect local management. While it would be premature to venture a judgement about these changes, it seems clear that the movement in the direction of democratization will contribute to a broader discussion of many issues of public concern. This is likely to be particularly important in the area of environmental quality and policy, because conditions are deteriorating rapidly and because well organized local NGOs exist and are searching for ways to become more effective. As we shall see below, however, the prevailing complacency in official circles that economic growth itself is the best remedy for environmental problems, is not only unwarranted but probably wrong, at least in the short run in Mexico. [Official publications circulated the analysis of Grossman and Krueger, who postulated a type of 'Kuznets curve' for environmental improvement; this only served to confuse the issues and increase the level of acrimony of the internal debate.]

### **Structural adjustment, international financial flows, and the environment**

Before exploring the individual sectors to identify some of the institutional and productive changes that are influencing the prospects for sustainable development in Mexico, I would like to offer some comments about the environmental impacts of the structural adjustment policies identified in the introductory sections of this essay. Perhaps the most significant relate to the deterioration in the material conditions of workers and peasants throughout Mexico. With international integration and the heightened mobility of capital, Mexican policy makers felt under increasing pressure to limit workers' demands for higher wages. The administration reiterated its conviction that the country's ability to compete in international markets depended on continuing the low wage policy; if real increases were to be allowed, they would have to be strictly tied to productivity gains. The result was

a dramatic long-term decline in purchasing power beginning in 1976 that was exacerbated by the latest crisis in December 1994. (Chart 1)

Similar declines were observed in the real purchasing power of other sectors of society. A substantial segment of the middle classes was sharply affected by the macro-economic mismanagement that climaxed with the devaluation of more than 100% in December of 1994: because they had accepted the declarations of the return to long-term growth, they began to borrow from the recently privatized banking system; but with the crisis and the banks' decision to raise interest rates on peso loans dramatically, to impose penalty charges and rates on late payments, and then to capitalize all overdue payments, millions of people suffered an immediate decline in their incomes while many were threatened with foreclosure on their homes, cars, businesses and other assets. Peasant producers were also heavily impacted by the changes in policy motivated by the rules of the international economy: production subsidies were to be eliminated while direct payments to producers offered much less income to those fortunate enough to receive them.

In these circumstances, people, businesses, and government were obliged to engage in many marginal activities. Frequently these had negative impacts on the environment for want of human, material and financial resources. People were forced to take shortcuts to environmental management chores or simply to postpone maintenance and investment in capital improvements in their factories and fields, businesses, and homes. As these problems exacerbated, more people were forced into the migratory stream, further reducing the quality of life as families were separated and people engaged in more marginal activities; this relationship was recently examined in some detail by the National Heritage Institute, under contract to the US Commission on Immigration Reform (1997), which concluded that the "intuitive link between land degradation and migration is borne out" in Mexico. In the countryside, this probably led to increased cultivation of rain-fed lands, but at lower rates of intensity than in the past, as migrants and those remaining in the countryside paid contract labor to cultivate and harvest basic crops; production increased, but with very low yields. In this sector, as in others, worker remittances (from economic refugees, both local and international) continue to play an important role in permitting families to survive and continue their traditional activities (be it dry-land farming, artisan activities or small-scale manufacturing and commercial activities), in spite of the fact that they are not "profitable" by market standards at prevailing market prices; they continue at these jobs for want of other alternatives in a society that has no collective safety net.

Because of the centrality of wage-repression policies to the structural adjustment mechanism that was used to set the stage for large-scale imports of capital, it seems particularly important to begin any evaluation of issue with a consideration of the structural adjustment policies [SAPs] themselves. Rather than go into further detail on this matter, but with an eye to encouraging its serious consideration in further work on the project, I would like to cite the introduction of a provocative attempt to bring econometric analysis to bear on this matter in the case of deforestation in Bolivia. (Kaimowitz, Thiel and Pacheco, 1996)

These policies' [SAPs] effect on the environment is controversial. Critics charge that they: increase poverty, and the environmental degradation associated with it; create incentives to over-exploit

natural resources, particularly for export; and weaken the public sector's capacity to implement environmental policies (Brzovic, 1989; Hansen-Kuhn, 1993; Reed, 1992). Supporters, on the other hand, argue that adjustment is a precondition for economic growth, which, in turn, is necessary to reduce poverty and, ultimately, limit environmental degradation (Monasinghe and Cruz, 1994). They deny that SAPs always have negative environmental impacts, although they acknowledge this is sometimes the case. Even when adjustment does aggravate a particular environmental problem, they believe specific environmental policies should be used in response, rather than modifying general economic policies. These authors consider it unfair to assess the effects of SAPS by comparing the situation before and after their implementation. Instead, they argue, one should ask what would have happened had adjustment policies not been implemented and economic imbalances had been allowed to worsen.

They go on to conclude that:

The Bolivian case raises important questions regarding the capacity of developing country governments to implement macro-economic and environmental policies. In theory, the most appropriate way to address undesirable environmental effects of SAPs might be through environmental policies, rather than adjusting the economic policies themselves. In practice, however, developing countries typically lack the institutional capacity to implement such environmental policies, so the undesirable effects may continue.

Similarly, a more recent article that examines the environmental effects of agricultural trade liberalization (May and Segura Bonilla, 1997) poses many of the same questions, and comes to similar conclusions:

"further pressure on degraded resources and marginal farmers, and a reinforcement of sectoral policies that benefit commercial export crop growers as opposed to food producers may make increased trade more of a bane than a blessing for developing countries. In the context of emerging regional trading blocks, removal of trade barriers between participating nations has led to dislocation of production whose localized impacts, it is hoped, would be resolved through 'reconversion' of agriculture in affected subregions. It may be, however, that internalization of socio-environmental costs of such dislocation would indicate that production, despite competitive disadvantages, would best have been left where it was." (p. 5)

The problem, they conclude (citing an important study by the IICA) is that "the problem [of generating sustainable behavior] does not lie in the market mechanism per se, but in how the players are organized and how effective are the rules established to promote environmentally sound behavior." (Otero et al., 1992)

**In the Mexican case,** these cautionary findings are quite appropriate. Although there is a sophisticated discourse about protecting the environment, there are still many problems within the institutional structure that prevent implementation of the advanced regulatory package. Even more serious, however, is the considerable resistance by the bureaucracy to efforts by grassroots

organizations and intermediate NGOs to organize themselves and their constituencies into effective groups to construct alternative productive and community political structures that would be socially and environmentally responsible. The new political environment generated by the victories of several minority parties throughout the country has opened up considerable space for dissension on many issues, including the environment.

The effectiveness of the Mexican government's environmental regulation and enforcement process is particularly weak. In spite of the fact that a new ministry was created to oversee these efforts, with a high concentration of the country's most informed people in the areas of natural resource management and environmental regulation, the conflict between competing goals of economic growth and greater regulatory burdens has almost always been resolved in favor of the former. Not only are the common problems of an inadequate and poorly paid enforcement staff, but there is also the lack of sufficient information among the population for effective measures to be implemented. The first reaction of high level officials inevitably appears to deny the existence of a problem and then to resist third-party attempts for investigation; the notable cases of the dock on the island of Cozumel and the massive death of migratory birds in Guanajuato are just two examples brought to the NAFTA Commission on Environmental Cooperation.

The Ministry of Industrial Development has taken a strong position in opposing any effort to examine the environmental and social impacts of integration. It has been intervening directly in the new trinational institutions to attempt to block such efforts and discredit the Mexican researchers undertaking the work. [It is ironic that they have been relatively ineffective in this effort, sending lower level personnel whose heavy handed interventions provoke more hostility than sympathy.] On the other hand, when the former head of the [official] National Ecology Institute became overly protective of what were perceived to be industry interests in the environmental arena, especially those relating to depending on market signals and self-regulation to guide private decision-making, other parts of the environmental community reacted effectively, provoking his replacement; he now heads the private sector think tank conducting research and training on problems of "sustainable development." As we shall argue below, this political conflict is compounded by the unwillingness and inability of local governments to impose taxes and user fees that might finance the infrastructure improvements needed to begin to address the problems of environmental hazards; without federal financing or adequate sources of credit for such projects, it is unlikely that there will be much progress in this area.

## **Issues relating to the environmental sustainability of Mexico's economic development path**

The case studies we will examine in this paper are related to the maquiladora industry and to rural development, including both agriculture and forestry. In each, there are a wide range of derivative matters that we will seek to enumerate as part of a process to suggest further lines of inquiry. At the end we will examine two other related issues that are pertinent for this analysis: a) the growing relevance of the private sector in asserting its capability for voluntary compliance and self-regulation as part of a broader worldwide move towards creating a code of ethics for corporate accountability; and b) the attempts by the "social sector" to circumvent the process of government and corporate control by undertaking its own efforts to promote greater local autonomy to promote self-development, including the cultivation of export markets.

### **Maquiladoras in the border region**

The maquiladora industry has grown dramatically during the past fifteen years. Today it is the largest such export-oriented assembly operation in the world, dramatically outpacing the number of establishments and employees in the Asian tigers; only the manufacturing operations in the People's Republic of China dwarf the Mexican industry (and these are not generally considered to be maquilas). In spite of its size, the industry accounts for less than three percent of the labor force. The industry has grown by leaps and bounds since the 1994 crisis, accounting for a substantial proportion of the increase in total manufacturing employment during the past three years. It has gradually diversified its output, and slowly began to decentralize away from the border region. In view of the substantial diseconomies associated with the environmental and socio-economic problems of the border region, it seems surprising that the move towards the center and to the Yucatan Peninsula has not accelerated; this is no doubt due, in large measure to the substantial problems with road transport, insecurity and official corruption that significantly increase transaction costs in other parts of the country for these enterprises. Official policy has done little to encourage this move.

The principal environmental issues related to the maquiladoras in the border region are:

Infrastructure

Water availability and quality; sewage treatment and disposal

Air-quality

Toxic wastes

Human settlements

Intimately related to these issues are the social and political issues associated with the management of the various localities within the region. Among these are problems related to coordination among many levels of government in Mexico and with a whole panoply of counterpart agencies and levels of government on the US side of the border.

It would appear that with the implementation of the NAFTA, it might be easier to confront many of the problems arising within the maquiladora complex. The Border Economic Cooperation Commission (BECC) and the affiliated North American Development Bank are bi-lateral agencies

charged to handle directly the planning and coordination of environmental management and remediation. The NAD Bank was endowed with its own resources and the ability to tap the financial markets to supplement these funds to finance infrastructure projects for communities on both sides of the border. The BECC is a coordinating body that has its own budget to promote smaller projects and to contribute to raising the level of knowledge and discussion of environmental problems in the region. While the BECC has sometimes been praised for the public hearings that have created an opportunity for community groups to get an airing of their grievances, there is also general agreement that the resources available to confront the problems are miniscule in comparison with the tasks at hand; the NAD Bank, has been the target of widespread criticism for the lethargy with which it has geared up its operations. (e.g. USGAO, 1995)

There certainly is more information available about border problems. There is also a greater recognition of the magnitude of the problems as well as a new willingness to admit the weakness of the institutional and technical resources available to confront them. Some moves have even been made to implement capital improvement projects to cope with the pressing problems. But there is a growing undercurrent of criticism about the pace and volume of funds that have been allocated. This is not the place to list the seemingly interminable foci of infection, unregulated toxic waste sites or discharge points of untreated sewage; they are amply documented, along with grim accounts of their effects on human health throughout the region. One notable benefit of the integration process, with its avalanche of new private investment, is the burgeoning of information about the tremendous human and environmental costs of this style of industrialization, a cost that has been imposed on society for a long time but which is now becoming broadly known and documented. (EPI, 1997; Gumbleton and Bharzava, 1995; Public Citizen, 1996; USGAO, 1995)

Perhaps the most serious problem with the current trend towards accelerated industrial development is that it probably already exceeds some notion of the border region's physical carrying capacity. The allocation of water rights has long been a contentious issue that has never been resolved adequately; the International Boundary and Water Commission, created in 1889 to administer agreements in this area, has never forthrightly addressed the over-riding constraint that available water supplies should place on regional development. When industrial use is combined with agricultural demands and explosively growing urban areas, it is clear that some sort of overall growth management program is called for. This issue must be combined with an evaluation of the implications of present technological choices for waste disposal and treatment systems, that also are intensive in water use. (The lack of adequate drinking water and sewage systems for most of the population in the border region is perhaps the most egregious violation of basic guarantees of health and safety for the region.)

Some people suggest that the increasing flows of direct foreign investment into the region is having a positive effect in helping to grapple with these problems. The reasoning offered for this trend (most articulately expressed in the internet conference around border cooperation [Beechnut]) is that the newcomers are particularly sensitive to the criticisms being raised against foreign companies as "environmental runaways," searching for ways to escape from the tougher regulatory framework prevailing in the USA. In fact, because many of the larger foreign firms opening maquila operations

in the region are units of large international conglomerates, corporate policy often leads them to a higher standard of operation than other producers; furthermore, since they are under greater scrutiny and are vulnerable to publicity campaigns by environmental NGOs, their record is often much better than that of other firms. In contrast, another important segment of the maquila industry is either composed of smaller manufacturers who are not sensitive to these problems or actually moving to the border area as a way of escaping more rigorous regulation in their home cities. Finally, a substantial number of plants, in fact, simply leasing local facilities for their operations, or may even be contracting out the whole process: they let space from Mexican entrepreneurs who build and sometimes even manage the assembly operations; these operators have not distinguished themselves for their adherence to the environmental regulations. Thus, the maquiladora complex is a rather heterogenous group of enterprises that can not be simply characterized as being more environmentally responsible or mature than other segments of Mexican industry.

The problem of inadequate human and financial resources to attempt to manage these problems is rarely analyzed. Local governments on both sides of the border are clearly unprepared to face the challenges of accelerating growth rates. On the Mexican side, the very success of the maquiladora program as a growth industry has sown the seeds for the problems that are threatening its continued viability. The firms make virtually no contribution to local public revenues, and most infrastructure programs depend on financing from the federal government or from the USA. The tax base is quite narrow and tax avoidance or evasion are important problems. Further aggravating the problem is the lack of trained professionals to design and manage the public administrative agencies that would have to be thoroughly overhauled before changes could be effectively implemented.

In sum, even if the firms in the region were dealing responsibly with their obligations to the environment, it seems clear that the burden of regional growth is not being squarely faced. The increased trade flows resulting from liberalization, greater production, and a larger urban population are increasing pressures on local infrastructure and other resources and on the woefully inadequate waste treatment and disposal system. Air quality, too, is deteriorating without any objective basis for believing that the trend can be reversed in the near future. A reasonable approach to policy making in the border region requires the negotiation of an effective growth management strategy in both countries; this is clearly not yet on the agenda and until it is introduced, it seems unlikely that even a vastly accelerated program of public investment and improved private compliance will be able to keep up with the burdens being imposed on the environment. As a result, increased growth financed by foreign investment, will continue to bear negatively on the environment.

The policy implications of this analysis are clear. If the region is to be able to confront the problems posed by industrial growth and the associated increase in population, a new approach to regional planning and resource management is required. Any real effort to address the region's problems requires the initiation of a binational process for developing guidelines for growth management; until now, such a suggestion has been an anathema for regional planners and politicians. There are two essential parts of this proposal: its binational character and the strong implication that the time has come to place some sort of restrictions on future growth in the border region.

On a more practical and immediate level, however a number of important steps might be initiated. Local (binational?) planning councils might be created to create fora for a multipartite consultation about the process of priority setting and conflict resolution. At present, most decisions on the Mexican side are taken unilaterally by short-lived (3 year) municipal governments that have no ability to impose any continuity in their investment program. Private and social sector voices are heard only through a contentious political process that is played out in the streets or in the privileged halls of government to which the rich and the powerful have access. It is also clear that the developing capacity of the local university system to train people for municipal and state level technical functions must be harnessed more directly to respond to the needs of the region and to improve the problem-solving capabilities of local government. Finally, some agreement must be reached to increase the revenue generating capabilities and financing options of local government; it is improbable that the central government will be able to step in with the resources for the infrastructural needs of the region. As in other parts of Mexico, wherever there is a heavy inflow of new industries, there is no corresponding broadening of the public revenue base to permit the region to confront the new challenges; this must be corrected.

### **The changing role of primary production in an era of international integration**

Public policy in rural Mexico has proven particularly controversial. Many of the institutional changes that were promulgated in the nineties were in anticipation of the need to attract foreign capital as an agent for modernization. The most thorough-going of these reforms was the amendment of Article 27 of the Mexican Constitution to give individual land titles to the beneficiaries of the agrarian reform and facilitate the emergence of a market for land; in this way, the modernizers reasoned, resources would be released from their traditional uses and new investments could be expected to promote the kinds of organizational and technological changes that are needed to raise productivity and output. (Tellez Kuenzler, 1994)

The major question confronting analysts examining the changes in rural Mexico is whether the opportunities and benefits created by profound transformations in land tenure and production can offset the social costs occasioned by the massive dislocations. There is no need to go into great detail about the reasoning behind the institutional reforms designed to promote the modernization of rural Mexico: they were predicated on the assumption that the country would have to reorient its production towards higher valued and more productive products, abandoning the rhetorical commitment to promote peasant-based food self-sufficiency. Traditional producers were an obstacle to rural modernization and would have to be removed while production would have to be concentrated in the most productive zones using the most modern technology while relying on irrigation, biotechnology and agrochemicals to raise productivity.

The issues raised by this new policy open a discussion of the most fundamental questions about the nature of Mexican society. We might list some of the most salient as:

The viability of Mexico's indigenous population as unique social groups



The desirability of protecting the peasantry and the communities of rural Mexico  
The role of the rural economy in food security  
The importance of rural employment opportunities  
The responsibility of society to provide viable alternatives for people who cannot be absorbed into the globalized sectors.  
The resource intensity of Mexico's foreign trade  
The contribution of the rural population to environmental management and water supplies

A fundamental issue raised by the reorientation of primary production towards the international economy as a result of economic integration is the future role of traditional stakeholders. Agricultural modernization is creating opportunities for some producers to associate with agroindustrial interests to introduce new products and venture out into new markets. Integration accelerates this process, strengthening the position of local farming interests; they can now expect support from government in their efforts to protect and expand their foreign markets as well as in their struggle to overcome non-tariff barriers that have been particularly noisome in recent years; as dynamic exporters, they also are enjoying privileged access to productive resources such as credit and irrigation infrastructure. As production shifts towards new, higher valued crops, however, the vast majority of rural producers --peasants and indigenous groups-- find themselves relegated to the backwaters of public policy concerns; they are generally endowed with the most marginal of lands in each region and historically denied resources to improve these lands, without access to credit for acquiring adequate supplies of machinery and inputs, and in the absence of significant public or academic programs to develop appropriate technologies for dry-land agriculture with traditional sources of germplasm. More than ever, the rural economy is being polarized and public policy is directed towards removing significant numbers of people from the countryside.

Within the rubric of traditional producers, the many indigenous groups have been particularly badly treated. Without recounting this cruel history, it is important to note that in general they have not been able to take advantage of their cultural heritage or the unique understanding of the regions in which they are settled to market the special products that they produce. A venal system of commercial and financial intermediation limits their access to modern channels of commerce while government policy and its bureaucracy systematically circumscribe their efforts at effective organization. As a result, whenever these groups initiate programs to overcome these obstacles, to reclaim their rightful lands and resources, to select their own leaders, or to enter the market directly, they met with staunch opposition. In spite of these obstacles, they have begun to form intermediate organizations by themselves or with support from local and international NGOs to prosecute their demands. The Zapatista uprising of January 1994 is the culmination of years of frustrated efforts to assert these rights, and its transformation into a non-violent effort to achieve their goals has expanded into a broad attempt by "civil society" to obtain some measure of autonomy for these groups.

This struggle blamed for having significantly affected international financial flows in Mexico. [A close look at the reactions of the financial community to the unrest in 1994 shows a much stronger reaction to the assassination of the presidential candidate, L.D. Colosio than to the problems in Chiapas.] At first, because the eruption of a well-publicized but poorly equipped indigenous army

captured the imagination of the entire world, precluding an immediate attempt for a military solution. The brazenness of the combatants and the uncertainty provoked by the ensuing negotiations introduced an element of uncertainty in a moment of political transition. The official strategy to isolate and ignore their demands has not been effective and a new National Indigenous Congress has emerged to convene the dozens of local ethnias into a single force to further their agenda. In this new period, it might appear that the indigenous demands have ceased to be an important obstacle to international investment; there continue, however, to be numerous local expressions of this new found self-esteem and power: in Nayarit, the Huichol population is demanding (and gaining a hearing for) the restitution of the lands that were given them; in Chihuahua, the Tarahumara are staking out claims for zones and resources that the tourist agencies would like to claim; in Oaxaca, communities within the Chimalapas reserve successfully forced the rerouting of a new highway that was to pass through their region and are presently active organizers of the effort to stop the implementation of the trans-Isthmus multimodal industrial development scheme. As we shall argue at the end of this section, these outpourings of militant demands for the rights of local communities and opposition to modernization programs are the product of a government imposition or unquestioned support for local fiefdoms [caciques] and private investment initiatives, without any mechanism for local participation in project design or even consultation prior to announcement and implementation; an alternative approach that recognizes the legitimate rights of these groups and of their need to create opportunities for survival as communities would contribute to defusing this obstacle to national development (but is unlikely, because it threatens the power base of the local political bosses who depend on these processes of authoritarian imposition for their on strength and wealth.)

A related problem of rural development is the place of peasant society in the new globalized Mexican economy. The simplistic assumption that market forces would suffice to create the incentives for people to remove themselves from rural communities has proved erroneous. Even the more activist program of reducing government production subsidies and support for rural development has proved inadequate for the task. In the face of the progressive impoverishment of Mexico's working classes, rural communities have undertaken a remarkable program of self-conscious resistance and survival; my very rough estimates suggest that remittances from family members in non-rural Mexico and in the United States now account for an injection of more than 40% of the value of rural production. This outside assistance explains why so many people (about 30 million) remain in the countryside in spite of the official supposition that no "rational" person would choose to live there, given the lack of opportunities and the lower quality of life, as measured by the official indicators. These communities now generate an important volume of foreign exchange that they use for their own survival. (In other writings, I am exploring the reasons for which these sizable resources are not capable of sparking a process of local development.)

The survival of these social groups, accounting for about one third of the population, poses important questions about the structure of rural production. They might be best dealt with in the context of the debate around food self-sufficiency. During the negotiation of the NAFTA, special provisions were made for the incorporation of maize into the liberalization program. During the past few years, domestic production shortfalls have led the government to authorize above quota imports of maize from the USA. These shortfalls were the direct result of a new approach to support for local

corn production: although the price support program was kept in place for maize and beans, official promotion programs concentrated on stimulating planting in the northern irrigation districts in place of sorghum and some fruit and vegetable production; as a result, the administration was able to claim success in regaining corn self-sufficiency during the early part of the nineties. (In addition to attractive prices, another mechanism used to effect this change was the conditioning of permits for access to irrigation water for export crops to the planting of corn for the domestic market.) Traditional food producers in the center and southern parts of the country continued to sow their fields, but without adequate access to credit, they could not be intensively cultivated and yields remained low; peasant communities were thereby becoming actors in a self-fulfilling prophecy that they would not be able to adjust to the rigors of international competition; only a small group of innovative entrepreneurial people would muster their energies and resources to escape from this vicious circle of poverty. (de Janvry et al., 1997)

As we have shown elsewhere, (Barkin and Constantino, 1997) these changes in the regional composition of food output led to important new demands on scarce water supplies in the north. When combined with a three-fold rise in the international price of corn, and a related fall in the price of cattle on the hoof, Mexico found itself suffering from a severe water shortage, more a consequence of the increase in demands for the liquid than in an important decline in rainfall. We argued that it was misleading to blame the water shortage on a reputed large decline in rainfall, and explain the historically unprecedented levels of grain imports in this way. Instead, the policy that led to a reorientation of production from the rain-fed areas of the center to the irrigation districts of the north and the demands of a temporarily expanded herd of cattle destined for export were the immediate causes of the crisis; a crisis that could have been avoided if peasant production systems were strengthened.

The reorientation of the emphasis in basic food production to the northern states was part of a broader effort to stimulate capitalist farming practices. Foreign investors were encouraged to join with local producers to plant new crops and introduce new cultivation technologies. In spite of the continuing efforts by US organizations that find themselves in direct competition with Mexicans, local farmers have been expanding and diversifying output; because of the continuing crisis of the domestic banking system, and the high interest rates, this process has involved external financing from agroindustrial and brokerage firms in the US. This success, however, has come as a consequence of the rapid introduction and expansion of new production systems, that involve the intensive use of mechanization, irrigation, and agrochemicals. Large contingents of workers are also needed to do the heavy duty work of assuring the quality of the fruits and vegetables and then to harvest the products; these squadrons of workers are systematically organized by gang bosses who negotiate with the farmers and are responsible for hiring and moving the workers from field to field. They are rarely unionized, are not effectively protected by the existing labor legislation, which includes medical service; it is common for the workers, who are paid on a piece-rate basis, to have their children join them. Because the seeds and the technology have not been developed locally, production requires even larger doses of pesticides than is common in the harsher northern climes, and it is quite common for the workers to suffer from various degrees of poisoning, either because they are directly sprayed by the monoplanes used in the region, or because runoff from the fields contaminates the streams that

run alongside the workers' camps.. The agrochemicals are also seeping into the water tables and affecting regional water supplies.

The new pattern of rural development is creating a model of environmental depredation whose magnitude has not yet been appreciated by even many of the watchdog groups. Since the modern producers are directly concerned only with the quality of their own lands and their access to water, most do not appreciate the long-term impact of this new production system. Government authorities are concentrating on increasing output and research institutes are collaborating in the effort and occasionally pointing out particular manifestations of the larger process of environmental damage. There is still no broad-scale recognition of the serious limits on development that present patterns of water use impose; it is still treated as a virtually unlimited and renewable resource, although it is requiring some increasing costs because of the need to dig deeper wells to extract supplies from receding water tables. Nor is there any appreciation of the implications of the changing resource content of primary sector (and others?) exports: a general exploration of the composition of exports, including the growing volumes of fruits and vegetables and the switch from calves to grown animals, suggests that Mexico is not simply selling primary sector production, in which it supposedly has a comparative advantage, but it is specializing in products that are particularly intensive in water, both in the final product as well as in the production process itself. (When I made this observation at a recent seminar, a colleague suggested that a similar phenomenon might be occurring in some export-oriented industrial production, where water --and energy-- is an important factor of production.)

These considerations lead to another important reflection about the role of the peasantry (and indigenous population) in a program of sustainable development. Although we have examined this issue at considerable length in other publications, (Barkin, 1995; Chapela and Barkin, 1995) it is essential to point out that these social groups have historically made important contributions to environmental management and conservation while engaging in their normal productive and social activities. As we pointed out above, these valuable services are increasingly sacrificed, as declining incomes and migration make such activities more burdensome for those remaining in the community. As a result, when examining the environmental impact of international financial flows, it is important to evaluate the impact that the changing output composition of the primary sector is having on the viability of the rural communities that have historically assumed responsibility for the chores of land and soil conservation.

Since there is now substantial evidence that important segments of Mexico's rural population are actively resisting their incorporation into the global economy, it seems appropriate to propose an alternative strategy that would reward them for strengthening their communities and production systems. Without going into greater detail, suffice it to say that if they were accorded greater autonomy to manage their local resources and diversify their economies, it might be possible for them to increase the productivity of their traditional cropping systems by using resources earned by selling "profitable" services from other sectors. Such alternatives would include traditional activities like artisan production, but could also be extended to new activities like ecotourism, wildlife preserves and farms, fishing and marine life expeditions, as well as the protection of endangered species, all of which have proven markets, if organized correctly. One particularly important contribution that we

are examining is the creation of a system whereby these communities would be compensated for providing water management services in the upper reaches of water basins that would contribute to improving the volume and quality of water supplies for large-scale users in the lower altitudes; if it proves feasible, it might offer an approach for poor rural communities to benefit from providing services to wealthier neighbors in a manner that would reduce inequalities and dependency. (Barkin, 1998)

Finally, in this regard, it seems important to discuss the heterodox efforts to construct an alternative model for rural development. Many of these efforts are being supported with financial and technical assistance from a wide variety of international banking and charitable organizations, including the World Bank, the InterAmerican Foundation, and Novip, to mention but three. Their efforts range from promoting non-traditional exports (or more traditional products, in special presentations, like organic coffee), to focusing on strengthening the administrative capability of local organizations, so that they might consolidate their own long-term agenda of social and economic development. (cf. Promoción del Desarrollo Popular, 1997) Although not explicitly designed to promote sustainable development, by facilitating meaningful local participation and the better management of available resources, as well as higher productivity, many of these projects contribute to reinforcing the capabilities of local organizations to survive and even thrive; in this way, they offer an alternative that may make possible the conservation of alternative approaches to resource management and basic food production that are consistent with the requirements for sustainability. Certainly these alternative models generally offer the possibility for a better quality of life for their participants than the options available in the "globalized" regions of the country. It is remarkable, however, that these efforts engender aggressive and often hostile reactions when dealing with agencies charged with local government or with the implementation of national programs requiring community support of official programs. Many of these locally initiated efforts don't survive because of explicit efforts to block them, while others meet with indifference when soliciting assistance or simply registration in the normal bureaucratic channels required for most productive activities; it would seem that capitalist activities undertaken by grassroots organizations are less worthy of protection and promotion than those conducted by large corporations.

### **Private sector activities for environmental improvement**

The private sector in Mexico has begun to define an important role for itself in attempt to preempt public pressures for greater regulation of its environmental impact. To this end they have created a number of important institutions and strengthened others to offer a strong defense of their activities. These activities are being coordinated by the National Ecology Institute (INE), a semi-autonomous entity responsible to the Secretary of the Environment, Natural Resources and Fisheries (SEMARNAP). This organization, in turn has encouraged the creation of ecology divisions within the Mexican equivalents of the National Chambers of Trade and Industry (CONCANACO, CONCAMIN, CANACINTRA).

As a consequence of the commitments undertaken with the signing of the NAFTA and other agreements like the Montreal protocol, there is a growing awareness among the larger corporations

of the need to take vigorous actions to forestall direct government intervention. When questioned directly about their actions in this regard, the spokespeople for the industry cite their "costly" actions to replace phosphates in detergents with biodegradable ingredients; they choose not to mention the fact that they did this 20 years after such changes were implemented elsewhere, and only after environmental groups began to threaten regulatory and legal action. They also point out that there have been important advances in the control of air and water-borne contaminants, again without acknowledging the important role of public pressure and official standards. The largest companies are beginning to gear up for ISO 14000 qualification; the only one actually having achieved this status up to now is a recently acquired division of a Mexican conglomerate, Resistol, NegroMex, which produces "black smoke" for industry.

Other initiatives are emerging on a sporadic basis throughout the society and economy. In response to the dramatic deaths of more than 40,000 migratory birds in a single incident, the tanning industry of Guanajuato has begun to examine and modify its processes; in this case, the Commission on Environmental Cooperation (CEC) of the NAFTA has been supporting research and technical changes through a fund that has been set up for such initiatives, following on a positive finding about the contaminating effects of the industry. The UNIDO, in collaboration with the National Polytechnical Institute, has established a Center for Clean Production, that chose the galvanoplasty industry as its first showcase example; the University of Massachusetts at Lowell was also called in to support this effort, and an international research and training Center on the Work Environment is in the process of creation in Michoacan as a result of this interest. Similarly, a private university, the Technical Institute of Monterrey, has created a Clearinghouse for Ecoefficiency in Business as part of the Mexican Chapter of the World Businessmen's Council on Sustainable Development; they have been doing research on various technical programs for promoting eco-efficiency in industry. The [socially] exclusive Center for the Private Sector Studies also created its own division, the Center for Studies on Sustainable Development, and has just appointed the former head of the INE as its director; up to now, they have played a role of promoting communication and environmental consciousness, as well as serving as a conduit for private sector concerns about excessive regulation in national and international fora.

While this set of activities represents a significant advance over what had been occurring previously, it is seriously flawed. For all the activity that is going on, only a small part of industry is directly involved in making changes in the production process that will change the impact of industrial activity. Among the principal limitations that industry finds for actually incorporating new technology into its plants is the extreme difficulty of obtaining credits for modernization, even when the profitability of the changes is evident; a further problem is the lack of a culture of worker-management collaboration that is oftentimes required for implementing changes in procedures, compounded by a well-grounded fear that better trained workers will be "stolen" by competitors in a labor market characterized by a surfeit of poorly trained and paid workers and a paucity of "good" workers. Finally, many observers note that the changes being implemented by the "school" of "eco-efficiency" is fundamentally oriented towards "end-of-the-pipe" efforts to reduce contamination by reducing discharges and recycling waste products, rather than redesigning production processes, a

process that might be compared to attempting to reduce urban contamination by requiring catalytic convertors rather than attempting to redesign the urban transport services system.

### **Social sector strategies in the era of globalization**

The increasing pressures created by the deepening economic crisis have motivated numerous groups to seek out alternative solutions for strengthening their local economies. One common thread in these approaches has been the search for some greater measure of autonomy in their dealings with the international economy. [It is important to note that one of the most misunderstood of the demands of the Zapatista rebellion is the demand for local autonomy, as a means of strengthening their regions, and in this way contributing to a stronger national society. For more details of their demands, see EZLN, 1997.] Among the most notable of these are the many examples of peasant communities searching for new markets for traditional exports. The most successful of these efforts are those that recognize the need to ensure that these non-traditional products remain complementary to the panoply of activities that have been important; without going into greater detail, it is important to note that there is an on-going discussion within grassroots communities about the importance of defending and strengthening these inherited traits in their social and economic structure.

These developments are particularly important in the light of the changes in international financial flows. Although foreign direct investment (FDI) has been falling as a proportion of all financial flows, and the primary sector has reduced its participation in the FDI, certain investments have been increasing, notably in the forestry sector, where recent legislative changes have encouraged plantations for rapidly growing species to be harvested for cellulose. Similarly, investment in orchards and other commercial crops have also shown a resurgence. As a result, the efforts by local communities to find their own alternatives and directly engage in marketing and distribution arrangements offer a new approach that may effectively restrict the scope of action of foreign investors. This development might be a productive area to support as a way of reinforcing local efforts to find profitable means to engage in environmental management.

### **The significance of international financial flows for sustainable development**

The present model of economic development, based on export oriented production, low wages and a rapid rate of urbanization, is not consistent with the accepted precepts of sustainability. Although we have not touched on a wide variety of questions raised by the theme, the two areas we discussed illustrate the enormous impact that the globalization of the economy is having in promoting a pattern of development that is aggravating environmental problems and limiting the opportunities for grass roots groups to undertake initiatives that would benefit society as a whole.

To offer a fuller discussion of the subject, however, there are a number of institutional issues that must be raised. The Mexican government has created an institutional structure to attempt to deal more effectively with the environmental consequences of modernization. The SEMARNAP (Ministry of the Environment, Natural Resources and Fishing) is charged with applying the current legislation

and managing the country's abundant natural resources. Although it is widely recognized that Mexico has constructed a modern legal framework in which to fulfill these responsibilities, enforcement remains deficient, for lack of funding and well-trained people capable of applying the rules. The prevailing problem of poverty and the enormous opportunities offered by obtaining a permit for the exploitation of one resource or another opens up possibilities of corruption that are difficult to counter. This is compounded by a lack of consciousness of the gravity of the problem of resource degradation, and an apparent ignorance of the consequences of destructive behavior for individual well-being and collective survival.

The collective problem of inadequate information, ignorance, and lack of a consciousness of the importance of the problems produces a series of contradictory results that make environmental management difficult. On the one hand, there are innumerable instances of flagrant violations of local and national norms that do not appear to evoke even a sense of anger when they are denounced by local groups or the national press. In contrast, it is relatively easy to assemble incomplete or even misleading information that permits opportunistic civic groups or political parties to mobilize people for ecological causes that many might not consider to be priority issues or even appropriate examples of transgression.

This confusion and manipulation is further aggravated by the conflicts of interest among the various official and private groups charged with promoting an investment program that generates both growth and sustainability. A preliminary survey of the proposals of the Mexican chapter of the Businessman's Council on Sustainable Development in Latin America suggests the need for a more careful definition of criteria for defining a constructive program; in this case, the people charged with developing the guidelines are earnestly attempting to develop a useful framework, but they find that the opportunistic interests of some their collaborators makes this task more difficult. Similarly, the different viewpoints of government officials charged with implementing the legislation reflects contradictory visions of their own responsibilities and their relationship to the society as a whole; a case in point is the conflict between the Environment Minister and the President of the National Ecology Institute (an agency within the ministry) with regard to granting permits for the hunting and killing of a rare species of goat, with the former attempting to prevent the activity in response to pressure from local groups, while the latter was actually auctioning off the permits to the highest bidder in the state of Arizona (reputed to be more than \$350,000!). Even more difficult conflicts arise with regard to the locational decisions for toxic waste containment and processing facilities or the inter-secretarial conflicts about the advisability of proposed foreign investment projects; the predominant attitude among the members of the (presidential) economic cabinet appears to be "the environment be damned:" we need employment, growth, and a favorable climate for foreign investment. Although they are willing to admit the need for the application of existing rules about emissions and waste, there is no possibility of opening a fruitful dialogue on the subject of growth management or the possibility of alternative management strategies for natural resource management and productivity critical regions of the country.

The situation has improved in recent years, as the global discourse on environmental issues has become sharper. The Commission for Environmental Cooperation, created by the NAFTA, has



become effective in channeling the discussion about the respective responsibilities of private industry and government into more productive directions. While it is premature to offer a final judgement about its efficacy, the CEC is part of a widening process of incorporating environmental considerations into the policy making process. Similarly, the environmental NGO community has become increasingly effective in making its voice heard, sometimes by ignoring local authorities and rising directly to international organizations where they can, ironically, often times find a more sympathetic hearing. In Mexico, these changes have become especially important in intensifying the pressures for a fuller consideration of the environmental consequences of official policies. In the ultimate analysis, however, the political leadership is still convinced that economic growth is primary, and that the (unfettered?) market will have to be the tool for imposing environmental responsibility on the community; a dismal prospect in a highly polarized society, where people and resources are still significantly devalued.

### **The implications of the analysis**

Based on the analysis of the responses of the Mexican economy to the massive financial inflows, a number of conclusions can be drawn for advocates in Mexico and elsewhere. Perhaps the most important, is the growing chasm between the export-oriented sectors of the economy dominated by transnational capital and the large number of rural communities that are attempting to forge different kinds of alternatives. Because of the inability of the "modern" sectors of the economy to create gainful employment or other types of opportunities to meet the demand, these alternatives offer a promising way of responding to both the need for new economic opportunities as well as for better environmental management. This sector of the society is currently struggling for survival in an economy that offers no financial assistance, but even more seriously, also views these groups and their efforts with hostility. Therefore, a productive effort in any information and educational campaign would be to assist in explaining the contribution that these alternative approaches to economic survival might make, not only in reducing pressures on already fragile resource systems (urban and rural) but is actually contributing to improving the quality of life for the country as a whole while offering some locally produced products of potentially higher quality than those presently being imported to meet basic consumption needs.

With regard to formal industry, more attention must be paid to changing from "end of the pipe" solutions to more integral approaches to correcting the environmental impact of present productive systems. This must include a careful discussion of the self-guided "code of ethics" approach to environmental improvement. In the present environment of intense international competition, high costs for credit and highly concentrated structures of power and wealth, more attention must be accorded to mechanisms for public oversight of private efforts. This involves creating channels for greater accountability and better training of local groups to understand the tradeoffs and complementarities between economic growth and environmental quality; this is the starting point for a constructive discussion about defining realistic limits on the exercise of power by financial capital. The industry groups themselves are searching for mechanisms by which to improve their public image of corporate responsibility, and they should be assisted in this task by efforts to

better inform their people and to engage in a constructive and critical dialogue about the differences between remedial and preventative measures for environmental quality.

Perhaps one of the most important lessons to be gleaned from the analysis is the urgency of a discussion of growth management. While especially important in the border areas, the issue is of significance throughout the country. In what ways can public discussion be directed to promote a better informed evaluation of the dangers of unbridled growth? Is it possible to design programs that will face the needs for greater employment of existing social groups while addressing the needs for improving infrastructure and reversing the trends in environmental indices?

On the institutional front, I think that the CEC is one of the most important institutions to be defended at this point in time. It is under increasing pressure as it takes on important matters of environmental deterioration. It offers a forum for discussion and is a relatively impartial watchdog group that could become an important platform for a discussion of the fundamental issues of the relationship between economic integration [including international financial flows] and the environment. At the present time, there is a lack of appreciation of the importance of this institution among Mexican environmental NGOs. This is an important task, and one that should be supported within Mexico. [I think that these same comments do NOT apply to the BECC because of the much more contentious nature of the process on the border and the difficulty of actually implementing satisfactory solutions as long as the underlying labor and resource conflicts are not squarely faced.]

Finally, a word about the public sector. At the present time, there is a very high-quality group of people within the administration who are concerned and knowledgeable about many of the problems raised in this paper. Frequently, they are not in a position to implement the policies that they would like to, because of strong pressures from the economic authorities. Therefore, an important discussion and educational campaign would address the issue of the long-term economic and welfare costs of ill-considered investment decisions with harmful environmental consequences. This issue might be addressed by sponsoring a task force to examine some "manageable" case study where strategic planning to implement a growth management approach involving both rural and urban interests might produce an illustrative product.

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