

AS POLLUTION CROSSES THE BORDER, MEXICO AND U.S. MOVE TO COOPERATE

Until the middle of this century, few voices raised concern over industrial wastes which were poured into rivers, lakes and oceans, dumped on land and emitted in the air. Mexico and the United States, faced with a long border dotted with growing urban and industrial areas, are confronting the danger of contamination along their common border. Jackie Buswell informs us of both countries' efforts to halt the environmental deterioration produced by industrial wastes.

Mexico and the United States are currently breaking new ground in international cooperation to control environmental contamination along their 2,000 mile border. Old border conflicts are buried in this project, which is based on the undeniable fact that mountains, rivers, valleys and air streams constitute an integral whole that human boundaries cannot ignore. It was only in 1983 when the two neighbors signed their first General Agreement on Cooperation for the Protection and Improvement of the Environment in the Border Area.

This Agreement forms the base for further annexes providing for cooperation on specific environmental issues, in recognition of the "importance of a healthful environment to the long-term economic and social well being of present and future generations of each country." Both parties to the Agreement "undertake to adopt the

appropriate measures to prevent, reduce and eliminate sources of pollution in their respective territory which affects the border area of the other."

Since the Agreement was signed in 1983 in La Paz by Presidents Miguel de la Madrid and Ronald Reagan, four annexes have been added: 1) on water and drainage problems in the Tijuana-San Diego area; 2) a joint contingency plan for accidents and emergencies; 3) on the cross-border transportation of dangerous wastes and substances; and 4) concerning copper smelters in Arizona and Sonora, which were causing cross-border air pollution with high emissions of sulphur dioxide.

Of all these agreements, annexes, clauses and phrases, the most radical one that breaks new ground in relationships between the United States and Mexico is Annex 3, which deals with the exportation

by the United States of toxic substances and wastes into Mexico. Efrain Rosales Aguilera, of Mexico's Ministry of Urban Development and Ecology (SEDUE), says the annex is a world leader in binational and international environment protection policy.

"Before November 1986, when this annex was signed, the United States would let us know they wanted to send toxic waste to Mexico for disposal, and if we didn't send back a letter promptly saying 'no', that load of toxic waste would come here. Now, the exporting country has to advise in writing 45 days before planned shipment, and Mexico has 45 days to reply. If an affirmative answer is not received from us, the cargo may not be sent."

Furthermore, the annex stipulates that the United States has the obligation to take back any toxic



Tire dumpyard. (Photo from Novedades archive)

substance that arrives in Mexico in violation of laws and agreements. SEDUE hopes to control clandestine *empresas fantasmas* which make money from transporting dangerous toxic substances and waste into Mexico for storage or recycling here. Now, Mexico can refuse to receive the material, and it agrees to import dangerous substances only for recycling, not for storage disposal. That is, Mexico now refuses to act as burial ground for excess products of its northern neighbor's industrial production.

Quantities of these excess products are often reported in the media in news items such as: "Ship with radio active waste turned away from Costa Rica," or "Ship with industrial garbage refused admission to Central American ports."

Under Annex 3, the United States also undertakes to clean up any area affected by any toxic substance imported to Mexico without permission and to restore the area to its prior ecological balance. This too is a radical element in binational cooperation to protect the environment. Rosales explains: between 1972 and 1979, a certain Mr. Rosiclaire in Zacatecas illegally imported 4,500 tons of dangerous substances from Texas. The toxic waste included

mercury chloride, which is highly dangerous. "We found out about it, and even though we put the man in prison for more than two years, we couldn't send back a gram of that stuff."

Today, cooperation between the SEDUE and the U.S. Environmental Protection Agency (EPA) has greatly reduced the level of illegal transportation of toxic materials into Mexico. "Some 250,000 tons of toxic substances have been controlled since the Annex went into effect. We have said no to some cargos," continues Rosales. He points out the size of the problem: "We receive applications (for transportation of dangerous substances) almost daily."

What are these toxic wastes? They include solvents, residues, paints, asbestos, acetone, zinc, mercury and other mineral wastes. The SEDUE regulates, inspects and sets norms for waste processing installations to assure they use adequate sites and processes to treat and desintoxicate waste materials through chemical, physical and biological recycling. One such deposit is in San Luis Potosí, while another in Tijuana treats solvents and oils.

Members of the SEDUE and EPA have begun working on

contingency plans in case of accidents and emergencies that affect the border area. This area is defined in the Agreement as 100 kilometers inside each country from the border. Any accident involving transportation or inadequate disposal of toxic materials could provoke serious health risks and dangers to the environment. Annex 2, signed in July 1985, provides for joint response teams which will work out means of collaborating in case of accident. This collaboration will be voluntary: "Each side learns about the other's resources, but there are no obligations on either side, in respect for national sovereignty," explains Science Officer at the U.S. Embassy in Mexico City, Ann Simon. Training courses and other encounters aimed at increasing communication and understanding of mutual ecological problems also take place between officials and advisers from both sides so that in case of accident or emergency, joint response teams will be ready to operate.

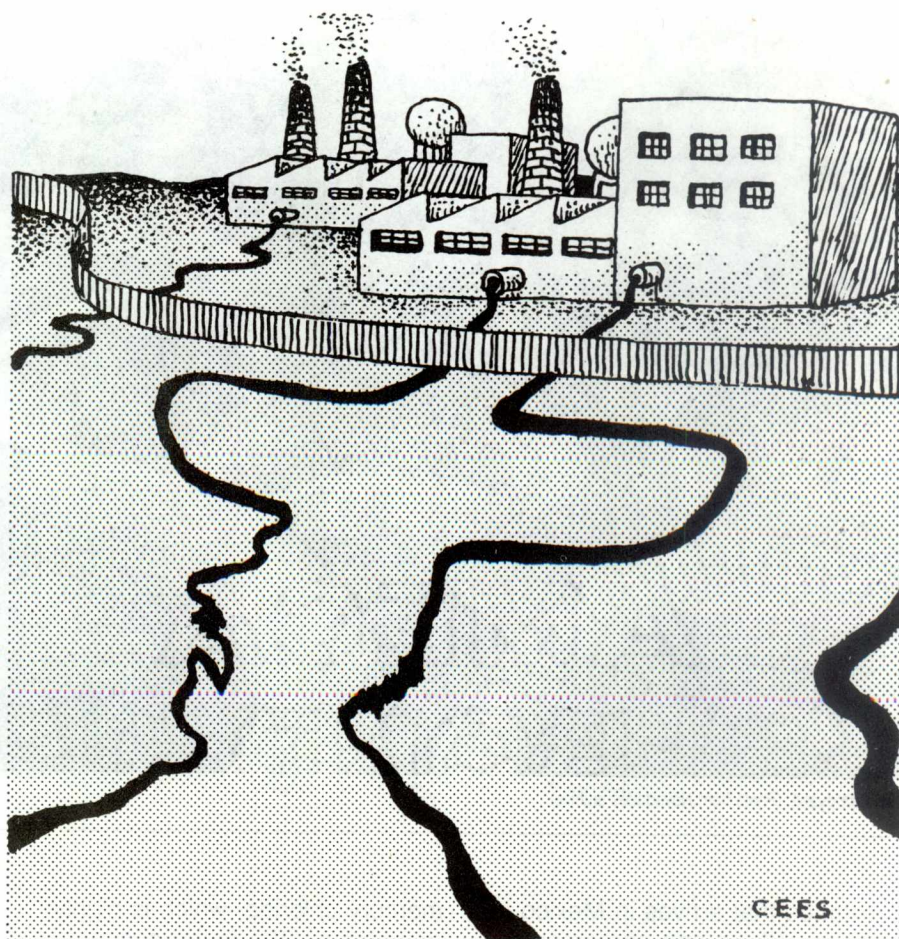
A Joint Contingency Plan for Marine Accidents has also been signed by Mexico and the United States. In effect since March 30 1981, this contingency plan concerns pollution of the marine environment due to discharge or

threat of discharge of hydrocarbons or any dangerous substance, with

Alarming accidents have occurred in the Gulf of Mexico and

The U.S. has the obligation to take back any toxic substances that arrives in Mexico in violation of laws and agreements

along the border area. From June 1979 to March 1980, crude oil and gas spills from the Ixtoc-1 well near Campeche, constituted what is considered the most serious case of marine pollution in history. The spill continued for 281 days, with a loss of more than 3 million barrels of oil. In 1983, a Cobalt-60 bomb, used in hospitals for radiation treatment of cancer, was sold as scrap metal in Ciudad Juárez,



TOXIC WASTES ON THE BORDER: THE PRICE OF DEVELOPMENT?

In-bond industries or *maquiladoras* established along Mexico's northern border since the 1960s are an international project, mainly binational, where Mexico provides the site and labor for fabrication and transformation of products to be sold outside of Mexico. Supposedly, everyone is content with this arrangement: foreign companies benefit from low manufacturing costs and Mexicans benefit from greater employment opportunities. Yet the costs of this rapid industrialization process have to be considered. Negative effects on workers' health have already been reported, while negative effects on the environment are beginning to cause concern.

Dr. Roberto Sánchez, of the Northern Border College, says that in-bond industries operate with little control over their use of toxic substances and that little is known about the number, size and location of contaminating substances.

He cites a report by Barry Castleman on "Multinational Corporations in Developing Countries" in which the author points out that the protection of workers and the environment in multinational industrial plants in the Third World is remarkably poor in comparison with the operations of the same companies in the United States. According to Castleman there are two standards for the protection of workers and environment: those applied in the United States and those applied in developing coun-

tries. Examples given by Sánchez to prove this point include the manufacture of asbestos fiber in Agua Prieta and Ciudad Juárez by a U.S. company. Asbestos dust causes cancer and other lung diseases.

There are also double standards in occupational health. "People exchange their health for money," says Dr. Federico Ortiz Quesada. Meanwhile, Mexico is currently among the many nations which have damaged, or are damaging, their environment in exchange for "industrial development" and money.

Waste materials from the in-bond industries constitute a serious problem. Sánchez says little is known about the quantity or quality of waste materials, nor about their final destination. Laws stipulate that in-bond industries must export their waste materials back to the country of origin, but Sánchez says this is not always done. In a report by the Northern Border College on in-bond industries and their waste products. Sánchez states:

"The pollution created by transnational and multinational *maquiladora* (in-bond) plants, including waste from toxic and dangerous industrial residuals, could have important contaminating effects on both sides of the border. The strong interdependence between Mexico and the United States in environmental matters may be a double-edged sword. Such an inter-

dependence could promote cooperation and joint efforts at finding mutually beneficial solutions for common problems, or it could increase political pressures and environmental, economic and social deterioration with.

"The binational negotiations held to date between Mexico and the United States reflect an asymmetry in power favoring the United States which has led to unilateral solutions. The responsibility of in-bond industries which have caused environment degradation and health hazards must be taken into account in negotiations on cross-border pollution. If not, then Mexico will not only be subsidizing the operations of transnational and multinational businesses through low labor and operating costs, but it will also be paying for cleaning up their pollution."

There are eleven sectors in the in-bond industries which potentially generate dangerous waste products. These sectors are: electronics, metals, automobile, plastics, chemical, electrical, wood, leather, printing, secondary petro-chemicals and glass.

Toxic substances used in assembly and production include: solvents, metals, acids, epoxic resins. Solvents are the agents which cause most health damage, especially those used in the electronics industry. Those most frequently used are the most highly toxic: chlorohydrins. Other solvents include Freon, acetone, and isopropyl alcohol.

The plastics industry produces toys, domestic, industrial, sporting and medical goods. The primary waste products are plastic residues, latex, resins, fiber glass, as well as paints, dyes and solvents. Paints contain solvents when disposed of in large quantities are considered toxic and dangerous. In the United States, disposal of more than five gallons of paint is considered toxic waste and is regulated by legislation.

It is ironic to observe that production of medical equipment constitutes a health hazard for workers and environment through the use of solvents, PVC and adhesives such as cyclohexane.

The automobile industry uses solvents, acids, paints, plastics and resins. The electrical industry uses solvents to clean components. The electronics industry uses metals for soldering solvents, silicon, varnish and dyes. The metal, leather and wood industries employ acids, solvents, paints and lacquers.

A study by the Northern Border College concluded that these substances cause a wide range of diseases, from minor infections and irritations, to cancer and damage to the reproductive and nervous systems.

The study involved 772 in-bond plants in Tijuana, Mexicali, Nogales, Ciudad Juárez, Nuevo Laredo, Reynosa and Matamoros found that 671 plants —86 percent— use toxic substances. The sectors which are growing most rapidly —electronics, automobile parts, plastics and metal— are those which most use toxic substances.

Sánchez says that although various representatives from the in-bond industry have assured him they send waste material back to the United States, there is little evidence to prove that this is fact. Sánchez says it can be assumed that waste material is being buried in Mexican territory without minimal safety measures to protect environment and public health. Clandestine deposits exist, but their number and local is not known. "The cost of waste disposal in the United States is so high and in Mexico is so comparatively cheap, that companies might easily 'forget' to export their wastes." Although

in-bond companies are required by a treaty which went into effect in January 1987 to export their toxic wastes back to the United States, Sánchez says that investigations so far show that most toxic wastes from in-bond industry remain in Mexico.

Sánchez concludes that a complete evaluation of industrialization along Mexico's northern border must be carried out, and social, economic and ecological factors assessed. Failure to do so, he says, is to condemn the population of border areas to pay for the benefits received by the United States from the in-bond industry in Mexico. These benefits include low cost of labor (termed "ridiculously low" by one U.S. businessman), lack of strict control over occupational health, lack of environment protection and use of toxic substances in foreign territory.

Ortiz Quesada, author of several books on public health and poverty, makes the following analysis of what he terms "irrational industrialization at any cost":

"It is obvious that industrialization at any cost belittles the seriousness of the damage to workers' health and to the environment. It is a model of development that ignores people and nature... We assume that workplace hazards will be more serious and more dangerous in Third World countries. Thus, a pathology of poverty must be added to a pathology of 'industrialism,' which will not even alleviate that poverty."



River contaminated with trash and chemical wastes. (Photo from Novedades archive)

Chihuahua. It was then melted down into bars for construction, and was sold and distributed in both Mexico and the United States. Great efforts were made to recuperate this radioactive metal which was later buried in La Pedrera, Chihuahua.

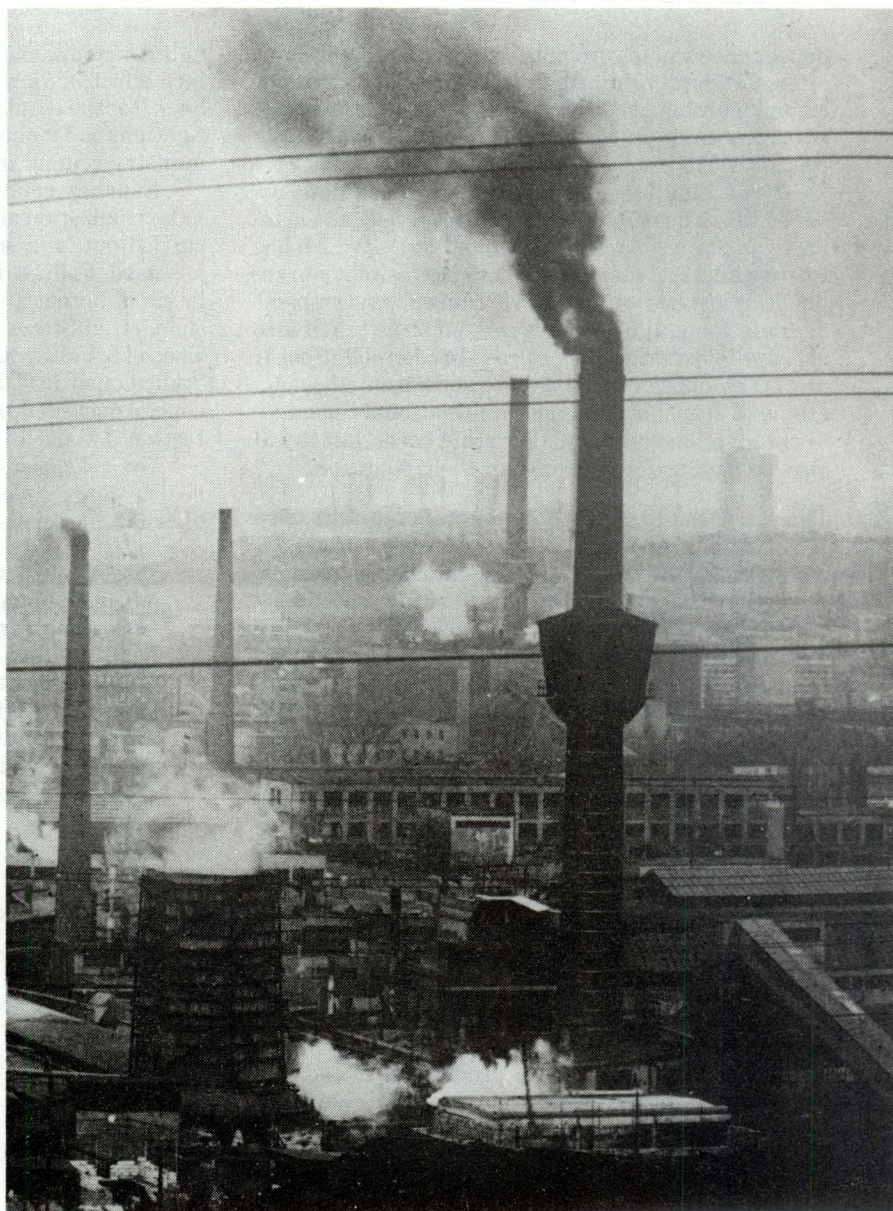
Sister Cities Along the Border

The border area is arid, mountainous, with deserts, canyons, rivers. It is subject to earthquakes on the west and hurricanes from the east. Extreme temperatures are experienced. Each winter we read of people who "die of the cold" in this zone: some die of cold, some die of carbon monoxide poisoning caused by faulty heating. Economic activities in the area over recent years include agriculture, livestock, mining, industry, oil drilling and refining.

Although El Paso, Texas and Ciudad Juarez, Chihuahua are politically separate cities, they share common rainfall, air currents and pollution

There are some 50 cities along the border with more than 50,000 inhabitants. The U.S. cities are generally cleaner with paved streets, though not without their poverty areas, while sections of the Mexican cities lack pavement, drinking water and drainage facilities, especially in sprawling "spontaneous settlements" which house migrating populations.

Some of these twin cities face serious pollution problems, including acid rain. According to Dr. Ernesto Jáuregui, researcher at the Autonomous National University's Atmospheric Science Center, there is a long list of cross-border problems shared by Mexico and the United States, such as the migration of persons, movement of merchandise, control of drug traffic, water supply and sewerage, and air contamination. Jáuregui says this last item is given a low priority in binational considerations, yet studies have shown that residents in El Paso, Texas, and Ciudad Juárez, Chihuahua, suffer high



Air contamination. (Photo from Novedades archive)

levels of lead and other heavy metals in their air, due to industrial processes carried out in El Paso. The studies show that health of residents in both cities has been affected. In fact, to call them two different populations is to deny the geographical unity of the area: the cities are located in a valley of the Río Bravo and share common air currents, rainfall and other natural phenomena. Similarly, San Diego and Tijuana, in the words of U.S. Embassy official Ann Simon, "constitute one common metropolitan area, even though they're in two different countries." According to studies by Jáuregui and others, winds carry polluted gases from San Diego

towards Tijuana, and carry in the other direction, polluting dust from Tijuana. All this gets mixed up together, and is often held over the area in thermic inversions. Jáuregui added that a significant source of air pollution along the border are the long lines of vehicles waiting to pass U.S. Border Inspection points. Vehicles often wait hours with their engines turned on, spewing out fumes that constitute a health hazard to Border Inspection employees, to the travellers and to the main problem confronting the sister cities that has most been is that of water supply and drainage. The rivers that flow through Tijuana and Mexicali



Toxic wastes drain into nearby river. (Photo from Novedades archive)

naturally flow downhill into California, taking with them whatever water and pollutants collected along the way. Tijuana and Mexicali are on higher ground: thus, says Ann Simon, "Mexico is in the geographically stronger position." However sanitation authorities in Tijuana have faced problems over the years due to contamination of beaches near San Diego. David Gidi, of the SEDUE, says that the United States is very strict in its demands for adequate treatment of waters that flow into seas and rivers that affect U.S. territory and ecosystems. Gidi says that Mexico, recognizing that "it is also our obligation," has made great efforts to improve sanitation. A new sewage treatment

plant south of Tijuana was opened by President Miguel de la Madrid in January 1987. This plant had to be closed down last November due to a fissure on the rock floor. The Mexican undersecretary for Urban Development, Francisco Covarrubias Gaytán, announced at the end of February that the plant has now been re-opened, after repairs on faults in the filtering system. He informed that the leaks had been plugged with thick layers of impermeable paste, asphalt and fiberglass.

Tijuana's sewage treatment has caused troubled relations with San Diego county where beaches have been closed down due to sewage spills. Because of the sea currents,

sewage sent out to the ocean might return to coastal areas and contaminate beaches. David Ávalos, Chicano arts worker in San Diego county, says, "San Diego has got its own sewage problems; it's not just Tijuana." Roberto Sánchez, of the Northern Border College in Tijuana, commented: "San Diego's drainage problems are not talked about, or at least, not much. The bilateral talks are always about contamination of U.S. seas and rivers by Mexican waters." Meanwhile, Ann Simon of the U.S. Embassy says: "There are no problems with San Diego's sanitation."

"We need a billion dollars to solve the San Diego-Tijuana water treatment problem"

Sánchez continues: "There are important points in the bilateral ecosystem that are not talked about. In San Diego, there's a population of two millions, in Tijuana, around one million. Both areas are growing rapidly. There have been sewage spills at La Joya and Mission Beaches. "Perhaps the plant built by Mexico was not the best technically ... "but it was built with pressures from the United States to solve the problem promptly."

New proposals are being considered to solve Tijuana's water and drainage problems. They include the extension of drinking water and drainage networks to greater parts of the population. Gidi says that today 80 percent of Tijuana's population has drainage, and 60 percent has drinking water. Covarrubias also announced in February, funding of 20 billion pesos for public works to extend drinking water supplies to 90 percent of Tijuana's population, and for the construction of a new sewage treatment plant in the east of the city. Another proposal for San Diego and Tijuana's water and

drainage problems, is for a binational sewage treatment plan in U.S. territory. Economic difficulties stand in the way. "We need a billion dollars to solve the Tijuana San Diego water treatment problems," says Leroy Simpkins, of the U.S. Embassy Science and Technology Department.

In Mexicali, substantial efforts have been made to clean up the New River. Here, 12 or 14 industries have contaminated the river system, as well as local slaughter houses and the nearby garbage dump. David Gidi says the garbage dump and 85 percent of the slaughter houses have now been relocated, and that industrial wastes which used to find their way into the river system, will be completely under control by March this year. The Ministry of Water Resources (SARH), supervised by the SEDUE, is about to finish construction which will deviate waters from their natural flow into the United States, for use in irrigation in Mexican agriculture. Also, binational investment, including resources, equipment and labor will be made to improve Mexicali's drainage system.

Binational treatment plant are not new along the border: one was installed in the 1950s in Nogales, Arizona to serve the twin city of the same name Nogales, Sonora. This plant was renovated in 1972 and will be further expanded in 1988.

The Gray Triangle

Sonora and Arizona share air pollution problems caused by copper smelters in Douglas, Arizona, half a mile from the border, in Cananea, Sonora, 22 miles from the border, and in Nacoziari, Sonora, 57 miles from the border.

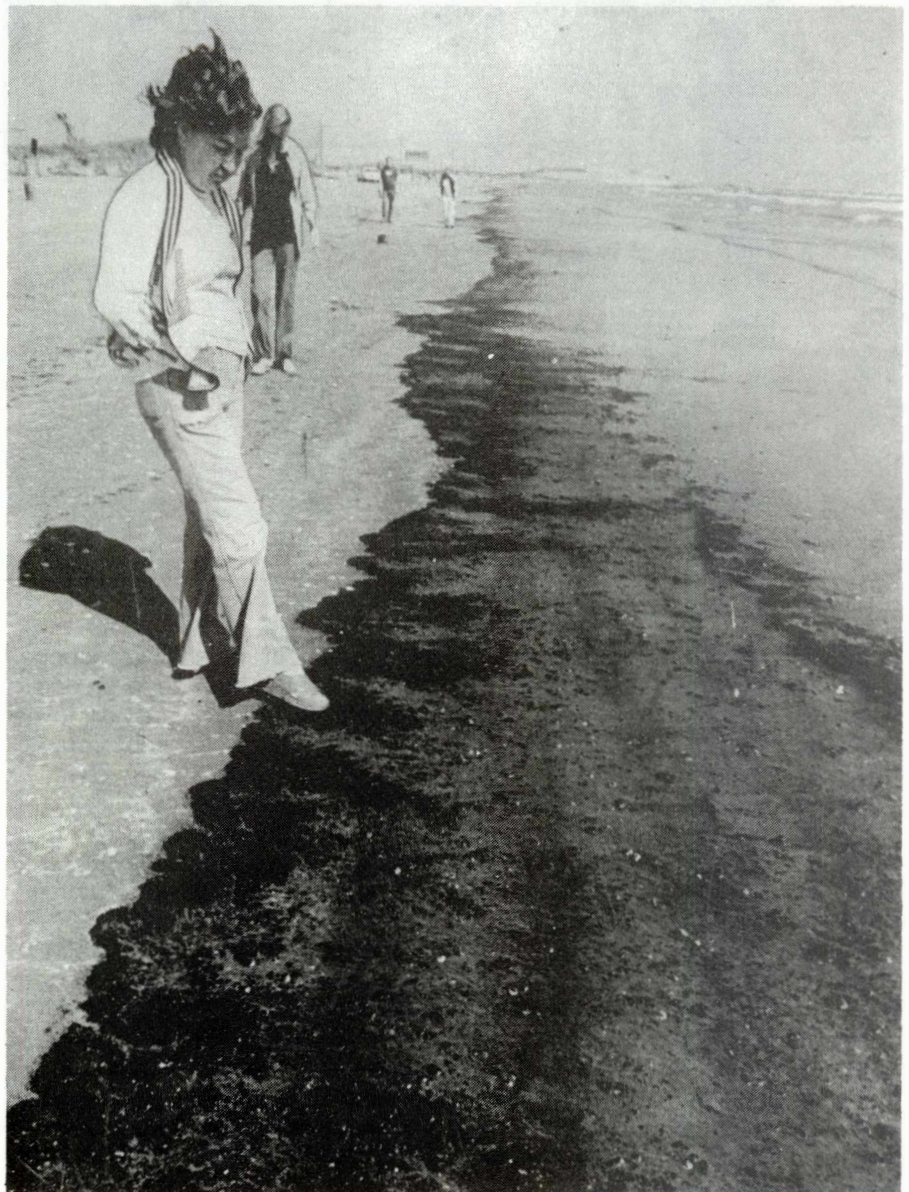
Rogelio González García of the SEDUE, says that at present the smelter at Cananea is operating at only 70 percent of its capacity due to dangerously high emissions of sulphur dioxide.

In Annex 4 to the Agreement, signed in January 1987, both nations agreed that emissions of sulphur dioxide should not exceed .065 percent by volume

during any six-hour period. The Phelps-Dodge plant at Douglas was closed down in January 1987, while a new smelter at Nacoziari, property of the Empresa Mexicana de Cobre, which was to begin operations two years ago, has closed down during construction of a processing plant which will convert sulphur dioxide into sulphuric acid. This plant has now been finished, and smelting operations at Nacoziari should resume in March this year. The SEDUE will then supervise the measuring of air quality to ensure that Mexicana de Cobre is complying satisfactorily with the terms of Annex 4.

"Air knows no boundary," says González García, who

highly values the binational contacts to evaluate and control air quality, prevent atmospheric pollution and identify polluting agents. However, UNAM researcher, Ernesto Jáuregui, says that the northern border area of Mexico generally lacks sufficient monitors to evaluate air pollution factors. "If we can't measure the problem, we can't work out a solution," he said, referring in particular to air transport of pollution between Tijuana and San Diego. Jáuregui says that technologically, Mexico, is the weaker partner in the talks. "There are always more 'experts' on any theme from the United States than from Mexico at discussions and negotiations —and this often means that the Mexican voice is not heard."



Beach contaminated by oil spill. (Photo from Novedades archive)

While Mexico might be in a geographically stronger position in the biological ecosystem of Tijuana-San Diego, academics point out that this nation is not the stronger partner at the negotiating table. "The attitude of the United States is not very flexible," says Sánchez of the Northern Border College. "The U.S. is rigid in negotiations, applies pressures, pushes for rapid decisions. Mexico needs to better its negotiating capacity, to strengthen its position at the talks. Mexico also needs to have complete information about environment pollution so as to realistically assess transborder problems."

Some issues affecting Mexico's ecology were denounced by Fernando Ortiz Monasterio, on February 11 of this year. The vicepresident of the Mexican Conservationist Federation revealed that a disposal site for atomic waste is being built in New Mexico, not far from the Mexican border at Carlsbad. Ortiz Monasterio claimed that the disposal site will consist of tunnels 900 meters below ground, where 55,000 cubic meters of transuranium products will be stored in domes of salt.

Ortiz called on Mexico to defend its sovereignty and environment in this matter, as pollution could reach Mexico through underground water streams. He also exhorted Mexican authorities to confront the United States with the problem of underground nuclear tests carried out in New Mexico. He said that radioactivity is released during these tests, and affects the health of nearby populations. He recalled a well-known Mexican actor, Pedro Armendariz, who died of cancer five years after working on a film in a desert close to the zone of underground nuclear tests. Ortiz said that Mexico should defend its environment along the border, above ground and in underground streams and rivers. □
