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FILE DESIGNATION

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TO : Department of State

E.O.11652: N.A.
TAGS: TGEN, MX

FROM : Amembassy MEXICO CITY

DATE: 07 MAY 1975

SUBJECT : Review of U.S. Oceans and International Environment and Science Activities: Mexico

REF : A) State 031948; B) Mexico 2759

The present report is in response to the request (Ref A) of the Assistant Secretary of State for Oceans, International Environment and Science Activities. Ref. B. advised that the draft text was in preparation.

SUMMARY

The present report presents a description of our significant bilateral scientific and technological relations with Mexico, and brings out some of the strengths and weaknesses in those relations. It also discusses those strengths and weaknesses as they impinge on industry, with particular reference to the Transfer of Technology.

Trends in Mexico's policies and activities are highlighted and an assessment made of Mexican Science and Technology of present and potential interest to the United States. At the same time, opportunities which might further our bilateral relations are singled out for attention and suggestions made as to future courses of action.

References are provided to prior reports and background documents which provide additional insight into the total picture of our very varied, very rich and long-standing scientific relations with Mexico. END SUMMARY

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REVIEW OF U.S. OCEANS AND INTERNATIONAL ENVIRONMENT AND SCIENCE ACTIVITIES IN MEXICO

Background Documents and Prior Studies:

One of the first in-depth studies was the "Current Assessment of Science and Technology in Mexico," consisting of three parts, which was drafted by the first full-time Scientific Attaché posted in Mexico and issued as a composite airgram by the Embassy in April 1972, respectively:

First part: Mexico A-204 of April 14, 1972, giving the over-all characteristics of Science and Technology in Mexico:

Second part: Mexico A-211^{NR} of April 18, 1972, listing the principal institutions: and

Third part: Mexico A-236 of April 28, 1972, the basic text of the Assessment.

The first part of that study was updated in 1973 by A-239 of May 18, 1973. See also A-216 of May 4, 1973, mentioned below, on Trends.

A more current background document (attachment A) is that dated July 23, 1974: "Material for the Ambassador's Briefing Book on Science and Technology," prepared for the incoming Ambassador/DCM at that time. This describes the duties and responsibilities of the Counselor for Scientific Affairs (SciCouns) providing useful examples, gives his principal contacts, and spells out problems existing at that time. Another document (Attachment B) which provides additional background is "US/Mexico Relations in Science and Technology".

"Analytical Reporting Plans", attachment C. a memo addressed to the DCM by SciCouns in early 1974, covers Energy, the Environment, major US/Mexico Agreements and other cooperative agreements.

Finally, the periodic reports to the AEC by SciCouns/USAEC SciRep provide a running account of numerous projects, plans and programs during the 40-month period, late 1971-early 1975.

A -- SIGNIFICANT US/MEXICAN BILATERAL RELATIONS IN SCIENTIFIC AND TECHNOLOGICAL AREAS:

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Agreements presently in existence fall into three broad categories:

- I. Government to Government
- II. Agency to Agency
- III. Institution to Institution

Re I. Government to Government agreements are usually referred to as the "US/Mexico Agreement in " Those currently in being are:

Meteorological Cooperation: First entered into in 1942, it has been renewed regularly at three-year intervals. The present renewal expires July 31, 1976. This agreement originally envisaged US cooperation in site selection and equipment of meteorological stations in Mexico, together with the training of local technicians, which would allow for a gradual withdrawal of US personnel. However, in thirty years' time, instead of a decreasing US commitment, the opposite has occurred. We have now equipped more stations than originally contemplated and have more manpower committed. By the same token, the total coverage has been expanded and data requirements, for the World Data Center greatly increased. NOAA has a resident representative posted at the Embassy in Mexico City, who supervises the program.

Remote Sensing (Space Research): First entered into in 1968, this has been renewed regularly at two-year intervals, but not without some travail. The present renewal expires in mid-1976. A separate agreement to cooperate in the joint program for the Eradication of the Screwworm (NASA/CONEE) also falls under this accord. In this particular project the very latest space and nuclear irradiation technology are combined to fight a common agricultural pest. The remote sensing aspect of the program was initiated as an experimental project by NASA and is now drawing to a close. Hopefully the technique developed will be applicable in other disease infested areas (e.g. the tsetse fly in Africa). The very ambitious eradication project, under the joint direction of the Agriculture Departments of both governments is well underway. The five year plan is estimated at some 40 million dollars.

Scientific and Technical Cooperation:

This agreement came into being June 14, 1972, when signed by both Foreign Ministers in the Cabinet Room of the White House. It is designed to stimulate and facilitate joint research, the

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exchange of scientists and of information, personnel training projects and to encourage other forms of cooperation not specifically identified. Under this accord each government names its Executive Agent and the two Executive Agents confer regularly in the development and execution of a program of mutual interest. The National Science Foundation is the U.S. Executive Agent; the National Council on Science and Technology (Consejo Nacional de Ciencia y Tecnología - CONACYT) is the GOM Executive Agent. During the first year of operation the two Executive Agents jointly selected four areas of research: (1) earth sciences, (2) biological sciences, (3) marine sciences, and (4) environmental sciences. The Agreement also calls for a Mixed Commission to meet alternately in Washington and Mexico City to review the operations undertaken. The first meeting of the Mixed Commission was held in Washington, June 1974. At that time CONACYT announced the ten priority areas of interest to the GOM. In turn, NSF identified six of these as of mutual interest. A program of joint projects is now being implemented. The ten fields cited by CONACYT are: 1. energy research*, 2. meteorological research, 3. tropical ecology*, 4. mineral resources*, 5. marine resources*, 6. demographic research*, 7. tropical agriculture, 8. standards, 9. information and documentation*, 10. geothermal energy.

Exchange of Young Technicians** This agreement is part of and flows from the S & T cooperation agreement cited immediately above. It came into being at the same time on June 14, 1972, when signed by both Foreign Ministers in the Cabinet Room of the White House. It also calls for each Government to name an Executive Agent and for the two agents to agree upon an Operations Plan. The Department of State (CU) is the U.S. agent; CONACYT is the GOM agent. After months of delay and inaction on both sides, some twenty-three young Mexican "Technicians" received an average of six months training during 1974, in the following specialized fields: food technology, nuclear power plant operation, electrical engineering, desalination, livestock management, machine technology, marine biology, communications and foreign trade. The U.S. sent people to Mexico in the fields of film history and cultural anthropology. Quite recently the GOM threatened informally to abrogate this agreement unilaterally, for it simply was not working to their satisfaction, with a view to its being replaced by a more effective instrument. However, at that moment the U.S. advised of its intent to send some eleven exchangees

*Those marked with an asterisk are those understood to be of interest to NSF.

**The term "technicians" has been retained but it is a misnomer. "Young professionals" more properly describes the exchanges, since most, if not all, have their university degrees.

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to Mexico and so the matter was composed, at least for the time being. President Echeverría contemplated as many as one hundred young Mexicans a year being trained in the United States. A major problem is finding areas of sufficient interest in Mexico for U.S. exchangees.

Another problem has been financial. Mexico wanted the U.S. to pay all travel and living costs of its candidates, which would involve at a minimum a half million dollars a year for the 100 persons originally proposed. The present Operations Plan stipulates that the sending country pays those costs, whereas the receiving country pays all training costs.

Protection of Migratory Birds and Game Mammals: Signed at Mexico City February 7, 1936, this agreement is designed to permit rational use of migratory bird species without causing their extinction. Originally it listed 31 families of birds. It was amended March 10, 1972, by exchange of notes in Mexico City, which added another 32 families of birds to the list. Every year there is a survey of selected sites. Every four years a survey of the entire country is carried out by specialists of the US Fish and Wildlife Service (Department of the Interior). Under the umbrella of the agreement there is also an annual winter waterfowl survey and a brown pelican survey conducted jointly by U.S. and Mexican biologists.

Re II -- Agency to Agency Agreements:

Space: NASA/CONEE (Comisión Nacional del Espacio Exterior). This Agreement, negotiated in the early 1960's, originally covered the installation and operation of a Space Tracking Station at Guaymas which, in 1970-71, when no longer required for the Apollo Program, was turned over to the GOM complete with some very valuable communication and computer equipment. The tracking station stands idle today, most of the U.S. equipment having disappeared. The present agreement on Remote Sensing may be considered as having replaced the former MOU (Memorandum of Understanding). The latter provides for cooperation between the two Agencies in data processing of information from ERTS (Earth Resources Technology Satellite) in which Mexican specialists of some eight agencies and universities actively participated and some continue to participate. The Water Resources Secretariat (Secretaría de Recursos Hidraulicos) has developed its own laboratory and lab technique for data processing, using its own aircraft for sensing. The Space Commission is also providing services to other agencies through its own sensor equipped aircraft and laboratories.

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Drug Control and Eradication. Space technology, particularly remote sensing, has also been used successfully in the joint US/Mexico Drug Enforcement Program. So far in 1975 some 6,000 opium poppy fields have been detected (and destroyed), this being the total result of all detection systems utilized.

Additional promising areas of cooperation in space research have not materialized. For example, the National Science Foundation has had a balloon project with the U.S. National Center for Atmospheric Research (NCAR) for several years. High altitude balloons, equipped with data collection instruments, are released from the Palestine, Texas station. These have to auto destruct or be shot down at the border before entering Mexican air space. A joint research program, involving descent of the balloons with their instrument package in Mexico, recovery and reuse on wind turn-arounds was proposed several years ago, with evidence of interest by the Mexican Space Commission (CONEE) but without affirmative response by the Mexican Government. NSF and CONACYT, together with CONEE, are presently engaged in reviewing the project under the Science bilateral agreement.

Nuclear Energy: There is no formal US/Mexico bilateral on nuclear energy. There is, however, a Sister Laboratory Agreement, developed in 1971-72, between the ERDA Argonne National Laboratory (ANL) and the Instituto Nacional de Energía Nuclear (INEN) at Salazar, some 35 km. from Mexico City.

The Laguna Verde Power Reactor Complex: The USAEC has pledged full support to Mexico in this major project, which when completed at the site on the Gulf near Veracruz, will provide Mexico City with some 1300 MWe. General Electric won the competitive bid for the twin SSS units and the fabrication of the fuel elements. The INEN gave a letter of intent to the USAEC for uranium enrichment services in December 1973. Completion date is now tentatively set as mid-1979 for the first unit and 1981 for the second. In addition to ERDA (former AEC) the Department of Commerce and the Ex-Im Bank have major interests in this \$500,000,000 project.

Dual Purpose Project (power/desalting): Implementation of a joint dual purpose (power/desalting) project, for which the text of an agreement was drafted at staff level in November 1972, has not come to fruition, although the appropriate technical agencies concerned are ready to proceed (USAEC-now ERDA and the INEN). Delayed originally by the Colorado River

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salinity problem, now resolved, it was presumably side tracked during the recent trilateral and bilateral negotiations for the nuclear fuel supply for the Laguna Verde reactor, which were completed on February 12, 1974, by signatures at IAEA Headquarters in Vienna. Recent informal consultation between the U.S. and the Mexican Co-Chairmen of the 1972 working group may presage renewal of joint consideration of this project.

Desalination: CAAS/OSW The Comisión para el Aprovechamiento de Aguas Salinas (Commission for Utilization of Saline Waters) and our Office of Saline Water have been cooperating closely for several years. They confer regularly in Washington or Mexico City, or at international conferences held elsewhere in the world, e.g. Europe or the Caribbean (they met recently in the Virgin Islands and again in Puerto Rico).

CAAS is experimenting with four different desalination systems on the Baja California coast. Of these they find that the most expensive is solar energy, the least is reverse osmosis. One of the largest desalination plants in the world, that at Rosarito Beach just south of Tijuana, with a capacity of 7.5 mgd (million gallons daily) was built in the U.S. by AguaChem for the Comision Federal de Electricidad which operates a petroleum fired 300,000 kws generating plant at the same site.

International Cooperation in the Development of Geothermal Energy: This is a CCMS (NATO) project of which the United States is the pilot country. Although this is a NATO project and Mexico is not a member, the U.S. Pilot Project has had strong Mexican support, including participation in meetings in the U.S. and in New Zealand, and joint sponsorship of international visits in 1973 to the Cerro Prieto fields and plant near Mexicali. Mexico is again cooperating with the U.S. in the UN Geothermal Energy Symposium in San Francisco in May 1975, by opening the Cerro Prieto fields and plant to visiting specialists attending the UN meeting.

Solar Energy: Solar energy is presently being used in Mexico to desalinate sea water (CAAS) and to power a pump bringing subterranean water to desert surface areas (Subsecretaria para de Mejoramiento del Ambiente (SMA) the Undersecretary for Environmental Improvement). These operations are on a modest scale at the present moment, but are expanding. The Department and AID have expressed continuing interest in the solar energy powered water pump, and the Embassy has provided the additional details requested. In addition, solar energy is being used experimentally to heat the water in a fairly large swimming

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pool at a technical school in the Federal District (CFE). No formal US/Mexico agreement has been entered into in this area at the present time. At the time of the preparation of this report the Embassy had learned of a new cone shaped device one meter in diameter developed by a Mexican researcher, capable of producing up to 400°C. A two-meter diameter model is now being constructed.

Environment: EPA/SMA (Subsecretaría de Mejoramiento del Ambiente): Negotiated in early 1972, this MOU provided the basis (the loan of air contamination monitoring equipment for use in the Federal District, and the training of technicians) for a much broader cooperative program which has now replaced the original. The original loan equipment has been returned to the U.S., but EPA continues to provide training assistance, both in the U.S. and in Mexico.

Environmental problems along the U.S.-Mexico border have been the subject of two recent symposia, sponsored principally by the University of Texas at El Paso; El Paso-Ciudad Juarez, held in September 1973, and Laredo-Nuevo Laredo held in Nuevo Laredo in March 1975. Top environmental quality officials of both countries attended these sessions, and took advantage of the opportunity to confer informally on possible areas of cooperation. Constructive results were forthcoming in both areas, i.e. the professional discussion of existing air and water contamination and problems of solid waste disposal, and a meeting of minds of the two federal agencies as to priority areas of interest and information exchange.

Geodesy, Geophysics and Geology.

Geodesy and Geophysics: The Inter-American Geodetic Survey (IAGS), a part of the Defense Mapping Agency, is engaged in cooperative programs with a number of Mexican agencies. IAGS/Mexico cooperation was started in the fifties and actively resumed in 1968 when a five-year agreement was signed with the National Autonomous University of Mexico's Institute of Geophysics. A significant characteristic of these programs is that the IAGS provides equipment, instruments and know-how, but no funds. The Mexican Government covers all operating costs.

Brief details concerning ongoing projects are provided below:

This program consists of the loaning of sophisticated scientific instruments as well as field vehicles for the gravimetric, geomagnetic and tidal studies being carried out by that Institute.

Military Geographic Department. (DGM). The program consists of the loan of precision instruments, which are in limited supply, for the purpose of establishing stations designed to strengthen

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the geodetic network of Mexico.

National Territorial Study Commission (CETENAL). This informal cooperation between the IAGS project and CETENAL (a dependency of the Secretariat of the Presidency), consists in providing positional data for the topographic surveys being made by CETENAL, based on observations made at fourteen geodetic satellite stations.

Navy. The IAGS cooperates with the Mexican Navy Mapping agency by providing equipment for tidal studies in order that that agency can produce accurate Hydrographic Charts of the Mexican Coasts.

Training of Mexican Specialists. The IAGS maintains a Cartographic School at Fort Clayton, Canal Zone, Panama. To date some eight-one (81) Mexican professionals and technicians have received instruction at this training facility.

Recently the IAGS has been offering training in Remote Sensing techniques.

Through the Pan American Institute of Geography and History (PAIGH) a specialized agency of the OAS, many training and technical programs in Latin America have been coordinated, in which a number of Mexican engineers and technicians are involved. IAGS has been of assistance in many instances.

Geology. The USGS has been cooperating for years with the National Council for Non-Renewable Resources of Mexico, as well as with the Institute of Geology of the National University (UNAM).

Health Problems. The U.S. Surgeon General and the Secretary of Health and Welfare of Mexico have been meeting on an annual basis for years, discussing mutual effort on border health problems. At a 1972 meeting, the two principals decided to expand the geographic coverage of their understandings and to focus attention on the specific fields of cancer, drug abuse, alcoholism, cardiovascular diseases and pollution.

Biomedical Research. There are several Mexican researchers currently receiving NIH grant support, usually made available directly to their home institution, but earmarked for the principal investigator's use. This program has been underway since the early 1960's. In addition some forty Mexican Post-Doctoral researchers have received NIH fellowships within the last ten years.

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California Cooperative Oceanic Fisheries Investigation (CALCOFI).
This is a cooperative program between the State of California, the National Marine Fisheries Service and the Instituto Nacional de Pesca. It has been going on since 1949.

Population: Although the USG keeps abreast on GOM demographic policy, there are no direct government to government programs in family planning, due to the absence of a bilateral AID agreement. AID Title X funds are applied in Mexico, however, indirectly -- either through general budgetary support of international organizations or by specific project contracts with U.S. research groups.

Periodic reports have also been prepared by the Economic Section with regard to the recent changes in GOM's policy on population and family planning and the subsequent provision of health care services. A copy of most recent developments is attached. (Attachment D).

Re No. III. Institution to Institution Agreements.

These agreements normally are of a university to university or research institute to research institute nature. Since in many cases the GOM counterpart is an official agency, such as UNAM, they take on a quasi-official nature. These types of cooperative endeavor are so numerous that the Embassy really only learns of their existence when the participants encounter some overwhelming problem, or the U.S. institution (or the Mexican) needs some special assistance. For example, the School of Health Sciences of the University of Oklahoma, through the efforts and devotion of one faculty member, has had a working arrangement with Mexico's Instituto de Seguro Social for some twenty years on studies of the nutrition problems of pregnant women. The Embassy became aware of this cooperative effort in 1973 when a problem arose related to the temporary importation of some sophisticated equipment purchased under a NIH grant.

Another striking example is the "Science and Man in the Americas" Conference, jointly sponsored by the American Association for the Advancement of Science (AAAS) and CONACYT, held in 1972, which attracted some 6,000 participants. Yet other examples are the numerous instances where an American scientific society holds its annual meeting in Mexico jointly with its Mexican counterpart (e.g. the upcoming meeting on Chemistry in the North American Hemisphere to convene in November, 1975, under the joint auspices of the American Chemical Society, its Mexican and Canadian counterparts).

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B. THE STRENGTHS AND WEAKNESSES IN OUR MORE IMPORTANT SCIENCE AND TECHNOLOGY RELATIONS WITH MEXICO.

The Secretary of Foreign Affairs of Mexico has made it abundantly clear that the Government of Mexico will recognize as binding on that Government only those agreements negotiated with the Foreign Office, adding that agreements on an agency-to-agency basis will be considered only as commitments of the respective agencies and not as of the Federal Government itself. This is understood as referring to new matters as they arise, and not in the sense of invalidating agreements already in existence. But the guide lines are clear: if a USG Agency wants an agreement with the Mexican Government, this must be negotiated through the Department of State and the Foreign Office.

Similarly, the Foreign Minister, in a first person note* to the Ambassador made another point quite clear: Mexico's capabilities for cooperation and trained manpower, both limited, require that any project that is proposed be judged on the basis of the country's priorities and real interest in that area of scientific endeavor, and not on the purely scientific merits of the proposal.

We have no major problem with these conditions and can work within these parameters. In fact, on December 11, 1973. in conversations with top CONACYT officials and Undersecretary of Foreign Relations Gallastegui, Minister Dean emphasized both national priorities and mutuality of interest as guide-lines for project as well as trainee selection under the Science Bilateral ...However, problems do surface from time to time.

Problems. Relations with key GOM officials are generally quite cordial. Despite this, however, delays in negotiation and implementation of agreements are the order of the day. The same is true in the matter of clearances, e.g. for marine research operations in Mexican water, NASA or USGS overflights. Sometimes this foot-dragging is quite understandable, and reasons are given. But often no reason is given, nor action taken. Even the Ambassador has been unable to break some log-jams.

*November 6, 1972.

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For example, FonOff action was pending at the time of the January 8, 1974 memo cited above:

1. Since August 1972, on NASA overflight clearances and never granted.
2. Since November 1974 on Dual Purpose Project (power desalting), and still pending, but with signs of the stalemate breaking.
3. Since July 1973, on Weather Agreement Renewal, completed in August 1974.
4. Since November 1973, on NASA/CONEE Screwworm Eradication Experiment, completed in mid-1974.
5. Environmental Problems Along the Border Action Program, reluctantly cleared in April 1974.

C. THE STRENGTHS AND WEAKNESSES OF THE HOST COUNTRY IN THE SCIENTIFIC AND TECHNOLOGICAL AREA, ESPECIALLY AS THEY IMPINGE ON INDUSTRY.

It should be noted here that the Mexican private sector makes only a very modest contribution to new scientific and technical research in Mexico, about four percent of the total, according to CONACYT. It is estimated (also by CONACYT) that subsidiaries of transnational enterprises (TNEs) in Mexico contribute an additional six percent to the scientific and technical research done in this country, while the remaining ninety percent is undertaken by Mexican Government organizations, including CONACYT itself, the Mexican Petroleum Institute, state institutions of high learning and similar bodies. CONACYT has stressed the great need for tax and other incentives to encourage private Mexican industry to step up its efforts in the area of scientific and technical research, and for the allocation of more resources in the public sector for research activities.

Mexico continues to be most interested in the transfer of technology, and was one of the countries consistently well represented in the working groups set up under the "New Dialogue" initiated by Secretary Kissinger as the MFM at Tlatelolico, February of 1974. Should this group be reactivated, or when it is reactivated, we expect continual strong Mexican interest, led by the Director General of CONACYT, as chief spokesman strongly supported by the Foreign Office.

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D. ASSESSMENT OF HOST COUNTRY ADVANCED TECHNOLOGY OF POTENTIAL INTEREST TO US.

For years Mexico has enjoyed an international reputation in nutrition, tropical diseases, and infant and child care as well as cardiology. More recently she has attained recognition in geothermal and solar energy. The Nobel Peace prize for 1971 was awarded to an American scientist for his work in Mexico in the production of disease resistant grains, particularly wheat and maize, at CIMMYT (International Center for the Improvement of Wheat and Maize). Norman Borlaug's research, done in his thirty years at CIMMYT, contributed in substantial fashion to the Green Revolution. CIMMYT is supported by the Rockefeller and Ford Foundations and the GOM Secretariat of Agriculture.

Mexican engineers have also developed a new system for utilization of bagasse (sugar cane processing residue) in the manufacture of paper and newsprint.

Mexico City has been using wastewater for crop irrigation and city gardens and fountains since 1902, years ahead of the rest of the world. Her newest engineering feat is the Deep Drainage sewer system, considered one of the most ambitious projects undertaken in Latin America. Mexico has also developed expertise in archaeological exploration and restoration.

Thus, in the pure sciences and the applied sciences of medicine, engineering, and agriculture, Mexico offers unique possibilities for benefit to the United States.

E. TRENDS IN GOM ACTIVITIES AND POLICIES IN OCEAN, ENERGY RESEARCH, ENVIRONMENT AND SCIENCE.

Recent trends, as reported in Mexico's A-216, provide additional guidelines. These are Mexico's sensitivity in natural resource studies: the proclivity, if not national policy, of working through the trilateral channel when there is a competent existing international agency (e.g. the International Atomic Energy Agency or the International Meteorological Organization); preference for GOM participation in the planning as well as operational stages of projects of mutual interest, instead of observer participation only, as in the past; and finally, the growingly insistent requirement that data resulting from scientific projects carried out in Mexico be made available, and in timely fashion, to the GOM.

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These trends again are understandable and present no real problems for us, excepting perhaps in the resource study fields where GOM sensitivity has greatly retarded or aborted operations which in the final analysis promise more benefit to Mexico than to the U.S. -- e.g. the use of remote sensing to study the marine environment.

There is, however, one caveat involved here. It is one thing for the FonOff to require negotiation through them on all Government-to-Government agreements. It is quite another for that Ministry to require that all projects under an agreement also be negotiated in the same fashion. The net result of the latter procedure is two-fold: delay on the one hand and emasculation of scientific agency competence and initiative on the other. FonOff officials insist that their responsibility is solely that of the foreign relations of Mexico, that they have no special competence in S & T, and only serve as a channel for communication. Nevertheless, the trend seems to be towards FonOff involvement not only in agreement negotiation, but also in each individual project, e.g. the Screwworm Eradication Project under the Remote Sensing Agreement. Developments in this present situation merit close attention.

With respect to scientific projects dealing with family planning, the sensitiveness of the ~~issue~~ to the GOM make it essential for the Embassy to be consulted by AID/W prior to the granting of USG funds in support of population activities in Mexico. There is an Embassy Population Committee responsible for the evaluation of USG-funded demographic and family planning proposals with respect to their political sensitivities. Substantive evaluations are principally handled by AID/W.

Examples of such institution to institution activities are 1) Pathfinder Funds: support for the Mexican Ministry of Health's pilot training program of paramedical personnel in the field of contraception. 2) Smithsonian Institution International Program for Population Analysis; surveys of population distribution within the state of Mexico. 3) University of Missouri in collaboration with the Monterrey Instituto Técnico de Estudios Superiores: economic model of Mexico, including demographic variables.

F. OPPORTUNITIES IN OUR OES RESEARCH AND BILATERAL RELATIONS WHICH MIGHT FURTHER OUR POLITICAL, ECONOMIC AND COMMERCIAL INTERESTS.

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Microindustrial: Reference has already been made to the Laguna Verde Nuclear Power Reactor Complex, a half-billion dollar project in which U.S. industry has obtained a major share, largely because Mexico has faith in commitments made by the U.S., both governmental and industrial, and was willing to pay a higher price to have that assurance.

Microindustrial: The success achieved by the U.S. Trade Center in Mexico in the relatively short time of its existence is noteworthy and, through its Technical Sales Seminars, trend setting.

During the past fifteen months, for example, the Trade Center has organized and/or presented in conjunction with exhibitions the following technical sales seminars:

February 1974	Cosmetology
March 1974	Chemical/Petrochemical Equipment
April 1974	Industrial Security Equipment
June 1974	Telecommunications Equipment
August 1974	Veterinary Medicine
September 1974	Aviation Ground Support Equipment
October 1974	Machine Tools
January 1975	Process Control Instrumentation
March 1975	Pharmaceutical Equipment
March 1975	Educational (Vocational) Training Aids
April 1975	Advanced Welding & Cutting Equipment

In addition to these organized seminars, over 60 U.S. companies have used the T.C. for private technical training sessions (combined with product demonstrations) or in-house study groups featuring a new line, application, industrial concept, or similar specialization.

Center officials find that one of the most effective tools to attract Mexican professional people to the Trade Center is the use of technical seminars or colloquia. There seems to be a yearning for industrial technology on the part of young engineers and technicians.

In view of this favorable experience they now plan a more extensive use of technical sales seminars as an export promotional tool. Seminar subjects which are being scheduled for the coming year include:

Railroad Equipment
Mine Safety Equipment

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Exploitation of Forestry Resources
Metallurgy (Steel Production Processes)

Additionally, the Center will continue to offer technical sales seminars in conjunction with regularly scheduled exhibitions.

G. SUGGESTIONS AS TO HOW THE U.S. MIGHT POSITIVELY INFLUENCE THE OCEANS, ENVIRONMENT, ENERGY RESEARCH AND SCIENCE POLICIES OF THE HOST COUNTRY.

There are certain areas of mutual interest and expertise which could and should be explored to mutual advantage. Such exploration would bring about broader understanding and broader acquaintance, and at the same time offer opportunities for the exercise of beneficial influence. For example:

The Environment: Air contamination in Mexico City, and the campaign to reduce and ultimately eliminate it, is of interest to Denver and Los Angeles, according to EPA officials.

Water contamination and the reuse of secondary treated sewage water are matters of major concern to many U.S. communities.

The U.S. and Canada have arrived at a very complicated agreement in the potentially explosive subject of contingency planning for oilspills and other hazardous substances. A U.S.-Mexican joint contingency plan is quite desirable and need not be so rigorously structured as that with Canada.

Energy:

Elsewhere in this report the statement has been made that Mexico can export technology in geothermal energy to the U.S. Until quite recently Mexico was ahead of the U.S. in the production of electricity through the use of this great natural resource. It is still ahead in many of the techniques involved, as USAEC people noted in 1973 and 1974 when they visited the Mexican fields at Cerro Prieto. Mexico is also moving forward in solar energy - a field of major U.S. interest.

Arid Lands: Mexico's Northwest and the U.S. Southwest have much in common geographically, geologically, geophysically, hydrologically, and meteorologically. Aridity, the scarcity of water, land and water management are all inter-related and there are many areas and varied fields of endeavor here that lend themselves to cooperative action.

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Tropical Agriculture: Quite the reverse of arid lands is tropical agriculture, and the Department of Agriculture and the National Science Foundation now have authorization to fund research projects. Initial explorations with Mexican reseachers have been promising and should be continued.

Medicine: Tropical diseases, cancer, child care are but three of many promising areas of cooperation that should be explored.

Social Sciences/Natural Sciences: Here again there are many areas of joint interest to anthropologists, archeologists, behaviorists and their colleagues.

H. RECOMMENDATIONS AS TO HOW OUR OCEANS, ENVIRONMENT, ENERGY RESEARCH AND SCIENTIFIC RELATIONS SHOULD BE MODIFIED OR EXPANDED TO ENHANCE U.S. FOREIGN POLICY OBJECTIVES.

Throughout this report attention has been invited to opportunities that exist for the enhancement of our relations with Mexico and of our own national foreign policy objectives. It is also obvious that not just our Research and Scientific Relations are involved here, but our basic policy also.

An Agreement to Cooperate in Science and Technology, the same as any cooperative agreement, should be a two-way street and that fact should be recognized by both parties. As has been pointed out above, this concept has not always been honored. Consideration, therefore, should be given to pointing out to the GOM that we are not too happy with the way that Scientific and Technical cooperation is being restricted, for on many projects of interest to U.S., they have been very negative.

It might be well to remind them also that the Science and Technology Bilateral was to be a vehicle for more cooperation in many areas of interest to both jointly, or to one or to the other ---. It was to be an umbrella covering both the various agreements in being or that might come into being. As may be deduced from textual comments in the body of this report in the three years of existence of the Agreement this has not come about. An excellent opportunity for laying these matters on the table could well be the next meeting of the Mixed Commission established by the Agreement or, alternatively, the next Executive level meeting contemplated at the June 1974 Commission session.

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