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**TRANSFER OF SCIENTIFIC AND  
TECHNICAL INFORMATION TO  
LATIN AMERICA AND THE CARIBBEAN**

**FINAL REPORT  
FISCAL YEARS 1977-87**

as compiled by

S. Dickson Tenney  
Foreign Affairs Officer  
Office of International Affairs  
National Technical Information Service  
U.S. Department of Commerce

for the

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Project No. 598-0572

**FINAL REPORT ON  
PROJECT 598-0572  
SCIENCE AND TECHNOLOGY INFORMATION TRANSFER.**

**I. INTRODUCTION/BACKGROUND**

The U.S. Congress established the National Technical Information Service to provide U.S. business and industry access to Government funded scientific and technical research information. Funds to pay NTIS expenses were to be obtained from sales revenue; no costs were to be paid by tax-supported Congressional revenue. NTIS, first and foremost, has been responsible to the interests of its U.S. customers although it has always had significant sales to the developed world. NTIS' activities in the developing nations, beyond the normal distribution and sale of reports, has almost entirely been funded under several USAID Participating Agency Service Agreements.

The first worldwide PASA agreement with AID was signed in 1971 as an experimental program to help some of the more advanced of these nations obtain NTIS distributed products. The Latin American/Caribbean (LAC) Bureau, after reviewing project accomplishments, signed a separate 1977 PASA agreement asking NTIS to expand its activities into more Western Hemisphere countries. This agreement, with revisions, covered the period through FY 1982; a follow-up one was signed for the period FY 1983 through FY 1987. These projects were designed to be, in part, the U.S. Government's response to the demands made by developing nations that they be given increased access to information and modern technologies from the developed world.

A common objective of both LAC agreements was:

- to improve LAC countries access to scientific and technical information and patents resulting from U.S. Government research and development.

The PASA's underlying premise was that technical information is a critical development tool and that competent local information dissemination organizations in the developing world were needed to maintain a permanent flow of information. As a logical out growth of this premise, it was assumed that the LAC country technology transfer absorption capacities would be enhanced with this increased flow of information. NTIS was to act as an intermediary to develop and support the local institutes which would then promote the use of information in their countries.

The objectives of both agreements were to be accomplished by:

- expanding the number and institutional capabilities of the LAC cooperating organizations. This included developing and enhancing the local institutional structure, providing training (both in the country and at NTIS), meeting with potential users in their country, provision of reference materials, providing access to NTIS products at a cost 50% less than foreign countries

normally paid, organizing international meetings, providing access to other sources of information, etc. All these elements were considered to be essential to this process.

NTIS was a logical choice to handle these efforts because:

1. It had a varied, and the largest, collection of scientific and technical information products generated by or for the U.S. Government.
2. By 1977, it had already established informal contacts with some major, public sector Latin American information dissemination organizations. Few if any other Latin American organizations, private or public, were interested in working in the information dissemination field at that time.
3. In the smaller LAC countries, only the public sector organizations had the capability of working in the field of information dissemination. This was particularly true in terms of allotting personnel to NTIS activities as sales were never large enough to cover even salaries. Government organizations often required formal signed agreements and generally were more comfortable working with other government institutes.

A secondary, but specified, 1977-82 PASA objective, was for NTIS to improve the LAC countries' access to appropriate technology information resulting from worldwide research and development. A substantial number of NTIS technical information reports were sent to Latin America and Caribbean organizations working with the "poorest-of-the-poor" during that time. An NTIS published report also listed other organizations working in this field. Details of these activities were discussed in earlier Annual Reports. The objective of working with appropriate technology was not specifically addressed in the second PASA agreement but NTIS kept it in consideration while operating the project.

In September 1981, AID contracted the Inter-American Research Association (IRA) to complete a mid-level impact evaluation of NTIS efforts under the first LAC PASA. IRA found that a majority of the NTIS users were in the private sector (primarily in small-to-medium size business according to a later study) and there was a high practical usage of the information. On the basis of IRA's review, a June 1982 AID project paper was prepared recommending a five year extension of the project.

The paper called for NTIS to:

- increase the number of outlets for NTIS material per country;
- increase access to other, especially private sector, databases;
- provide additional training;
- arrange for establishment of on-line search capabilities;
- arrange for license brokering development; and

increase efforts to ensure eventual self-sufficiency for its NTIS outlets.

The second project experienced one major structural problem common to the first, a delay in receiving AID funding and generally a reduction in the funds from what was budgeted. As an example, \$3.8 million was authorized under the second PASA agreement but only \$1.973 million was appropriated. NTIS, as a government agency, was able to follow through on some proposed activities prior to the receipt of funds, but planning and follow through on others (such as sub-contracting, training, conferences or provisions of materials) was delayed until funding was authorized.

Moreover, over a period of time when it was initially expected that the Latin American economies would continue to expand, most LAC countries entered into an unforeseen and unprecedented economic landslide which destroyed any possibility of completing some of the initial project objectives. A specific one was helping some of the larger cooperating organizations to become self-sufficient in their information dissemination operations. Earlier NTIS reports were sent to AID showing sales over the years. After many years of sales moving up on an ascending curve which lasted well into the 1980's, and continued even after the general Latin American recession started, the curve of sales finally began to drop as a reflection of the area's financial problems and has plummeted since AID withdrew its financial support.

In 1983, NTIS reviewed the budgetary constraints, the need to assure the most effective use of the available funds and its own staffing situation, and decided to give a contract to a small U.S. business firm which had considerable experience working with both Latin America and information. It, Management Systems International (MSI), initially developed implementation planning, designed and installed outreach activities and developed pilot experiments with three cooperating organizations. Its role grew to include training, organizing annual conferences and the introduction of Spanish language materials into the NTIS data collection.

By the end of the project, despite the major financial problems in Latin America, NTIS had developed a network of 28 cooperating organizations in 22 Latin American and Caribbean nations. Most entering the Network at the end were in the private sector, reflecting the increased ability of information dissemination organizations to survive as independent organizations. All worked with other "out-of-country" information dissemination organizations, not just with NTIS, and many of them employed people trained by NTIS over the years. Other trainees have remained with their original employers or have gone into other businesses and carried with them the knowledge of the importance of technical information for development. NTIS also helped set up REDITEC, with the assistance of many LAC network members, a local institute which will follow on some of the work done by NTIS in Latin America.

Technological developments, particularly with computers and automation, allowed NTIS to make some advances that were not anticipated in

the 1982 project paper. Microcomputers, along with other technical equipment such as microfiche readers, were provided to several of the more diligent organizations working with information dissemination.

These and other network members were introduced to database services outside of NTIS and explanations how to work with search services were introduced into NTIS training. One major component of the Project Paper was not completed, the work with Control Data Corporation on license brokering. This occurred in part because it was a major cost item, and funds were not provided. In addition, NTIS became concerned that the proposed project looked better on paper than in reality and questions arose if the NTIS cooperating organizations were prepared to work with the program even if it was effective--this was a particular problem with government agencies which are/were not flexible.

## II. PROJECT INPUTS

AID authorized a total of \$3.773 million dollars to be spent on the NTIS activities in Latin America and the Caribbean during the eleven year history of the Latin American/Caribbean Technical Information program. This was considerably lower than the originally budgeted amount.

Accounting figures from the 1977-82 section of the project were previously provided to AID. In addition, NTIS invoiced AID on a regular basis for costs associated with both the first and second sections of the project. The following breaks down, in very general terms, how the \$1.973 million authorized for the abbreviated FY 1983 to FY 1986 section of the project was spent.

### NATURE OF COST

|   |              |
|---|--------------|
| NTIS salaries including benefits and overhead   | \$605,000.00 |
| Sub-Contract to Management Systems International  | 348,000.00   |
| Travel/per diem   | 165,000.00   |
| Publications  | 217,000.00   |
| Training/Conferences  | 138,000.00   |
| Access to on-line search service/marketing programs   | 130,000.00   |
| Technical Assistance, including commodities such as Indexes, Microcomputers, Microfiche Readers, etc. | 90,000.00    |
| Rents/Communications  | 35,000.00    |

|                                      |                   |
|--------------------------------------|-------------------|
| Other internal NTIS logistical costs | 45,000.00         |
| REDITEC                              | <u>200,000.00</u> |

|                     |                       |
|---------------------|-----------------------|
| <b>TOTAL INPUTS</b> | <b>\$1,973,000.00</b> |
|---------------------|-----------------------|

### III. PROJECT OUTPUTS

A. Increased number of cooperating organizations. At the end of the project, there were a total of 28 network members throughout Latin America and the Caribbean. None of these organizations were established by NTIS. NTIS looked for institutes or individuals with some experience and that were both willing to work with the public and understood the importance of technical information. Some, as always, of the organizations were stronger than others but all had somebody interested in technical information.

It was generally accepted that it was more efficient to work with one, or at the most two or three, organizations in each country and let them be the intermediaries to contact other country institutes. Each representative had at least one, and almost all more than one, person trained at NTIS how to work with technical information. Reference materials regarding NTIS products and other information products were provided to all.

B. Conferences of Directors of the NTIS cooperating organizations. These were often one of the most effective NTIS operations as they brought together individuals from various institutes in Latin America and allowed them to meet with each other and learn from their mutual interests. Many of the later project accomplishments, particularly the establishment of REDITEC, would not have occurred if the attendees had not been aware of their mutual needs. Meetings included:

1. April 1983 in Puerto Rico. Separate conferences were held with the Spanish and the English speaking members of the Network. In addition to the general day-to-day program, extra assistance was given to the attendees to teach them how to better market their products. The Control Data Corporation attended to show the participants how its database could be accessed to obtain information about various, other technical, subjects including listing the people who did the research. A one year experiment was introduced where CDC contract personnel would, at Network member's request, search their database and provide information. NTIS also reviewed the data provided and determined that the project was not as successful as anticipated.

2. December 1983, jointly held with OAS in Miami. This conference introduced microcomputers and related equipment to individuals from Latin America and the Caribbean. Computers were still a recent phenomena in the area, and the meeting gave the

attendees a chance to see what others were doing in the field so they could more effectively decide what equipment to acquire. Several large U.S. microcomputer and software companies provided exhibits and briefings for NTIS and OAS contacts.

3. February 1984 in Costa Rica. A limited number of Central America and Caribbean agency officers attended to hear an MSI explanation of the initial pilot experiments it was doing to expand the use of technical information in their area.

4. November 1984 in Colombia. The proposal that the network agencies work together when the NTIS project ended was first formally discussed. A draft charter for a follow-up organization, REDITEC, was signed. A local Latin American organization provided training on specific software programs to the attendees. Individuals from Medellin private and public sector companies explained how they had organized an informal organization to more effectively handle information despite the known financial/bureaucratic/training problems prevalent at that time. The latter presentation was given to show the attendees how they might introduce a similar program within their countries.

5. April 1986 in Panama. REDITEC and its full ramifications was introduced to all the attendees. It was formally established, the Board of Directors was formed and the general by-laws agreed upon. Individuals not specifically belonging to the NTIS Network were also invited to introduce REDITEC to them. At the same time NTIS continued its process of formally winding down the project.

C. Formal training at NTIS. These two week courses provided an introduction to NTIS operations and its products, gave promotional training and introduced the attendees to other information institutes at locations such as the Government Printing Office, Department of Agriculture, National Library of Medicine, etc. One training session was held at the same time as an international conference of information users and suppliers (primarily librarians) and the trainees were invited to attend. Another was held entirely in Spanish, except for invited outside speakers, to reach a section of the Latin American organizations not reached with English language training. Workshops were held in Spring 1983, Fall 1984, and Fall 1985. A total of 27 individuals received training during the period of the second project; an additional 73 people received the training during the earlier periods.

Another training course was held jointly with the National Marine Fisheries Services for people working in information and the marine sciences. In addition, individualized training was provided to the agencies whenever an NTIS or MSI official visited the countries.

D. MSI Pilot Project: Different experiments were organized in three countries, Costa Rica, Jamaica and Colombia, to determine whether there was any "better" way to disseminate information. Extensive training was given, special user seminars organized, a study

of information users prepared, and additional funding was given to each agency to help them employ an extra person to work almost exclusively with NTIS. Demand for information did increase during the period, despite financial problems in each country.

However, it also became obvious as the experiments ended that higher ranking officers, particularly in the public sector, still didn't understand the importance of obtaining and encouraging the use of technical information. If NTIS or AID wants a person in the smaller developing countries to spend a substantial amount of his/her effort in information dissemination, it must pay that person's salary. After the project ended, only the private sector organization in Colombia retained its extra staff to continue working in the information dissemination field.

During this period, all agencies were provided a maximum \$1,200 subsidy if they drew up special promotional programs and agreed to submit details on the results. Most agencies qualified early in the project and were able to demonstrate some increase in sales. In addition, NTIS worked closely with several Peace Corps volunteers, who stayed in Ecuador and Costa Rica and worked with NTIS after finishing their tour and who were experienced in the field of microcomputers and technical information. Both provided extensive user education training to people outside the NTIS Network.

E. Provision of Microcomputers. There was a major increase in usage of microcomputers during this period, more than was anticipated when the project began. However, many NTIS representatives were small and unable to purchase them even though their advantages were obvious for creating databases, completing on-line searches, etc. Financial problems were not the exclusive problems, bureaucratic indifference to information dissemination/usage was also a concern. NTIS, after requesting thorough studies, supplied microcomputers to organizations in Guatemala, Panama, Honduras, Colombia, Ecuador and Peru. In addition, an increasing number of organizations were interested in accessing on-line data bases. Modems were provided to Barbados, Ecuador and Honduras. NTIS also subsidized the cost for Costa Rica to purchase a major database software program.

F. Addition of old AID Spanish language reports into the NTIS data collection. A demand for these reports still existed but they were stored in an AID warehouse and unavailable to all users, including AID. MSI completed a major revision of them, cataloging them and placing over 300 (including grouping many reports together to make them more effective) of them into the NTIS collection. Many other reports could not be placed into the system because of their physical condition, because some information was no longer valid (particularly on pesticides) or because the translations were copyrighted and the release to place them into the NTIS collection could not be obtained. A full listing of each category of these reports was completed by MSI and given to NTIS and AID.

G. Continued monthly publication of ALERTEC, the bulletin listing NTIS reports of interest in the developing world. Spanish and

English language versions were prepared and distributed by the NTIS representative in Mexico. ALERTEC was by far the best promotional brochure produced by the project but it was also one of the most expensive. ALERTEC not only had the normal production costs but it was very expensive to ship as it had to be sent by air mail or air freight to assure arrival.

H. Preparation of two extensive bibliographies of reports in the NTIS database that were of interest to the developing world. NTIS reports were not only individually reviewed but, when selected, their keywords and abstracts were often rewritten to make them more applicable to the area. The 1983 report, Bibliography of Appropriate Technology Information for Developing Countries, was an updated compilation of 3,000 citations with their abstracts, and included reports that had been listed in previous bibliographies. The 1986 bibliography, Technical Information Appropriate for Developing Countries, was a listing of 2500 citations, with their abstracts, that had been added to the NTIS data collection since the previous edition. These reports were in heavy demand both in the developing world and by organizations that work in that area.

I. REDITEC. See separate section on this organization.

#### IV. CONSTRAINTS

A. Latin American and Caribbean economic situation during the 1980's. Little has to be added to the already known scenario--recession, depression, inflation often exceeding 100% a year, devaluations which markedly increased the cost of imports, difficulties with foreign exchange, reduced foreign aid, etc. Few countries and organizations, after paying their normal expenses, had funds to purchase technical information. "Information" was often considered to be a discretionary cost by those who were not aware that is much less expensive to purchase the results of research, then to do it over again.

B. Overly ambitious objective: Self sufficiency. Demand for technical reports is never as large as for "popular" literature. NTIS as an example sells only about 7 copies of each of its reports. Some developed world organizations are capable of operating profitably as information dissemination/consultant offices but they generally have well trained, well paid staff who do not leave when a better job becomes available, good communications, up-to-date equipment, and a clientele base that understands the need to use information.

Many if not all these attributes were missing with the organizations with which we worked. The assumption that the participating agencies would be self-sufficient by the end of the period in their operations with NTIS, and information dissemination, was probably never feasible in even the largest countries and definitely was not when the economic depression began.

C. A lack of local U.S. Government mission attention. This was, and had to be, a regional project because of the regional needs for U.S. Government technical information. This meant that project funding and often the primary interest came from the AID Washington office. Many local AID offices did not have the time nor the inclination to support a Washington funded project as they already had sufficient work of their own.

NTIS usually did not actively try to draw local AID officers into the project unless the staff expressed interest in the objectives--some officers were very enthusiastic about them, others were not. Many of the NTIS local organizations, particularly in the government, were short of staff and the directors, often political appointees, did not have the same appreciation as their staff of the value of information. When NTIS staff visited the agencies, they were generally well received and full cooperation was promised. As soon as they left, other "priorities" took over. This problem was most prevalent in Central America but often did not occur when AID personnel, whether U.S. citizen or "locals", took an active interest in the project.

D. A large number of overly ambitious secondary objectives with too few people in NTIS budgeted to accomplish them. Information and the dissemination of it is a large, ever growing, fluid field. This network was too far flung to accomplish everything that was listed. One reason was mentioned in "B" above as it was often necessary to "hold hands" to get the work done and most of the agencies wanted personal attention. A large amount of management was needed. In addition, a number of the projects required a considerable amount of preparatory work (sometimes exaggerated by U.S. Government personnel or budgetary constraints).

The need to work throughout Latin America and the Caribbean was also a problem because it introduced an anomaly that could not be corrected. An underlying NTIS objective was to have the network organizations learn from one another--it is always better for an organization to look at a similar organization and learn from their experience. Therefore, NTIS HAD to have some of the larger countries such as Colombia, Mexico and Chile in the Network because they had experience in Latin America working with information.

These were the countries (and organizations) which were most likely to gain from the NTIS effort as they had personnel and a better understanding of what had to be done. On the other hand, these were not the countries that AID was most interested in. It might have been best to have reached an understanding at the beginning of the project that the project needed participation by these countries but that the poorer and/or smaller countries ranging from those in Central America to Haiti, the Dominican Republic, Bolivia and Ecuador could never have a completely effective information dissemination organization unless AID was willing to continue to finance their activities.

E. Budgetary: lack of funds to employ people locally. The AID budget allowed NTIS the flexibility to provide almost everything from

training to materials. However, one of the biggest constraints turned out to be personnel. Organizations were generally unwilling to have their own personnel do NTIS work on a reasonably regular basis: government organizations because they had other work to perform; the generally small private sector organizations because their staff had to earn enough money to pay their salaries and expenses.

In the last project section, NTIS paid the salaries of individuals at three organizations. All three were successful in their own right but had different experiences after the project: one person continued to work with his private sector organization because he had learned other facets of information dissemination work; a second continued to work at his government office for awhile after the project finished because he performed other work; the third, who created the most demand, was fired from his government job when the funding ended because his information dissemination job did not generate enough earnings to pay his salary/overhead/etc.

F. Inability to convince people of the importance of technical information for development. This trait was at times notable even within some AID mission offices. In the smaller countries, NTIS was unable to convince enough people that information was one of the most important, and often least expensive, factors in development. Budgets for information were inevitably one of the first things cut if there were financial problems. This trait was not as strong in large industry but small and medium sized businesses appeared to reduce their information budgets almost as fast as governments.

## V. WHAT WE HAVE LEARNED FROM THE PROJECT

A. Users must pay for information. When this project was first initiated, many LAC individuals and organizations were accustomed to receiving information products free of charge. Studies in many cases have demonstrated that people are more likely to respect technical information reports, and utilize the information, if they pay for it. NTIS charged for its reports from the beginning of the project. This should also be a premise of any future project.

B. There is not a large demand for NTIS reports, nor most other technical information, in Latin America but studies indicate those that are purchased are utilized. Information in them might detail the results of millions of dollars of research. It does not take many of these reports, and the resultant savings on Latin American projects, to justify the costs of an NTIS program. How to quantify the results, without the major cost of visiting a country and personally interviewing people, is another question.

C. The assumption that the local organization's could operate on a self-sustaining basis was incorrect! The project's emphasis was, correctly, on the poorer (and usually smaller) of the developing nations but these organizations could not develop the infrastructure, independently order technical information and, more difficult, pro-

mote and actively support the dissemination of information without a subsidy.

There are few public-sector, information-oriented organizations in the world that can survive without some government subsidy; those that do, do so only because they handle other, more profitable products and services and ALL are in larger nations. There never will be sufficient profit just in the sale of technical information in Central American or Caribbean countries as there is not enough demand for it. Local operations must be subsidized. No organization subsidizing the cost of a program similar to NTIS' should quantify results in terms of total sales or whether an organization can make money; they should, admittedly more difficult, look at what has been gained by the program.

D. It is more efficient to work through private rather than public sector organizations--the government sector is often too comfortable--but even then it must be understood that some subsidy will be required, possibly for office supplies and an individual's salary. NTIS has developed a series of potential private sector contacts in most LAC countries but none would be able to operate efficiently without some funds.

E. Local AID mission support is indispensable, even if only on an occasional basis, to support a project such as this. NTIS worked with capable local individuals who understood and supported the need to disseminate technical information but what NTIS did not do, and probably could not do, from the U.S. is develop support for its efforts from the heads of the organizations with which it worked.

NTIS may have made a mistake of NOT asking for occasional assistance from local AID personnel. We had little managerial "clout from a distance and more things appeared to be done when we had local AID mission support. In addition, mission staff would have probably given more support to the project if they had had input in it or at least more exposure to it.

F. Publication of the monthly bulletin ALERTEC was a very effective method of disseminating information about technical reports. It elicited the greatest demand for products as cooperating organizations could give it to potential users without much extra work.

G. The world of "information" has changed markedly in terms of technology since the 1982 project paper was approved. If any future project is developed, changes such as on-line access, the wide-spread use of microcomputers, faster communications by telefax or electronic mail, etc. must be considered.

## VI. COMMENTS/RECOMMENDATIONS

A. The following is written in sequential order. If one premise is accepted, the next should be considered.

1. When information is not available or research needs to be completed for a project, two initial steps can be taken: Repeat the investigation again at, often, a major cost or attempt to obtain information about what has already been done and continue the research from there.
  2. Over the years, developing nations have complained that the developed world refuses to share their information with them. Private companies often do retain information for their use or governments sometimes overly restrict their available information. However, there is a tremendous amount of available information from both the developed and developing world.
  3. People and organizations in the developing world often don't know how to access this information, or can't afford to access it.
  4. Information is often not accorded the importance it warrants, in either the developed or developing world, by the organizations which fund, or individuals who direct, operations. People fail to realize that one report may include details on millions of dollars of research and the information may be as applicable or adaptable to either or both the U.S. or Bolivia. Not all reports from NTIS, or from other databases, are applicable to the developing world but a substantial amount of useful information is still available.
  5. AID has developed a good reference set of internal reports but the amount of reports available are necessarily limited. In addition, AID overseas librarians are often unaware of what type of non-AID information is available or are unable to access it.
  6. There have been a number of reports prepared in the developing world or by people who have contracts there. There are often not accessible because they are not listed on any locally available database.
- B. Final recommendations follow and are underlined.
1. If AID makes the decision that expanding the dissemination of technical information in the developing world would enhance development and that it would be appropriate to fund the costs, it must be willing to commit funds over a long period of time and accept that some country operations must be permanently subsidized.
  2. U.S. employees at local AID missions must be briefed on the importance of technical information for development. AID might consider incorporating such training into both their junior officer training program and into briefing to AID officers as they participate in other training programs. It is essential the officers learn the importance of looking for information before

"reinventing the wheel"; basic instructions how to obtain it must be given.

3. Local AID missions must have at least some people committed to the dissemination of technical information and AID directors should have requirements written in their job plans to assure compliance. This might only involve being willing to put pressure on locally supported institutes to follow through on their work.

4. There are two ways that AID might fund overseas operations: have each local mission do the work but questions arise regarding the cost/benefits side. It would mean each location had to have expertise to follow through on the work. In the smaller missions and in smaller countries where each person has multiple responsibilities, it would be difficult to find, much less justify bringing in, a person to do this work. Furthermore, it requires strong commitment on the part of each local mission, a difficult thing to request, and the program needs to be assured that the experience and/or people are always available.

Fund a program similar to NTIS/REDITEC, either by region or the whole Western Hemisphere. The concept does work although it increases Washington costs and administrative costs, particularly for travel as many things do not get done unless there is personal supervision. This doesn't mean that these two organizations should participate if AID reinstates such a project in Latin America, although there would be a certain logic to bringing in experience. What it does mean is that similar types of organizations should be funded to do the work. AID must be willing to give both long-term financial and moral support to the program or it should not be reinstated. It also must be willing to accept less quantitative judgements, other than the amount of things sold, for results. In this program, quality is more important than quantity.

5. Training/seminars/etc. for overseas users and suppliers should be performed on a regular basis.

6. Financial encouragement should be given to local institutes to develop both their internal databases and others within their country; and to make them publicly available in both their country and others.

7. It is often difficult to obtain foreign exchange, particularly amounts for small purchases. AID, to encourage distribution of information between developing countries, should consider developing a Washington revolving fund in dollars that is immediately accessible by local AID missions (or a REDITEC) to allow local institutes to pay the fund local currency for foreign products and then have the fund automatically authorize the other country administrator pay local currency for the product. THERE SHOULD BE NO FREE PRODUCTS; EVERYTHING INCLUDING POSTAGE SHOULD BE PAID FOR.

8. Small private sector organizations, ones which AID seems to be concentrating on at this moment, are amongst the organizations least able to access foreign information or products. They do not have the funds to make the purchase, nor the knowledge how to make them. A concept like REDITEC and U.S. purchasing organizations should be explored to help these institutes.

9. The monthly bulletin, ALERTEC, was a very efficient way to distribute information about available technical information. AID should prepare a similar type of bulletin using desk top publishing. The product could be transferred to other countries by electronic mail so it can be reprinted there. This would save on mail costs.

10. AID produces an information bulletin now but it is limited when describing reports as it deals generally with AID technical reports. Even if no project is ever developed, AID should look into improving the efficiency of its bulletin by extensively listing technical reports from other sources, and stating how they may be obtained, .

11. Any new project must take into consideration the new technologies developed including microcomputer, software products, on-line searches, electronic mail or faxes, CD ROM and others to assure the project uses the best available. We are into the "Information Age" and the project should recognize it.

## VII. REDITEC--WHAT WAS LEFT BEHIND

### A. BACKGROUND/RATIONALE

In the middle 1980's, two parallel programs had been operating in Latin America for more than fifteen years to develop and support technical information centers for small business/industry. One was sponsored by AID through NTIS and the other by OAS through its multi-lateral programs. The OAS programs had their internal weaknesses, and AID had announced that its funding would end after FY 1987 so NTIS and the Network agencies begun discussing what type of viable organization could be left that would follow through the work accomplished by NTIS and AID.

Participants at the Colombia November 1984 Director's Conference drafted a charter formalizing the incorporation of a regional technical information network called the Red Interamericana de Informacion Tecnica (REDITEC). A primary objective was to strengthen the flow of products and services to and amongst the member agencies. Ten representatives signed the preliminary charter; others joined later.

Gerardo Mirabelli, the director of the Costa Rican cooperating organization, was appointed interim coordinator and asked to draft by-laws for the members to review. He first tried to handle REDITEC op-

erations and, at the same time, perform his regular job at the local Costa Rican organization. This was not effective. Once it was determined that a full term person would be needed to set up and run REDITEC, he left the Costa Rican unit and begun working full time. Initial work included preparing the by-laws, obtaining AID clearances, obtaining the legal charter, officially registering the company as a non-profit organization, making financial arrangements and, most importantly, promoting future participation to potential members.

A variety of organizations (both private and public sector) originally agreed to participate in REDITEC but many had different goals. These made it difficult to prepare the final charter. In addition, communications between countries, although helped by usage of electronic mail services, were difficult. These and other problems slowed the processing of the by-laws.

The draft of the in-laws was sent to the members in December 1985 with the understanding that REDITEC would be a loose confederation of organizations with minimal executive power. The by-laws, with slight revisions, were adopted at the April 1986 Panama Director's Conference, even as NTIS was trying to rearrange its activities to accommodate AID's decision to end project funding one year early at the end of FY 1986.

REDITEC had several major objectives:

1. Promote easier and less expensive access to U.S. and other developed country information;
2. Organize and promote information services in Latin America;
3. Make economies of scale available to members and clients for the purchase and sale of products and services;
4. Organize regional cooperation in the completion of information services contracts; and
5. Coordinate production of information products at a regional level.

Proposed services included:

1. Providing discounts to on-line bibliographic search services such as DIALOG;
2. Providing discounts on electronic mail (CARINET);
3. Obtaining a purchasing agent in the U.S. to assist in making small U.S. purchases;
4. Organizing training seminars and conference--local organizations would organize the meetings and keep a percentage of the payments;

5. Obtaining discounts on hardware and software computer products;
6. Preparing technical information ALERT; and
7. Preparing a network newsletter.

## B. INPUTS

\$200,000 of AID funds provided the initial seed money to cover the structural costs of initiating REDITEC operations. These funds covered NTIS expenses, including the 1986 Panama conference. In addition, expenses for the REDITEC staff and capital equipment as well as the initial operational costs of establishing the Costa Rican office were included.

After these initial costs, it was planned for REDITEC to operate as a private, non-profit organization which would provide its members a variety of services and discounts not available to the general public. Some additional AID funds to start the project, earnings from membership subscriptions, as well as sales of products and services not available to the public were to be used to cover both general recurring costs and future project costs. Details about specific project spending was previously provided by Mr. Mirabelli in quarterly reports sent to AID.

## C. OUTPUTS

### Accomplishments:

1. REDITEC was introduced to potential participants, including some organizations outside the NTIS network, at the Panama 1986 Director's Conference. Most became members or expressed interest in becoming one.
2. An agreement was reached with DIALOG to provide a number of access numbers and discounts to potential major users.
3. CARINET, an electronic mail service used primarily in the developing world, supplied a number of access numbers and discounts in exchange for REDITEC setting up multiple users with only one billing place to charge.
4. Agreements were reached with one small business organization in Miami, and another in Washington, for them to provide REDITEC members an outlet to find information about and purchase products in the U.S. In both cases advance funds had to be provided to these organizations; when not all was spent, REDITEC requested its return. The Washington organization returned the funds; the Miami organization disappeared leaving numerous debts (over \$2,500 to REDITEC).

5. A bi-monthly Spanish language bulletin listing NTIS products of interest in Latin American was produced.

6. Arrangements were made to purchase computers and related software products at a discount for resale to potential users. This project was not as successful as anticipated as not all microcomputers have been sold; due to customs fees and different regulations, most have had to be sold to Colombian information organizations. The present REDITEC executive officer, an unpaid owner of a Colombian private sector organization, anticipates long term earnings from these sales which will be used to fund other projects.

7. LEMB. REDITEC purchased this Colombian produced publication in bulk because it felt there would be a large demand for this report and it wanted to be its exclusive Latin American distributor. It is a Spanish listing of subject headings for Academic libraries and most libraries need this type of information. Despite this, only a little over 100 of the 300 copies have been sold as most LAC libraries are having financial problems. Sales continue but REDITEC has also had problems collecting, after the sale, from countries such as Venezuela and Argentina.

#### D. WHAT LEARNED/CONSTRAINTS

1. The founders of REDITEC attempted to develop a resource for which there is a definite need in Latin America since it is difficult to locate and obtain foreign technical information products. Large organizations usually, but not always, have the resources and contacts to obtain such materials; small- and medium-sized, private sector organizations, and the ones towards which AID is most likely to aim its efforts, often do not. Some of the reasons these resources were beneficial include:

- searching for information is expensive, particularly as the amount of available information has expanded. There is a tremendous amount of available information and computer search services are one of the most effective ways to learn what is available. It is generally recognized that the developing world needs this technical information (the phrase "transfer of technology" is often used) to continue expanding. Information is not free and anything reducing the cost would assist everybody.

- smaller Latin American organizations often can obtain foreign exchange to work with technical information but the process is expensive, particularly in terms of time which these companies do not have, as separate arrangements have to be made for each payment. REDITEC allowed these organization to purchase foreign products/information and pay REDITEC on a less frequent basis. REDITEC would purchase the products and bill the users.

- smaller organizations do not have an effective way to communicate in Latin America. CARINET, an inexpensive electronic mail service, provided a reasonably priced mechanism to overcome expensive telecommunication's costs. The advance in use of the fax may have overcome this problem in the past 6-12 months.

- smaller Latin American organizations do not have contacts to locate and then purchase products in the U.S. Problems range from lack of knowledge of available products to inability to obtain foreign exchange to pay for it. REDITEC located the U.S. source, which had other contacts here, and gave that source funds so Network agencies could immediately charge their purchase while waiting for their client's payment.

- smaller organizations almost always wind up paying the highest costs because they have no bargaining power. These organizations are the ones in most need of the lowest prices.

2. The concept of REDITEC was excellent. It was a group of Latin Americans doing things that were of interest primarily for themselves and their countries while, theoretically operating on a self-sustaining basis without the need to go to outside organizations for assistance. Latin American members came to REDITEC to obtain products at a discount and, often more importantly, pay for several services (from on-line searches to purchases from the U.S.) with one payment greatly simplifying their foreign exchange/bureaucratic problems.

3. This project depended upon a large amount of both optimism and altruism on the part of its members. The REDITEC organizations represented a large range of individual interests--some were government organizations, some were small private sector organizations which have to pay their own expenses. Even though individuals from both organizations supported the idea, the first group had to depend on their directors for support of the concept and often did not get it; the second was absolutely dependent upon "making a living" and had to be convinced they could earn enough to make it worthwhile to participate actively in REDITEC.

4. The concept of overhead was not well understood either by REDITEC members or the people they worked with. This was also a problem with the overall project, particularly with government organizations, as they failed to charge enough to cover all their expenses. In both areas, there were always complaints about charges. REDITEC officers did develop products (LEMB) and resold others (microcomputers) but they did not charge enough to cover all costs including salaries. The prices they would have had to charge to cover costs MAY have been so high that no sales would have resulted.

REDITEC may have had several strikes against it before it started, including no guarantee of long term funding and supervision. Some

were similar to the problems experienced by the overall NTIS program, including very poor financial conditions in the area. Reasons included:

1. The founders were too optimistic about obtaining other paying members. The membership cost was reduced very quickly but it also reduced income. Many organizations initially expressed interest in REDITEC but each step in the continued financial economic deterioration of Latin America lessened the possibility of this being a viable organization. The financial problems also made it more difficult for the members to purchase things and REDITEC had to make sales to cover fixed costs.
2. The format of the organization failed to give enough strength to the executive. To obtain as much support as possible, people (often very responsible ones) from a number of different countries were appointed to the Board of Directors. They had to approve many of the decisions, increasing communications costs and slowing progress. This type of organization also meant that the network was dependent upon the strengths and weaknesses of its individual members and their willingness to be actively involved.
3. Too great a geographic distribution of participating organizations--from Central America to throughout South America. Communications were difficult and travel expenses prohibitive. The original idea of REDITEC was that the concept would sell itself. This did not occur with the very weak financial conditions of the region. The executive had to travel to the different countries to promote the idea because some local member organizations did not understand they had to follow through on this activity to make it work. There was also more interest on the part of the U.S. Government in helping Central American organizations, but there was more potential in recurring sales, which would keep REDITEC functioning, from the larger countries in South America. This dichotomy of interests was never resolved.
4. Too great a diversity of member organizations. It was often difficult to find a communality of interests between government sector organizations, whose employees did not have to work with REDITEC to earn a salary, and a private sector organization which cooperated with REDITEC to earn a living. In general, the most responsible members were the private sector organizations but even they had to put their interests first, and it was difficult to locate strong private sector organizations in Central America.
5. Too much need to depend on very strong individual support of REDITEC. A large amount of time and money was spent on trying to establish this organization and then help it to survive, particularly by some of the founders including Frank Post, Mr. Mirabelli (who was paid to do the work), Lueny Morell de Ramirez and Glenda Bonamica, the latter two who were, respectively, the

President and Treasurer. As some of these people left the program, there was nobody with strong interests and the background to follow up on the operations and the initial idealism was gone.

It should be noted that some projects are still being operated BUT the Board of Directors dismissed Mr. Mirabelli saying he had spent too much on operations expenses with too few ideas resulting. The President of the Board then had to resign for health reasons and the Treasurer from Panama effectively lost contact because of internal country problems.

The work now is being handled in its entirety by the new President/ Executive Director in Colombia. He has commented that almost no money is now being spent for administrative costs because funds are scarce and some debts owed to REDITEC projects are still pending. The question results: Yes, there are more costs to pay if there is an active, paid executive but if that position is excluded to save money, how much work can be done on a voluntary basis when other individuals have their own personal/ business interests. It is a question often faced on low budgeted projects.

#### E. COMMENTS/RECOMMENDATIONS

Sound economic development requires long-term commitment and REDITEC, though nobodies fault, did not have it from the funding organization. Some of the most viable organizations in Latin American are small but these are the type of organizations which need the most help if they are to work in the international arena. They often have channels to get foreign exchange and often can develop sales, although both processes may be delayed, but they do not know how or where to get products and information outside of their country.

It was not initially realized, but this project begun to have problems when AID funding was terminated early, not because of what the organizers were trying to accomplish but how much they were trying to accomplish in a limited amount of time and with too little commitment. Too many countries were involved and there was too little recognition that this type of activity, inherently, will often not cover all its expenses.

Should AID make the determination that information is in fact a very important tool for development, and that it is willing to financially support access to information beyond the reports it has in its own database, a regional or local organization like REDITEC could effectively do some of the work. However, it should:

1. Concentrate only on one region for each organization it supports (Central America is the most logical followed by the English speaking Caribbean and then the Andean countries).
2. Establish a strong organization whose director does not need approval from many different individuals to take required

actions. There are people in many LAC countries who could do the work, many trained under the NTIS/AID program.

3. Accept that the financial commitment will be needed for some time, at least for the fixed costs. There is not enough recognition yet of the need for technical information to make the operation self-supporting. People must become accustomed to paying for information but there is some question whether they can afford to pay the entire cost at this time.

4. Assure, even if the project is funded by Washington (ROCAP might be able to do the work in Central America), there is enough local AID support for the activity so if local supervision or assistance is occasionally needed, it can be obtained by going to the local mission.