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SUBMITTED TO:

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AN EVALUATION OF SCIENTIFIC AND TECHNICAL INFORMATION DISTRIBUTION AND USE IN LATIN AMERICA: THE NTIS PROGRAM IN FIVE SELECTED COUNTRIES

by

Marina Fanning-Firfer

Project No. 598-0044

SUBMITTED BY:

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703/522-0870

July, 1982

June 30, 1982

InterAmerica

Mr. James F. Smith
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United States Agency for
International Development
Washington, D.C. 20523

Dear Jim:

InterAmerica is pleased to submit herewith our final report on the utilization of scientific and technical information distributed by NTIS in Latin America, pursuant to AID Contract No. LAC-0044-C-00-1048-00.

It has been a very challenging and interesting project that has enabled us to develop new methodological approaches to measure not only the utilization of information, but development impacts resulting from its application. We hope you will find it as interesting to review as we have found it to work on this project.

We also hope it will be possible to continue collaborating with you on this and other efforts.

Sincerely,

Juan J. Gutierrez
President

JJG/lac

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UTILIZATION OF SCIENTIFIC AND TECHNICAL INFORMATION IN LATIN AMERICA

Summary of Major Findings, Conclusions and Recommendations

This is the Final Report of a study to document and assess the operations of the National Technical Information Service (NTIS) document distribution program in Latin America. The study focused on five Latin American countries, Mexico, Costa Rica, Colombia, Peru and the Dominican Republic, and interviewed a total of ninety-nine end users. The major finding of the study was that NTIS information, when accessed, contributes significantly towards technological change. The ends to which users could apply information accessed through NTIS were broken down into seven major categories:

1) information not read, nor discarded

2) information read and not utilized,

3) information read and circulated or incorporated in a reference center or library,

4) information transferred through courses, as part of didactic material or through papers, reports, or speeches,

5) information used to determine national or technological policies or standards,

6) information assimilated and transformed in applied research, and

7) hands-on application of information such as manufacturing, building or creating something.

Categories one, two and three were considered referential uses of information and categories four, five, six and seven were considered

applicative uses. The information gathered in personal interviews and subsequently analyzed showed that 81 percent of the end users interviewed fell into the applicative category. Of significance is the fact that only 2 percent of the end users fell in the category one, and that more than half of all users (56 percent) fell in categories six and seven, applied research (22 percent) and operational, hands-on manufacturing applications (34 percent)

The application profiles of the utilization of the information indicate a strong trend towards adaptive transfers of technology, and underscore an ability to make technological choices, to adapt and improve upon chosen techniques and products, and to generate new technologies, all essential aspects of the development process.

The major conclusion which can be drawn from the exceptionally high utilization rate is that NTIS is not only a very important source of information for the transfer of technology in the region, but that the uses to which the information is put, and the frequency with which it is applied, demonstrate its significant actual and potential contribution towards technological capacity building, and, therefore, towards development in Latin America. This conclusion is supported by the views expressed by end users, who value the availability of the information highly, as well as the expansive, in-depth coverage of subject areas, and the breadth and scope of information that can be accessed. It is further corroborated by the fact that the majority of end users whose applications fell into categories six and seven (applied research and hands-on applications), considered the NTIS

information to have been of primary importance in their applications.

The principal recommendation of the study is that the NTIS network should continue to receive the support it requires, and that streamlining and strengthening in two major areas would significantly improve the service and expand its coverage. The first of these areas is the ordering process and the second is the outreach activities.

From data gathered, both from end-users and staff of the distribution centers, it was found that very little active promoting of NTIS publications or services takes place beyond the AMTID bulletins. On the average, there is only about one full time person in each distribution center devoted to NTIS related activities, including time devoted to processing orders as well as outreach. Users expressed frustration in not knowing what the universe from which they could draw included, and there was practically no awareness of the range of NTIS services. Users expressed dissatisfaction with delays in receiving the documents, and with other aspects of the ordering process.

Specific recommendations are: (1) That the staff of the distribution centers (whose time is currently spent processing orders) be employed promoting NTIS services and documents, and that a system be designed which permits end users to order the publications directly from NTIS.(This system could be patterned after the one successfully employed in Latin America by the British Lending Library. UNESCO coupons, which are already accepted by NTIS, could be used to effect

payment.) And, (2) That the NTIS-designated distribution centers be significantly increased in number to cover more cities in a given country and more locations within large cities.

A. INTRODUCTION

This report on the evaluation of the utilization of scientific and technical information in Latin America is prepared for the Agency for International Development. The key aspect of this evaluation was to determine, as far as possible, to what extent information supplied by the National Technical Information Service (NTIS) contributes towards technological change. In other words, the evaluation was intended to focus on whether in fact the recipients of the information were utilizing it and what impact, if any, this was having on the accumulation of technological capacity, and thus, on the development process itself.

This evaluation of the NTIS regional science and technology information transfer project No. 598-0572, implemented by the Department of Commerce under a PASA arrangement, was contracted to InterAmerica Research Associates, Inc., under AID Contract No. LAC-0044-C-00-1048-00.

B. SCOPE OF WORK

The scope of work called for InterAmerica to develop a methodology based on a minimum sample of five NTIS distributors to determine how information obtained from the NTIS mechanism was being utilized. This methodology was to be applied through a series of data-gathering field trips. This report is an analysis of the data gathered and details the utilization of the technical information in the countries visited.

It also includes recommendations on improvements and changes to enhance and expand the utilization of the information distributed.

C. STUDY DESIGN

Orientation

The first activity undertaken by the evaluation team was to become thoroughly familiar with NTIS operations and procedures and with the project to be evaluated. Visits were made to the NTIS facilities in Springfield, Virginia, and numerous formal and informal meetings were held with key NTIS staff members and AID officials. Pertinent documents on utilization reports and evaluation activities, as well as annual reports and other project-related documentation, were reviewed.

Selection of Countries

The second activity undertaken was the selection of the countries to be visited for field data gathering. This activity was undertaken jointly with principal NTIS staff members and with AID project officers. From the total number of Latin America countries served under the NTIS/AID program, a sample of countries was selected using criteria which included proportional representation and geographic setting.

Countries were broken down by volume into three use groups. The first group was comprised of the two largest users, (which are also the largest countries in the region, from the standpoint of population,) together accounting for 53 percent of NTIS volume in 1980: Brazil (28%) and Mexico (25%). The second use group accounted for the next 27 percent of the volume and was comprised of countries which can be termed middle size: Chile (7%), Argentina (6%), Colombia (5%), Venezuela (5%), and Peru (4%). The third use group accounted for the remaining 20 percent volume and was comprised of the smaller countries in Latin America: Barbados, Bolivia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Panama and Paraguay.

The geographic groups defined were: the Caribbean, North America, Central America, and South America.

Due to the small number of countries to be visited, sample selection was purposive rather than random. Mexico was chosen as the representative of the first use group, since it was felt its diversity and size would offer the most insight for the project purposes from this group. Since it is also the only Latin American country in North America, it also is the representative from that geographic group.

Two countries were chosen from the second use group, Colombia, which is largely perceived to be the most assiduous and best organized user of NTIS materials in Latin America, and Peru, which was the only

country in the region where the distribution was being handled by a private firm. From the third use group, two additional countries were chosen, each from a different geographic area not yet represented: Costa Rica from Central America, and the Dominican Republic from the Caribbean.

Instrument Preparation

The third activity undertaken was the development of an interview schedule to be used in a field test. This schedule was initially composed of open-ended questions and was intended to be exploratory in its application. From the review of previous NTIS evaluation activities, it appeared that questions that were too technically specific raised skepticism and hostility since there seemed to be a general reluctance on the part of NTIS end users to discuss application of information in any great detail. It was inferred from this reluctance that information which had been evaluated and applied, acquired greater value and become new original information. It was therefore felt that efforts to elicit information viewed as proprietary had not met with much success.

Thus it was decided, with AID and NTIS concurrence, to base the methodology for data collection on executive interviewing techniques, which rely primarily on the skill of the interviewer to guide the respondent through a loosely structured discussion. An integral part of this methodology is the scheduling of the interview with the end user him/herself. Therefore, an equally important task for the

interviewer, in addition to conducting the interview, is to ascertain that it is scheduled with the appropriate person. A sample of the test interview guide is appended.

Field Test

The fourth activity undertaken was to conduct a field test of the methodology and interview schedule. The Dominican Republic was chosen to conduct data gathering interviews on a field-test basis with the understanding that these findings would be incorporated into the final report. Principal investigator for the study, Marina Fanning-Firfer and Wilbur Knerr, spent one week in the Dominican Republic in November 1981, and interviewed a total of eighteen (18) end users of NTIS-supplied scientific and technical information. In addition, interviews were conducted with personnel involved in the information distribution process at the Instituto Dominicano de Tecnologia Industrial (INDOTEC), the local NTIS distributor, and with USAID/DR Program Office. A report on the preliminary findings of this pre-test was prepared and submitted to AID and NTIS in December, 1981.

Based on this field visit, a framework for the analysis of NTIS information utilization was developed following the proposed analytic design, and the data collection methodology was revised in light of this experience. Specifically, a more detailed and comprehensive interview schedule was developed since the field test both, corroborated the appropriateness of relying on executive interviewing techniques, and provided a better gauge on how much technical specificity could be elicited, before skepticism or hostility was

raised. Both the test and the final interview guides are appended to this report.

Data Collection

Information was collected in the four other countries in the sample from January through May, 1982.

In Costa Rica, Marina Fanning-Firfer conducted interviews with twenty (20) NTIS end users for two weeks in January and February, 1982. In addition to interviews with personnel of the Centro de Informacion Tecnologica (CIT), of the Instituto Tecnologico de Costa Rica, the NTIS distribution center, interviews were conducted for information gathering purposes with the USAID/Costa Rica program office.

Together with Paul Bundick, Ms. Fanning-Firfer interviewed twenty-two (22) persons in Mexico for two weeks during February, 1982. Key personnel at INFOTEC, the NTIS distribution center were also interviewed. Additional interviews were also conducted with officials of NTIS distribution centers in the Latin America region. The latter were in Mexico attending the Annual Conference of the Director's of the NTIS Latin American Cooperating Organizations during the month of February, 1982.

During two weeks in April, 1982, Jorge M. [illegible] interviewed fifteen (15) NTIS end users in Peru. Cognizant persons at NOVOA

Ingenieros, the NTIS distribution center, were interviewed, as well as USAID/Peru personnel.

The data on NTIS end use in Colombia (24 interviews) was collected by Ms. Fanning-Firfer in May, 1982, during two weeks of field interviews. Personnel at Colciencias, the NTIS distribution center, were included in the sample, and U.S. Embassy personnel were briefed on the data collection activities and provided additional information.

Altogether, ninety-nine (99) end users were interviewed in the five countries included in the sample during the four and one-half month data collection period. Interviews were conducted over as short a time frame as possible in the countries selected to insure maximum comparability and to exclude time as an intervening variable.

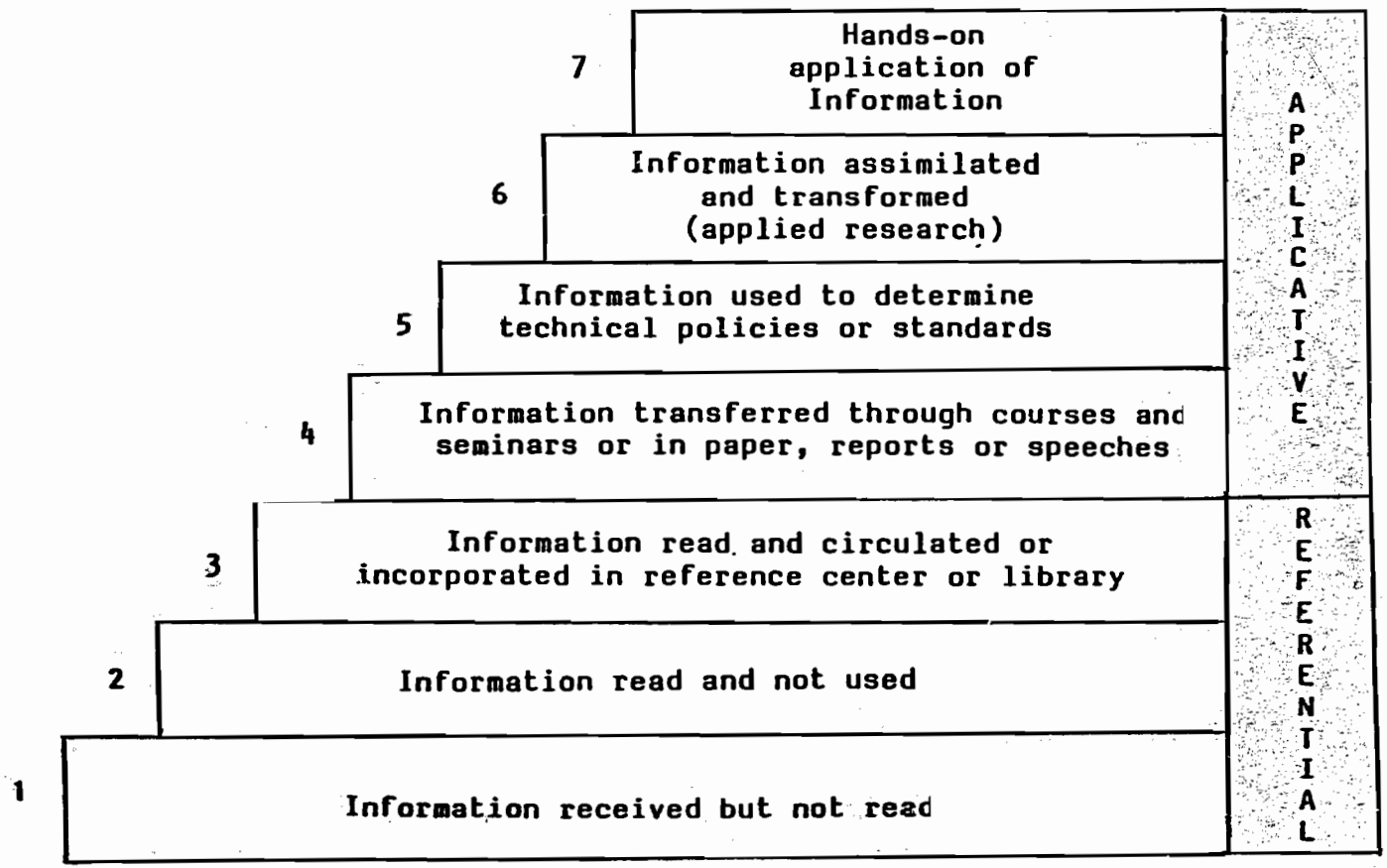
Each one of the NTIS distribution centers in the five countries studied designated a staff member to provide logistical support to the interviewers; their names are listed at the beginning of this report as field assistants to the study. They assisted in the compilation of lists of end users, scheduled interview appointments, and provided other support and information as needed.

Utilization Hierarchy

In an attempt to describe the range of uses to which information can be put, a Utilization Hierarchy composed of seven levels was developed and is depicted in the accompanying chart. At the first level, the information is received but not read. At the second level, it is read but with no specific use or purpose in mind. At the third level, the information is read with a use or purpose in mind and is stored or circulated to interested parties, often, though not necessarily, forming part of a reference center or library. At both levels two and three, the information can be considered referential, in that it serves to broaden one or several peoples' knowledge, but does not serve an operational purpose beyond serving as reference material. At the fourth, fifth, sixth, and seventh levels, the information is acted upon and is either purposively transferred or serves as a basis for the development or implementation of a specific purpose, plan or project. At these levels, the information becomes applicative.

These four levels on the Utilization Hierarchy are intended to describe and distinguish between the different uses of applied information. At the fourth level, the informaton is read and transferred to other people through courses, as part of didactic material, or through papers, reports, talks or speeches. Level five is for information that is used in the determination of technical policies or standards at the national, industrial or company level. Level six is intended to include applied information uses such as the development of a research project or the conduct of a research

UTILIZATION HIERARCHY



InterAmerica Research Associates, Inc.

experiment. Level seven is to include operational, hands-on applications or any sort, such as when someone uses the information to manufacture, build or create something.

The Utilization Hierarchy was applied to all respondents in each of the five countries. It was initially supposed that some would have received and discarded the information without reading, which proved not be the case, and it was anticipated that the majority of respondents would utilize the information for reference purposes, Levels 2 and 3. Thus, an attempt was made to distinguish between the unstructured information seeker, who was merely seeking information to keep abreast or broaden his knowledge base (Level 2), and the more systematic information gatherer, who would seek information with a purpose in mind (Level 3), the latter was intended to include information gathered to form part of a reference center or library. Specific utilization analysis of the information gathered in the five countries is detailed in Section D.

Sampling of End Users to be Interviewed

The selection of end users to be interviewed was arrived at using a stratified sample based on the following procedures and criteria. First, the distribution center in each participating country was asked to list all end users over the last two years. Users were considered for inclusion if they were known to have received a publication at least six months prior to the interview, the minimum time deemed appropriate to determine if the information solicited had been

utilized in some way. Users further than one hour away from the city limits were eliminated on grounds of relative inaccessibility. Phone calls were then made to this list of potential interviewees. Due to limited resources, only in Colombia was more than one city visited (Bogota and Medellin.)

When phone contact was made, receipt of an NTIS publication was confirmed, and the identity of the actual recipient established. (Frequently orders are placed by intermediaries, librarians, or secretaries.) Telephone contact was then attempted with the actual recipient of an NTIS publication. If it was not possible to establish contact for any reason (limited telephone service, people unavailable or out of town, etc.), the user was dropped from the list. Over 200 persons were contacted and 122 interviews were scheduled to yield the 99 interviews completed. Since actually reaching a known recipient was difficult, every effort was made to interview any that were contacted.

While this cannot be considered in the strictest sense a representative sample of all the end users of NTIS-supplied scientific and technical information, Table 1 reveals coverage of every category in which publications were ordered during 1981 by all NTIS end users in the countries studied.

Table 1

FIELDS OF INTEREST AND ACTIVITY OF END USERS INTERVIEWED

	Principal Activity	Publications Ordered
Agriculture and Rural Development	11%	19%
Construction Industry	12%	14%
Education	12%	2%
Energy	9%	18%
Environment	[illegible]	4%
Health	3%	7%
Industry	3%	17%
Telecommunications	3%	2%
Transportation	4%	4%
Urban Development	1%	4%
Water Supply and Sanitation	6%	9%
Other	3%	---

Original data compiled by InterAmerica Research Associates, Inc. November, 1981 through May, 1982.

D. FINDINGS

Characteristics of Respondents

The majority of all respondents were individuals working in private firms or industries (54%), with the balance representing descentralized or autonomous government organizations, government ministriea, universities and research institutes, and free-lance consultants and students. Table 2 gives percentages for each category. The principal activities for these organizations which has already been outlined in Table 1, encompassed Industry (33%), Construction Industry (12%), Education (12%), Agriculture and Rural Development (11%), Energy (9%), Water Supply and Sanitation (6%), Transportation (4%), Environment (3%), Health (3%) and Telecommunications (3%). The size of each organization broke down into three more or less evenly divided groups: 38% of the organizations contained less than 50 employees, 32% contained between 51 and 500 employees, and 30% contained more than 500 employees.

Only 7% of the respondents indicated they had ordered the publications for their personal use. Fifty six percent indicated they had ordered the publications in the course of their work, and 37% indicated they had ordered the publications both for their work as well as for their personal use. In the course of the interviews it became apparent that there was hesitation to classify solely as "professional use" information that had been incorporated into their personal reservoir of knowledge, and hence, was now available to them for "personal use."

This explains the 37% who felt more comfortable classifying the use of information as both professional and personal.

Table 2

TYPE OF ORGANIZATION
REPRESENTED BY RESPONDENTS

'rivate Firms/Industries	54%
Decentralized and Autonomous Organizations	14%
Universities and Research Institutes	13%
Government Ministries	11%
Non Profit Organization	5%
Consultants/Students	3%

Access and Frequency of Use

More than one-third of the users became aware of the publications ordered through the AMTID Newsletter, (Applications of Modern Technology to International Development, a bi-monthly AID-sponsored NTIS publication containing abstracts of documents felt to be useful to international development activities. Another 27% learned of the existence of the documents through contacts with the local information center, and 22% became aware through friends or colleagues.

Access	
Through AMTID	35%
Through Information Center	27%
Through friends/colleagues	22%
Library/Bibliographic lists Databases	14%
Ads in journals/professional publications	2%

Almost half of the users (48%) ordered publications between 2 and 4 times in the last year and the average turnaround time between ordering and receiving a publication was a little over two months (9.25 weeks). Almost half (43%) of the respondents indicated their willingness to pay an extra $10 dollars per publication in order to insure delivery in less than three weeks. Many, however, indicated that they had in fact paid the extra $10 only to have the publications delivered in longer than the promised time. Of those 25% who stated they would be willing to pay the extra $10 on occasion, 65% indicated they would do so when urgent and 35% when affordable.

Frequency of Use in Last year

Once	16%
2-4 times	48%
5-9 times	19%
More than 10	17%

Turnaround time for last order

Less than 3 weeks	10%
3-6 weeks	25%
6-8 weeks	20%
3 months	21%
4-6 months	17%
More than six months	1%
Never received publications ordered	6%

Willigness to pay $10 extra for 3 week delivery

Yes	43%
No	32%
Sometimes	25%

There was a clear concensus on the part of the respondents on the usefulness of the information received through NTIS. The overwhelming majority (96%) felt the information had expanded their knowledge and almost three-fourths (74%) felt the documents had covered the range of information requested and the type of resources needed. Sixty-five percent felt their need had been filled by the information received. When asked whether the information had been furnished in a timely manner, 64% agreed that it had been, and 81% felt the cost was reasonable. There was less consensus (54%) on whether the respondents felt NTIS had technical information available in all fields that would be useful to them. Some respondents indicated their frustration at their lack of knowledge of the universe available from which they could draw. A typical response was: "I don't really know what they have, I imagine they might have anything I might need... but, I don't know." Sixty-one percent felt there was enough or sufficient technical specificity in the content of the materials.

User Opinions on Usefulness of Information	Yes	No
Information expanded your knowledge	96%	4%
Information covered the range of subjects or types of resources about which you requested information	74%	26%
The information met the need for which you ordered it	65%	35%
Information was provided in an efficient and timely manner	64%	36%
The cost of the publications is reasonable	81%	19%
Material is generally available on all of the topics which would be helpful to you	54%	46%

Technical specificity

More than desired	27%
Sufficient	61%
Less than desired	12%

The areas in which the respondents were currently ordering information coincided with the areas in which they would like to receive more information. See Table 3.

Table 3

Areas of Concentration and Need

	Currently Ordering	Need Additional Information
Agriculture and Rural Development	19%	12%
Construction Industry	14%	9%
Education	2%	3%
Energy	18%	12%
Environment	4%	9%
Health	7%	2%
Industry	17%	28%
Telecomunications	2%	2%
Transportation	4%	4%
Urban Development	4%	6%
Water Supply and Sanitation	9%	9%
Other		4%

Aspects Most/Least Liked

The NTIS aspect most liked by 34% of the respondents was the very availability of the service. The fact that the users felt the service could be counted on to provide up-to-date, applicable information on a wide range of technical areas, which could not otherwise be accessed, was valued highly. The next aspect most liked by 27% of the respondents was the content of the information, that is, the way the information was developed and presented, its specificity and in-depth coverage of the subject matter, and its exposition, precision, and clarity. The fact that the information was often viewed as state-of-the-art applications which were objective, practical and relevant was also mentioned as reasons for liking the content. The next aspect most often liked by 24% of the respondents was the variety, the breadth and the scope of the information encompassed by NTIS. Only 7% mentioned searches and bibliographic materials as valued aspects, indicating a lack of awareness on the part of the end-users of the range of services offered by NTIS beyond document retrieval and AMTID distribution.

NTIS aspects most liked

Availability	34%
Content	27%
Variety	24%
Reliability	8%
Searches	7%

The NTIS aspect least liked mentioned in 27% of the responses was the delay in receiving the documents as well as the ordering process itself. Many attributed the delays, not to NTIS, but to the local information center, citing numerous examples of excessive complications, paperwork, and instances where friends or colleagues in the States had been enlisted to act as intermediaries, thereby obviating the need for the distribution center's services. Since the latter procedure was generally felt to shorten the delivery time, it was cited as proof of cumbersomeness at the information center. A further complication was the practice of some information centers to request payment in advance, which in some instances conflicted with the rules and regulations of the organizations some respondents worked for. Where advance payment was not required, the problem with delays was further compounded by floating exchange rates which in two countries recently had doubled the delivery price of the documents ordered. While the data collected from the distribution centers did in fact corroborate in some instances excessively complex ordering procedures, it also appears that there is a reluctance on the part of end users to find fault directly with NTIS, since the service is highly valued.

One respondent expressed the sentiment of many: "We are now able to access bibliographic references almost instantaneously. We have databases. We have computers. There must be a way to access the documents themselves in less than two months..."

Another aspect least liked mentioned in 26% of the responses was the lack of access to tools, indexes, listings, catalogues, etc., that would enable the users to become familiar with the full range of NTIS documents and services. Many collected the AMTID Bulletins and referred to them as if they were the compendium of NTIS documents. Comments ranged from "One does not look into certain aspects because one does not know of their existence," to "I know I can obtain much more information, but I don't have the tools to know what there is."

The next least liked aspect mentioned in 19% of the responses referred to the content of the information. Respondents expressed a desire for more information, which included specific content on Latin America, or that was of specific applicability to Latin America. One respondent stated that, while the content expanded one's knowledge, it was hard to apply because of the difference in context from developed to less developed countries. However, one respondent cited an NTIS document from Costa Rica which went into great detail on local lore and history, which was irrelevant to the information presented. Many stated that the titles were deceptive, leading one to believe the document contained information it did not. Others stated that there was not enough critical thought contained in the documents, leaving gaps on the technology reported. In some instances, the information was felt to be too basic or superficial.

However, by far the most glaring discontent in this group was voiced over what was considered the obsolescense of many documents. Particularly many publicized in the AMTID bulletin. While only 5% of the responses on least liked aspects referred to the AMTID, these comments were succinct and to the point: "There is too little information in the indexes and abstracts to know what the document contains. Some documents are too specific and others are not specific enough to be useful." Another pertinent comment was: "The abstracts do not contain enough specific information. I ordered several documents on computer programming thinking they contained specific programs. When they arrived, I was disappointed," and "I ordered a document thinking it was underwater nets for fishing and found out it was on underwater nets to capture torpedos." Yet another comment stated: "I need a lot of information for my courses, but I can't afford to take a chance on NTIS documents because the abstracts are inadequate. I need to know for sure what I'll be getting."

Ten percent of the responses on least liked aspects referred to the legibility of the content. The most frequent complaint was of blurre or otherwise illegible pages. In many instances, respondents felt th reproduction of photographs was so poor it was impossible to perceive the significance of the phenomenon they were meant to depict. Also often mentioned as illegible were charts, graphs, and formulas. One respondent cited that the reproduction process had reduced a graph in unequal proportions lengthwise and crosswise, thereby destroying its usefulness. Another mentioned the inadequacy of the binding staples

to hold the publications together through the delivery process.

And finally, 9% of the responses on the least like aspect referred to the fact that the publications were not in Spanish, and 4% felt that the price was too high.

NTIS least liked aspects

Delay and ordering process	27%
Insufficient access tools	26%
Content	19%
Illegibility	10%
Language (not in Spanish)	9%
AMTID bulletin	5%
Price	4%

Utilization of the Information

Sixty-six percent of those interviewed stated that the material received had been read not only by them, but by others in their organization, and 65% indicated that the information had been deposited in a central file or library where various people could have access to them.

Who reads information received

No one	2%
Respondent	32%
Respondent and other people	66%

Disposition of information

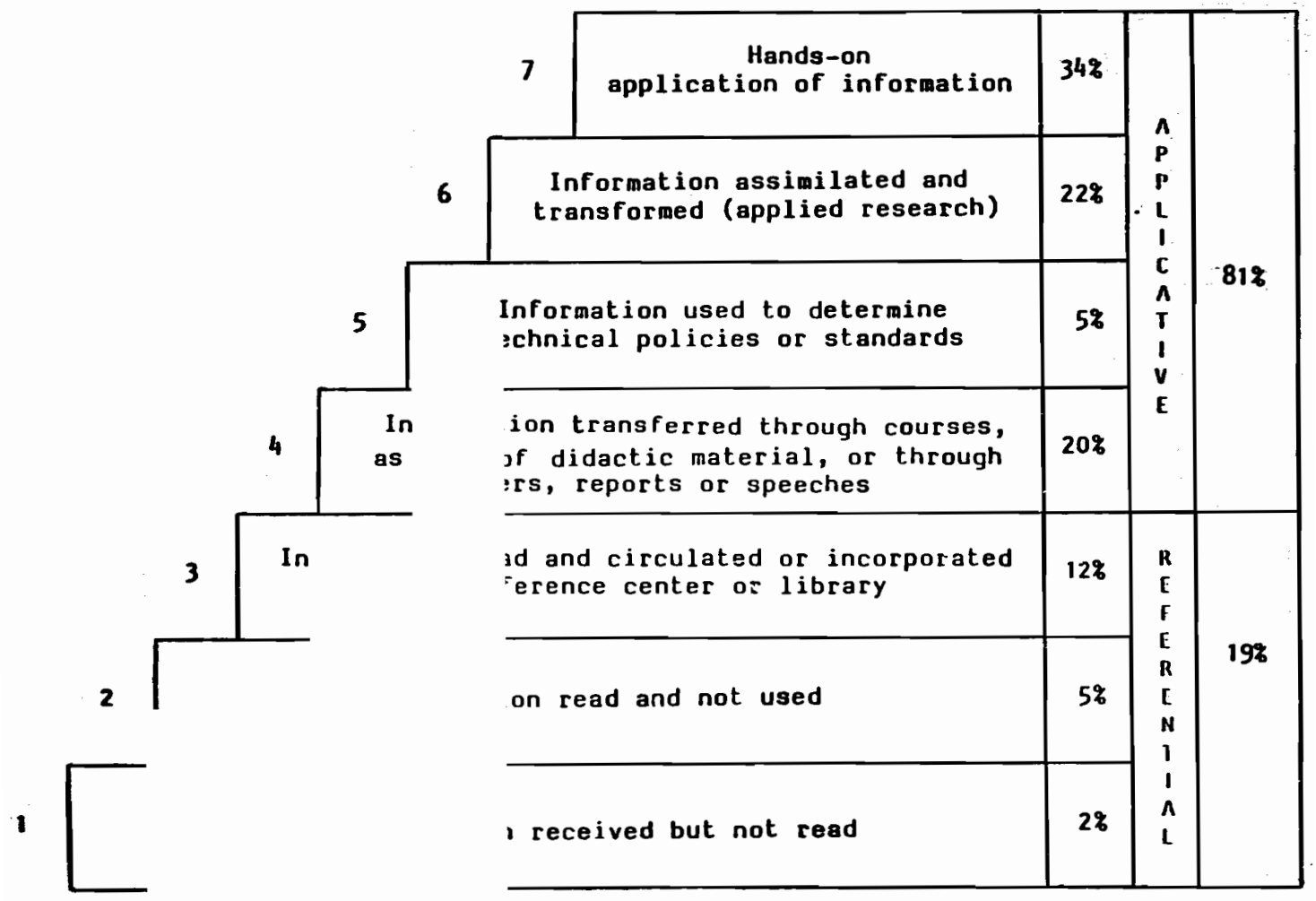
Personal files	35%
Central files/library	65%

While it had been anticipated that a majority of end users would fall into the first three levels of the Utilization Hierarchy described in Section C, this did not prove to be the case. Respondents interviewed fell overwhelmingly into the applicative category (Levels 4, 5, 6 and 7) with 81% of all respondents actually putting the information received to a specific use. Table 4 gives a detailed breakdown of the

Table 4

UTILIZATION BREAKDOWN OF NTIS-SUPPLIED INFORMATION
IN THE DOMINICAN REPUBLIC, MEXICO, COSTA RICA, COLOMBIA AND PERU

(99 Respondents)



Source: Original data collected by InterAmerica Research Associates, Inc., November, 1981 through May, 1982.

utilization of the information in the countries studied, indicating percentages by levels.

More than one-third of all respondents (34%) fell in Level 7, hands-on application of information, by far the largest group. This group comprised a wide range of operational applications in manufacturing and production. An analysis of the development implications of these applications is contained in Section E of this report. The Application Profiles Table (Table 10), gives a description of each utilization classified on this level. Twenty-two percent of all respondents fell into the next level (6), the applied research applications. This group of experimental and innovative applications is also detailed in the Application Profiles Table, and conclusions on development impact are contained in Section E. The next level (5) comprised 5% of all respondents and represented the utilizations which addressed the setting of technical policies or standards at the national, industrial, or company level. A listing of those applications which fell in this level is also outlined in Table 10. Level 4, which comprised 20% of all respondents, included all those applications in which information was transferred, without necessarily being either assimilated or transformed into new knowledge or technologies, through classes, courses or seminars; or through papers, reports, documents or in speeches. These four levels comprise the applicative utilizations of information, and collectively represent 81% of all respondents.

Levels 1 to 3 on the Utilization Hierarchy comprise the referential uses of information and collectively represent 19% of all respondents.

Twelve percent fell in Level 3, where the information received is read and circulated or incorporated in reference centers or libraries. While this information had not yet been acted upon, it was gathered by the respondent with a specific use or purpose in mind. Level 2 comprised 5% of all respondents and represented those end users which had received and read the information, but did not have a specific use or purpose in mind for accesing it. And finally, Level 1, represents those end users which had received the information but had not read it nor put it to use. Interestingly, in no case was the information received and discarded. Those users which had not read the information (only 2%), fully intended to read it as soon as they were able to. For this reason (the fact that the information had not been discarded), Level 1 was included in the referential category, since the information received was, in fact, available for reference to the respondent at a minimum.

In nine instances the respondents interviewed described more than one application. In these instances, each application was graded according to the levels described, and the highest level reached was used for coding each interview in the Utilization Hierarchy, as well as for depicting the applications.

There were no significant variations from country to country in the overall applicative and referential categories. On the lower end of the scale, Colombia had 75% of the responses in the applicative category, and Peru had 86% on the higher end of the scale, followed by

Table 5

UTILIZATION BREAKDOWN OF NTIS-SUPPLIED INFORMATION IN THE DOMINICAN REPUBLIC

(18 Respondents)

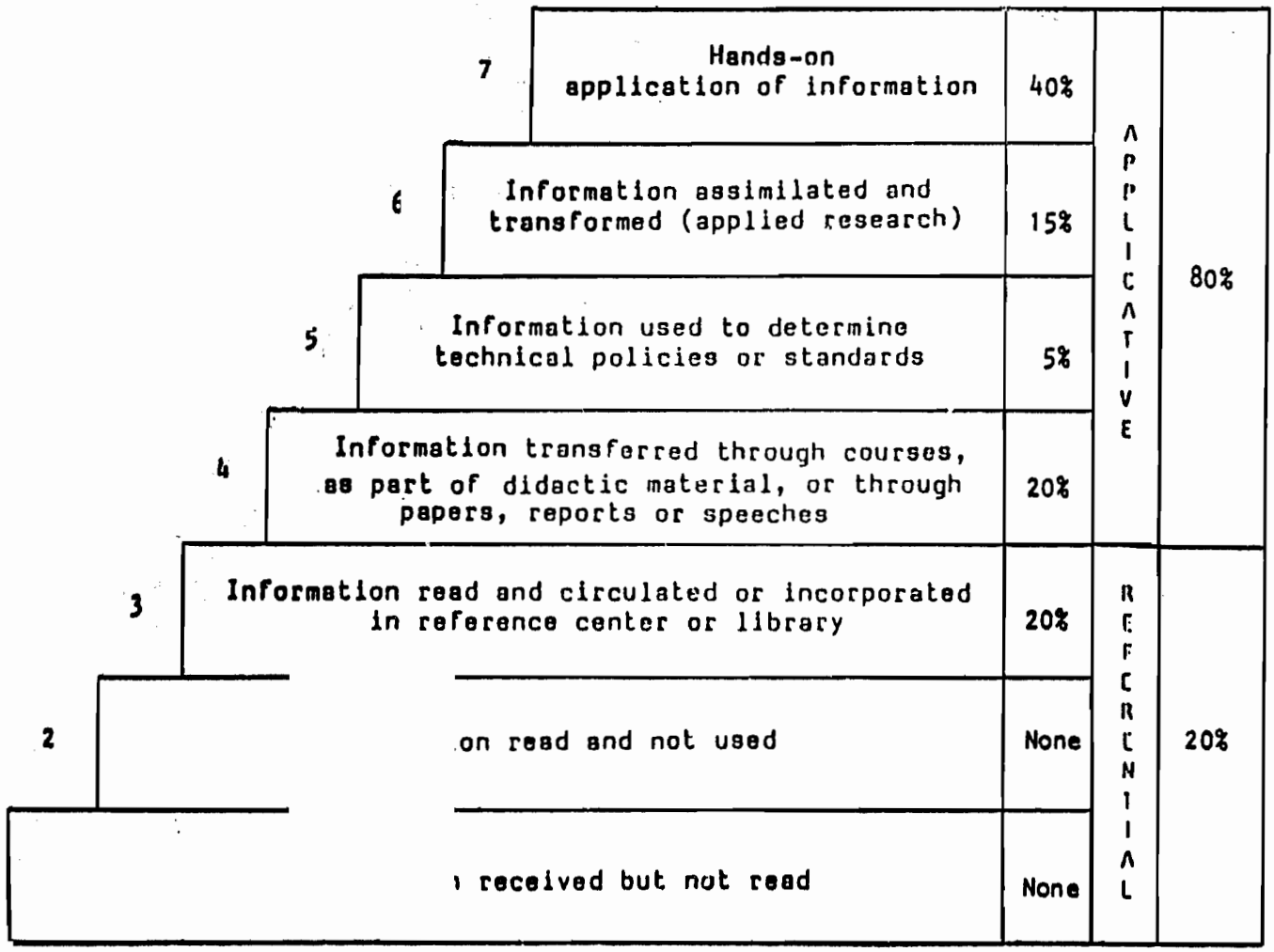
7	Hands-on application of information	50%	APPLICATIVE	84%
6	Information assimilated and transformed (applied research)	17%		
5	Information used to determine technical policies or standards	17%		
4	Information transferred through courses, as part of didactic material, or through papers, reports or speeches	None		
3	Information read and circulated or incorporated in reference center or library	5%	REFERENTIAL	16%
2	Information read and not used	11%		
1	Information received but not read	None		

Source: Original data collected by InterAmerica Research Associates, Inc., November, 1981.

Table 6

UTILIZATION BREAKDOWN OF NTIS-SUPPLIED INFORMATION IN COSTA RICA

(20 Respondents)

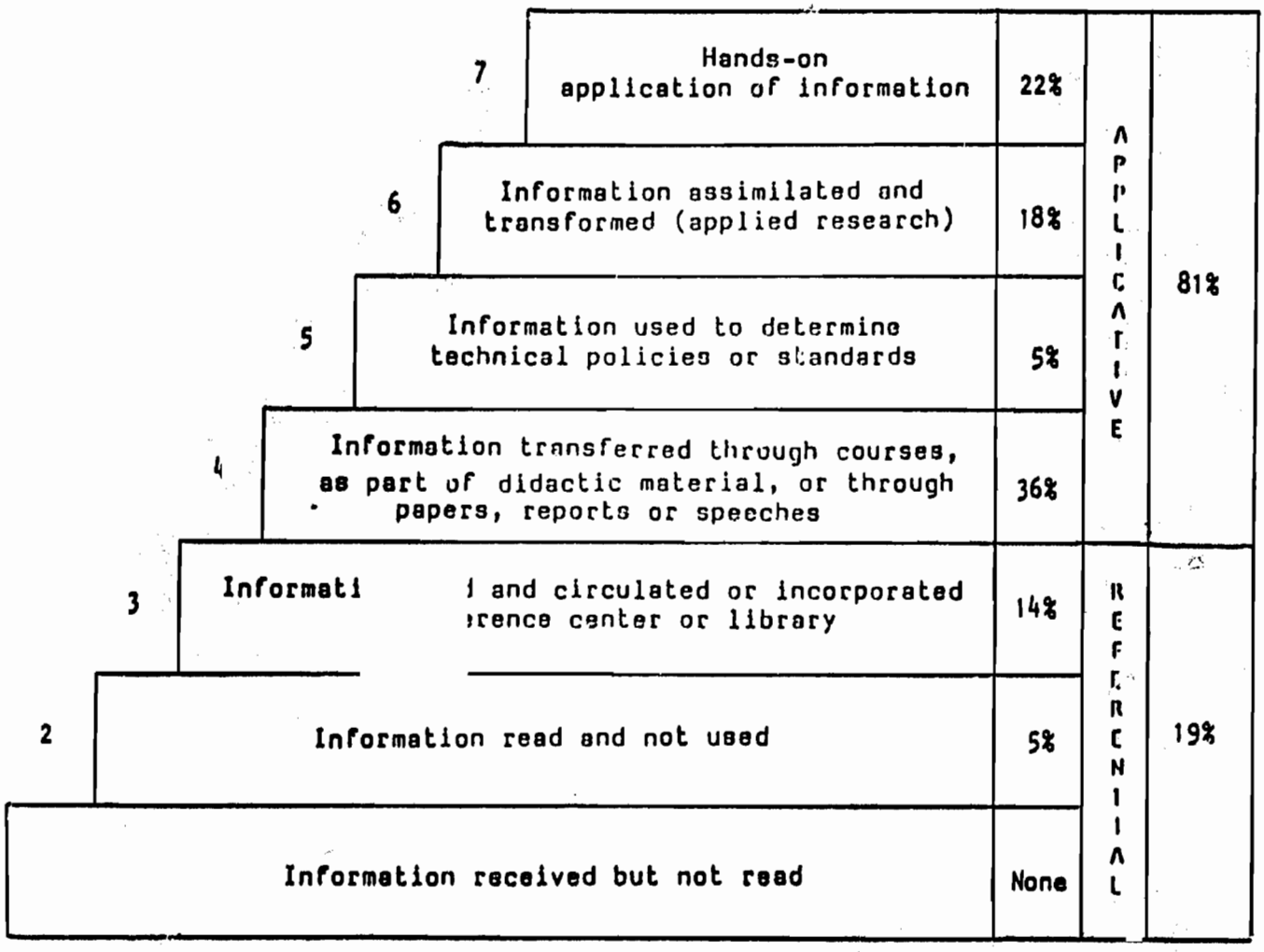


Source: Original data collected by InterAmerica Research Associates, Inc., January - February, 1982.

Table 7

UTILIZATION BREAKDOWN OF NTIS-SUPPLIED INFORMATION IN MEXICO

(22 Respondents)

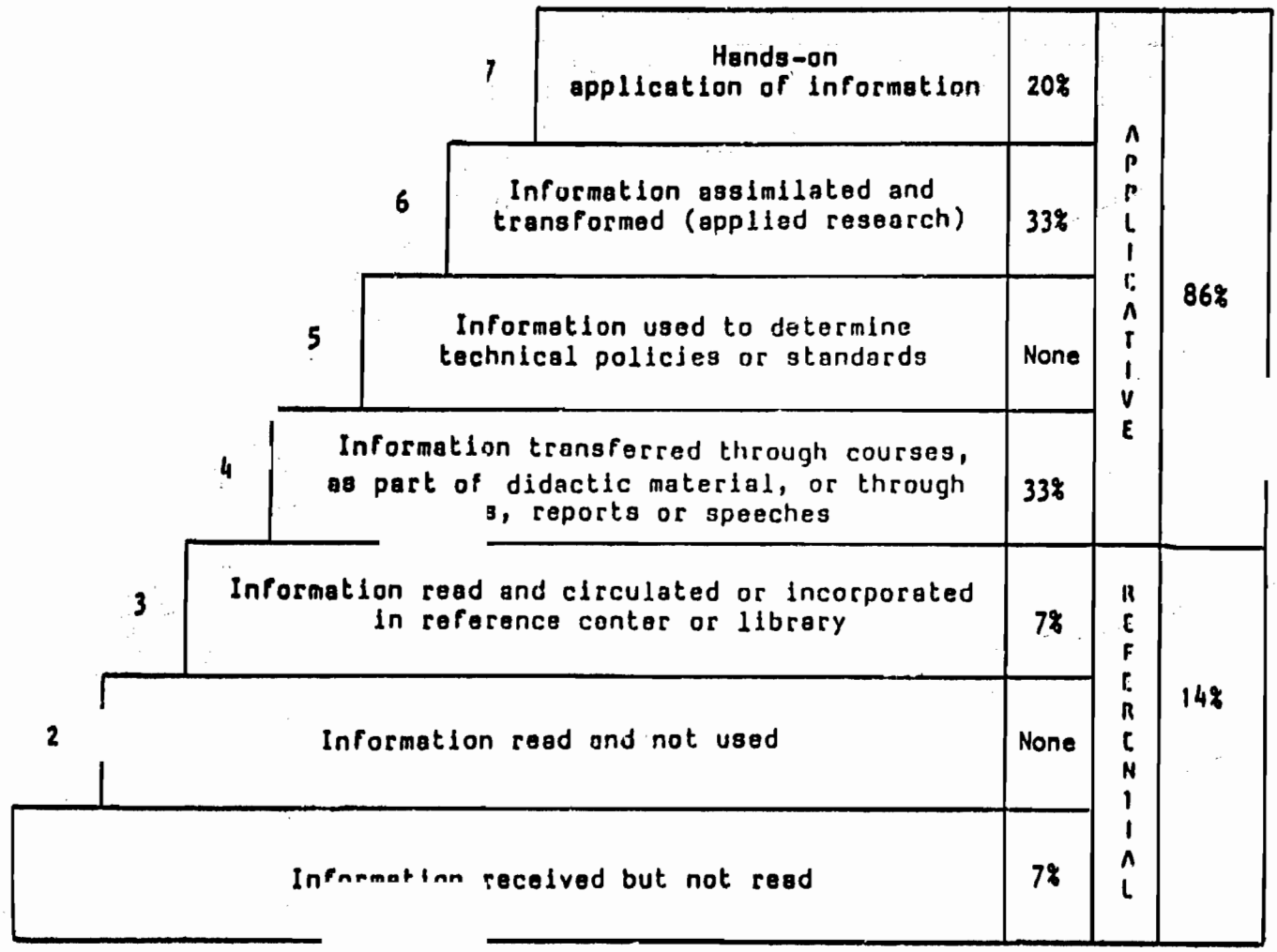


Source: Original data collected by InterAmerica Research Associates, Inc., February, 1982.

Table 8

UTILIZATION BREAKDOWN OF NTIS-SUPPLIED INFORMATION IN PERU

(15 Respondents)

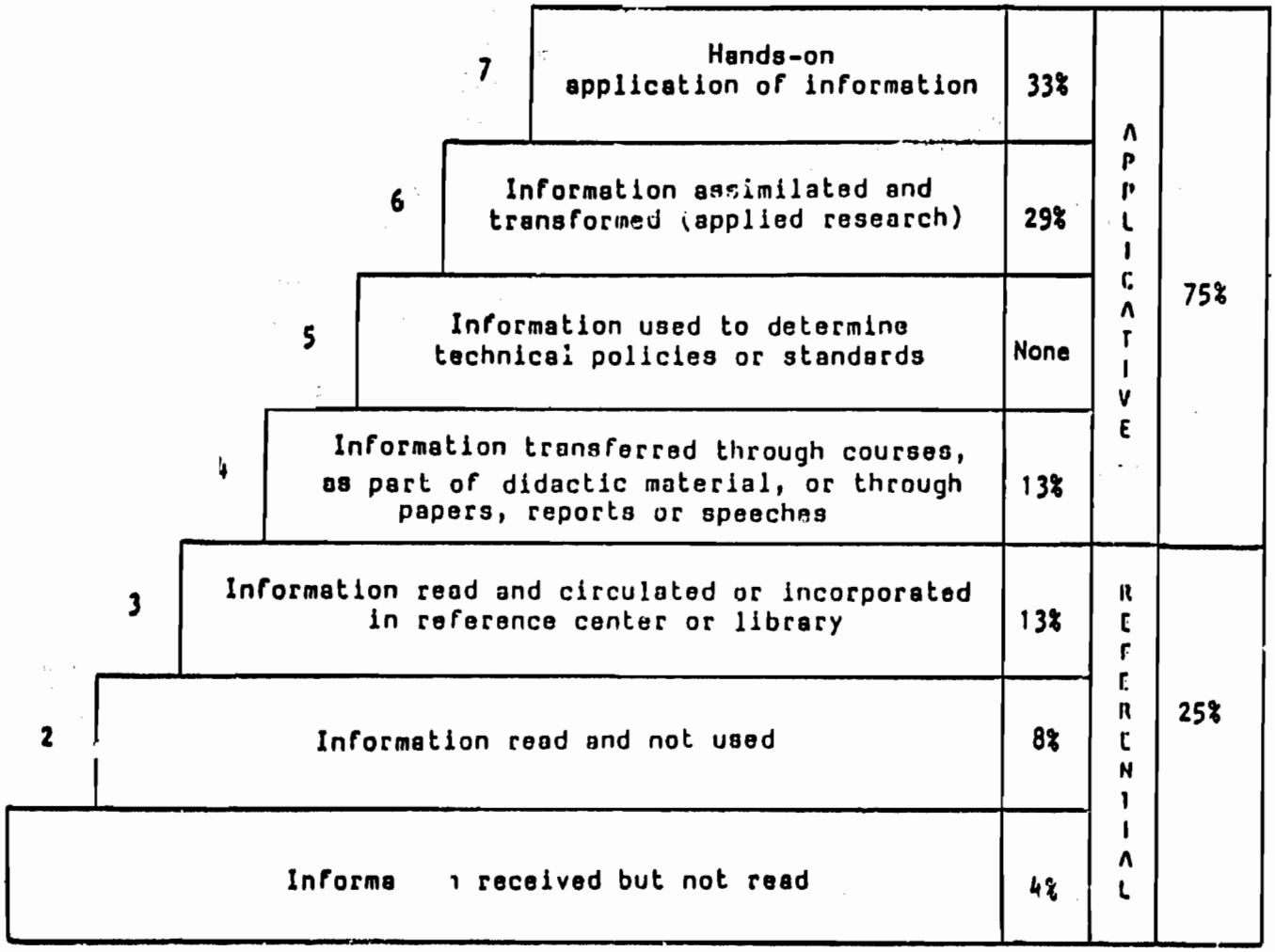


Source: Original data collected by InterAmerica Research Associates, Inc., April, 1982.

Table 9

UTILIZATION BREAKDOWN OF NTIS-SUPPLIED INFORMATION IN COLOMBIA

(24 Respondents)



Source: Original data collected by InterAmerica Research Associates, Inc., May, 1982.

the Dominican Republic with 84%, Mexico with 81%, and Costa Rica with 80%. However, there were wider variations from country to country on individual levels. The Dominican Republic had the highest percentage in Level 7 (50%), followed by Costa Rica with 40%, Colombia with 33%, Mexico with 22%, and Peru with 20%. On Level 6, Peru had the highest percentage (33%), followed by Colombia with 29%, Mexico with 18%, the Dominican Republic with 17%, and Costa Rica with 15%. On Level 5, the Dominican Republic was on the higher end of the scale with 17%, Costa Rica and Mexico both with 5% each, and Peru and Colombia having no respondents in this category. On Level 3, Costa Rica had the highest responses (20%), followed by Mexico with 14%, Colombia with 13%, Peru with 7%, and the Dominican Republic with 5%. On Level 2, the Dominican Republic had the highest respondents (11%), followed by Colombia with 8%, Mexico with 5%, and Peru and Costa Rica with none. And lastly, on Level 1, Peru and Colombia accounted for the total number of responses, the former at 7% and the latter at 4%.

Of the nine applications which were "bumped" or superceded by applications in higher levels, seven represented applications on Level 5, information used to determine technical policies or standards, and the other two represented applications on Level 6, applied research. This explains in part the low overall responses on Level 5 (5%). If we were to take utilizations as a percentage of total applications identified, instead of as a percentage of total end users interviewed, Level 5 would represent 11% of all applications. However, the overall applicative category would not fluctuate much since this rate would then come out at 82%, instead of 81%.

Of those end users who reported applications classified on Level 4, 40% felt the NTIS information had been of primary importance in their activities, and 60% felt the NTIS information had been of secondary importance. Of those users whose applications fell on Level 5, only 20% felt the NTIS information had been of primary importance. However, a majority of the respondents on Level 6 (55%) and 7 (67%) felt the information had been of primary importance.

Importance of NTIS Information

		Primary Importance	Secondary Importance
Level 4	Information transferred in reports, courses, talks, etc.	40%	60%
Level 5	Information used to set technical policies or standards	20%	80%
Level 6	Information used in applied research	55%	45%
Level 7	Hands-on applications	67%	33%

Application Profiles

Although Level 4 is part of the applicative category, application profiles were not developed for each individual utilization in this group since in all instances they represented information which had been transferred in the course of seminars, reports or talks, and it would have been necessary to interview those who had attended the seminars, read the reports, or heard the talks, in order to establish a casual link to specific applications beyond the transference itself. Table 10 indicates the specific applications each respondent detailed for Levels 5, 6 and 7. In each instance, an attempt was made to gather enough information about each specific application to develop case study application profiles. While considerable information was gathered on each application in order to classify it, the application profiles can only be considered just that, profiles and not detailed descriptions of technical processes.

The five cases in Level 5 (information used to determine technical policies or standards) have three applications relating to water quality control reflecting the strong emphasis shown throughout the upper levels of the Utilization Hierarchy for environmental issues. At the next level (information assimilated and transformed, Level 6), all but seven of the applications deal with resource utilization (water, solar energy, food production, and natural building materials). Energy applications are especially prevalent (six) in this resource area, followed by food production applications (four).

Table 10

APPLICATION PROFILES BY LEVELS IN THE INFORMATION UTILIZATION HIERARCHY

Level 5 Determining technical policies or standards	Instrument specification for petroleum refining Subject classification/accounting standards National policies on water pollution Water quality standards for distilling National policies on agricultural irrigation
Level 6 Assimilated and transformed (applied research)	Alcohol distillation from wood Aquaculture project development Harnessing solar energy to pre-heat concrete Manufacture of stainless steel flatware Software implementation system Building pre-fabricated homes Building solar homes Effect of sediment on turbine wear Use of bamboo in small scale construction Growth and reproduction of ocean crayfish Industry development of glass wool Design and development of fishing nets Hydroelectric generation from waves Microwave oven use for biomass transformation Water deflection in river control programs Home construction with earth building materials Development of training programs for small enterpreneurs Manufacture of methane gas using anaerobic filtration Solar energy collector design Experimental application of wind/solar energy design Design new products for electrical company Manufacturing process to produce glucose from starch

APPLICATION PROFILES BY LEVELS IN THE INFORMATION UTILIZATION HIERARCHY
(Cont')

Level 7

Hands-on application of information

- Time/motion application in clothing industry
- Plant lay-out and design
- Electrostatic painting process
- Marketing agro-industrial products
- Photo interpretation of remote sensing data
- Boiler operation for treatment of concrete
- Ground stabilization for asphalting
- Prevention of metal corrosion
- Satellite telecommunications for radio broadcasting
- Port utilization for loading and unloading freight
- Food production and distribution systems
- Strategic planning for commercial development/technology control
- Climatological applications to housing construction
- Fuse manufacture
- Alcohol production from wood
- Watershed management in river basins
- Contaminant control for water purification and solvent recuperation
- Watershed management for erosion and sediment control
- Water hyacinth use in water purification
- Raw materials manufacture of plastics
- Factors affecting aquaduct construction
- Multivariate analysis in statistical applications
- Use of ash in construction materials
- Manufacture of antibiotics
- Manufacture of food products
- Shrimp production
- Water distillation for fish farming
- Boiler installation
- Operating procedures for power boilers
- Animal feed production
- Publication of pharmaceuticals
- Renewable energy production of efficient burning wood

The use of materials in building infrastructure is also important in this category (six applications).

Since Level 6 deals with technological applications which have been assimilated or used in research, it is clear that the end-users of NTIS information in Latin America show strong interest in the systematic application of relevant technologies to solving energy, infrastructure, and food production problems. This is clearly borne out in the next and highest category in the hierarchy (hands-on application of information, Level 7) where 34% of the respondents gave examples of specific applications. A large number of them were related to water resource utilization and control (six). A significant number were applicable to energy conservation and resource development (four), and to food production (four). Manufacturing processes and heavy machinery operation were also found among the group of applications at this level, as well as marketing/transportation and electronic applications.

Spanish-language Materials

Since one of the alternatives NTIS has been pursuing in order to augment its holdings in Spanish has been that of introducing extant Spanish-language materials into its database, the respondents were asked whether they knew of any such technical materials, in the public domain, which would be useful to share with other Latin American institutions and colleagues. Fourty-three percent said they did know

of such materials, but the majority (57%) said they knew of none. Interestingly, almost three-fourths (74%) indicated they did not know they could in fact introduce materials into the NTIS database and almost everyone (98%) said they would be willing to recommend materials for inclusion.

AMTID

Since AMTID is the primary dissemination vehicle for publicizing NTIS documents, and since all respondents were contacted through the local information centers, the fact that only 60% of all respondents interviewed were regularly receiving the AMTID bulletins is indicative of the uneven outreach activities undertaken in the region. It would appear that often the AMTID bulletins are sent to intermediaries who do not consistently bring them to the attention of the end users themselves. In fact, in the course of setting up the interviews, particularly in the larger countries (Mexico and Colombia), the initial interview was often with an intermediary, despite telephone requests for appointments directly with the end users. In those instances, follow-up interviews had to be rescheduled.

Of those receiving the AMTID regularly, 84% stated they read each issue, further corroborating the usefulness and importance of the AMTID bulletins. Only 4% stated they barely used them and 12% indicated they read them occasionally.

When asked how valuable they thought the AMTID bulletins were, all responses indicated the end users felt the AMTID was very valuable to them. Fifty-two percent of the responses indicated AMTID was a key resource in keeping abreast of the latest information in their field of interest. An additional 10% of the responses felt it kept them informed of developments in fields other than their own. The balance

of the responses indicated that while they thought the AMTID bulletins were very valuable, they had not found much new to order lately (2%), there was not enough coverage in their field of interest (8%), the abstracts left something to be desired (4%), and some of the information was obsolete (8%), or, on occasion, too generic (8%). Some also complained of lack of regularity in the reception of the AMTID (8%).

Other Sources of Technical Information

When asked what other sources of technical information they used, 37% referred to technical books, magazines and periodicals; 20% utilized other technical information services such as the British Lending Library, Chem Abstracts and the National Institute of Health, several respondents mentioned the Soviet technical information service; 19% referred to research institutions and international organizations such as UNIDO and FAO; 13% relied on institutional libraries, and 11% utilized manufacturers and other commercial sources for technical information.

Other sources of technical information

Technical books and magazines	37%
Other information services	20%
Research Institutes and International Organizations	19%
Libraries	13%
Manufacturers and commercial sources	11%

When asked to compare NTIS publications to those received from other sources, 30% rated NTIS better than others, 50% felt they were about the same, 17% felt they were not as good, and 3% did not feel it was possible to draw a comparison. Those that thought the NTIS publications were better or not as good were asked to share their views, and 33% of those responding stated that they thought the NTIS publications were better because of their in-depth coverage of issues. An additional 15% of those responding felt NTIS information was more up-to-date, often representing state-of-the-art advances in technologies. However, 35% of the responses stated that they felt the NTIS publications were not as specific nor as specialized as some of the other information available to them. Another 8% felt the presentation was not as good, 5% felt the information was complementary, and 4% felt the NTIS information they had received was either obsolete or too basic to be useful.

Technical Information Needs

And finally, when respondents were asked what type of information, if they could access any type of technical information, would be most useful to them or to their organizations, some thoughtful responses indicated unmet needs in areas in which NTIS information can provide assistance, and some needs that are well outside of the system's ability to fill. Foremost among the former was an urgent need for information on management skills, theory, and application, as well as

for management training, which falls into the latter instance. The need for management know-how, including research management and strategic planning, was a recurring thread in interviews in all five countries. Comments ranged from "Our problem is how to determine which are the real administrative problems which interfere with our development programs. We need good methodology to determine where the problems lie." To, "We need business testimonials, experiences, case studies, testimonial proof of successes and failures." And, "It is very difficult to find someone who has survived a project and has then written up his management experience." And even more succintly, "The biggest problem we face is the problem of management."

Another recurring theme was the need for linkages between what someone may be implementing or investigating, what is on-going in that field, and where this is all leading to (new directions, new technologies), especially as this knowledge or awareness relates specifically to Latin America. Implicit in this linkage need is an unstated awareness of the important role technology tranafer can play between countries in the region, as well as a desire to benefit from the trials and experiences of similar others grappling with the same technological issues or problems. Another theme, calling for evaluations of different technologies in light of Latin American constraints and opportunities, can be placed on the linkage continuum as an unmet need, after the knowledge or awareness has been arrived at.

Yet another theme was the need for specifications and industrial standards for plant manufacturing processes. The call for up-to-date information on plant requirements and plant lay-outs was often accompanied by criticism of the information in the NTIS data bank, publicized in the AMTID bulletin, and of 1950 vintage. A component of this theme was the need for information and training in equipment maintenance, as well as for production systems and quality control procedures. A related theme addressed the need for computer programs and software systems appropriate to the region.

The agroindustrial theme voiced by respondents called for more information on the processing and marketing of agricultural products and by-products, as well as an urgent need for information and technologies on recycling wastes.

While the NTIS systems was neither designed nor should be expected to meet or address most of the needs expressed, an awareness of them can assist the information distributors and program planners in their task.

E. CONCLUSIONS AND RECOMMENDATIONS

The ability to make technological choices, to adapt and improve upon chosen techniques and products, and eventually to generate new technology, are essential aspects of the development process which are evidenced in the application profiles of the utilization of scientific and technical information supplied by NTIS in the five countries studied.

These applications are far-reaching and indicate a strong trend towards adapative transfers of technology. They run the gamut from responding to scarcity situations in the allocation of natural and energy resources, to a preocupation with developing underexploited food sources (fisheries), and expanding food production capabilities, to experimental development of infrastructure. Also evidenced is a preocupation with environmental control issues especially as they pertain to water pollution control in industrial applications and watershed management.

The large number of applications (six) in the applied research category relating to nontraditional energy technologies (solar and wind) corroborates the trend evidenced towards adaptive technology in the face of scarcity. In infrastructure development, this trend is also present and the emphasis on the use of natural building materials (bamboo, soil cement, ashes) for prefabricated housing units and other construction points towards the generation of new endogenous technologies.

In the area of management and training, the trend evidenced was for the development and implementation of more rigorous management systems and procedures, including strategic planning for commercial development and technology control, development of training programs for small entrepreneurs, and software implementation systems, each of these as adapted to the needs and constraints of the contexts in which they were to be applied.

It is in the industrial and health applications where we find the more traditional utilizations of technical information including time and motion applications, electrostatic painting processes, manufacture of stainless steel flatware and antibiotics, and boiler installations. However, even among this group, innovative technologies are evidenced, such as in the development of glass wool and experimental technologies for alcohol distillation from wood, and for the manufacture of plastics.

Thus, the major conclusion which is drawn from the evaluation of the utilization of NTIS-supplied scientific and technical information is that the exceptionally high utilization rate (81%), and the specific uses to which it is applied, demonstrate the significant actual and potential contribution of the information towards technological capacity building, and, therefore, towards development in Latin America. This conclusion is supported by the views expressed by end users, who value the availability of the information highly, as well as the expansive, in depth-coverage of subject areas, and the breadth and scope of information that can be accessed. It is also

corroborated by the fact that the majority of end users, whose applications fell into Levels 6 and 7 of the Utilization Hierarchy (applied research and hands-on applications), considered the NTIS information to have been of primary importance in their applications. As well as by the fact that 66% of the respondents indicated the NTIS material was read by more than one person, and that 65% indicated the material was subsequently deposited in a central file or library where various people could have access to it.

The principal recommendation of the study is that the NTIS network should continue to receive the support it requires, and that streamlining and strengthening in two major areas would significantly improve the service and expand its coverage. The first of these areas is the ordering process, and the second is the outreach activities.

From data gathered, both from end-users and staff of the distribution centers, it was found that very little active promoting of NTIS publications or services takes place beyond the AMTID bulletins. On the average, there is only about one full time person in each distribution center devoted to NTIS related activities, including time devoted to processing orders as well as outreach. Users expressed frustration in not knowing what the universe from which they could draw included, and there was practically no awareness of the range of NTIS services. Users expressed dissatisfaction with delays in receiving the documents, and with other aspects of the ordering process.

Specific recommendations which have been formulated and reviewed together with appropriate AID and NTIS officials are: (1) That the staff of the distribution centers, whose time is currently spent processing orders, be employed promoting NTIS services and documents, and that a system be designed which permits end users to order the publications directly from NTIS. This system could be patterned after the one successfully employed in Latin America by the British Lending Library; and UNESCO coupons, which are already accepted by NTIS, could be used to effect payment. And, (2) That the NTIS-designated distribution centers be significantly increased in number to cover more cities in a given country and more locations within large cities.

A final recommendation concerns the AMTID bulletin. While it is clearly a valued and important source for knowledge of available technical information in the region, as well as practically the only institutionalized outreach activity, the recurring, unsolicited comments on improvements it received, suggest the advisability of format and/or content changes. An AMTID-specific evaluation is recommended to yield data for the determination of specific improvements and changes to enhance and expand its distribution and utilization.

A major goal of this evaluation has been to contribute towards a more solid understanding of the usefulness of information services. The accumulation of technological capacity is at least as important to economic development as the accumulation of capital, and this

capacity, in turn, is critically dependent on access to scientific and technical information, the primary objective of the NTIS network. The data collected in the course of this study demonstrates the significant role information services and international institutions can play in the transfer of technology in the developing world, by assisting in information collection and diffusion.

INFORMACION SOBRE EL USUARIO

Razón social _____

_____

Dirección _____

_____

Teléfono _____

_____

Nombre de la persona entrevistada _____

OBSERVACIONES

I. REACCION A LA INFORMACION PROPORCIONADA

Favor de indicar la respuesta que mejor corresponde a su punto de vista sobre la información proporcionada por el Centro de Información

1. La información abarcó la gama de tópicos y recursos sobre los cuales ud. solicitó información.	1	2	3	4
2. La infrmación cubrió sus necesidades	1	2	3	4
3. La información amplió su conocimiento de los recursos disponibles	1	2	3	4
4. La información le fue proporcionada eficazmente y a tiempo	1	2	3	4

II. PLANIFICANDO PARA EL FUTURO

5. ¿Qué es lo que mas le gusta del Centro de Información?

_____ _____

_____

_____

6. ¿Qué es lo que menos le gusta del Centro de Información?

_____

_____

_____

7. Nos interesa saber mas sobre sus necesidades de información. Nos quisiera indicar cinco tópicos o áreas en las cuales usted cree que hay necesidades críticas de información.

(1)_____

(2)_____

(3)_____

(4)_____

(5)_____

III.. UTILIZACION DE LA INFORMACION PROPORCIONADA

Al contestar las siguientes preguntas, le suplicamos piense en una solicitud de información que haya usted hecho en los últimos seis meses.

8. ¿Cómo usó la información recibida?

   (1) La información no fue leida.
   (2) Sirvió como referencia general
   (3) Fue usada para desarrollar un plan de proyecto
   (4) Fue fundamental para el desarrollo del proyecto, pero el proyecto no ha sido puesto en marcha
   (5) El proyecto ha sido terminado.

_____

_____

_____

_____

9. ¿Cómo fue que usted se dió cuenta de la necesidad de esta información?

_____

_____

_____

_____

10. ¿Qué tan apropiada fue la información recibida?

_____

_____

_____

_____

11. ¿Por qué fue que solicitó usted la información del Centro y no de otra fuente?

_____

_____

_____

_____

12. Si utilizó otra información además de la proporcionada por el Centro ¿podría decirnos qué grado de utilidad (en términos relativos representó la información recibida del Centro?

_____

_____

_____

_____

COMENTARIOS ADICIONALES

12. Si utilizó otra información además de la proporcionada por el Centro ¿podría decirnos qué grado de utilidad (en términos relativos representó la información recibida del Centro?

_____

_____

_____

_____

COMENTARIOS ADICIONALES

NTIS/AID EVALUACION DE IMPACTO

Introducción

NOMBRE DEL SOLICITANTE: _____

ORGANIZACION: _____

DIRECCION: _____

_____

TELEFONO: _____

Mi nombre es _____. Estoy llamando del _____(centro) en _____(localización).

1. Nuestros archivos indican que usted o su organización han solicitado una o más publicaciones del NTIS. ¿Es así?

   (1) Sí (PASAR A LA P.2)

   (2) No (TERMINAR LA ENTREVISTA)

   (3) No sé (SOLICITAR HABLAR CON QUIEN PUDIERA SABER Y REPETIR LA INTRODUCCION)

2. ¿Fué usted el usuario de la información, es decir el que la usó? ¿o la solicitó usted para alguien más en su organización?

   (1) El entrevistado la solicitó para si mismo (PASAR INFORMACION NECESARIA AL REGISTRO DE VISITAS, LEERLE LA DESCRIPCION DEL ESTUDIO Y CONCERTAR CITA PARA LA ENTREVISTA)

   (2) El entrevistado solicitó la información para alguien más (PASAR A LA P.3)

3. ¿Para quién solicitó usted la información? ¿Cómo puedo localizarlo(a)?

   NOMBRE DEL USUARIO: _____

   CARGO: _____

   TELEFONO: _____

   PASAR LA INFORMACION AL REGISTRO DE VISITAS, LEERLE POR TELEFONO LA INTRODUCCION Y LA DESCRIPCION DEL ESTUDIO Y CONCERTAR CITA PARA LA ENTREVISTA.

Entrevista No. _____

País _____

NTIS/AID EVALUACION DE IMPACTO

Registro de Visitas CALL. RECORD SHEET

I. NOMBRE DEL USUARIO: _____

II. CARGO: _____

III. ORGANIZACION: _____

IV. DIRECCION: _____

_____

V. TELEFONO: _____

Mi nombre es _____. Estoy llamando del centro _____ en _____ (localización).

Estamos colaborando con una organización en Estados Unidos que está llevando a cabo una evaluación de la red de distribución latinoamericana del Servicio Nacional de Información Técnica de los Estados Unidos, comúnmente conocido como NTIS. NTIS es un servicio de información que distribuye información y materiales técnicos a solicitud de individuos u organizaciones. Estamos interesados en saber más sobre los usos y los fines que sirve la información distribuida, si los usuarios están satisfechos con la información y recabar sugerencias sobre mejorías en el servicio.

Una persona de Washington, D.C., _____ (nombre), se encuentra aquí en estas fechas y desería entrevistarse con usted durante unos 45 minutos para charlar sobre sus experiencias e impresiones de las publicaciones NTIS. ¿Cuándo sería posible que usted se entrevistara con el(ella)? (CONCORDAR FECHA Y HORA, CERCIORARSE DE LA DIRECCION CORRECTA Y PEDIR INDICACIONES SI ES NECESARIO -- APUNTANDOLAS EN EL REVERSO DE ESTA HOJA. DEJAR NUMERO DE TELEFONO PARA QUE LLAMEN SI HUBIESE ALGUN CAMBIO.)

CONTACTO	FECHA	HORA	ENTREVISTADOR	RESULTADOS
1				
2				
3				
4				

C = Se concertó cita
N = No hubo respuesta
X = Se concluyó la entrevista
F = La persona no cumplió con su cita
V = La persona indicada está de vacaciones
E = La persona indicada está enferma
L = No se localizó a la persona indicada
M = El entrevistado no ha utilizado materiales NTIS (inadecuado)

Entrevista No. _____

País _____

NTIS/AID EVALUACION DE IMPACTO

Usuarios INTERVIEW GUIDE

RAZON SOCIAL: _____

CIRCULE UNO:
(1) Agencia gubernamental (departamentos y ministerios)
(2) Agencia gubernamental (descentralizada)
(3) Organización comunitaria
(4) Pequeña empresa
(5) Otro ESPECIFICAR _____

Mi nombre es _____. Soy miembro de InterAmerica Research Associates, una compañía en Washington, D.C. que lleva a cabo investigaciones. Como le mencionó la persona que le llamó del centro _____, estamos llevando a cabo un estudio para evaluar el impacto de la red de distribución latinoamericana del Servicio Nacional de Información Técnica de los Estados Unidos, comúnmente conocido como NTIS. Como usted sabe, NTIS es un servicio de información que distribuye información o materiales técnicos a solicitud de individuos y organizaciones. Estamos interesados en saber más sobre los usos y los fines que sirve la información, asicomo la satisfacción de los usuarios con la información recibida. También deseamos recabar sugerencias de los usuarios sobre posibles mejorías en el servicio.

1. Para comenzar ¿me puede usted decir a qué se dedica su compañía/organización? (SONDEAR PARA DETERMINAR EL PROPOSITO O RESPONSABILIDAD PRINCIPAL DEL NEGOCIO O AGENCIA GUBERNAMENTAL)

_____

_____

_____

_____

CIRCULE UNO:

(1) Agricultura y desarrollo rural
(2) Industria de la construcción
(3) Educación
(4) Energía
(5) Medio Ambiente
(6) Salud
(7) Industria
(8) Población
(9) Telecomunicaciones
(10) Turismo
(11) Transporte
(12) Desarrollo urbano
(13) Abastecimiento de agua y salubridad
(14) Otro _____

2. ¿Cuántas personas trabajan para esta empresa/organización?

_____

3. ¿Solicitó usted las publicaciones para uso personal o como parte de su trabajo?

(1) Uso personal

(2) Parte de su trabajo

4. ¿Cómo fué que se enteró de la existencia de las publicaciones NTIS?

(1) Boletín NTIS/AMTID

(2) Boletín del centro

(3) A través de contacto directo con el centro -- visitas, actividades de promoción, etc.

(4) Por indicaciones de colegas, amigos, etc.

(5) A través de anuncios en periódicos, revistas, publicaciones profesionales, etc.

(6) Biblioteca

(7) Otro ESPECIFICAR_____

5. En el último año, ¿cuántas veces ha solicitado usted publicaciones NTIS?

(1) Nunca (TERMINAR LA ENTREVISTA)

(2) Una vez

(3) 2-4 veces

(4) 5-9 veces

(5) 10 o más veces

6. La última vez que usted solicitó una publicación NTIS, ¿cuánto tiempo tomó desde el día en que usted hizo la solicitud hasta el día que le llegó la publicación?

(1) Menos de 3 semanas

(2) 3-6 semanas

(3) 6 semanas a 2 meses

(4) Unos 3 meses

(5) 4-6 meses

(6) Mas de 6 meses

(7) Nunca la recibió

7. ¿Estaría usted dispuestos a pagar unos diez dólares más por publicación si la pudiera usted recibir en 3 semanas?

(1) Sí (PASAR A LA P.8)

(2) No

(3) Algunas veces

7a. ¿Por qué? ¿Cuándo?

_____

_____

8. En general ¿diría usted que está de acuerdo o en desacuerdo con las siguientes aseveraciones sobre las publicaciones de NTIS?:

	De acuerdo	En desacuerdo
a. La información NTIS fué proporcionada de una manera oportuna	(1)	(2)
b. La información cubrió la gama y los tipos de recursos sobre los cuales usted solicitó información	(1)	(2)
c. La información amplió sus conocimientos	(1)	(2)
d. El costo de las publicaciones es razonable	(1)	(2)
e. En general, la información que usted recibió llenó la necesidad para la cual usted la solicitó	(1)	(2)
f. Hay material disponible sobre todos los temas técnicos que le serían de utilidad a usted	(1)	(2)

9. ¿Piensa usted que la información o materiales que usted ha recibido de NTIS han sido más específicos técnicamente de lo deseado, lo suficientemente específicos, o no tan específicos como se hubiera deseado?

(1) Más específicos técnicamente de lo deseado

(2) Lo suficientemente específicos

(3) Menos específicos de lo deseado

10. ¿Qué es lo que más le gusta de NTIS?

_____

_____

_____

_____

_____

11. ¿Qué es lo que menos le gusta, o qué cambiaría usted de NTIS?

_____

_____

_____

_____

_____

12. En los últimos años ¿en qué áreas o temas ha solicitado usted información de NTIS?

a. _____

b. _____

c. _____

13. En general, ¿diría usted que las publicaciones que usted recibe de NTIS son guardadas sin leer, son leídas solamente por usted, o son compartidas y leídas por varias personas en su organización?

(1) no son leídas

(2) leídas sólo por el solicitante

(3) leídas por varias personas

14. Cuando usted termina con una publicación NTIS, ¿la guarda en sus archivos personales para algún uso futuro, pasa a formar parte de un centro de referencia o biblioteca, o tiene algún otro destino?

(1) se guarda en archivos personales para algún uso futuro

(2) pasa a formar parte de un centro de referencia o biblioteca

(3) otro ESPECIFICAR _____

15. ¿Alguna vez ha usado usted algún material NTIS como referencia y después le pasó la información a alguien más en forma escrita o verbal -- como por ejemplo, usándolo como parte de material de enseñanza o para escribir un reporte o un discurso?

(1) Sí

(2) No (PASAR A LA P.16)

15a. (SI LA CONTESTACION FUE SI) ¿De qué publicación se trataba?

_____

_____

15b. ¿Cómo la usó? (SONDEAR: ¿Como referencia para qué?)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

15c. ¿Diría usted que la información NTIS fué de importancia primaria o secundaria para usted?

(1) Importancia primaria

(2) Importancia secundaria

16. ¿Alguna vez ha usado usted información contendia en publicaciones NTIS como base para el desarrollo de normas o políticas que ha establecido su organización?

(1) Sí

(2) No (PASAR A LA P.17)

16a. (SI LA CONTESTACION FUE SI) ¿De qué publicación se trataba?

16b. ¿Cómo la usó -- es decir, qué normas o políticas fueron basadas en esta(s) publicación(es)?

16c. ¿Diría usted que la información de NTIS fué de importancia primaria o secundaria para usted?

(1) Importancia primaria

(2) Importancia secundaria

17. ¿Alguna vez ha usado usted material NTIS en investigación aplicada -- es decir, en el diseño de algún producto o proceso nuevo?

(1) Sí

(2) No (PASAR A LA P.18)

17a. (SI LA CONTESTACION FUE SI) ¿De qué publicación NTIS se trataba?

17b. ¿Cómo usó la información? (SONDEAR: ¿Cómo usó el material? ¿para investigar/diseñar qué?)

17c. ¿Diría usted que esta información fué de importancia primaria o secundaria para usted?

(1) Importancia primaria

(2) Importancia secundaria

18. ¿Alguna vez ha usado usted material o información contenida en publicaciones NTIS para llevar a cabo algo específico -- es decir, ya sea directa o indirectamente para ayudarle a hacer algo o para cambiar la manera de hacer algo? (SI ESTO HA SUCEDIDO MAS DE UNA VEZ, PEDIRLE AL ENTREVISTADO CONTESTE SOBRE EL INCIDENTE MAS SOBRESALIENTE.)

(1) Sí

(2) No (PASAR A LA P.19)

18a. (SI LA CONTESTACION FUE SI) ¿De qué publicación se trataba?

18b. ¿Cómo exactamente usó usted la información? (SONDEAR: ¿Cómo usó usted el material? ¿para hacer/cambiar qué?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

18c. ¿Diría usted que la información recibida de NTIS fué de importancia primaria o secundaria para usted?

(1) Importancia primaria

(2) Importancia secundaria

19. Si no hubiera sido posible obtener esta información del NTIS, ¿dónde habría conseguido la información? (CIRCULE TODAS LAS RESPUESTAS MENCIONADAS.)

(1) Hubiera ido a una biblioteca

(2) Me hubiera informado a través de colegas

(3) Hubiera acudido a otro servicio de información

(4) Me hubiera basado en información o recursos ya en mi poder

(5) No hubiera habido otro recurso

(6) La necesidad de esta publicación no era muy grande y no hubiera hecho gran esfuerzo para obtener información de otra fuente

(7) Otro ESPECIFICAR_____

_____

20. Estamos interesados en conocer más sobre las necesidades actuales de información para que se pueda mejorar el sistema NTIS. En su área de concentración ¿en qué temas cree usted que se necesiten materiales e información?

a. _____

b. _____

c. _____

d. _____

21. ¿Sabe usted de algún material o información disponible en español -- que no sean de editoriales o casas comerciales -- que piensa usted sería bueno incluir en el banco de datos NTIS?

(1) Sí

(2) No

22. Es posible incluir material que no sea propiedad de alguna casa comercial en el banco de datos NTIS. ¿Sabía usted ésto?

(1) Sí

(2) No

23. Si usted supiera de materiales o información que usted pensara fueran una buena adición al banco de datos NTIS ¿los sometería al NTIS con una recomendación para su inclusión?

(1) Sí (SALTAR A LA P.24)

(2) No

23a. (SI LA CONTESTACION ES NO) ¿Por qué no?

_____

_____

_____

_____

24. ¿Qué otras fuentes de información técnica utiliza usted?

_____

_____

_____

_____

25. ¿Diría usted que las publicaciones que recibe usted del NTIS son en general mejor, igual o no tan buenas como las recibidas de otras fuentes?

(1) Generalmente mejores

(2) Mas o menos igual (SALTAR A LA P.26)

(3) No tan buenas

(4) No he recibido otras (SALTAR A LA P.26)

25a. (SI GENERALMENTE MEJOR O NO TAN BUENAS) ¿Por qué cree usted que son (generalmente mejores/no tan buenas)?

_____

_____

_____

_____

26. ¿Qué mejorías o cambios cree usted que podría hacer el NTIS para mejorar su servicio y la utilidad de sus materiales para su organización?

_____

_____

_____

_____

(SALTAR A LA P.27 SI LAS MEJORIAS SUGERIDAS NO COSTARIAN DINERO.)

26a. ¿Estaría usted dispuesto a pagar más por las publicaciones para cubrir el monto de las mejorías sugeridas?

(1) SÍ (SALTAR A LA P.27)

(2) No

(3) Algunas veces (SALTAR A LA P.27)

26b. (SI LA CONTESTACION ES NO) ¿Por qué no?

27. ¿Recibe usted actualmente una subscripción al boletín AMTID, un boletín bimensual publicado por el NTIS y distribuido por el centro _____

(1) Sí

(2) No (SALTAR A LA P.28)

27a (SI LA CONTESTACION ES SI) ¿Diría usted que usa o lee cada número que recibe, que los lee ocasionalmente, o que casi no los utiliza?

(1) Usa o lee cada número

(2) Ocasionalmente

(3) Casi no los utiliza

27b. En general, ¿qué tan valioso cree usted que es el boletín AMTID?

28. Por último ..... Haciendo a un lado todo lo que hemos hablado, qué clase de información -- si usted pudiera tener acceso a cualquier tipo de información técnica -- sería la de más utilidad para usted o para su organización? (SONDEAR: ¿Qué información técnica sería la más útil para usted?)

NTIS/AID IMPACT ASSESSMENT PROJECT

INTERVIEWER INSTRUCTIONS

Interview Appointments

Upon your arrival in each country, a person from the Information Center will have to make calls to individuals that have ordered NTIS publications at least six months before your visit. They will have to determine that an NTIS publication was actually ordered, determine the end-user, and set up interview appointments for you.

For each person to be interviewed, you will receive a Call Record Sheet. Unless the appointment was made the day before, you should call to re-confirm each appointment. These brief calls can save you hours of needless driving, waiting and frustration due to broken appointments and make your valuable time in each country optimally spent.

The person from the Information Center who arranged the interview will have kept a log of all contacts with the respondents in section VI of the Call Record Sheet. You should continue this log, indicating when the interview is completed. You may use the abbreviations provided when applicable. This record-keeping is invaluable at the end of the data collection in tracking what happened to each identified end-user.

In the right-hand upper corner of the Call Record Sheet make certain that the appropriate country name is entered. Also, make certain that the user identifying information is complete and accurate and obtain any missing information. Do not fill in the blank next to Interview No. This will be filled out by the data analyst at a later time.

Conducting the Interview

Interviews shall be conducted in-person by the interviewer alone with the designated respondent, the end-user of the NTIS publication. Having other persons present during the interview lessens the rapport that can be established and studies have shown that the presence of other people during an interview alters respondents' answers.

Before leaving to conduct the interview, attach the Call Record Sheet by staple, not paper clip (they come off too easily), to a questionnaire so they do not become separated. Indicate the name of the organization from the Call Record Sheet at the top of the questionnaire and circle the appropriate organization type. If unsure, circle other and explain their function in the space provided.

At the beginning of the interview, re-explain who you are and the nature and purpose of the study. Then immediately begin asking the questions. Following are techniques to keep in mind while you are conducting these executive interviews:

1. Know the questions well and be able to ask them smoothly and in a non-judgemental manner. In an executive interviewing situation it is important to make the respondent feel he is participating in a smooth-flowing discussion, not an inquisition.

2. Ask the questions as they are worded in the interview schedule. Changes in wording produce changes in responses.

3. Ask the questions in the order they appear on the interview schedule (or as the routing indicates) as there are reasons for the order.

4. Study the skip patterns carefully so that only applicable questions are asked each respondent.

5. Read the questions slowly in order to maximize the respondent's understanding of the questions.

6. Remain neutral and do not suggest responses or lead the respondent. It is particularly difficult in executive interviewing to remain neutral because it is usually one informed, articulate person interviewing another informed, articulate person. It is imperative that the urge to be an equal contributor to the conversation or to share what you have learned from other respondents be stifled, however, as it is your function to ascertain the respondent's opinion, not to give him yours. This is not meant to imply you should be in

any way unfriendly or abrupt. Time may be taken at the end of the interview to share professional ideas, after the respondent has been guided through the interview schedule.

7. Probing. Properly used, probing is a very powerful technique to encourage the respondent to elaborate, clarify, or explain the reasons behind his response. Examples of useful neutral probes are: a) repeating the question; b) repeating the respondent's answer (it often causes him to expand upon it); c) use of the expectant pause (silence usually causes a respondent to attempt to fill the gap with additional information); and d) neutral comments or questions such as, "Anything else?", and "Why do you feel that way?" or "Any other reasons?"

8. Discourage irrelevancies. However interesting, getting side-tracked from the subject of the interview is a waste of your time and an unfair burden on the respondent's time. If the respondent wanders, firmly but politely guide him back to the question you were discussing.

Recording the Responses

The appropriate response to closed-ended questions should be circled. In cases where a respondent's answer does not fit into a listed category or you are not certain which category it fits into, circle 'other' and record the response on the lines provided. Record the response verbatim to all open-ended questions. This allows the person

doing the analysis to benefit from the 'flavor' as well as the substance of what was said.

Write legibly, for unreadable data is lost data, and edit the questionnaire as soon as possible after the interview to ensure all questions were asked and that responses were recorded completely and accurately. If a question was missed attempt to call the respondent to obtain the missing information.

A Final Reminder

Don't check the completed and blank questionnaires and related forms with your baggage; carry them with you so that in the unfortunate case your baggage is lost the irreplaceable data is not lost also.