THE PROVISION OF TECHNICAL INFORMATION AND ASSISTANCE TO DEVELOPING COUNTRIES: AN EVALUATION OF THE AID INSTITUTIONAL SUPPORT GRANT TO VOLUNTEERS IN TECHNICAL ASSISTANCE (VITA)

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> In 1959 in Schenectady, New York, a group of people who had worked in the Manhattan Project in Los Alamos met regularly for lunch to discuss social responsibility in Science. Their own role in making the atomic bomb generated a common feeling that technology was not its own justification and that it had to be socially accountable.
>
> -Henry R. Norman, Executive Director, VITA, "Volunteers in Technical Assistance and the Role of the Voluntary Agencies in Appropriate Technology," May 11, 1979

I. INTRODUCTION

From these beginnings, Volunteers in Technical Assistance (VITA) was formed to respond to the needs of individuals and institutions in developing countries for technical information, advice and know-how by connecting them with scientists, engineers and technicians who volunteer their expertise.

In the twenty-two years since VITA's beginning, a great deal has been learned and many questions have been raised about technology transfer between industrialized and developing countries. Many of these affect the efforts to provide technical assistance. Some of the most important issues of this sort are:

1. The ability or inability of science and technology to "solve" problems (termed "the technological fix" by Alvin Weinberg, Director

of the Oakridge National Laboratory and, also, formerly at Los Alamos);

2. The relationship of knowledge and technique to social, economic and political power:

3. The understanding that technologies are more than mere value-free techniques but include also systems of knowledge and institutional arrangements;

4. The style, size and complexity of technologies as they relate to socio-cultural milieu and resource base (giving rise to the "appropriate technology movement");

5. The misfit of technologies which originated in one environment when they are applied to another and the necessity for adaptation.

The arena in which VITA now finds itself is both more complex and more interesting than it was two decades ago. The original concept--that people can do things better and increase their efficiency and productivity if they have some helpful techniques to work with--is still true. But it is not enough. Technologies do more than affect the way people do things; they also affect the way people think and the latter may be even more important to development than the former.

What is VITA's response to these new perceptions and issues? How do they affect VITA's programming?

To its great credit, VITA has dealt with many of these issues from its beginning. VITA was founded to provide broader access to knowledge. Before it was the thing to do, VITA volunteers pioneered technologies which are based on local resources, can be built, maintained and operated by local people, preserve ecological balance and enable small-scale peasants and artisans to improve their circumstances through self reliance.

Nonetheless, in some of VITA's programs and in some of its transmission

of information, these issues are overlooked.

In my conversations with many VITA staff and volunteers, I found mixed reactions to the relevance of these issues. Many people were trying to consider the social and economic ramifications of a technique while, at the same time, claiming non-intervention in local cultures. It is a fine and difficult distinction.

In the pages that follow, I shall report on my findings about the various aspects of VITA's work and, also, relate these findings where appropriate to their more fundamental issues of technology transfer and technical assistance.

II. SCOPE OF WORK

The primary purpose of this evaluation as stated by AID is to: "assess the impact of what VITA has done under the Institutional Support Grant made by FVA/PVC to VITA in September of 1978." It should include: 1) an assessment of the demand for the types of services that VITA supplies under the grant; 2) a determination of the degree to which VITA's work makes an impact on users and others in LDC's; 3) consideration of other ways that the technology transfer needs of the LDC's might be met; and 4) an assessment of the efficiency of VITA as an organization.

AID further specified that the recommendations resulting from the evaluation should be designed to benefit both the programmatic effectiveness and organizational efficiency of VITA and permit direct action by VITA and AID.

The review is to focus on the four areas of VITA's work which are supported by the grant. These include Program Development and Evaluation, Library Resources, Volunteer Resources and the Technical staff.

III. METHODOLOGY

The work of this evaluation was organized in eight steps. First, discussions were held with AID staff involved in the grant to determine both what the initial objectives of the grant had been and also what are now the principal concerns of AID regarding the administration of the grant.

Second, a series of meetings and interviews with VITA staff were held so that I could understand their approach to the work supported by the grant, explore changes which have occurred over the three years of the grant and how it might change in the future, and learn their own assessment of their successes and of areas where additional effectiveness could be achieved. These meetings occurred during three separate visits to VITA headquarters in Mt. Rainier, Maryland, over the 30 days of the evaluation.

Third, I reviewed a wide variety and large number of documents produced by or provided by VITA. These included documents sent to requesters, materials written by or about volunteers and general information about VITA. Fourth, I reviewed a number of files of requests which had come to VITA for technical information. These files included the response that VITA offered to the requesters and the follow-up (if any) which resulted from this exchange of information.

Fifth, three site visits were made in Honduras to interview recipients of VITA s services as well as to observe some of the technologies promoted by VITA.

Sixth, I interviewed eleven people who have served as VITA volunteers both in person and by telephone. Seventh, further conversations were held

with AID to report on preliminary findings and, eighth, this final report was prepared.

IV. SUMMARY OF EVALUATION

In terms of the grant support received from AID, VITA performs an important, unique and helpful service to a number of people and institutions in the developing countries and meets specific needs that would not otherwise be met. Its operations are designed in an interactive and integrated way so that all aspects of the agency's work reinforce and support each other and the agency is able to utilize its experience to improve its services. AID FVA/PVC should continue to support VITA's work through an Institutional Support Grant. However, both AID and VITA need to explore ways to improve VITA's services to the poor, to women and to others outside their usual reach. This includes some additional collection of information about impact and experimentation with different transmission forms.

V. ACKNOWLEDGEMENTS

I was intrigued by this job because of my long-term involvement in the PVO community and of my continuing academic interest in and research about technology transfer. I have learned a great deal from doing it, both about the depth of commitment one continually encounters in people who work in voluntary organizations and about the practical experiences, problems and successes encountered in helping people improve their lives with technical information.

I have appreciated the generous honesty and helpfulness of the VITA

staff with whom I talked. They all gave freely of their time and made available the many pieces of information I requested. Particular thanks must go to Alice Gerlach, Brij Mathur and Helen Picard who were the most frequent recipients of my questions and requests--all of which they ably answered. Richard Fera and Allen Wyatt who accompanied me on the site-visits in Honduras also deserve special appreciation. They managed to give me the benefit of their knowledge and access while, at the same time, allowing me to probe and push independently as I would.

Finally, Dennis Baker of AID provided excellent support and reflection throughout the evaluation, helping to clarify issues without influencing findings.

VI. VITA'S PROGRAMS SUPPORTED BY THE CORE GRANT

It is difficult to separate the aspects of VITA's program which are supported by the FVA/PVC grant for evaluation as these provide the base, as should be the case for institutional support, which strengthens all other programs and on which they are built. It is also difficult to separate the grant supported program elements from each other. The various aspects of VITA's work are synergistic. While this creates an evaluator's headache, it must nonetheless be appreciated because these elements gather knowledge which is used in mutually reinforcing ways and each area is supported with resources gained in the others. The discussion which follows reflects this program integration.

A. The Inquiry Service and Documentation Center

Because the primary use of the Documentation Center is to provide

responses to people who write to the Inquiry Service, these two elements of the program must be discussed together.

At the heart of VITA is the Inquiry Service. It is here that requests for information are received and handled, either by the selection of appropriate written materials from the Documentation Center or by referral to a VITA volunteer who can provide expertise in the area. During this evaluation, I talked with a number of people involved in this part of VITA's program including the Deputy Director for Information Services who oversees this work, the six Inquiry Coordinators for each technical area, a number of VITA volunteers who have corresponded with requesters and reviewed Documentation Center materials, and people in the field who have written to VITA for information. I also reviewed 49 files of requesters, which I selected at random. From these reviews several considerations arose which are important for this evaluation.

1. Volume and Types of Requests. VITA receives an increasing number of requests each year, of which the majority (77 per cent in 1981) came from the developing country nationals. While VITA's statistics show that 2511 requests were filled last year, this does not represent the number of inquirers. This is because VITA's system of organization is to count each aspect of information which a writer requests as a separate request. That is, if one writer asks for information on rabbit farming, wind energy, terracing and cook stoves, four files will be made and each is counted as a request. This system works best for VITA because the Inquiry Coordinators each focus in certain technical areas and a request of this sort may therefore have to be handled by three or four Coordinators.

This system produces more files and more record keeping than would be necessary if files were kept on individuals. It does, however, allow each of the Coordinators to keep track of the response to his or her work and to follow up effectively if more information is required. It also allows speed of response in that one file does not have to travel from Coordinator to Coordinator before any response is ready. Of the 49 files that I reviewed, the actual number of individual requesters they represented was 34. If this very small sampling is in any way an accurate reflection of the overall response system, then we could conclude that the actual number of requesters in 1981 was 30 per cent lower than the number of inquiries answered or about 1758.

In the 49 files that I reviewed, information was sought in 37 different technical areas. The majority of these requests were at the initial and general level (2216) but a number (131) also required careful and individualized answers. The necessity of providing individualized answers has fallen over the years, from 437 in 1979 to 131 in 1981. This drop reflects several important trends. The most important is that, as answers have been compiled over the years, these have been assembled in useful "pre-packets" in the Documentation Center and these can now be sent easily and quickly as appropriate. That is, as the Documentation Center has grown and improved both with these VITA-produced materials and with others, the need to answer each general request individually has all but disappeared. VITA volunteers with whom I spoke frequently mentioned the fact that they had helped to develop these documents; after they had answered a number of inquiries in the same general

area over the years, they sat down and wrote a pamphlet based on their answers to be used for future requesters. They liked this approach because they became bored answering the same general questions time after time.

In response to each general request, therefore, VITA sends a packet of documents chosen as suitable. They also send a letter and/or a form which they have developed called "How to Request Technical Assistance," which guides the requester on ways to provide specific information about a problem if more assistance is desired. Frequently, when the requester has been simply "fishing," this is the last VITA hears from them. For those who did not know how to proceed, this form is a tool which helps them analyze their own problem and guide the response.

In response to more specialized requests, the Inquiry Coordinators either answer the question themselves based on their own knowledge, do some research and answer the request with supporting documents (copies of which are then put into the Documentation Center), or solicit help from one or more VITA volunteers who are specialists in the area required. Often, the thickest files represent the least successful answers because they reflect a broad search on the part of an Inquiry Coordinator which, in the end, may prove unsuccessful. More often such a search results in a solution for the requester, expanded knowledge on the part of the Coordinator and improved documents in the Center.

All requests, both general and specialized, keep VITA aware of trends and needs in developing countries and this, in turn, provides the basis for development of VITA's other programs.

2. Inquiry Coordinators. There is a recent trend in VITA to hire as Coordinators specialists who have training in the technical areas for which they have responsibility. This represents a change from an earlier belief that the Coordinators should be essentially "matchmakers" whose expertise was in their ability to connect a request from the field with an able volunteer who would provide the technical knowledge. As Coordinators have more knowledge of their own, they naturally rely less frequently on volunteers to answer requests. The Coordinators who have held this position the longest indicate that there has been a decline in the use of volunteers to correspond with requestars.

There is a fair amount of disagreement about whether this trend is a good one. Those who argue against it (including both VITA volunteers and staff) insist that VITA's real strength is in using the expert knowledge of volunteers and providing them with an opportunity to be of service. The professionalization of the Coordinators undermines this characteristic of VITA. They note also that those people who have technical training do not stay interested in the Coordinator's job for long, but always prefer to get into the field where they can, themselves, provide direct technical assistance. The constant and frequent change in the staff of the Inquiry Service, they feel, lessens the effectiveness of this aspect of VITA's work.

Those who support the trend feel that a technically knowledgeable person is best able to determine how to respond to a request and to provide the best answer, either using his/her own knowledge or knowing enough to know when and how to find the more specific expertise when it is needed. Some knowledge is required to assess requests and answer, they argue, and, as VITA has gained in experience, this becomes increasingly important. As it

is now, the Coordinators who are not technical experts do not get to travel to the field to see the impact of their work since they cannot provide technical assistance--a fact that creates frustration on their part and two tiers within the staff.

I was quite impressed by each of the six Inquiry Coordinators as I met with them individually to discuss their approaches to their work. While there were differences in their levels of technical training, each met the requests competently and seriously. Each has his/her own style and there seem to be advantages to each. One of the Coordinators who has the least formal "technical training" has the highest response rate from those with whom she has corresponded--70 to 80 percent! Others provide straightforward technical answers to specific problems and do not end up with as much continuing correspondence. All inevitably develop increasing expertise over time. Different technical areas require different approaches to technical competence as well--with the very style of appropriate response varying from handicrafts to mechanical engineering to agriculture to wind power. For example, it was pointed out to me that in the newer areas of solar or wind energy, a Coordinator might provide several possible responses to an inquiry offering options and differing opinions whereas in some aspects of agriculture such as nutrients required by chickens the answer is clear cut.

I heard from a number of people--VITA volunteers, people in the field and staff--that the position of Inquiry Coordinator receives less prestige than other positions in VITA. This accounts also for the high rate of staff turnover in this field. (Of the six Coordinators, two have held their positions less than six months, two have been there for 1½ years and two

are in their third year.) The position is also seen as a training or orientation level job from which people are promoted. Many people with whom I spoke thought that the Coordinator's job should be restructured so that the prestige becomes commensurate with what they see as the importance of the service provided. The problem is circular with people not staying in the job because it has low prestige and the job continuing to have low prestige because people move through it to other jobs.

In one conversation with a former Inquiry Coordinator, the idea emerged of recruiting retired VITA volunteers as Coordinators. This would provide a wealth of expertise and experience. Such people might also have travelled extensively throughout their professional lives and would not, then, be wishing to travel or find prestige identified with overseas travel. They might also enjoy the opportunity to enter into correspondence with a wide variety of people and would have networks of their own on which to draw for ideas and assistance.

It is my sense that the variety of styles and approaches represented in the Coordinators now is healthy and meets many needs. There really are several ways to do this job well, either by providing direct technical information or finding it from other sources, and neither is obviously better than the other. The centrality of the function to VITA is beyond dispute and should receive wide recognition.

3. Requesters. Who actually are the people who write to VITA for technical information? VITA's statistics show that the majority are from developing countries. Among those from these countries, 24 percent are PVO's operating there and 31 percent are individuals. Also, of these 77

percent are actually third world nationals, while 23 percent are expatriates (often U.S. volunteers or others) working in these countries.

In my interviews with the Inquiry Coordinators I asked each what proportion of requesters are women. No statistics have been kept on this and in some cases the signature of a requester does not reveal that person's gender, so staff could only make rough estimates. However, it is clear that far more men than women write to VITA for information. The proportions vary by technical area as the following estimates show:

Agriculture	1 woman out of 100 requests
Small business, Crafts Prosthetics	One-half women; one-half men
Food processing, Health, Education	1 woman out of ten requests
Energy	Vast majority are men
Water, Sanitation, Transportation, Low-cost housing	No requests from women (in about 4 months)
Mechanical Engineering	3 women out of 70 requests in 2 months

While it is not clear always who the individual requesters are in their own societies and what technical knowledge or access they already have, it is apparent that most of those people who continue to ask for and receive the more specialized information are not from the poorest segments of society. In fact, because VITA depends on the initiative of a requester before providing its services, it is clear that only those people who can write (and often those who can write in English) and who have access to knowledge that VITA even exists will come to them. The illiterate, the poorest, the least informed will never be among those who

write to VITA. Of course, among those who do write are a number of independent and poor individuals who need advice to help with some small program. More often, however, the requesters are individuals who have some technical competence already, and often some capital, either as independent entrepreneurs or within institutions. In addition, there are far more trained engineers and scientists in the developing countries than there were when VITA began and it is this group who are increasingly constituting a constituency for VITA.

These two groups of people may become transmitters of technical information from VITA so that if VITA is to reach the poorest groups, it is through these "technical transmitters" that they will do so. That is, these individuals and institutions are those who are most able to gather information from VITA and, in turn, use it or transmit it to others who will not have known how or been able to write directly to VITA.

In the site visits I made, the people with whom I talked who had used VITA's services were all of this type. One group of people taught at a rural training center in Yoro Yoro called Centro de Educacion Vocacional Evangelico y Reformado. They used VITA information as background to their own teaching and development of small scale technologies suitable for their environment. Because most of VITA's publications (of which there were many at that school) are in English, the students (many of them dropouts from formal schooling) had little access to them directly. These staff members felt that VITA's ideas were extremely useful for their use and adaptation. In some cases they expressed a wish that the technical detail be greater because all ideas had to be adapted and tinkered with to

fit local conditions in any case, and they needed more sophisticated rather than simpler materials. Simple materials, they said, should be in Spanish for the direct use of the students. One staff member, at one point, requested that VITA translate a certain useful booklet into Spanish. VITA had responded that this would be too expensive and they urged her to do so. She subsequently did translate and, in some cases, rewrote the manual to give it greater relevance to the local situation, and VITA had asked her for a copy of it. To date, she refused to send her copy unless VITA paid her for her work. This experience (and another reported below) suggests that VITA needs to find a way to use the services of people in the field who adapt and translate materials.

In Roatan, the group of people with the most direct contact with VITA were again a group of technically able men who had wanted to find a way to install better water systems on the island. VITA provided them with a small grant and good technical assistance with little red tape so that they were able to install a working windmill and connect 35-40 houses to running water. This effort with plans to build another electricity generating windmill in another location on the island will continue. But this group of middlmen will continue to be in the best position to utilize VITA's resources and information.

This case provides a good example of the synergism among VITA's programs. With money from their energy grant, VITA was able to purchase very sophisticated monitoring equipment to measure wind, pumping capacity, and water acquisition and use at the site of this newly installed windmill. This monitoring will continue for one full year so seasonal factors will

also be noted. The information from this effort will, then, be used to inform through documents about it other users of this type of windmill. VITA's technical staff is able to use this assistance project to conduct a needed piece of research the results of which it will freely and widely disseminate through its Inquiry Service and Documentation Center.

In Tegucigalpa, I met with several different kinds of users of VITA's information but, again, in each case, they were in positions which could best be termed transmission positions. One local documentation center, the Servicio de Informacion y Recursos Tecnicos of the Centro de Desarrollo Industrial (CDI), had received a great deal of help from VITA. Two of its staff people had come to Washington to VITA for training in documentation systems. They utilized a great number of VITA's documents, frequently adapting them considerably to make them suitable for local use in the rural areas of Honduras. The adaptation involved translation into Spanish, simplification of the ideas, relating the ideas to known local resources, and drawing pictures based on local objects to accompany and explain the text. The training these people had received from VITA had stressed the importance of adaptation of VITA's materials and procedures to meet local requirements--a real strength in VITA's approach. Again, in this instance, a system should be developed through which VITA can have access to the materials developed by CDI. Staff there suggested that they would like an exchange agreement by which they received credits when they supplied their materials to VITA which could be applied to their purchase of materials from VITA's publications department.

Also in Tegucigalpa I met with users of the Inquiry Service who are

members of the AID Mission staff and from one PVO operating in Honduras. In these cases, U.S. citizens were gaining information from VITA which they, in turn, passed on to others for use in local and often more basic rural settings.

VITA has a policy of answering every request which it receives. As the numbers of these continue to rise, it seems important to ask whether this policy should continue. It was clearly right to begin this way, and with VITA's commitment to extending access to technical knowledge especially to those who might otherwise not be able to get it, the attempt to answer even the most inarticulate and general question seems important. But it is a different world out there to which VITA is responding than that of 22 years ago. If more and more of the most effective users of VITA's services are in this group of transmitters of the information, should VITA decide to concentrate on these people more directly and finally begin to let some of the other requesters go? Is it time for VITA to choose among all possible requesters, either by type or by subject matter, and to specialize in some explicit ways? I asked almost everyone with whom I spoke--VITA volunteers, people in the field and staff--these questions. I found no agreement, very great reluctance to consider saying "no" to anyone, and no guidance on how to choose among the possible recipients of the information service. Certain points emerged, however, from these conversations. They are not all consistent with each other. These may be summarized as follows.

1. The most effective users of VITA's information are probably those people with some technical knowledge and some experience and/or capital

which makes it possible for them to benefit from the information. Frequently these people use the information in a way which has a spread effect, reaching beyond their own immediate advantage and helping others who are poorer and more marginal.

2. It is important to continue to provide information to the simplest requester because it is he/she who really has no alternative access to information of this kind whereas "transmitters" might well find the information elsewhere if VITA did not exist.

3. So long as VITA does not have explicit criteria for deciding among various kinds of requesters, each of the Inquiry Coordinators will have his/her own set of implicit criteria or ways of choosing to whom to give more and to whom less attention. These seem to work now, but they do differ among Coordinators. The points they make about their own decisions are:

a. They pitch their effort to the level of effort embodied in the request; if it is thoughtful and complete, they respond in kind. If it is general and vague, they send the general introductory documents but little more.

b. Well designed letterheads may be one indicator of a well organized operation which can use more information better than a scruffy letter badly written.

c. In some cases (notably in handicrafts) the requester will be someone who has been asked to write on behalf of someone who is not able to do so—for example, a schooled man for his illiterate wife, so the actual letter may not be the direct indicator of the need or interest.

d. In some cases it is clear that an especially thoughtful answer to a general inquiry has helped spark more interest and involvement and resulted in a person's using the service effectively after a vague start.

e. It is after the initial inquiry that one actually must decide whether to spend more or less time and effort on one as opposed to another inquiry. That is, in the first instance it is easy to treat all equally and still to keep up with the work. Later, some people are clearly trying to use VITA as an easy research source for them when they could afford to have it done elsewhere. At some point, this issue of being used by a less-needy person enters the Coordinator's decisions about how to proceed. They may either suggest that this person pay for the services or they may refer them directly to other sources of information. VITA's policy of requesting payment from those who may be able to pay but not levying a direct charge seems wise. Attempts to collect would become entirely unreasonable.

4. Some of VITA's presentations do bias the group who may request information. An obvious illustration of this is a gender bias. The basic information brochures about VITA's services contain photographs only of men and the great majority of technical staff and volunteers who carry out on-site consultation are men. These suggest to potential requesters that technologies are "done by men." Simple changes in presentation and aggressive recruitment of female technical staff and aggressive efforts to publicize VITA's services in the networks of developing country women's groups would change this image. This example raises the broader question:

is it possible for VITA to promote requests from certain target groups by the way it "packages" itself?

4. Evaluation. There are two levels of questions to ask in evaluating VITA's Inquiry Service and Documentation Center. First, are the services needed and useful, and second, if they are, is VITA's handling of them effective?

The answer to whether the services are useful is abundantly clear. VITA performs an invaluable service in answering inquiries for technical assistance which is not provided by any other agency in this way. Many people commented on the importance of VITA's existence as a clearinghouse which truly answers any question from anyone without regard for its own profit or for its own products. This is an important service.

Second, how good are VITA's responses to the inquiries it receives? I asked all the users with whom I spoke this question and I explored it with staff and volunteers. The evaluations which were returned in the files which I reviewed (13 out of the 49 files, or 26 percent as compared to the overall evaluation return rate for VITA of 39 percent) were also helpful. The single most common comment in praise of VITA's Inquiry Service was that it is extremely efficient and fast. VITA has reduced its response time significantly in recent years and only uses airmail for all overseas correspondence and packages. People, therefore, know quickly that their requests have been received and handled, and this can be very important in the success of the projects about which they seek information. People also appreciate the individualized answers they receive and the care given to

their particular problem, when this is what they needed.

When the technical assistance comes in the form of documents only, there is not complete agreement on quality. Many of the evaluations gave mixed reviews to the documents, indicating that some were "very useful," some only "somewhat useful," and a fairly large number "not useful at all" to their project. When a particular document is found "not useful" to many people, it is, of course, dropped. More often the problem is that the document did not suit or fit the needs of the individual requester though the same document may be helpful to someone else. This is the problem of, as one volunteer put it, "trying to meet individual needs with a general solution." There is a genuine dilemma here. The pre-packaging of responses for general inquiries meets many needs. The specificity of VITA's answers to individual requests has dropped precisely as and because VITA's resources have developed and improved. It seems only sensible to continue to accumulate experience and use it in subsequent responses. What, then, might be done to make these answers better?

One comment frequently made was that documents need to be constantly revised to represent growing experience and increasing knowledge. In some technical areas, any answer provided five years ago is, by definition, out of date. However, the answer provided five years ago may be the most appropriate one in certain settings even now. In helping people solve their own problems and adapt advice to their own needs, a document which traces the earlier efforts to solve a given problem and includes accounts of how others have adapted, worked with and changed an earlier model (as, for example, of the Arusha windmill) may be more useful than a document which simply gives a new, albeit the latest, "answer." That is, it seems that VITA's best pre-

packaged responses are those which provide the greatest insights into options and cumulative experience enabling the user to relate the options to his/her own environment and needs. VITA should increasingly attempt to construct its documents in this format, adding addenda as experience comes in rather than rewriting entirely.

Translation was named by all people interviewed in Honduras as of critical importance. VITA must find ways to provide more material in local languages. However, as I reviewed the users, I became aware of an almost bi-polar distribution in them. On the one hand is the group referred to above of technically adept people who, in most instances, requested even more sophistication and detail in the materials they receive. This group can usually read English and/or French in which most of these documents now appear. On the other hand, there is the group of poorer, often rural people who need a very simple idea, presented simply, which they can use. These materials are often transmitted from VITA to the really poor by some intermediary who receives them from VITA. It is on these that VITA should concentrate its translation efforts, using, as suggested above, the services of people in the field who have adapted and translated materials by either paying them or by offering them credits against other VITA publications in exchange.

One person commented that the copies of documents received from VITA in the field were so bad as to be illegible. Clearly, VITA must be sure that its own technology works!

A number of people wished that VITA would produce a catalogue of the technical information it provides. Simple drawings with one-paragraph

descriptions of all the kinds of information available would help prompt ideas for improvement.

One person suggested that whenever VITA News or other publications publish a picture (either drawing or photograph) of a particular device that it always include the figure of a person or some other indication of its size. Too often, he felt, people have no idea of the dimensions of the items shown.

Finally, returning to the question of who receives VITA's aid, further consideration should be given to ways in which 1) VITA can reach out into new, specified groups (such as women) to encourage them to use VITA's services as relevant and 2) materials which are produced can be designed to help the transmitters reach beyond their own interests to other users who may not themselves have direct access. These areas require imagination and experimentation, but are ones which VITA is ably suited to undertake. (See discussion below of additional research which can be undertaken to determine the impact of VITA's information in the field.)

B. VITA Volunteers

VITA has 3700 volunteers on the computer roster on whom they can call for 1) answering requests for information and advice; 2) reviewing documents and, in some cases, writing them; 3) writing for, editing and reviewing publications; 4) consultations on technical issues and 5) on-site consultancies in countries where VITA works. VITA also refers its volunteers to other agencies seeking their expertise.

The volunteers are at the core of VITA's original purpose--to link expertise in the industrialized world with needs for technical aid in the

developing world. The program to recruit, keep records on and use volunteers is supported by the Institutional Support Grant. It, also, links to and supports all other aspects of VITA's program.

1. Who the Volunteers Are. Anyone who is interested in being a VITA volunteer is registered. There are no rejections. All people who express an interest are asked to submit their resumes and to fill out a rather extensive skills sheet about their technical knowledge, experience and competence in a great variety of fields in which VITA receives requests for information. Volunteers seem to be careful and honest about their claims to expertise, seldom exaggerating their abilities. There is no other direct interview system or check on volunteers' competence, though people sent for on-site consultancies have usually been met by VITA staff.

When a volunteer is asked to correspond with a requester on a specific problem, the correspondence is routed through VITA's office (the Coordinators manage this), so that the Coordinator is able to check the information provided by the volunteer and, over time, gain a sense of his/her competence both in terms of knowledge and in terms of effectiveness of response.

2. Use Made of Volunteers. I asked the Volunteer Resources Manager, the Inquiry Coordinators, the Publications Director, the Deputy Director for Information Resources and the volunteers whom I interviewed about the ways in which volunteers are used by VITA. These volunteers had been selected because they had done overseas consulting for VITA and, in this sense, were not a representative group. (Though some had not, in fact, been overseas. See Appendix F for Summary of these conversations.) I

chose this group in order to learn their assessment of the impact of VITA's work in the field (see discussion below). VITA actually used 26 volunteer consultants in on-site roles during 1981.

In general, the volunteers with whom I spoke felt very positive about their work in the field but felt under-utilized by VITA in other ways. In particular, most felt that they had not had successful or effective experiences in correspondence with VITA requesters. Discussions with the Inquiry Coordinators indicate that on average they each use 3 or 4 volunteers per month, and that they rely on roughly 12 to 20 volunteers over the course of a year. They quite naturally develop special relationships with several volunteers in their technical fields and they, most frequently, will call on those whose experience and knowledge they respect and who they know will respond helpfully to their calls. Each also tries to reach beyond this core group on some regular basis in order to involve more volunteers. Rough estimates indicate that approximately 75 volunteers might be used each year by the Inquiry Service. Other volunteers are used to review documents, again roughly estimated at about 30 to 50. If there were no overlap among the volunteers used in the various roles during a year, the total number of volunteers used would be 151 for the Inquiry Service, Documentation Center and on-site consultancies. Other volunteers would be used in the Publications Department (I did not find out this number as the Publications are not currently supported by the core grant) and in consultations on technical issues held at the VITA offices. Others would also receive phone calls or letters from VITA asking if they were interested in positions with other agencies who request this service of VITA and/or

to be included in VITA's own bids for overseas projects. Up to 600-700 may be contacted this way in a year.

As the technical competence of the VITA staff has increased, the need to rely on volunteers for information has lessened. For example, of the 92 on-site consultances undertaken by VITA in 1981, only 26 were by volunteers and the remaining 66 by staff. This creates a dilemma for VITA because of the importance, in its original concept, of encouraging U.S. based scientists and engineers to accept responsibility for using their expertise in socially constructive ways. Further, Helen Picard, Volunteer Resources Manager, estimates that 75 percent of the volunteers used each year are among those recruited in the past two years; i.e., active use of volunteers follows their addition to the VITA lists so that earlier volunteers drop in involvement.

3. Evaluation. The volunteers themselves express extremely strong loyalty to the idea and work of VITA. They like being involved and they feel well used in the on-site consulting. The ones with whom I talked feel less well used by the Inquiry Service, though this could have been different had I interviewed people suggested by the Inquiry Coordinators.

The computerized system of recording volunteers' skills and retrieving them is superb. I conducted a mock search for a volunteer with specific skills and geographical experience and was impressed by the speed with which the names of 13 volunteers who fit my needs description and additional information on those for whom I requested it were available. The cost of this search was also minimal.

The maintenance of 3700 names in order to meet under 500 (at the most)

direct internal demands per year and perhaps 600 external requests per year is questionable. However, as I discussed this with Helen Picard, I became convinced that the difficulties of weeding the current list and of reviewing and refusing candidates who volunteer would be great and the processes costly. I would suggest that AID and other donors be careful not to interpret growth in the numbers of volunteers as the primary indication of the strength of the program, thereby pressuring VITA to show high volunteer roster statistics. The volunteer program is now well run and represents a rich resource to VITA's own work as well as to other agencies who ask VITA for recruiting help. Perhaps recruitment to the volunteer roster should be focussed only on fields in which there are scarcities of able people now and on other specific groups (such as women and other developing country personnel). Others who want to volunteer could continue to register and, as appropriate, be called upon for services. As suggested above, some volunteers may be recruited to serve in the VITA office, particularly in the Inquiry Service for extended periods of time.

C. Program Development and Evaluation

The Institutional Support Grant provided for program development and evaluation activities. Such support is important because each of the elements of VITA's core program produces data and information which can and should be used in subsequent programs.

I have seldom (perhaps never) seen an organization that is more concerned with monitoring its own work and recording its efforts. VITA has developed many quite good systems for checking the quality and recording

the quantity of its work. The Inquiry Service maintains records on all requests which allow it to determine 1) the number of separate requests it has received at any time; 2) the number of requesters at any time; 3) the countries from which requests have come; 4) how many requests have come from each country; 5) who in each country has made requests, of what sort and when; 6) how many times any one person has requested information and about what. This service also sends an evaluation form to every requester about one month after the request has been filled to find out of the material sent met the requester's needs and if he/she wishes additional assistance. Record keeping within the Volunteer Resources office is equally impressive. The Documentation Center has recently completed a major review (by volunteers and staff) of every item for accuracy and usefulness. Enclosed in many publications and documents are forms for the reader to evaluate and suggest changes in the item. VITA is impressive in its self-evaluation and self-monitoring.

Much of this effort is focussed on the programs that now exist. The information gained is also used to inform the development of new projects in the field and to help VITA determine what areas they should be moving into in the future (as, for example, the Energy Program). As the introduction to this report suggests, there are other areas where this accumulation of experience and knowledge could be used to further the ability of the world to accomplish technological development. Experience has taught us some things about the transfer and adaptation of technologies between governments and among industries across national boundaries. While much is still to be learned, there are many people interested in and working on these issues.

Very little is known, on the other hand, about how people become technologically adept. What is it that causes an individual to begin to tinker with his/her environment, or improve the tool that has always been used? What is the interaction between social and economic development and technological development? How do whole societies spur the inventiveness of their populations and encourage creativity?

As I reviewed VITA's work, one case example was repeatedly cited to me as the kind of "success story" that VITA most enjoys. There is an individual who began to write to VITA for information many years ago. Over the years, he has continued to seek information. At the same time, he has taken many VITA ideas, completely reworked and adapted them, built several small industries, passed the knowledge along, written for VITA about his own developments, and become a VITA volunteer. This person is a technologist <u>par excellence</u>. What made him become that? Did VITA help it happen? Can VITA present its information or provide its assistance in ways that more often encourage this kind of transformation? What can VITA learn from its contact over the years with many individuals around the world about how people assume knowledge and develop technique?

I would urge VITA to develop a program for testing different types of information transfer, for examining closely the "success stories" such as that cited above, and for learning from these more about the way in which technical knowledge can be disseminated more widely and more people can be made able to handle techniques. VITA is in a unique position to learn more about technology transfer at the individual or small-scale level.

VII. ISSUES SURROUNDING VITA'S WORK

A. Internal Organizational Efficiency

VITA responds to all inquiries quickly and efficiently. Documents are well catalogued and easily retrieved for use. VITA volunteer records are complete and the computerized storage and retrieval system provides ample information about volunteers rapidly. Files on these volunteers are easily accessible when more information is warranted. In other words, VITA's management is well organized and tight, and its standards are high.

I probed the various record-keeping arrangements of VITA's Inquiry Service, Volunteer Resources and Documentation Center to determine if there might be simpler and less elaborate ways to accomplish the same program or, if not the same, at least a sufficiently effective program. Each time I raised a series of questions about the current approaches and suggested alternatives, I found the staff very willing to discuss these with me. In each case, the alternatives I suggested had been considered and the rationale for maintaining the system as it now is was convincing. Frequently, the current system was relatively new, having evolved in some way from a recent other approach. The systems continue to be improved over time.

B. Efforts to Establish "VITA's" in Developing Countries

VITA has made some efforts to help other centers of technical assistance develop in third world countries, but these have not been overwhelmingly successful. In several cases, VITA has effectively trained developing country nationals in documentation systems so that they have established very good centers in their own countries (the CDI in Honduras being one example of this). This training seems to be quite good and should continue.

Underlying the intention to create other agencies such as VITA around the world is a recognition that information and knowledge are important resources for development. Control of knowledge in one place--VITA in the USA--may be questioned on these terms.

As I reviewed the advantages and disadvantages of maintaining a central knowledge clearing house vs. establishing a number of regional centers, however, I came to feel that there is an important role to be played by a central agency. If such an agency were to be replaced by regional centers, there is a high probability that less sharing of experience and information across national or regional boundaries would occur easily. Some information would be lost; more often people would have to remake the same discoveries.

Regional centers could become very important and should be encouraged in order to increase knowledge dissemination and to support efforts to extend information to more and more people. These should maintain close relationships with a central agency as well in order to facilitate the rapid transmission of the new knowledge and experience they develop.

The danger of centralized control of knowledge is overcome so long as VITA remains committed to the free provision of its information to all seekers and so long as it seeks constantly to be alert to excluded groups and to find ways of overcoming this exclusion.

C. Publications

The Publications Department of VITA receives no support from the Institutional Support Grant. It is my understanding that this reflects difficulties with copyrights under AID support of published materials.

However, the services of the Publications Department both draw on and reinforce the elements of VITA's program supported by the grant. Volunteers

work on publications; publications reflect user and volunteer experiences. Publications are developed to answer needs which are identified through the Inquiry Service. Many people who write to the Inquiry Service for information also request VITA publications.

If, therefore, there were some way to overcome copyright difficulties, it would seem logical that AID's grant should include certain aspects of the publication activities.

D. VITA's Relationship to AID

VITA has received institutional support from AID since the 1960's. This support has allowed VITA to be responsive to all requests from developing countries without having to charge the requesters. From the comments above about access to knowledge, this is clearly very important.

VITA staff generally feel very positive about the support they receive from the FVA/PVC Office staff who are involved in the grant. The only suggestion which they made regarding these relationships involves the timing of this evaluation. They felt that it would be preferable for such an evaluation to occur in time for them to use its suggestions, as appropriate, in their proposal for additional funding. I know that AID starr concur.

VIII. IMPACT OF VITA IN THE FIELD

AID expressed particular interest in learning about the actual impact in the field of VITA's Inquiry Service and documents. I, therefore, focussed on this issue in my interviews with VITA volunteers and in the site visits. I also discussed this extensively with VITA staff.

It is not easy to determine the impact of an information program. Under the FVA/PVC grant, VITA does not provide direct technical equipment

or conduct projects in developing countries. Thus, the impact in terms of equipment built or techniques implemented in the field is at least one, and often more, step(s) removed from VITA's work.

VITA volunteers, nonetheless, felt sure that the impact of VITA's work through the Inquiry Service, Documentation Center and site consultancies is significant. As one busy, highly professional volunteer said, "If I did not believe anything happened out there as a result of my work, I would not put this kind of time and effort into VITA." Another pointed out that he has worked in the development field long enough to know that progress and development are slow processes, often beginning in almost indiscernible ways and accumulating over time. He said that his work with VITA was important because he believes that the consistent long-term provision of help to people who are trying to solve their own problems is the best, though least flashy, approach to real development.

Volunteers who have carried on consistent correspondence with one or more developing country national are clearer about the impact their advice has had. Certainly, there are stories of times and places where VITA's information has been directly used and resulted in a new business, increased production, etc. On-site visits by volunteers also, they reported, allowed them to observe the usefulness of their advice.

In my own site visits, I actually saw a number of pieces of equipment and/or techniques in use which had been adapted from VITA publications and documents. In Yoro, Yoro, I saw a windmill (not working because water was not found, but with plans to move it to another location), water wheels, a charcoal kiln, a peanut shelling machine, a solar dryer and small tractors which

had either come from VITA materials or through someone's association with VITA. In Tegucigalpa, I saw a complete documentation center based on what had been learned at a VITA training session, which utilized and adapted a number of VITA documents and transmitted them to people in small businesses, in rural households and on farms.

The evaluation forms which are returned by requesters to VITA indicate a positive response to the Inquiry Service. Over the three years of this grant, these evaluations show that 35 percent of the respondents say that they are making more progress on the project about which they wrote to VITA as a result of VITA's help. Seven percent say that VITA's assistance was decisive in the way they proceeded with their project, while between 45 and 50 percent say VITA's assistance was supportive and the project would have been delayed or impaired without this assistance. Twenty-four percent say that VITA helped them make a decision about whether or not to go ahead with the project, while 28 percent say that VITA helped them improve something they were already doing. In 22 percent of the responses, people decided to do someting entirely new and different as a result of VITA's input and in 31 percent people say they were able to use a new technology more effectively as a result of this help.

There is a clear impact from VITA's work in the cases of those who report back on what happened. For the most part, the effect of VITA's information is to help people make a decision and acquire knowledge. Sometimes, the information will result in a decision not to proceed on a project and, as several people pointed out to me, this is also an important impact for VITA to have because time, effort and resources which might have been

wasted are saved for other uses. Such impacts are difficult to know about and difficult to measure. By the nature of its approach, VITA is more likely to know of its most dramatic successes because the users, in these cases, will continue to be in touch with VITA over some period of time and will report on continuing results.

The small scale, slow technology transmission to individual users who write only once remains difficult to assess. It would be fascinating to learn more about these cases because, as indicated above, it is possible that a great deal could be learned about ways to provide information more effectively. In my conversations, I discussed with several people the ways in which this information could be gathered and analyzed. It is clear that someone must spend time looking up these individual users in their own countries and talking with them about what they have done and are doing with any ideas they received from VITA. VITA staff are increasingly trying to make contact with people of this sort when they are on field trips. It is possible, also, that VITA could get additional help in a project of this sort. A doctoral candidate who is ready to write a dissertation, who has experience in developing countries and who is focussed either from an educational or technological point of view on technology transfer could well spend a year gathering data by travelling to a number of locations where VITA requesters are and trying to find out what has happened. I can think of several people who would be very able to conduct grassroots research of this kind (at the Harvard Graduate School of Education and at MIT where I have taught). The gains from such an approach might be remarkable and the opportunity for learning from VITA's years of service should not be missed.

IX. RECOMMENDATIONS

A. AID should continue to provide institutional support for VITA's work. Technical information and advice are important ingredients in development efforts and the provision of high quality information which is also free can make a significant difference in people's efforts. The service which VITA provides is, in this way, unique. The accumulation of experience and knowledge over the years are a great asset, and it is important that this program be sustained without interruption. Yet, support for this service is not apt to be forthcoming from many donors who seek immediate results. AID does a great service by supporting this basic work and should continue to do so at a level which allows VITA to respond to all requesters with the same care now taken.

B. If copyright issues can be settled, AID should consider including in its support to VITA funding for the publications which VITA produces. These publications are an integral part of the VITA information services and currently support and draw on the other elements of the VITA program.

C. AID and VITA should explore programmatic ways to pursue the issues of technology transfer at the individual level. Programs should be developed to use VITA's access and experience to 1) learn more about how individuals become technologists; 2) experiment with different forms of information provision to see which are most effective in helping people become technologically able; and 3) find ways to continue to extend its services to groups who do not now have access to them. As funds are required, AID should consider support in this area.

D. VITA should maintain its commitment to answering all requests and should find ways to increase the prestige of the Inquiry Service within its organizational structure. Materials should more often be translated into local languages when they are designed for local users, and more thought should be given to the provision of materials with greater technological detail and sophistication.

E. VITA should continue to seek new ways to utilize its volunteer resources. The reduction of volunteer involvement in answering inquiries should be offset through increased use in some new ways. Site consultations clearly are useful and these should be expanded as possible. Volunteers might also be used to help with the efforts recommended in C above, and they could be mobilized to carry on, as they travel, some of the efforts to find individual users about whom VITA knows little.

Appendix A

List of VITA Staff Interviewed by Evaluator

Henry R. Norman, Executive Director
Alice Gerlach, Deputy Executive Director and Director of Information Resources
Barbara Shumny, Controller

Brij Mathur, Deputy Director of Information Resources
Mohebat Ahdiyyih, Inquiry Coordinator
Janet Alarcon, Inquiry Coordinator
Ellie Cortez, Inquiry Coordinator
James Corven, Inquiry Coordinator and Technical Adviser
Ruth Deer, Inquiry Coordinator and Technical Adviser
John Lippert, Inquiry Coordinator and Technical Adviser

Helen Picard, Volunteer Resources Manager

Margaret Crouch, Director of Publications

Steve Hirsch, Director, Africa and Middle East
Richard Fera, Director, Latin America and Asia

Allen Wyatt, Technical Adviser

Appendix B

Report of Site Visits to VITA Projects and Requesters in Honduras

February 9 Roatan Island

Met: Glen Solomon, Governor of Roatan
Henry Brown, local supporter of windmill, water project effort

Visited: Gravel Bay, site of Dempster windmill, providing water to 35-40 households
Flower Bay, site of possible future windmill location, for electricity generation

February 10-11 Yoro Yoro, Honduras

Visited and toured Centro Educacional Vocacional Evangelico y Reformado, local rural training center for boys, connected with Association of Evangelical Churches of Honduras

Interviewed: Juan Cerrato Ortez, Director
Bob Olson, Workshop director
Kay Olson, Bookkeeper
Bob Mack, VITA volunteer currently on assignment at CEVER

Visited site of VITA windmill (not working because did not find water) and of CEVER-constructed water pump for irrigation

Observed: Lorena stove, charcoal kiln, solar food dryer, small plows manufactured by CEVER and other techniques learned or adapted from VITA documents

February 12-13, Tegucigalpa, Honduras

Met: Ray Baum, PVO Officer, AID Mission
Jan Gibboney, PVO Program, AID Mission
Val de Beausset, VITA volunteer and VITA Inquirer, currently Coordinator of Rural Technology Project, AID Mission
Peter Deiken, VITA volunteer and VITA Requester, also on RTP, AID Mission
Lenin Flores, Director of Documentation Center for Central de Desarrollo Industrial of the Programa de Tecnologias Rurales (CDI)
Julian Cruz, Technology Information Specialist, CDI
Sonia Zacapa, Translator and Writer for CDI
Antonio Ramirez, Executive Director, Save the Children Federation, Honduras
Robert Burke, Volunteer with SCF

Visited CDI and toured Documentation Center there

Appendix C

Basic Questions Asked of Recipients of VITA's Service in Site Visits

1. How have you been in touch with VITA? For how long?
2. What use have you made of VITA's services?
3. How do you feel about what VITA did for you?
   a. If information was provided, did you use it? How? Did it help?
   b. Did you use VITA's help yourself or pass it on to someone else? To whom? What did they do?
   c. Did you go back to VITA for more help?
   d. Was the level of technical information or assistance right for you?
   e. Is the general information VITA provides useful to you? For what purposes?
4. What could VITA do better for you?
5. What else would you like them to do that they don't now do?
6. What other information or technical services could you use?
7. Should VITA continue to try to answer everyone's questions and requests or should they concentrate in certain areas?

Appendix D

Summary of Review of Requester Files

Total number of files reviewed	49
Total number of requesters represented	34
Total from developing countries	33
from U.S.	1
Total number of developing countries represented	26
Total number of technical areas covered in requests	37
How learned of VITA (when indicated)	
By radio	4
VITA News	1
Percent (approx.) developing country individual	8%
developing country institution	36%
expatriate individual	28%
expatriate institution	28%
Number of returned evaluations	13
Percent of returned evaluations	27%

Appendix E

Summary of Interviews with VITA Volunteers

Total number contacted	**20**	
Number actually interviewed	11	
Number not at address given	5	
Number not reached	3	
Refused interview	1	
Duration of involement with VITA		
From beginning	2	
More than 10 years	5	
5-10 years	1	
3-5 years	1	(but not since 1979)
Within past 2 years	2	
Number of overseas consultancies for VITA		
1	2	
2	1	
3 or more	3	
0	3	
Not specified	2	
Frequency of use by Inquiry Service		
Very	4	
Seldom	3	
Once	2	
Never	1	
Not specified	1	
Review of Documents		
Have done	1	
Never have done	5	
Unknown	5	
Direct consulting with people coming to him	1	