
**REPORT ON THE EVALUATION STUDY
OF THE TRAINING FOR DEVELOPMENT PROGRAM
Contract LAC-C-1346**

**Report to
the Agency for International Development (AID)**

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Report on the Evaluation Study of the
Training for Development Program ¹

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1. This evaluation was developed for LASPAU during 1984-86. For more detailed information about the study see Tatto, M. Teresa. An Assessment of the LASPAU/AID Training for Development Program in Latin America and Caribbean Universities: Its Impact on Institutional Capacity and Community Involvement, Ed.D. Dissertation, Cambridge, Massachusetts, Harvard Graduate School of Education, March 1987. (Available in microfilm from University Microfilms International, Ann Arbor, Michigan).

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This report describes an evaluation of Training for Development, a program financed by the Agency for International Development (AID) and administered by the Latin American Scholarship Program of American Universities (LASPAU) from 1978-1986 under AID/W contract no. AID/LAC-C-1346. The purpose of this evaluation, its theoretical framework, methodology, major findings, and conclusions follow.

M. Teresa Tatto of the Harvard Graduate School of Education had over-all responsibility for the evaluation study. She conducted the research and interviewed the alumni/ae, their supervisors, and their colleagues. She also prepared this report.

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-- M. Teresa Tatto

I. TRAINING FOR DEVELOPMENT

1. Description and Goals of the Program

This evaluation report assesses the impact of one training program on institutional and community development in Latin America and the Caribbean. The Training for Development Program was developed by the Latin American Scholarship Program of American Universities (LASPAU) and sponsored by the Agency for International Development (AID) from 1978-1986. The aim of Training for Development, as stated by LASPAU and AID, was to support university-based development projects and other programs in higher education which addressed the basic needs of the rural populations they served. According to the model on which the Training for Development program is based, the effects are expected to be cumulative, and thus "impact" cannot be ascertained at any one time. This is essentially, therefore, an interim assessment.

The Training for Development Program originated from AID's mandate to create a "trained infrastructure to produce and distribute food and agricultural products, conserve valuable natural resources, provide health and human services, and develop energy sources and appropriate technology" (LASPAU-AID Training for Development Contract, 1978; p. 1). The Training for Development program called upon LASPAU to "identify and select actual and potential faculty members at Latin American and Caribbean institutions of higher education as well as professionals employed in governments of such countries and arrange graduate-level training for them" (Training for Development Project, 1983; p.10). To this end, LASPAU worked with USAID missions in Latin American and Caribbean countries, identifying the institutions and fields of study to be supported in the countries chosen for the project.

Training for Development was an AID program designed to assist Latin American and Caribbean universities to attend more competently to the development of the communities they serve. Selected institutions would be those that developed programs designed to improve the lot of the poor in each country, those whose students came from lower socio-economic levels, and where possible, those that served rural areas. Thus, USAID mission personnel and LASPAU staff selected universities to participate

in the program on the basis of a clearly demonstrated commitment to community development through outreach and other university services. USAID and LASPAU staff then determined which university-based development projects or priorities would be targeted by Training for Development. Participants were chosen from among those working in development-related fields, particularly agriculture, public health and nutrition, educational administration, and technology (LASPAU, Training for Development Evaluation Project, 1983).

Beginning in 1978, the program selected 164 faculty members (teachers, administrators, and researchers) from 23 Latin American and Caribbean post-secondary institutions, and arranged graduate training for them in U.S. universities. Faculty members chosen to participate in this program were from twelve countries: Belize, Bolivia, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Panama, and Peru. The faculty members were selected to study for master's degrees in the fields of agriculture, engineering, education, health, and social sciences, in U.S. universities between 1978 and 1983.

2. Training in the United States: An Overview

Currently, nearly 350,000 foreign students in the United States are enrolled in graduate or undergraduate programs or are studying in a wide variety of specific skills areas. While the vast majority, nearly 65%, are financed through personal or family sources, the percentage of foreign student programs arranged and financed by U.S. sources (now at 20% of the foreign student population) increased by nearly 25% during the 1986-7 academic year ("Highlights of the 1986-7 International Student Census," IIE). The remarkable increase of sponsored foreign students in recent years has occurred despite serious reservations that include, domestically, questions about the costs and benefits to the United States of sponsorship, and overseas, doubts about the political consequences of such training, and about its actual applicability and utilization

especially in developing countries (Altbach and Kelly, 1984; Arnove, 1982; Moock, 1984). Serious and valuable efforts have been made to categorize the existing research dealing with the general phenomenon of foreign study in the United States (Lulat, 1984; Maliyamkono and Wells, 1980; Spaulding and Flack, 1976; Williams, 1981). Most research has focused on the socio-psychological aspects of studying in a foreign country, on explorations of how foreign students can better adapt to their situation, and on "brain drain" issues (Fry, 1984; p. 203; Lulat, 1984; p. 300).

In recent years, research has tended to address the economic and political impact of overseas training on developed as well as developing countries. These basically quantitative approaches analyze study abroad in terms of such indicators as demand, cost (including cost-effectiveness and cost-benefit analyses), political stability, exports, etc. (Cummings, 1984; Fry, 1984; Maliyamkono and Wells, 1980). The number of studies that have investigated the impact of foreign training "are far fewer," with most having "little cumulative value for general policy" (Maliyamkono and Wells, 1980, p.17-24). In addition, existing studies address such descriptive questions as: "Do people who have obtained this training value it?" or "What happened?" rather than asking why or how it happened. Few studies provide in-depth information on the process of training abroad from the origins of a program to the moment when the participants return to their home countries, their institutions, or their communities. Likewise, little research has assessed the effect of training from the perspective of the developing country.

The guiding principle behind the provision of overseas scholarships to the developing world has been the proper allocation of opportunities in disciplines and subject matter that correspond to occupational positions in the developing countries (Moock, 1984). The basic assumption of such training-abroad programs has been that developing countries can replicate the successful experiences of change agents in the United States (Havelock, 1973), as found in land-grant colleges and universities (Anderson, 1976) and in general rural development models (Thompson, 1972).

Two basic factors make parity between university-level development efforts in the United States and Latin America and the Caribbean difficult to achieve: these are (1) discontinuities between the economic, social, political, ideological, and social development of the United States and that of developing nations, and (2) gaps between university-educated elites in developing countries, and the poor communities they are supposed to assist. In spite of these discrepancies, training or educational exchange programs have been, since the late 1950s, one of the most important programmatic expressions of U.S. foreign policy in the attempt to unify developing countries both politically and economically (Altbach and Kelly, 1984).

As these training and educational exchange programs have developed, concern has grown about how well policies have been implemented and about the programs' long-term effects on development. After approximately twenty years in which diverse efforts have been carried out, we know that training programs for developing countries can be an expensive and frustrating experience for participant countries (American Council on Education, 1982; Cummings, 1984; Fry, 1984; Maliyamkono and Wells, 1980; Moock, 1984; Williams, 1981). The problem of adjusting university curricula to the needs of foreign students has been a concern for researchers studying these programs, as well as for international sponsoring agencies and home countries (Canter, 1967; Harani, 1970; Jacqz, 1967; Kaplan, n.d.; NAFSA, 1973; Rogers, 1971). These earlier studies focused on the "irrelevance" for other countries of U.S. training in horticulture, agricultural economics, natural sciences, and business administration (Kelly, 1966; Lewis, 1967; Moravcsik, 1973; NAFSA, 1971; Ronkeng, 1969; Shearer, 1970; Stone, 1969). A few studies looked at the economic implications of foreign students for both the host country and their own countries. The general conclusions of the latter studies are controversial with respect to the gains that foreign study represents for the host country, compared to the cost of resources provided to foreign students.

The effect of foreign training programs on developing countries has been difficult to determine because most researchers have not compared

overseas training participants with those who have remained at home. Maliyamkono and Wells (1980) suggest four explanations for apparent program success accompanied by no real increase in the skills of the students: (1) training is given to people who already have possibilities for success (i.e. class advantage, a rewarding job); (2) mere attendance at the foreign institution is what counts for success (credentialism); (3) differences in motivation cause success; and (4) selection mechanisms identify the most capable individuals.

Other studies question the ways in which the effects of education traditionally have been conceptualized. For example, a study by Thurow (1974) suggests that education gives people a better opportunity in "job competition" rather than working to the benefit of their societies as a whole (Woodhall, 1981). Another study argues that education appears to increase productivity in dynamic sectors or industries, but not under conditions that are technologically static:

Would more education (schooling) as a policy prescription to developing countries increase their productivity? Or would more schooling for rural areas increase their productivity? The answer to both questions is yes, if the complementary factors that make the conditions dynamic are also provided. In brief, the effectiveness of education in increasing production depends on what goes along with it. By itself education is of little help. (Leonor 1976, p. 20; in Woodhall, 1981).

Indeed, the effects of higher education on surrounding communities have been difficult to measure. After studying a number of universities in various developing countries, Hudson (1974) found the institutions to have only weak effects on their surrounding communities. One explanation offered by Hudson is that the universities studied were located in regions that he called "open systems." In such systems, the impact of the universities may extend beyond their immediate surrounding regions and thus be missed by the analysis. An alternative explanation holds that the effect of the universities was weak due to their passive role in their region. Hudson recommends a more active role on the part of the university, and, specifically, a more direct role in the income-generating activities of the regional economy (in McGinn, 1980, p. 192-193).

Existing research has shown differences in the degree to which U.S. training is utilized, according to the region of the world from which the student comes and the level of resources and technology available there. Longer training and practical experience are preferred by most students. Some studies show that technical knowledge is more valuable upon return than abstract skills. It has also been shown that adequate communication between students, their home countries, and the U.S. institutions training them, especially regarding the understanding of training goals, is necessary in order to ensure curricular relevance to the needs of developing countries. In recent years a few studies have explored the economic implications of study abroad. Finally, another group of studies has shown the difficulty of identifying ways that education directly affects either the productivity of graduates or regional development. These studies have brought about fundamental challenges to the underlying assumptions on which foreign training programs are based.

3. The Latin American Scholarship Program of American Universities

The Latin American Scholarship Program of American Universities (LASPAU) is a nonprofit association of more than 300 institutions of higher education throughout the Americas. Established in 1964, LASPAU is affiliated with Harvard University and is governed by an inter-American board of trustees. Through a variety of specialized services, LASPAU carries out programs for several sponsors including the United States Information Agency, the Agency for International Development, and multilateral organizations such as the World Bank and the Inter-American Development Bank, as they cooperate with Latin American and Caribbean institutions seeking to assess and fulfill their educational needs. The organization also offers specialized educational consulting services to institutions both inside and outside of the Americas. LASPAU-administered awards generally support graduate training at the master's level, but some support doctoral, undergraduate, or nondegree study.

Each year, participating Latin American and Caribbean institutions are invited by LASPAU to nominate individuals whose professional ability and dedication indicate the potential to contribute significantly both to institutional and to national development. LASPAU evaluates and selects scholarship recipients for advanced training in the United States, or, increasingly, in high-caliber institutions elsewhere in the hemisphere. When necessary, LASPAU coordinates scholars' English-language studies, and then arranges for their admission to carefully chosen university programs. While scholars are enrolled in these universities or training centers, LASPAU monitors their progress and administers their scholarship funds. When scholars are about to complete their academic programs, LASPAU makes sure that their nominating home institutions have reserved faculty or staff positions to which they can return.

The evaluation and selection of scholarship recipients, as conducted by LASPAU, spans eight months, beginning with the solicitation of nominations from the participating Latin American and Caribbean universities. The process includes review of applications and supporting documents, administration of standardized tests, evaluation of candidates to determine finalists, and personal in-country interviewing of applicants.

Under LASPAU's administration, nearly all participants come to the United States for intensive English-language study before beginning their academic programs. The final objective of the English program is to meet language requirements for admission to U.S. universities. These programs generally range in duration from three weeks to seven months, although some participants must complete an entire year of English study before they are ready to pursue academic work.

LASPAU's scholar advisors supplement the academic and personal advising that the participants receive on campus. This relationship continues throughout the participants' programs in the United States. The scholar advisors assist in planning academic programs for the scholars; they also report grades to the Latin American and Caribbean

universities and monitor the participants' visa status. Scholar advisors also supervise the disbursement of allowances meant to enrich the participants' academic opportunities for such things as conferences, thesis preparation and research.

II. THE EVALUATION

1. Aims and Procedures of the Evaluation

The evaluation reported here sought to assess the impact of Training for Development on Latin American and Caribbean universities and their surrounding communities, as this impact was perceived by Training for Development alumni/ae and deans and colleagues in their home institutions.

The total population of the Training for Development program was surveyed to produce this evaluation. Specifically, the evaluation was designed to determine the current positions and functions of the returned participants; to assess institutional- and community-development activities at the participating Latin American and Caribbean institutions; to identify the factors contributing to the program's successes and failures; and, based on this information, to draw policy recommendations.

The evaluation addressed this key question: Did Training for Development achieve its goals of furthering institutional and community development? Specifically, have the internal organization of university departments, or the impact of universities upon their communities, changed as a result of changes in the skills and abilities of participants who pursued U.S. studies under the auspices of Training for Development? In other words, is the Training for Development program based on an appropriate model to achieve its goals of institutional and community development? Related questions were asked: Did the Training for Development program enhance individual professional development by providing skills that enabled graduates to be more active in their departments and communities? Were the abilities acquired by the individual participants critical to the development and community involvement of their departments? Did Training for Development provide participants with credentials giving them more power to influence departmental action? And, besides the acquisition of skills on the part of individual participants, what additional factors accounted for innovations achieved at the institutional or community level?

1.a. METHODOLOGY: The data on Training for Development alumni/ae and on the participants' U.S., Latin American, and Caribbean universities were derived from participants' files, personal interviews, and questionnaires. The central sections of the evaluation focused on a series of structured interviews (45 minutes in duration) with 54 alumni/ae, 40 supervisory personnel, and 5 faculty colleagues in 8 countries in Latin American and the Caribbean. In the course of these visits, the study coordinator also supplied a self-administered questionnaire to 23 faculty colleagues, non-participants in Training for Development. A survey questionnaire, distributed by mail, was the second major source of information: 92 alumni/ae and 25 current students (about 75% of total) returned these questionnaires.

In the LASPAU archives, the files of 164 one-time and then-current Training for Development participants were analyzed. The data uncovered was both quantitative and qualitative in nature. These files contained information on the candidate selection, length and results of English-language training programs, U.S. university placement, courses of study, degree completion, and return to the Latin American and Caribbean universities. These files represent the most direct and accurate record of the process followed by LASPAU in the implementation of the Training for Development program.

Statistical analyses were conducted on the information collected through the files and the questionnaires; content analyses of interviews and questionnaires were also carried out. Case studies were elaborated on the basis of this information, and the statistical analyses and the qualitative data were then interpreted. Some of the conclusions reached through statistical analysis are also borne out in the reports of the alumni/ae and their supervisors. Some examples of their testimony and opinions are provided in this report.

1.b. DEFINITION OF VARIABLES: The changes to be studied as a result of participation in the Training for Development program were measured as follows:

- Changes in learning -- measured by grades and academic advisors' evaluations received while participants attended U.S. universities.
- Changes in participant activities or productivity -- obtained by comparing the participants' reported time distribution in departmental and community teaching, research, administrative, and regional outreach activities, before and after the U.S. program.
- Professional status -- indicated by the positions participants held and the amount of time they worked in their departments before and after their U.S. programs.
- Institutional development within departments -- indicated by the types of intra-departmental activities by which participants address improvement of the curriculum, professional training, acquisition of technology, resource planning, and research.
- Community development -- measured by the participants' direct or indirect participation in programs designed to improve the living conditions of their communities (for example, training of local farmers).
- Organizational factors facilitating the participants' active roles in their departments and communities, measured by the number of colleagues who also have studied in the U.S. under Training for Development (generational effect), by the amount of time heads of departments have held their positions (institutional continuity) and by the infrastructure (financial, human, and material resources) upon which the institutions rely.

1.c. STATEMENT OF HYPOTHESIS: For the purposes of this study, "impact" was defined as changes and innovations within the participants' departments at the administrative, organizational, academic, and community levels. Hypothetically, the desired impact could obtain from either of two factors resulting from participation in the Training for

Development program. First, observed changes could be directly related to the enhancement of participants' personal, professional, and social abilities, as a result of their academic learning and concomitant development of professional skills. Second, the changes observed in participants' departments and communities might be a consequence of improved organizational responses. In other words, the participants might serve only as catalysts to dynamic department chairpersons committed to social change. It is conceivable too, that individual participants could have but limited impact on their own, but that a critical mass of individuals trained abroad and returning to their home institutions with generally compatible and cohesive projects could have a great effect. Change might then be a result of having an adequate infrastructure available to allow the successful implementation of these projects.

On the basis of the stated hypothesis, the following specific questions were explored:

- Did the Training for Development program enhance individual professional development by providing skills which made returned participants more active in their departments and communities? Were the skills that participants acquired critical to the departments' efforts at institutional development and community involvement?
- Did the Training for Development program provide participants with credentials allowing them to have more power to influence action?
- Other than the personal and professional development of participants who received U.S. training, what additional factors account for innovations in the departmental organization and community involvement?

Two possible outcomes were defined, in order to determine whether the

Training for Development program achieved its expected impact: first, improvement in the departments' institutional development as a result of the returned participants' activities; and secondly, increased involvement by the departments in community activities as a result of the participants' reported intervention. Congruence between the participants' reported activities, and the reported innovations in the respective departments and communities, was the main criterion used to determine a positive correlation between the participants' and departments' innovations.

1.d. EVALUATION DESIGN AND LIMITATIONS: The evaluation of the Training for Development program was carried out between April 1984 and April 1986. The design used in this study is known as the "after-only or ex-post-facto design" (Weiss, 1972, p. 75). This design has an inherent weakness in its failure to control for many possible rival explanations about observed changes. Given the characteristics of the program, the procedures for scholar selection, and the time limitations restricting this evaluation, no other design was possible. Several strategies were followed in order to ensure the validity of the results:

- Participants' files were evaluated for information concerning their productivity prior to participation in the Training for Development program, as well as for information about their performance at their U.S. universities.

- Data collection spanned two stages of the program; 80 percent of participants surveyed were alumni/ae, and 20 percent were still receiving U.S. training at the time of the study.

- Interviews with colleagues who did not participate in Training for Development permitted an assessment of differences between the degree of achievement and skills acquired by Training for Development participants and the skill level of non-participants.

This evaluative study is subject to important limitations, firstly because the universe in this program is small (164), making it difficult to use powerful statistical techniques. In spite of this limitation, the study is methodologically sound. Secondly, the characteristics of the ex-post-facto design with no control group, dictate that the results of this study should be used cautiously when referring to other populations or programs of this type. The results are applicable, however, to the evaluation of similar programs and the formulation of recommendations for their improvement.

2. Overview of Evaluation Findings

The evaluation provided information about two central aspects of the program: its general characteristics, and the experiences of participants upon returning home.

2.a. GENERAL CHARACTERISTICS OF PROGRAM IMPLEMENTATION:

The participants:

- The population served by Training for Development was a "high-risk" group when compared to most recipients of U.S. government-sponsored scholarships either inside or outside of the Americas. They came from provincial universities not known for the quality of their scholarship. Selected primarily for their roles in furthering regional development, these were not members of an academic elite with prior foreign-language training, and it was a rare participant who had any command of English before being offered an award and coming to the United States. In all, 176 individuals were offered scholarships, but only 164 awards were accepted, as 12 individuals declined their awards between the time they were interviewed and their scheduled arrival in the United States. Of the 164 individuals who accepted their awards, 21 left the program between the time of their selection and their projected

graduation dates. Most of these participants who did not complete their programs (11) dropped out during their English training because of difficulty in managing the language. The other 10 withdrew for a variety of personal, academic, and financial reasons.

- In spite of their backgrounds, which are atypical of foreign graduate students in the United States, most of the participants (90%) performed well in both their English and academic programs, suggesting at least adequate preparation for U.S. university study.

The participants' academic work in the United States:

- Training for Development participants were more heavily concentrated in the fields of agriculture, engineering, and education, than in the social or health sciences.
- A considerable percentage of the participants (62%) were involved in thesis work, indicating the research orientation of a majority of their academic programs.
- The findings suggest that participants did not have realistic expectations about U.S. graduate education prior to receiving training, nor were they adequately prepared to assess the relationship between the specific programs in which they were placed and the needs of their home universities. Of the 54 alumni/ae interviewed, 50% expressed satisfaction with the type of U.S. university program to which they were assigned by LASPAU. However, they suggested that if at all possible, future scholars and their sponsoring home universities should participate more fully in the selection of U.S. university programs. The other 50% said that their U.S. academic experiences were not wholly adequate when the needs of their home universities were taken into consideration. This discrepancy had unfavorable consequences upon their return, especially with regard to their departments' development plans. Such reports suggest, primarily, that academic

experiences in U.S. universities have not been perceived as useful by some Latin American and Caribbean professionals who received such training, and that at a minimum, the prior expectations of participants selected for U.S. training should be more adequately addressed.

- In general, the alumni/ae acknowledged that their English and academic programs were of good quality and that U.S. university faculty members, especially their academic advisors, were a determining factor in the success or failure of their programs.
- The alumni/ae reported that courses, advanced technology, training opportunities, and readings all served to increase their knowledge in their areas of specialization. Workshops, meetings with other Training for Development participants while in the United States, sponsored conferences, and contact with LASPAU personnel and other international agencies also were mentioned as enriching experiences. Such activities were viewed as important factors providing a coherent framework to the alumni/ae's U.S. experiences, linking participants with their future roles in their home universities.

2.b. ALUMNI/AE ACTIVITIES AFTER RETURNING HOME:

The alumni/ae described the impact of their activities on their home university departments and their communities, and enumerating various factors affecting these activities, as follows:

- At the time of the survey, of the 138 participants who successfully had completed or continued to participate in the program, 60% (81) were employed by their home universities, 25% (35) were finishing their U.S. studies, and 15% (21) had finished their programs but were no longer working in their sponsoring home universities. Of the 22 participants not working in their sponsoring universities, 61% (12) were employed in other

universities in their countries, 22% (5) had continued their studies toward doctoral degrees in the United States with the promise of eventually returning home at the completion of their studies, 9% (3) were working in private educational institutes, and 2 were engaged in occupations not related to education.

- Alumni/ae allocated more time to research, administrative activities, and regional outreach activities upon return to their countries than they had before studying in the United States. On the other hand, most alumni/ae dedicated the same or less time to teaching activities after their return than they had previously.

- After return from the United States, the professional status of alumni/ae improved in terms of higher pay, offers of full-time positions, and for a few of them, promotion to administrative positions.

- The scarcity of economic and human resources in home universities was cited by alumni/ae as an important factor that impeded change and made it difficult for participants to apply their U.S. training. Nevertheless, sympathetic home-university officials and national and international economic, material, and technical assistance programs positively affected the ways in which alumni/ae were able to initiate changes in their departments and communities.

- The training of the alumni/ae in master's programs made an important difference in the level of support for innovations proposed by them in their departments and their communities. Alumni/ae made the most significant contributions to innovations in their departments through research, administration, and outreach activities.

- Alumni/ae have taken up the greatest degree of community activity where their university departments have the necessary

economic, material, and human resources to support them. In such cases, alumni/ae have played roles in regional outreach activities by serving as links between the universities and their regions, which they have done by introducing new technologies and by performing research and administrative activities.

3. Evaluation Findings in Detail

3.a. IMPACT ON THE PRODUCTIVITY OF ALUMNI/AE: Upon return to the home universities, the effects of training in U.S. graduate programs (i.e., learning) had a direct influence on the alumni/ae's dedication to regional outreach activities (i.e., participants' productivity). Regional outreach activities were defined by the alumni/ae themselves as all those activities that did not constitute formal teaching, research, or administrative functions, but rather required direct involvement with the respective region. Such activities include applying technical skills toward community projects, implementing community projects, involving local institutions in joint projects with the universities, and carrying out various extension activities.

Those teaching were moderately active in their departments' development activities and had implemented pedagogical or administrative innovations regardless of the percentage of time they dedicated to teaching. Those faculty members who increased the time they dedicated to research implemented a greater number of innovations at their institutions. Professors dedicating more time to administrative functions did not undertake many innovations in their departments. Finally, those professors who dedicated more time to regional outreach activities contributed greatly to their institutions' development.

The increase in the alumni/ae's regional outreach activities is significantly related ($X^2=6.6$, $p < .05$) to the education that participants received in their training programs, as measured by a high grade-point average (3.3-4.0) and a high evaluation of their academic achievement (1 or 2 on a scale of 1 to 5, where 1 is excellent and 5 is

poor) by their U.S. academic advisors. On the whole, when the participants returned to their home universities, they dedicated less time to teaching and more time to research, administrative functions, and regional outreach activities than they had at the time of their selection for the program. The increase in research and administrative activities may be explained by the enrollment of most of these participants in master's programs in U.S. universities that encouraged the learning of skills relevant to those functions. The fact that the alumni/ae are currently working in research and administration in their home universities at a rate equal to or greater than that prior to their U.S. training, indicates that technical knowledge acquired in the United States was largely useful and applicable to Latin American and Caribbean contexts.

The impact of U.S. education on regional outreach activities may be explained by the fact that the skills acquired may have prepared participants to deal with the limitations of their home universities as organizations. In those departments where the Training for Development alumni/ae and their supervisors evaluated the training program positively, the amount of alumni/ae involvement in regional outreach tended to be at least equal to, or higher than, the amount of involvement prior to U.S. training. Participants frequently said in the interviews that as a result of knowledge acquired through the Training for Development program, they were better able to make an impact in their regions by involving themselves and their students as workers or consultants in regional industries. Some have also negotiated agreements for joint projects between their universities and regional industries (Instituto Tecnológico de Panamá). In other instances, participants explained that contacts they made while in the United States stimulated them to apply for grants intended to foster cooperation between U.S. and Latin American and Caribbean universities. Through such cooperation, development projects carried out in the participants' countries, may bring economic and material resources to the university departments, while at the same time providing U.S. institutions with new insights about program implementation in Latin America and the Caribbean (Universidad Nacional del Altiplano in Puno, Peru).

Limitations restricting involvement in regional outreach activities were mentioned in situations where the participants found themselves unable to implement innovations due to economic or political constraints in their home universities:

"When I came back from the U.S. I had very important work to do. I would advise students about their theses and review the research program of the department. Since the head of the department has changed, it has been more difficult to introduce innovations into the department. My salary was also very low. In addition to my work in the university, I have turned to our industries in the region and I have initiated and maintained agreements between these industries and the university. Currently, I and several of my best students are working in these industries." (Universidad Gabriel René Moreno, Santa Cruz, Bolivia).

Economic, material and, in several cases, political constraints inside their departments stimulated some alumni/ae to look for support outside their universities to promote professional, institutional, and community development. Successful efforts included writing grants for foreign or national assistance, involving local organizations in common projects with the universities, maintaining continuing linkages with U.S. universities and advisors, and carrying out research or community work using resources available through government offices and other regional institutions. A lack of established university outreach programs sometimes resulted in independent outreach activity by the alumni/ae:

"In order to have an impact on your people you need to work outside the the university and come in contact with other institutions (mostly affiliated with the government or with international agencies) that have infrastructure that enables them to reach the community. I teach in the university and work in a literacy campaign program with a government institution." (Universidad Nacional Mayor de San Andres, Bolivia).

3.b. IMPACT ON THE PROFESSIONAL STATUS OF ALUMNI/AE: The professional status of alumni/ae (namely, their possibilities for promotion, their seniority, and their socioeconomic situation), was significantly related to the innovations that they had implemented in their departments. The

more activities the participant had initiated, the more likely he/she was to be promoted. In addition, participants who had recently returned from study in the United States showed a higher level of innovation than those who had spent more time in their departments since U.S. study.

The impact of Training for Development on the alumni/ae's professional status can best be assessed via a subjective measure of personal and economic improvement, namely, whether the participants' socioeconomic levels improved as a result of U.S. study. Participants with high grade-point averages and high Test of English as a Foreign Language (TOEFL) scores reported that their finances had improved as a result of U.S. study; likewise, participants engaged in regional outreach activities declared a similar improvement. Master's degrees placed the alumni/ae in competitive positions for job promotion and for introducing innovations in their departments and to their colleagues. The experiences of the alumni interviewed illustrate the previous assertions:

"As a result of my activities in the department, the head (of the department) encouraged me to apply to the Training for Development program to study plant genetics (even though I instead studied rice improvement). When I came back to the department to my previous position, I had the chance (due mostly to the support of the head of the department) to start implementing some of what I had learned. The seniority I have in my department, the master's degree I obtained in the U.S., and my performance gave me enough qualifications to participate in a competition for a promotion. I won the position of Associate Professor (having been an Assistant Professor previously). I'm a member of the Faculty Council, in charge of the Documentation Center, and I'm a member of the rice research program." (Universidad Nacional Pedro Ruiz Gallo, Peru).

"Immediately after returning from the U.S. I had the position of Head of the Area of Principal Studies. I made some innovations in the curriculum of the area, specifically in the math and statistics courses. My promotion to vice-principal came after one year of working in my area and was based on seniority." (Belize Technical College, Belize).

Alumni/ae of the Training for Development program agreed that their advanced training was of great importance to their professional careers. Both the training they received and the degrees they obtained supported their future work in their departments and communities.

3.c. IMPACT ON INSTITUTIONAL INNOVATION: An observed increase in regional outreach activities as a result of U.S. study was also associated with a higher level of institutional innovations implemented by alumni/ae. These innovations included introduction of changes in educational technology and curricula, reformulation of research methodology, improvement of laboratories and equipment, design of new projects, collaboration in regional or international research, promotion of organizational development and administrative techniques, initiation of community activities, and publication of studies and research. The professors who engaged in regional outreach activities performed other duties in their departments, such as teaching, research, and administration, and also brought in additional resources for personal and departmental use.

"As soon as I returned from the U.S., I started working as a professor and as coordinator of the graduate program in the Department of Chemical Engineering and Food Production. My activities included planning the curriculum, organizing courses, proposing lines of work in the major, monitoring the professional development of the professors, and organizing events and conferences. My labors were of an academic nature. At the same time, I came into contact with the industries in the region which were dealing with issues related to the storage of grains... I worked as a consultant with them for a while, and currently I'm working full time as a technical head of the industry. I work part time in the university. The major achievement I have had in my work in the university is that now, after modifying the curriculum, the students are able to do scientific and technological research in the region. I have advised five master's theses which were done in the industry I'm currently working in. These theses were actually done in this industry. Now the students have a chance to do research and work in the real world before they graduate."
(Universidad Gabriel Rene Moreno de Santa Cruz, Bolivia)

3.d. IMPACT ON UNIVERSITIES AS ORGANIZATIONS: The model used by the Training for Development evaluation regards the participants' universities as organizations that both impose constraints and give rewards. Indeed, the organizational structure of these universities proved to be a major determinant of the effects of the Training for Development program, or those of similar development efforts, as felt at the departmental level. Innovations resulting from alumni/ae's regional

outreach activities were affected by other development programs that the departments were operating in addition to the Training for Development program. Innovations were also affected by such organizational factors as other funds provided by national and international agencies, and the total number of professors with master's degrees in the departments. The resources provided through Latin American funding sources, including the participants' home universities, have an important positive effect on research and administrative activities, and on activities directed toward community and department development. Similarly, the resources provided by international funding sources, such as AID, have an important positive effect on these development activities. National and international funding sources, separately and combined, also have a positive effect on the innovations that alumni/ae are able to implement.

"The Faculty of Agronomy and Veterinary Sciences has programs with industries in the region in which both professors and students work. From the work the department carries out in the region, the students produce their theses and research projects. For example, a project on milk production is under the direction of the Department of Research and Graduate Studies of the faculty. In order to get this project approved, we (a Training for Development alumnus and another former LASPAU scholar) submitted a proposal to the milk industries of the region to allow us to try to improve their level of production. In addition, we made an agreement with the Food and Agriculture Organization, which provides equipment and training. Professors of our faculty, as well as students, have the opportunity to apply their knowledge, help the region, and in the future find a job in these industries." (Universidad Gabriel René Moreno de Santa Cruz, Bolivia)

3.e. IMPACT ON SPONSORING UNIVERSITIES, DEPARTMENTS, AND THEIR COMMUNITIES: It is important to keep in mind that in Latin America and the Caribbean, universities have traditionally been isolated from their communities and that attempts by universities to break this barrier have often been unsuccessful (McGinn, 1980; Hudson, 1974; Woodhall, 1980). Some studies, however, demonstrate more success when the universities have played an active role in the economy of the region (McGinn, 1980). Attempts in this direction are being made in some of the universities that participated in Training for Development. For example, the School

of Agronomy at the Universidad de Panamá selectively sent professors to the United States for training in fields that its departments felt were of top priority. By the time these professors returned, the School of Agronomy had moved from the main campus in Panama City to a rural area, where it now plays an active role in the regional economy, and is attempting a unique approach to regional development. Such examples can be found in various universities participating in the Training for Development program. The Instituto Veterinario de Investigaciones Tropicales y de Altura (IVITA) in Peru has dispersed its experimental stations over a considerable area of the country and is achieving important results in the development of depressed regions. Similar programs are being implemented in other Peruvian universities such as the Universidad Nacional del Altiplano in Puno. In addition, Peru's Universidad Nacional Agraria de la Selva and Universidad Nacional San Cristobal in Huamanga, the Universidad Tomás Frías in Bolivia, the Universidad de San Carlos in Guatemala, the Instituto Superior de Agricultura in the Dominican Republic, and the School of Agronomy in the Université d'Etat d'Haiti are making valiant efforts to develop their regions. In all of these cases, the universities and the participants have credited the Training for Development program with strengthening their institutional and community development.

The present evaluation indicates that the Training for Development program led to these results in sponsoring universities, departments, and their respective communities:

- A greater availability of resources provided through local sources was associated with the presence of Training for Development alumni/ae who were able to dedicate a larger percentage of their time to research.
- Resources provided through U.S. funding agencies showed a direct effect on department development activities and institutional innovations; such resources also had a positive effect on the length of time the participants remained in their departments after receiving U.S. training.

- The availability of training programs such as Training for Development to university departments had a high positive correlation with community development activities.
- The larger the number of professors trained under Training for Development, the stronger the impact of U.S. training on institutional and community development.
- The position of the participants in the hierarchy of their departments seems to be a function of the level of innovations they have implemented and of how competitive their skills are in relation to those of their colleagues.

4. Summary of Evaluation Results

Reiterating that the evaluation is an interim study, the evaluator finds that Training for Development had a significant impact on the returned participants' regional outreach activities, with a significant increase in the participants' positive self-image and in the level of innovations they initiated within their departments. After returning from the United States, their involvement in research and administration increased, while their teaching activities decreased. The impact that on alumni/ae on their departments' organizations was limited. Further, it was clear that alumni/ae activities were significantly dependent upon their departments' political, economic, and administrative climates. The impact of U.S. training on research, administration, and regional outreach activities and innovations increased when a "critical mass" of professors had been trained and when the university showed a positive disposition towards change. Finally, the higher the availability of resources obtained through international and national agencies, the higher the level of departmental innovations and of community and institutional activities implemented by the alumni/ae.

III. RECOMMENDATIONS

The following recommendations stem from the evaluation results and are intended to suggest guidelines for policy discussion and for improving the effectiveness of similar programs. The investigator recognizes that implementation may be costly, cumbersome, or unrealistic, given current funding conditions surrounding most Latin American and Caribbean universities.

1. Candidates: Selection and Placement

- Highest among the selection criteria for participants under the Training for Development program was the relevance to regional development, as judged by AID and LASPAU staff, of the specific university project or department in which the potential participant was a faculty member. In many instances the prominence given this criterion, which focused on institutional rather than individual factors, led to a "high-risk" pool of individuals candidates -- people who, by virtue of their provincial educational and cultural context, would face greater challenges in cultural, social, linguistic, and academic adjustment than would their more sophisticated urban counterparts. Assistance for the development of rural institutions thus is likely to imply higher costs, due to the need for longer English-language training programs and longer academic programs. The findings of this study indicate that coherent policy decisions governing assistance to such institutions are worth the possible additional training investments.

- Selection criteria for Training for Development participants also included a preference for candidates with clear plans and goals for their academic work in the United States. Respondents in this study reported that pursuing projects specifically planned with their own institutions fulfilled the promise that their training would be more significant and relevant to the needs of those institutions. It is wise to select individuals who have clear, institutionally-supported plans for their graduate studies.

- Participants with clear goals approach their foreign-study experience with well-defined expectations. Therefore, special care should be taken to ensure that the expectations of such participants be informed and realistic. Latin American and Caribbean professionals rarely have access to reliable and up-to-date information on U.S. academic programs. As a consequence, they often are inadequately prepared to plan well for their future studies. Candidates should be provided with descriptions of academic programs that are available in their fields of study. If possible, participants should be sent the names and addresses of current or past participants in their own fields of study, and they should be provided with alumni/ae evaluations of particular U.S. programs. Providing accurate information to participants regarding U.S. university requirements, curricula, and academic programs will further promote realistic expectations about future training.

- The Training for Development program provided opportunities for master's degree training in the United States. Master's-level training positively influences the work of Latin American and Caribbean professors in their home universities and facilitates the implementation of development projects with regional impact. Training and scholarship programs providing U.S. master's-level education should continue to be made available to the region's universities.

- The placement of participants at U.S. universities was perceived to have been more successful when made at those universities and departments with special interests or experience in -- or genuine curiosity to learn about -- Latin American or Caribbean research, development activities, and graduate student instruction. Participants interested and involved in development, like those in the Training for Development program, appear to appreciate placement in U.S. universities that have experience with development projects in Latin America and the Caribbean. When

possible, placement opportunities should be explored at those universities in developing countries that might provide high-level, very specifically relevant educational opportunities in development-related fields. An information-retrieval system, providing access both to the most up-to-date university reference materials and to the experiences of alumni/ae, would greatly assist this effort.

- Many U.S. universities, especially in recent years, have increased their requirement of English-language proficiency for entering graduate students. Almost without exception, proficiency must be demonstrated through the TOEFL. The Training for Development evaluation study shows that there is only a small significant relationship ($r=.20$) between academic achievement in U.S. graduate schools, and English proficiency at the time of admission as measured by a TOEFL score beyond the range of 520-550. Therefore, less emphasis should be placed by U.S. universities on requiring English-language training after the 520-550 TOEFL level has been reached.

2. Funding to Increase Program Success

- The participants commented that a more thorough and realistic orientation to living and studying in the United States should be carried out in their own countries before the beginning of their English-language training program. A considerable number of participants suggested that most of the English training should be done in their own countries as well. Participants gave several reasons supporting this recommendation: their countries already have good English programs; expenses would be reduced for the Latin American or Caribbean university financing the program; and the participants would have to spend less time away from their families in those cases where family support in the United States was unavailable. Once a specific level of English knowledge was reached, participants could go to the United States to supplement their language training.

- Most sponsoring agencies that provide scholarships for graduate training in U.S. universities also provide supplemental funds for thesis research and preparation, and for attendance at professional conferences and workshops. The reports of Training for Development alumni/ae suggest that such funding is extremely worthwhile in its encouragement of broad scholarly activities. (Funding for thesis research in the participants' countries of origin is especially valuable.) The importance making these supplemental funds available should not be underestimated, and such allowances should be increased.

- Training for Development alumni/ae reported that further enrichment activities outside of their formal course work would have provided them with extremely useful skills and perspectives. Participants, particularly those selected to carry out specific project activities, should be able to pursue networking and resource development opportunities in the United States, and to stimulate mutual cooperation between U.S. institutions and Latin American and Caribbean universities and communities. Participants should also become familiar with institutions of higher education in the United States, Latin America and the Caribbean, and in other developing countries that successfully contribute to regional and national development efforts.

- Alumni/ae reported that the few books and other educational materials that they purchased in the United States and brought home with them were tremendously useful in their subsequent teaching and research. Book and materials allowances should be increased.

- As is typically the case in U.S. government-sponsored scholarships, the Training for Development program did not provide funds for the maintenance of participants' families in the United States. In some cases, sponsoring institutions were unable to provide salaries in absentia that would support participants' families in the United States, and thus some participants withdrew prematurely from the program, traceable to the loneliness they

experienced as a result of living apart from their spouses and children. In very special circumstances, the provision of financial assistance for dependents' travel and living expenses would diminish some instances of attrition.

- Training opportunities were provided to individual university faculty members without providing their institutions with assistance to support the purchase of other resources such as laboratory equipment, books, improvements in infrastructure, or technical assistance. A more systematic and thorough approach toward institutional development -- and a more powerful funding base -- would provide trained individuals with the materials and infrastructure they need to implement their ideas and thus to realize more fully the benefits of their training. These needs become particularly pronounced in the effort to develop graduate programs at participating universities, which is a critically important goal of university development.
- The Training for Development program did not provide resources allowing participants to return to their institutions midway through their U.S. academic programs to reinforce their own and their colleagues' work. Nor did the program anticipate the need for former participants to follow up on their work in the United States with reinforcing activities. Many alumni/ae reported that they would benefit greatly from a variety of follow-up activities such as regional conferences, informal reunions, or workshops on research, publications, or teaching methodology. Such opportunities would allow alumni/ae to share their current interests and experiences with one another and perhaps also with colleagues from universities around the hemisphere. These activities could also permit continued contacts between the alumni/ae and their U.S. universities, stimulate the exchange of information after their return, and serve as a vehicle to disseminate knowledge through journals and other publications. Alumni/ae noted that their responses to the written and oral questions of this evaluation constituted their only activity

alumni/ae of the Training for Development program. They emphasized the importance of continued contact with both AID and LASPAU, and they appreciated the opportunity to participate through this evaluation.

- More careful follow-up of the participants after they return to their home institutions may ensure that they stay beyond the time of their initial commitment. Currently, LASPAU sends letters to department heads reminding them of their commitments to scholars. This follow-up has in some cases proven ineffective, especially when the participants return with limited resources of their own such as books or materials for research, or when they have undertaken courses of study that are not within the priorities of their departments. Under those circumstances the participants have found themselves relegated to positions in which their impact is either insignificant or nonexistent.

3. Greater Attention to the Latin American and Caribbean University Context

- The Training for Development program had the greatest observable impact on Latin American and Caribbean university departments that had no other source of graduate training opportunities abroad. All other things being equal, therefore, training funds for development purposes should be spent on the most needy and isolated departments and universities.

- Specific agreements should be made, not only with university departments, but also with appropriate industries and other local institutions, thus fostering a comprehensive regional approach to development. Universities can do little by themselves to support on-going efforts toward regional development if they lack adequate resources or skilled personnel. Agencies of foreign assistance can serve to stimulate cooperation between sponsoring universities and their communities. Unless foreign assistance agencies begin to address the constraints and realities which impinge on community

and institutional development, most of the effort spent in training faculty will have only passing effects on the universities and their regions. A more comprehensive study should address each region and the institutions with which the respective universities might collaborate in the future. At the same time, the universities should be encouraged to take an active role in the economic development of their regions. This is an essential objective in a comprehensive approach to supporting universities' contributions to development.

- Other factors contributing to a more responsive model for training to support institutional development include encouragement for greater participation by the private sector. Such collaboration would ensure the relevance of university programs and curricula to the economic realities of the local community, and would serve to establish alternative sources of economic and technological support for the university.

- AID and USAID missions should work closely with Latin American universities and with LASPAU. Through a collaborative approach to development, the agency should consider the political, economic, and social realities facing Latin American and Caribbean countries.

IV. CONCLUSIONS OF THE EVALUATION AS MEASURED
AGAINST THE DEVELOPMENT NEEDS OF
LATIN AMERICAN AND CARIBBEAN UNIVERSITIES AND COUNTRIES

Major conclusions regarding the premises that guided Training for Development are presented below:

(1) The most significant outcome of U.S. training was that the participants learned to act on their own to bring about change (especially through university-based outreach activities) and to utilize regional resources. This increased "empowerment" was one of the effects most frequently mentioned by those who participated in Training for Development.

(2) Under Training for Development, scholarship opportunities enhanced the participants' professional development by promoting research and administrative skills that made returned alumni/ae more active in their departments and in their regions.

(3) The availability of supplemental funding from U.S., Latin American, and Caribbean sources proved to be a very important factor in the innovations initiated by returned alumni/ae in their departments and surrounding communities.

(4) The model upon which Training for Development is based is not entirely appropriate for promoting lasting development in Latin American and Caribbean universities and their surrounding communities for the following reasons: (a) The model assumes that U.S. graduate training is inherently valuable, and can be directly applied to practical problems in developing countries. (b) The model assumes that the alumni/ae will return to well-equipped universities that have in place structures supportive of returnees' efforts and projects. (c) The model assumes that the alumni/ae will return to leadership positions and will therefore have the political power to initiate innovations with a strong "multiplier" effect in their regions. In fact, these conditions often do

not exist. Only a thorough and systematic approach to university development -- with scholarship opportunities as one of many available enrichment programs -- will lead to truly effective development projects.

One possible explanation for the apparent lack of correspondence between the objectives of foreign training and its impact in developing countries lies in a general misperception of how the university works in Latin America. Instead of first directing efforts toward correcting this misperception, there is a tendency to use foreign models (mostly from developed countries) to explain the university and plan its development. Careful analysis of social, political, and economic conditions is called for in the university context. Educational organizations have to develop along with technological innovations; the process of change requires that both technologies and organizations change in a continued dynamic and coordinated fashion, each one shaping the other. Bringing about positive change in Latin American and Caribbean institutions to achieve the greatest benefit from new educational technologies (if we regard training in the United States largely as the route to introduction of new technologies) is a major challenge facing both developing countries and technical assistance agencies.

Another explanation for this lack of correspondence between the intended impact of foreign training, including the introduction of new technologies and the impact on developing countries' organizations, lies in the fact that most of the initiatives for exchange originate with and are supported by developed countries. These interactions are seldom initiated in Latin America or the Caribbean, and exchanges among Latin American and Caribbean nations are infrequent at best.

In relation to the broader economic and political context, an important consideration is that technological innovations must fit the political and economic realities of the country for which they are intended.

Models for future evaluation of training-abroad programs of this type

should also include follow-up mechanisms for participants. This evaluation was seen by the alumni as the only contact that they had had with LASPAU, the United States, and fellow participants since finishing the training program. Development may require a commitment to longer-term collaboration among all interested parties. If collaboration is going to be achieved between and among participants in Latin America, the Caribbean, and the United States, a mechanism for continued contacts among the participants should be devised. A scholarly collaboration between North and South must include a real and useful exchange of research methodologies, books, professional conferences, etc.

New models should be developed, based on a thorough understanding of and respect for the strengths of Latin America and Caribbean universities, together with a comprehension of their needs. Furthermore, attention should be given to the role of the private sector in development, through collaborative agreements with the region's industries. Such agreements will serve both to ensure the economic and regional relevance of the higher education curriculum, and to establish alternative sources of economic and technological support for the university.

The provision of scholarships to individuals without institutional ties makes a difference in personal terms, but the impact on institutions and/or regions is reduced.

All of the issues mentioned above are the subject of policy decisions by AID, LASPAU, and the scholar's home university. Other variables that are more difficult to manipulate but which have proven relevant to a program's success are the politics of the region and the country, as well as its economic situation.

Since this evaluation's objective was to measure impact, important factors such as decisions by AID and LASPAU to work in certain countries, universities, departments, areas of development, etc., were left out. However, insofar as factors such as these had repercussions on the different degrees of program impact they should be considered in future studies.

In conclusion, the value of the Training for Development program should be measured at a more local level, where it has had a high impact in the Latin American and Caribbean universities. The identification of the specific factors and interested parties that contribute to such high impact may serve to improve the effectiveness of future programs.

Programs like Training for Development should continue on the basis of both their specific local achievements, and the opportunities they provide for a Latin American-based understanding of how foreign training programs may serve the needs of universities.

APPENDIX

Latin American and Caribbean Countries and Institutions, Fields of Study,
and Numbers of Participants Enrolled Academically in the
Training for Development Program

Institutions	Fields of Study	No. Participants
BELIZE		
(1) <u>Belize Technical College</u>	Education	3
	Biology	2
	General Studies	2
	Engineering	1
		8
BOLIVIA		
(1) <u>Instituto Superior de Educación</u>	Education	1
(2) <u>Universidad Gabriel René Moreno</u>	Food Science	3
(3) <u>Universidad Juan Misael Saracho</u>	Economics	1
(4) <u>Universidad Mayor de San Andrés</u>	Education	1
(5) <u>Universidad Técnica de Oruro</u>	Economics	1
(6) <u>Universidad Tomás Frías</u>	Agriculture	2
	Sociology	1
		10
COSTA RICA		
(1) <u>Universidad de Costa Rica</u>	Animal Science	1
(2) <u>Universidad Nacional de Costa Rica</u>	Agronomy	1
	Animal Science	1
		3
DOMINICAN REPUBLIC		
(1) <u>Instituto Superior de Agricultura</u>	Agriculture	8
(2) <u>Instituto Tecnológico de Santo Domingo (INTEC)</u>	Engineering	2
(3) <u>Universidad Autónoma de Santo Domingo</u>	Agriculture	1
	Animal Science	1
(4) <u>Universidad Nacional Pedro Henríquez Ureña</u>	Agronomy	1
	Animal Science	1
	Plant Pathology	1
		15

ECUADOR

(1) <u>Escuela Superior Politécnica de Chimborazo</u>	Animal Science	2
(2) <u>Escuela Superior Politécnica del Litoral (ESPOL)</u>	Aquaculture	1
(3) <u>Universidad Central del Ecuador</u>	Agricultural Economics	1
(4) <u>Universidad Técnica de Babahoyo</u>	Agricultural Engineering	1
(5) <u>Universidad Técnica de Loja</u>	Agricultural Economics	1
(6) <u>Universidad Técnica de Machala</u>	Agronomy	1
		<hr/> 7

EL SALVADOR

(1) <u>Universidad de El Salvador</u>	Education	1
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GUATEMALA

(1) <u>Universidad de San Carlos de Guatemala</u>	Agriculture	10
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HAITI

(1) <u>Université d'Etat d'Haiti</u>	Agriculture	3
	Civil Engineering	2
	Psychology	2
	Public Health	2
	Education	1
	Geology	1
		<hr/> 11

HONDURAS

(1) <u>Escuela Superior del Profesorado Francisco Morazán (ESPFM)</u>	Education	5
(2) <u>Universidad Nacional Autónoma de Honduras</u>	Agronomy	3
	Animal Science	2
	Health	2
	Sociology	2
	Biology	1
	Ecology	1
	Statistics	1
		<hr/> 17

JAMAICA

(1) <u>Excelsior Education Centre</u>	Education	1
(2) <u>Mico Teachers College</u>	Education	1
		<hr/> 2

NICARAGUA

(1) <u>Escuela Nacional de Agricultura y Ganadería</u>	Horticulture	1
(2) <u>Ministerio de Salud</u>	Nursing	1
(3) <u>Universidad Centroamericana</u>	Agribusiness	1
	Education	1
	Engineering	1
(4) <u>Universidad Nacional Autónoma de Nicaragua</u>	Social Work	1
		<u>6</u>

PANAMA

(1) <u>Universidad de Panamá</u>	Engineering	12
	Agriculture	3
	Computer Science	1
(2) <u>Universidad Tecnológica de Panamá</u>	Engineering	5
	Metallurgy	1
		<u>22</u>

PERU

(1) <u>Universidad Nacional Agraria de la Selva</u>	Animal Science	1
	Biology	1
(2) <u>Universidad Nacional Agraria La Molina</u>	Agriculture	2
(3) <u>Universidad Nacional Centro del Peru</u>	Dairy Science	1
	Soil Science	1
(4) <u>Universidad Nacional de Cajamarca</u>	Animal Science	3
	Agronomy	1
(5) <u>Universidad Nacional del Altiplano</u>	Agriculture	1
	Agronomy	1
	Animal Science	1
	Food Science	1
	Health	1
(6) <u>Universidad Nacional H. Valdizán de Huanuco</u>	Agriculture	1
(7) <u>Universidad Nacional Mayor de San Marcos</u>	Veterinary	3
	Agronomy	1
(8) <u>Universidad Nacional Pedro Ruiz Gallo</u>	Agriculture	2
	Agric. Engineering	1
(9) <u>Universidad Nacional San Cristóbal de Huamanga</u>	Agriculture	5
	Animal Science	2
	Food Science	2
(10) <u>Universidad Peruana Cayetano Heredia</u>	Biology	1
		<u>32</u>

Total: 143

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