

INDUSTRIAL DEVELOPMENT TRAINING FOR LATIN AMERICAN STUDENTS

A Pilot Project to Present a Series of Workshops  
in Industrial Development Methodology for Latin American Students  
at Universities in the United States

Prepared for  
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by  
R. L. Yobs  
Project Director  
and  
Nelson C. Wall  
Associate Project Director

Industrial Development Division  
Engineering Experiment Station  
GEORGIA INSTITUTE OF TECHNOLOGY  
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## Table of Contents

	<u>Page</u>
Foreword	i
Summary	iii
THE PROGRAM	1
Background	1
Objectives	2
Approach	2
Group Sessions	3
Problem Assignments	5
PARTICIPATION IN THE PROGRAM	8
Student Participation	8
Staff Participation	11
EVALUATION OF THE PROGRAM	13
Student Evaluation	13
Staff Evaluation	14
RECOMMENDATIONS	16
Latin American Program at Georgia Tech	16
Similar Programs in Other Universities	17
* * *	
<u>Tables</u>	
1. Recommended Latin American Program at Georgia Tech	v
2. List of Participants in IDD Latin American Program	9

## Foreword

An unusual combination of circumstances which existed in Atlanta in late fall, 1964, made possible the special project described in the pages which follow:

First, staff members of Georgia Tech's Industrial Development Division had long been interested in the possibility of establishing a Latin American program in connection with work on development of Georgia's ports and the activities of the Division's branch offices in Savannah and Brunswick, Georgia. In addition, the Division's staff had had extensive experience in planning and conducting short courses over a period of more than eight years.

Second, a substantial number of Latin American students were in the Georgia Tech student body -- students who not only had an interest in industrial and economic development, but who for the most part could speak English quite fluently because of the considerable time they had already spent in the United States.

Third, Conway Research, Inc., located in metropolitan Atlanta, had developed a major contract with the Agency for International Development for special instructional programs as a result of pioneering work which the company's president, H. McKinley Conway, had done over a period of many months in indoctrinating Latin Americans regarding industrial development programs in this country.

Fourth, as a result of the Division's long-standing interest, a bi-lingual Georgia Tech graduate with extensive industrial and business experience, Mr. Nelson Wall, joined IDD's staff in August, 1964, and was available to assume a primary role both as liaison with the Latin American students and as coordinator of the special course reported on here.

These circumstances combined to make it possible to establish and carry out a pilot project with the 29 Latin American students who expressed a strong interest in participating in the course and were able to take time from their regular academic programs to participate in it. Held on Saturday mornings as a non-credit, "overtime" activity, the course nevertheless attracted and held the attention of a sizable group. Many of the students put in many extra hours in the Division's offices and on their own -- a clear expression of their intense interest in the project.

As noted in the Summary, the results of the project suggest that a number of different types of instructional programs can profitably be undertaken. The 12-month internship in which three of the students are already participating should prove especially productive. However, the other special-purpose courses can each make a contribution to the over-all need for trained development personnel in the Latin American countries.

It is hoped that, through a combination of courses of the sort outlined in the report, both short-term and longer-range needs of interested Latin American countries can be met. The return of well-trained persons to their own countries to apply in an appropriate manner the practical, problem-solving methods learned in an action-oriented development program like the Industrial Development Division's perhaps can make a substantial contribution in the years ahead to economic development in the Latin American countries.

Kenneth C. Wagner, Chief  
Industrial Development Division  
GEORGIA INSTITUTE OF TECHNOLOGY



## Summary

The Industrial Development Division of Georgia Tech has carried out an eight-week workshop program designed to indoctrinate selected Latin American students in industrial development principles and methodology. Immediate results of this pilot project include the following:

1. Twelve of the participating students specifically requested a follow-up program during the summer of 1965 so that they could take advanced work in industrial development.
2. Three graduate students were accepted for a year's internship program with the Industrial Development Division to gain additional on-the-job training prior to returning to their home countries to pursue careers in the development field.
3. Six students indicated at the conclusion of the program that they were planning careers in industrial development in their home countries as a direct result of their participation in the workshop program.

The project was carried out during the period January 30 through March 27, 1965. The program included 10 three-hour workshops, plus an assigned practical development problem for which special coaching sessions were held for the students. The workshop presentations stressed a practical approach and basic methodology used in the solution of problems involved in promoting the growth of underdeveloped areas. The programs of the Industrial Development Division were used for illustration and to provide a framework for these presentations.

As a pilot effort, the project not only clearly demonstrated the feasibility of indoctrinating Latin American students in industrial development principles and methodology, but also showed that promising students can become interested in careers in the development field through such indoctrination. At the same time it provided much useful experience for the design of follow-up programs of this type.

The 22 Latin American students who completed the program evidenced a very real concern for the economic development problems of their own countries. This seriousness of purpose was reflected in the amount of time and effort voluntarily put into the program by students who were already carrying heavy academic schedules. The students were most responsive to a practical approach to economic development; they were looking for specific steps toward tangible

results. Theory and generalizations were of relatively little interest to them.

On the basis of experience gained in this pilot project, it is recommended that consideration be given to the establishment of the program complex as described below and summarized in Table 1 as the most effective means of assisting Latin Americans in preparing for their own industrial development:

1. A special six-week workshop for the summer of 1965 would provide a desirable follow-up for the pilot project. The participating students, including the 12 who have requested such a program, would be given on-the-job experience in community and area development under supervision of the Industrial Development Division staff. This would permit evaluation of the student group in the field and at the same time afford an opportunity to capitalize on the training and interest of this group, which has been indicated by their willingness to give up six weeks of their summer vacation in order to participate in such a summer session.

2. A series of industrial development seminars should be held during the school year for Latin American students at Georgia Tech and at other universities qualified to present an effective program. Similar to the pilot project, these seminars would be designed to acquaint potentially interested but uninformed students with the nature of industrial development and its possibilities as a career field.

3. A regular summer workshop of at least six weeks' duration should be established to offer a combination of seminars and practical experience. Through these workshops students from various universities could gain a basic comprehension of industrial development. The sessions would also offer a means of screening promising candidates for more intensive training.

4. A 12-month period of on-the-job training or internship should be established for a small, select group of students who evidence a desire and capability for a career in the development field. This part of the program would expose the interns to all of the phases of economic development carried out at Georgia Tech, as well as provide a period of specialized training devoted to development problems in Latin America.

5. A 13-week condensed version of the on-the-job phase described above should be designed either for students or for other qualified individuals who would want some on-the-job experience but could not devote an entire year to

Table 1

## RECOMMENDED LATIN AMERICAN PROGRAM AT GEORGIA TECH

Recommended Program	Duration and Time	Purpose	Participants
1. Special summer workshop	Six weeks during summer quarter, 1965	To provide advanced on-the-job training for interested students who completed pilot program.	Minimum of 12 "graduates" of pilot program.
2. Industrial development seminars	Two-session seminars at various times during academic year (September to June)	To introduce students to the field of industrial development and to promote interest in regular summer workshops and other training opportunities.	Unlimited number of students at Tech and other universities, preferably in junior year, with backgrounds in engineering, management, economics, planning, or the social sciences.
3. Regular summer workshops	At least six weeks during summer quarter	To provide basic training in industrial development principles and methodology and to screen candidates for advanced training.	Up to 25 to 30 students, preferably between junior and senior years, selected from participants in (2) above. Also other qualified individuals from business and development agencies.
4. Regular internship program	12 months	To provide advanced on-the-job training in industrial development and specialized training in development problems in Latin America.	Four to eight participants selected from (3) above. Must have completed academic work and evidenced desire and capability for development career.
5. Modified internship program	13 weeks during academic year (September to June)	To provide a condensed version of the regular internship program.	Limited number of participants, including recent graduates who qualify for (4) above but have limited time, and staff members from Latin American development agencies and other special participants.
6. "Co-op" program	Two years on alternating quarters with regular academic work	To provide a flexible version of the regular internship program for in-school students.	Limited number of students who otherwise qualify for (4) above but have not completed academic work.

it. These sessions should be limited to small groups of special participants, e.g., staff members from Latin American development agencies or others who might qualify but would not be included in any of the other available programs. (The Central American Bank for Economic Integration in Tegucigalpa, Honduras, has already requested such a program for four of its staff members, starting in June 1965.)

6. A "co-op" program should be established through which students could alternate periods of academic work with full-time on-the-job training with the Industrial Development Division. Both this and the 12-month internships could be used to recruit carefully selected students who would be attracted to Georgia Tech for the specific purpose of securing special training in the economic development field.

## THE PROGRAM

### Background

In the spring of 1964 the Industrial Development Division became interested in the possibility of establishing a Latin American program as a natural extension of its development work in process and previously carried out in port cities and adjacent coastal areas, particularly in Savannah and Brunswick, Georgia. In further investigating this idea, it became apparent that there were few, if any, universities in the country which were actively engaged in training Latin American students in the basic principles of industrial development.

Having recognized the need for and potentials of a sound program of industrial development for Latin American countries, the Industrial Development Division added to its professional staff a bi-lingual Georgia Tech graduate with extensive industrial experience both in Latin America and the United States. In addition to receiving basic training in industrial development, the new staff member was assigned the responsibility for starting a collection of data on Latin American countries and for investigating the feasibility of initiating a program of industrial development training for Latin American students at Georgia Tech.

During the fall quarter of 1964, the Industrial Development Division had a meeting with students of Latin American countries enrolled at Georgia Tech to determine their interest in becoming acquainted with the principles of industrial development prior to returning to their home countries after graduation. The 41 students who attended the first meeting responded enthusiastically to the idea.

After further discussion in later meetings, the framework of a pilot program was developed, and this was reviewed with Conway Research, Inc., of Atlanta. Mutual interest in this area of work prompted representatives of Conway Research to suggest that the pilot program be proposed to the Agency for International Development as an extension of their AID contract for Latin American development.

The broad-gauged industrial development program operated throughout Georgia for more than eight years by IDD was believed to have afforded much



experience which could be applicable to the underdeveloped regions of Latin America. Through its community and area development programs, which include five resident field office staffs, the Industrial Development Division has aided many local development organizations in the evaluation of their own resources and in the preparation of action programs. Both new and existing industries have benefited from the more than 60 individual product analyses carried out by the Market Analysis Branch and the direct technical assistance furnished by the Industrial Services Branch -- the latter at a current average of one company per day. Further, it was believed that the interested students, enrolled in engineering and management courses at Georgia Tech and generally representing the upper socio-economic strata of their home societies, would be in positions to make significant contributions to the economic development of their own countries.

### Objectives

The Latin American development program has had four basic purposes: (1) to permit selected Latin American students at Georgia Tech to become acquainted with the fundamentals of industrial development; (2) to test the effectiveness of the program as a means of transmitting the basic principles of industrial development to these students; (3) to provide experience expected to be useful in the planning of broader, follow-up programs; and (4) to provide an opportunity to evaluate students who might be selected for further training for development work in their home countries.

### Approach

The program included 10 three-hour workshop sessions conducted by senior members of the IDD staff, plus a practical development problem which was assigned to the students. The workshops were held on Saturday mornings and weekday evenings in order to minimize conflicts with classes. Work on the assigned problems was carried out by the students in their spare time. Twice during the program special evening coaching sessions were held to assist students with their problem assignments.

Prior to the actual start of the program a Spanish translation was prepared of the IDD publication Georgia Tech Industrial Development Manual. Other materials used in the program, such as outlines of the materials

resented in each session, were also translated into Spanish. (A copy of the manual and other course materials accompany this report.)

### Group Sessions

The purpose and subject matter of each workshop and coaching session are summarized below in chronological order.

Session 1. The first hour was used for orientation and a general discussion of the program. The two remaining hours were used by the Chief of the Industrial Development Division to present the component activities of IDD. The students were thus familiarized with the over-all development program and the way in which each branch operation assists in producing the final desired result. Student groups were formed and the subject or problem for the student paper was assigned. (See page 5.)

Session 2. The full period was devoted to a discussion of the Guia Del Desarrollo Industrial by the Chief of the Industrial Development Division. Emphasis was on the fundamental aspects of industrial development which are applicable to any underdeveloped area. All students had the opportunity to review the basic text with its author.

Session 3. During the first period of this session, the Head of the Basic Data Section discussed the methodology for acquiring, handling, and using standard reference tools. Special attention was given to the development and use of the types of information not usually found in libraries. The second half of the session was utilized in discussing the methodology for examination of the economic strengths and weaknesses of individual areas or communities. This part of the session was conducted by the Head of the Industrial Economics Section and the IDD Chief.

Coaching Session A. From February 8 through February 15 special night meetings were conducted by the Project Director and the Associate Project Director. Each of the groups formed during Session 1 had a private 1½-hour meeting, during which the students were presented with fundamental ideas designed to assist them in solving the assigned problem.

Session 4. Market analysis was the first topic of this session, conducted by the Head of the Market Analysis Branch. The discussion covered the functions of market analysis and methods of identifying industries, products,



and individual companies suitable to the resources and attractions of specific areas. Several product or feasibility studies were presented and reviewed as typical case studies. The second half of the session was led by the Head of the Industrial Location Analysis Section. The discussion was aimed at the techniques used in preparing a location analysis for an individual company. A complete case study of a branch operation of the Colgate-Palmolive Company was presented.

Session 5. The importance of evaluating the manpower resources of a community or an area as a prerequisite for industrial development was discussed by the Head of the Manpower Resources Branch during the first half of the session. He also presented the techniques used for determining the availability and quality of existing manpower. During the other half of the session, the Head of the Community Development Branch elaborated on the methods used in the audit of the potentials for industry in an individual community, how the potentials are analyzed, and the means for utilizing them in an action program in the economic development field.

Session 6. The first period was devoted to the methodology used in measuring quantitatively the industrial strengths and weaknesses of cities of all sizes. The Special Projects Administrator also explained in detail the Georgia Certified City program inaugurated in 1964 by the Industrial Development Division. The Head of Urban Development Services presented the procedures for assisting communities and cities in correcting deficiencies identified through programs such as those carried out by the Community Development Branch and the Certified City program.

Session 7. This was one of the two evening sessions that were required to complete the program within the academic quarter. The Head of the Industrial Services Branch presented actual case histories in his discussion of practical means for helping both new and established industries in a wide range of management and operating problems. Special attention was given to the expansion and diversification of small manufacturing companies.

Coaching Session B. From March 1 through March 8 the second set of special night meetings was conducted by the project staff. The individual groups participated in two-hour discussions covering their special problems and how the final reports would be prepared.

Session 8. During this night session, the Area Development Administrator discussed the methods employed in assisting multi-county area development groups in analyzing their resources and formulating their action programs. A series of slides was shown as part of the presentation, with special attention devoted to IDD's unusual approach of providing resident specialists in field office locations to work closely with the area development groups.

Session 9. The representatives of IDD field offices explained in detail the functions of each of the following offices:

- a. Southwest Georgia Branch (Albany),
- b. Savannah Area Branch,
- c. Northwest Georgia Branch (Rome), and
- d. Carroll County Branch (Carrollton).

The last hour of this session was devoted to a detailed outline of the work of Conway Research, Inc., and how this organization is assisting in the general AID program for Latin America. The Director of the Latin American Division of Conway Research made this presentation.

Student Paper Evaluation. The student groups completed and handed in their special problems at the end of Session 9. During the week of March 20 through March 26, the reports were evaluated by senior staff members of the Industrial Development Division.

Session 10. The final session was devoted to a discussion of the problem reports and a critique of the program as a whole. The students made a number of helpful suggestions which have been incorporated in the recommendations for future programs.

#### Problem Assignments

In order to evaluate the approach being tested throughout this pilot program, it was decided to prepare a practical development problem and assign it to the student group.

During the first session, the students were divided into working groups (three or four students per group), each of which was assigned a county in Georgia. Each group was to analyze and recommend possible new payroll opportunities for the assigned county.

The project staff would have assigned problems directly focused on Latin America, but this was not possible at the time. For this to have been done

properly, the collection and processing of a substantial amount of data on Latin American countries would have been required prior to the start of the program. Because of the newness of the program, neither time nor funds were available to permit the development of the required resource materials.

The Industrial Development Division has since started a collection of data on Latin America, using basic research funds for this purpose. A much larger source of support will be necessary, however, if a fully adequate collection is to be developed for use in future Latin American programs.

The problem as stated assisted the students in making use of the basic methodology presented and familiarized them with the procedures and techniques of the Industrial Development Division.

Members of the IDD staff held individual evening meetings with each group during the weeks of February 8 through February 15 and March 1 through March 8. These provided personal assistance and orientation to each group member and permitted a better coverage of the assignment. The head of the Basic Data Section also held special extra-hour sessions for the groups and assisted them in locating and using material in the IDD Basic Data collection. Throughout the program, staff members were available each afternoon for individual consultation and assistance.

The student groups were especially enthusiastic about the problem portion of the work, and the majority of them devoted a considerable amount of their time to the assigned problem. They spent much of their free time on the program, not only in their attendance at the workshop sessions, but also in the individual meetings and in researching their county data. In some instances they made special trips to their study areas to secure desired first-hand information.

Of the nine original groups, seven completed their reports. The other two were unable to do so due to lack of time and heavy academic loads. Although all of the groups indicated that further study and research would be required to arrive at firm conclusions and recommendations, the completed reports in general presented logical and systematic approaches to the problem and indicated that the students had comprehended the material presented throughout the program.

Typically, the reports presented an analysis of the resources of the assigned county, established prerequisites for the economic growth of the county (such as better educational and training facilities, additional sources of water supply, and improved community services), and specified the types of manufacturing activities which were best suited to the immediate and long-range development of the area.

## PARTICIPATION IN THE PROGRAM

### Student Participation

The Latin American industrial development program started on January 30, 1965, with a total enrollment of 29 persons. Three of the 29 participants were not Georgia Tech students, but they were allowed to enroll after presenting a formal request. Two of the non-students represented the export division of a local industrial supply and equipment company, and the third man was an international trade specialist with the regional office of the U. S. Department of Commerce. (See Table 2 for complete list of participants.) Invitations were extended to two other institutions in the Atlanta area -- Emory University and Georgia State College -- for participation in the workshop program. One student from Georgia State responded but was unable to attend regularly because of conflicts with scheduled classes.

The original group represented 13 of the 20 Latin American nations. Their ages varied from 18 to 36 years, and seven of the 29 enrolled were married.

Educational specialization of the 26 Georgia Tech students covered seven technical fields, as follows:

Industrial Engineering	9
Industrial Management	7
Civil Engineering	4
Mechanical Engineering	2
Textile Engineering	2
Electrical Engineering	1
City Planning	1

Scholastically, the Georgia Tech students ranged in point average from 1.7 to 3.4 (out of a possible 4.0), with a 2.3 average for the group. In addition to English and Spanish, languages spoken by some of the students included German, French, Italian, and Hebrew. Thirteen of the students will complete their work at Georgia Tech some time in 1965, and at present all plan to return to their home countries.

Family backgrounds of the participants reflect a relatively high socioeconomic status. The families of nine of the students are in business for themselves. Four are sons of physicians or dentists, the father of one student



Table 2  
LIST OF PARTICIPANTS IN IDD LATIN AMERICAN PROGRAM

Name	Place of Birth	Age	Status	Family Occupation	Georgia Tech		
					Major	Degree Date	Point Average
Alvelais, Guillermo F.	Mexico	19	S	Physician	I.M.	6-1966	2.2
Btresh, David	Panama	22	S	Business	I.M.	3-1965	2.4
Estripeaut, Raul R.	Panama	21	S	Diplomat	M.S.-I.E.	9-1965	2.7
Fajardo, Ernesto, Jr.	Colombia	23	M	Dentist	C.E.	9-1965	1.9
Fernandez, Miguel A.	Mexico	21	S	Banker	I.E.	6-1966	1.8
Ginatta, Antonio E.	Ecuador	18	S	Business	M.E.	6-1967	2.7
Gomez, Anibal S.	Venezuela	21	S	Business	I.E.	6-1965	2.6
Gonzalez-Revilla, Robt.	Panama	20	S	Business	I.E.	6-1965	2.2
Guerrero, Carlos	Ecuador	24	S	Lawyer	M.E.	12-1965	
Gutierrez, Manuel	Venezuela	21	S	Physician	E.E.	6-1967	3.4
Jimenez, Fernando	Panama	19	S	Lawyer	I.E.	6-1966	2.1
Levy, Alberto	Peru	22	S	Business	T.E.	6-1965	1.8
Mahomar, Eduardo	Honduras	23	S	Business	C.E.	9-1965	2.0
Matallana, Rafael	Colombia	22	S	Deceased	I.E.	9-1966	2.3
Michelen, Jose A.	Dominican Repub- lic	18	S	Business	C.E.	12-1967	2.2
Molina, Sergio	Colombia	25	S	Business	T.E.	12-1965	1.7
Motz, Walter	Honduras	27	S	Lumber and Agriculture	I.M.	Special	2.9
Ortega, German	Colombia	28	S	Lawyer	I.M.	6-1965	1.9
Ospina, Eduardo	Colombia	23	S	Consultant	M.S.-I.M.	6-1965	2.5
Ottati, Cosme	Ecuador	30	M	Industry	M.S.-I.E.	3-1965	3.1
Quintana, Miguel	Peru	23	S	Military	M.S.-C.E.	9-1965	3.0
Robles, Francisco	Cuba	20	S	Civil Engi- neering	I.M.	6-1966	3.2
Rognoni, Mario	Panama	20	S	Physician	I.E.	6-1966	1.9
Sandrin, Fabio	Venezuela	23	S	Business	I.E.	12-1966	1.8
Siciliano, Nestor	Argentina	36	M	Deceased	City Planning	1967	
Schweinfurth, Werner E.	Honduras	23	M	Deceased	I.M.	6-1966	
Aguirre, Jose A.	Chile		M		Tull Export Atlanta		
Martinez, Francisco	Mexico		M		U. S. Dept. of Commerce		
Riestra, William	Cuba		M		Tull Export Atlanta		

is in the diplomatic service, and several others come from families of bankers, lawyers, and military men.

The group average attendance was high for the 13 sessions, especially in view of the fact that this was a non-credit, elective course and all students enrolled continued with their regular academic load. The first 10 sessions averaged 24 students out of a possible 29. The attendance was somewhat lower for the last three sessions, which coincided with the final examination week at Georgia Tech and with the end of the winter quarter.

A number of the students became unusually interested in the program, and several have indicated a desire to continue their training and acquire more experience in the industrial development field. For example, 12 students specifically requested a follow-up program during the summer of 1965 so that they could take advanced work in industrial development. During the program, groups of students visited the IDD office practically every day, seeking additional knowledge or doing research work in the Basic Data Section.

The program has directly influenced the career plans of several of the students, and the IDD staff has tried to provide each with additional training insofar as possible. Brief sketches of four of these students follow:

1. Eduardo Ospina was born in Colombia on July 4, 1941. He entered Georgia Tech in 1960, completed his undergraduate work in Electrical Engineering in 1964 with a 3.1 (out of a possible 4.0) average, and will complete the requirements for a Master of Science degree in Industrial Management in September 1965. A member of four honorary societies, he was the recipient of the Mary White Scholarship. This student has shown such great interest in industrial development that he was employed on a half-time basis by IDD in January in order to provide him with additional training. It is expected that he will initiate a 12-month full-time on-the-job training program in September 1965.
2. Cosme Ottati was born in Guayaquil, Ecuador, on October 5, 1934. After graduating as an Industrial Engineer from the Universidad de Guayaquil, he worked with the General Electric Company for six years in Ecuador. He entered Georgia Tech in 1963 and completed his M.S. program in Industrial Engineering in March 1965. Mr. Ottati came to Georgia Tech on a Fulbright Scholarship and was planning to return to Ecuador and continue his work with General Electric. After participating in the pilot project, he became interested in industrial development, and an extension of his scholarship has been secured so that he can participate in a full-time on-the-job training program with the Industrial Development Division.



3. R. R. Estripeaut was born in Panama on July 8, 1943, entered Georgia Tech in 1960, and received his B.S. degree in Chemical Engineering in June 1964. He will complete the requirements for an M.S. degree in Industrial Engineering in September 1965. This student has decided to extend his stay in order to be able to spend more time at Tech and thus receive additional training in industrial development. He is currently participating in a 12-month internship program with the Industrial Development Division.
4. Walter Motz, a native of Honduras, was born on January 7, 1937. After graduating in Honduras as a Public Accountant, he worked for 10 years with a company engaged in importing and distributing foreign products. He enrolled in the School of Economics at the University of Honduras in 1963 and later entered Georgia Tech as a special student and became interested in the industrial development program. This student had planned to continue at Tech and take additional training with IDD, but he had to return home due to financial requirements. At present he is working with a shipping company, but he has indicated that he would return to Tech for internship work if support were available.

#### Staff Participation

Every senior staff member of the Industrial Development Division (12 persons) participated in the Latin American industrial development program. In addition to the Project Director and the Associate Project Director, the following prepared special materials for the program, conducted workshop sessions, and were available for individual consultations:

- Chief of the Industrial Development Division
- Area Development Administrator
- Special Projects Administrator
- Head of the Community Development Branch
- Head of the Industrial Services Branch
- Head of the Manpower Resources Branch
- Head of the Market Analysis Branch
- Head of the Industrial Location Analysis Section
- Head of the Basic Data Section
- Head of the Industrial Economics Section
- Head of each of the IDD field offices

Except for the preparation of workshop outlines and the administration of the over-all program, much of the IDD staff time was contributed on an "after-hours" basis. All of the workshop sessions were held on Saturdays or in the evenings, and almost all of the consultation time with the students was after regular office hours. An estimated 200 hours of senior staff time were contributed in this manner while the project was under way. If charged to the project, the cost would have been approximately \$2,000. In addition, almost

the entire cost of translating and reproducing the Georgia Tech Industrial Development Manual was borne by IDD prior to the initiation of the project.

A considerable amount of other material was prepared at that time, also. The cost of this preliminary work has been estimated at \$3,700. The total Georgia Tech contribution to this program to date, including the initial indoctrination and training time for the three graduate students presently employed by IDD, is estimated to be in excess of \$7,000.

## EVALUATION OF THE PROGRAM

### Student Evaluation

As part of the "pilot program" approach, it was decided to have the students evaluate various segments of the over-all program. At the end of the series of workshop sessions, the evaluation idea was explained to all the students present. Each was asked to complete a form to indicate his personal evaluation of the program. The importance of frank and objective responses was emphasized, and complete anonymity was assured.

Twenty-four students completed the evaluation sheet. Following is a summary of the students' evaluation of the program:

1. More than 95% of the students felt that the time they put into the program was "very well worth it" or "well worth it."
2. Nine of the participants indicated that the program had helped change their plans for the future.
3. Eighteen (75%) of the students responded that they were "going to do something different in life because of this program."
4. The organization of the program was described by 95% of the students as being "good" or "very good."
5. More than 95% of the respondents considered the methodology explained during the program to be "logical" or "applicable."
6. The senior staff instructors were rated as being "competent" or "adequate" by more than 95% of the students.
7. All students agreed that the oral presentations during the workshop sessions were in general "interesting."
8. More than 95% of the respondents considered the assigned problem to be "pertinent" or "practical."
9. Twenty-three of the 24 students indicated that the student groups with which they worked were either "enthusiastic" or "cooperative."
10. Seventy-five per cent of the students indicated that the Spanish translations of the course materials had helped them in understanding the presentations.
11. In response to a request to explain how the program could be improved, two major groups of suggestions resulted:
  - a. A more direct and detailed approach -- including increased coaching time, in-depth outlines, and problems oriented to Latin America -- was recommended by 50% of the students. (The students understood that data limitations made it impossible to use Latin American cities for their problem work in the pilot project.)

- b. A longer program with more class time and on-the-job training was suggested by 21% of the respondents.
12. In response to a request that they explain how the program had changed their future plans and affected what they were going to do in life, a number of students indicated that they hoped to enter the industrial development field in their home countries. The career plans of four of those that could be identified by name -- Eduardo Ospina, Cosme Ottati, R. R. Estripeaut, and Walter Motz -- have been described earlier. (The questionnaires were anonymous at the option of the student.) In addition, the following specifics can be cited:
- a. Miguel Fernandez, a junior in industrial engineering, has indicated that he plans to return to Chihuahua, Mexico, and try to form a development organization, working through his father (a banker) and other friends to finance the organization.
  - b. Antonio Ginatta, a sophomore in mechanical engineering, indicated that his home country (Ecuador) is in dire need of economic development and that he would like to work in industrial development in his country when he returns.

Other responses, which could not be identified with individual students, included the following:

If this research opportunity were available in Panama I would consider it.

I am seriously considering making a career in industrial development in the future.

This is the type of thing my country needs and I would be fascinated if I could be a part of it.

This has shown me a practical way to help my country.

In addition to these written suggestions, 12 students indicated orally that if on-the-job training were to be made available this summer, they would like to participate in a four- to six-week follow-up to the pilot workshop program.

#### Staff Evaluation

The basic approach which has been tested during this pilot program has proven to be practical. The Industrial Development Division staff has been able to take a selected group of Latin American students and indoctrinate them in the basic methodology of industrial development. While the program did not attempt to provide in-depth coverage of the topics presented, it did provide the students with a "ground floor" knowledge of industrial development philosophy and approaches.

Throughout the course, the students demonstrated exceptional interest and enthusiasm. Even after the completion of the course, requests are being received daily from students for additional on-the-job training opportunities. The students devoted an extraordinary amount of their time to the research necessary to complete the practical problem assigned. Many of the teams traveled to their assigned counties in order to gain first-hand experience, to contact community leaders, and to examine possible industrial locations.

From the experience gained from this project, the IDD staff has identified several changes in procedure and technique which would strengthen any future program:

1. Individual sessions should be shorter, and a greater number of sessions should be offered.
2. More time for coaching and individual assistance should be provided.
3. Assuming that needed data could be secured or developed, the program should use Latin American materials. Local situations should be used for case studies if possible.
4. In-depth Spanish materials should be provided, and a new industrial development textbook or manual should be prepared specifically for use in Latin America.



## RECOMMENDATIONS

### Latin American Program at Georgia Tech

On the basis of the results obtained during this pilot project, it is recommended that an on-going program be established at Georgia Tech as a means of familiarizing Latin American students with the industrial development field and for selecting and training a limited number of such students for careers in industrial development. Such a program should include the elements described below and summarized in Table 1.

1. A special six-week workshop for the summer of 1965 would provide a desirable follow-up for the pilot project. Such a session has been requested by 12 of the participants in the pilot project to permit interested students to secure additional instruction. These students would be given on-the-job experience in community and area development under supervision of the IDD staff. This would permit evaluation of the student group in the field and at the same time afford an opportunity to capitalize on the training and interest of this group, which has been indicated by their willingness to give up six weeks of their summer vacation in order to participate in such a summer session.

2. A series of industrial development seminars should be held during the school year for Latin American students at Georgia Tech and at other universities qualified to present an effective program. Similar to the pilot project, these seminars would be designed to acquaint potentially interested but uninformed students with the nature of industrial development and its possibilities as a career field. Those qualified students who become seriously interested could then be selected for more intensive training in the summer workshop sessions or other proposed programs.

3. A regular summer workshop of at least six weeks' duration should be established to offer a combination of seminars and practical experience. These workshops would be directed primarily toward students between their junior and senior years, although other qualified individuals could also participate. Through these workshops students from various universities could gain a basic comprehension of industrial development. The sessions would also offer a means of screening promising candidates for the 12-month internships (below).

4. A 12-month period of on-the-job training or internship should be established for a small, select group of students who evidence a desire and a capability for a career in the development field. This part of the program would expose the interns to all of the phases of economic development carried out at Georgia Tech, as well as provide a period of specialized training devoted to the development problems in Latin America.

5. A 13-week condensed version of the on-the-job phase described above should be designed either for students or for other qualified individuals who would want some on-the-job experience but could not devote an entire year to it. These sessions could be offered during the academic year (September to June) for small groups of special participants, e.g., staff members from Latin American development agencies or others who might qualify but would not be included in any of the other available programs. (The Central American Bank for Economic Integration in Tegucigalpa, Honduras, has already requested such a program for four of its staff members, starting in June 1965.)

6. A "co-op" program should be established through which students could alternate periods of academic work with full-time on-the-job training with the Industrial Development Division. Both this and the 12-month internships could be used to recruit carefully selected students who would be attracted to Georgia Tech for the specific purpose of securing special training in the economic development field.

The purpose of the over-all program described above is to offer a range of indoctrination and training opportunities designed to fit the varying needs of the participating groups. At one level the participants will have gained an understanding and appreciation of industrial development which should influence their thinking in their chosen field. At another level they will actually be prepared to enter careers in the development field.

#### Similar Programs in Other Universities

The pilot program as developed at Georgia Tech, as well as the expanded programs recommended above, could be duplicated in other universities in the United States. Certain conditions would have to exist, however, before an effective program could be carried out. These conditions include the following:

1. The Latin American student enrollment would have to be sufficiently large to assure that an adequate number of students would be interested in and



qualified for such training. A group of fewer than 10 or 12 qualified students would be economically impractical, and a much larger group would be desirable to reduce per student costs. It would be most beneficial to concentrate on seniors and graduate students who would expect to return home in the near future.

2. The Latin American student enrollment should be concentrated in applicable programs of study -- preferably in such fields as industrial management, engineering, city planning, or economics. These furnish the most suitable background for development work. Some universities have large Latin American enrollments which are heavily concentrated in medicine and the life sciences, from which few students could or should change to development careers.

3. The university must have an extensive industrial development program with an experienced professional staff. While some of the basic principles of industrial development can be taught in a strict academic setting, a well-rounded program requires instruction by those actively engaged in industrial development work and an opportunity for students to participate in existing work programs and on-the-job training. The university, therefore, must be in a position to provide a suitable means for students to engage in or be exposed to practical work experience in all facets of industrial and economic development.