

A PROPOSED EDUCATIONAL PROGRAM IN VOCATIONAL AGRICULTURE
FOR THE INSTITUTO RURAL METODISTA OF MONTERO, BOLIVIA

by 680

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CHAPTER I

INTRODUCTION

Since World War II dozens of new nations and nationality groups have achieved either self-governing status or complete independence. In a manner reminiscent of the American states during their first decades of independence, these new nations are faced with the necessity of replacing institutions and processes of control imposed by their former rulers with others more compatible with the aspirations of a sovereign people. With populations frequently numbering in the millions, mostly illiterate and often ignorant of even the most elementary aspects of modern science, technology, and the more highly developed social processes, these nations now aspire to achieve mass education and universal literacy in a single generation. Their problems are made doubly difficult by their lack not only of trained, native leaders, but also of the economic and cultural resources necessary to support such a formidable transformation.¹

At no time in history had so many persons sought so much in such a short time. Since agriculture was important to all of these new nations it was obvious that demands for agricultural education and research were unprecedented.

The industrial revolution of the last part of the 19th century brought about increased emphasis on specialization and efficiency. The production techniques that were discovered gave rise to the technological revolution which was still expanding as this study was compiled. The effect of the technological revolution was to improve communication and to highlight inequalities in the world's wealth. The technological revolution, therefore, produced the social revolution. One of the manifestations of this social revolution was the phenomenon which many researchers called "the revolution

¹I. N. Thut and Don Adams, Educational Patterns in Contemporary Societies (New York: McGraw Hill Book Company, 1964), p. 5.

of rising expectation."² The disintegration of colonialism and relaxation of rigid social traditions have contributed to this trend.

In subsistence agriculture, production of food follows traditional or cultural patterns of activity. In societies seeking to achieve economic development, persons in rural areas lack knowledge about modern methods of food production. Application of scientific methods and use of improved tools is absent, or only in initial stages. To achieve increased output, knowledge of scientific methods must be available and persons must have the ability and willingness to apply new methods. Education and training of persons on the land is the process by which new knowledge is made available and used by farmers.³

In Bolivia a fertile soil and vast productive potential in the eastern areas appeared to depend on trained man-power. Unfortunately institutions to train young men to be better agriculturalists were not fulfilling the need for vocational education in agriculture which was necessary to free labor and provide resources for trade and industry.

"Progress is basically the result of human effort. Human resource development, therefore, may be a more realistic and reliable indicator of modernization or development than any other single measure."⁴

In the developing countries, the most evident scarcity of agricultural education is vocational agriculture education for primary, secondary and adult levels. On a world-wide basis, this is the most serious educational gap in the agricultural development process.⁵

Montgomery indicated that research was needed to provide information

²Ibid., p. 337; Hobert W. Burns, "Social Values and Education in Latin America," Phi Delta Kappan, XLV, No. 4 (January 1964), p. 250; and John W. Hanson and Cole S. Brembeck, Education and the Development of Nations (New York: Holt, Rinehart and Winston, 1966), p. 2.

³George Montgomery, "Education and Training for Agricultural Development," (Unpublished Symposium Volume on Agriculture and Economic Development, Kansas State University), p. 1.

⁴Frederick Harbison and Charles A. Myers, Education, Manpower, and Economic Growth (New York: McGraw Hill Book Company, 1964), pp. 13-14.

⁵Gordon I. Swanson, "Education and Rural Transformation," (Unpublished paper, University of Minnesota), p. 12.

for planning. "Information for decision-making in planning for programs of education for rural people generally is lacking, is inadequate or not appropriate to the needs."⁶

Agan also attacked the problem of designing change for the educational programs of developing areas. He, too, spoke of the "need for exploratory research to bring to the attention of proper educational agencies, decision makers and change agents ways and means for improvement."⁷

I. STATEMENT OF THE PROBLEM

The problem was to explore the barriers and opportunities to establishing a program of vocational agricultural education at the Instituto Rural Metodista of Montero, Bolivia. Secondly, recommendations to exploit the barriers and possibilities of establishing such a program were needed and were developed.

II. QUESTIONS

Several questions evolved in regard to this problem. These were:

1. What are the unique problems of agricultural development in the area served by the Instituto Rural Metodista?
2. What are the needs pertaining to agricultural education and training in this geographic area?
3. What are the specific problems involved in establishing a program in Agricultural Education at the Instituto Rural Metodista?

⁶Montgomery, op. cit., p. 1.

⁷Raymond J. Agan, "Exploratory Research of School Programs In Rural Guatemala" (Unpublished Research Paper, Kansas State University, 1968), p. 1.

4. What recommendations could be made to successfully establish this program?

III. DESIGN AND PROCEDURE

Type of Study

The approach to this study was to carry out an historical research of the educational system in Bolivia and the agricultural situation of the Montero area. A comparison was made between the program of the American Farm School in Thessaloniki, Greece, and the potential of the Instituto Rural Metodista, a secondary educational institution in eastern Bolivia which was trying to formulate a program in agricultural education.* From this research a set of recommendations was formulated.

Method of Gathering Data

The student of area studies arrives at a body of generalizations about educational systems as a result of several activities: rigorous scholarship in collecting and selecting data, firsthand recording of visual impressions, and intuitive feeling for the nature of the different cultures.⁸

⁸George Z. F. Bereday, Comparative Method In Education (New York: Holt, Rinehart and Winston, 1964), p. 10.

* ". . . comparative education relies on the methods of a host of other fields, from philosophy to psychology, from literature to statistics. Its specific task is to bring several of the concerns of the humanities and the social sciences together in application to a geographical perspective of education."⁹

"There is everywhere agreement on the breakdown of the field into two major parts: the area studies, concerned with one country or region, and the comparative studies, concerned with many countries or regions, at the same time. These two parts might be further subdivided. Thus in area studies we speak of the descriptive phase, or geography of education, the collection of purely pedagogical data, and of the explanatory phase, or social analysis, the application of methods of other social sciences to interpret the pedagogical

A review of selected references was utilized to define the situations and barriers existing and for general recommendations which had been developed for similar problems and institutions. This review of literature was facilitated by a visit to eastern Bolivia in July, 1968, and teaching experience in the country during June, July, and August of 1968. A visit to a successful farm school in Thessaloniki, Greece, in August, 1965, also aided in the collection of data.

Population

The Instituto Rural Metodista which served an area of related agricultural colonies north of Santa Cruz in eastern Bolivia was chosen for the population. These colonies evolved through local government encouragement with the assistance of the Instituto. All of the colonies evolved, then, from the same design. They all were established within the last ten years. At the time of the study Spanish was spoken in all areas. The people were from varied backgrounds which included Quechua and Aymara Indians, Bolivians of mainly Spanish extraction, and immigrants of Mennonites from Mexico as well as immigrants from Okinawa and Japan. Because of their geographic proximity and isolation as well as the similarities of problems and the centralized responsibility, these colonies were treated, for the purposes of the study, as a single unit.

data thus assembled. In comparative studies one recognizes first juxtaposition, a preliminary confrontation of data from different countries; this is done for the purpose of establishing the tertium comparationis, the criterion upon which a valid comparison can be made and the hypothesis for which it is to be made. Finally, one proceeds to comparison, a simultaneous analysis of education across national frontiers."¹⁰

⁹Ibid., p. x.

¹⁰Ibid., pp. 9-10.

Devices

A method of social action to sell programs was utilized in this study to make the recommendations more organized and concrete (Appendix I). This method was developed by the Extension Service of Kansas State University. This device was chosen because it logically organized the recommendations in a series of steps for practical application. It appeared to the writer that such organization was essential to the implementation of the study.

Research and experience have shown that there are certain basic steps necessary to success in any group effort. If these steps are followed closely--success is assured. If they are not followed--failure is almost certain.¹¹

IV. DELIMITATIONS

In order to produce recommendations for a program in agricultural education, the Instituto Rural Metodista was studied. This institution had the facilities and the potential to quickly utilize such a program. Since the colony program was projected to expand eventually throughout the vast, sparsely populated area of eastern Bolivia, these recommendations and their modifications should be applicable to large areas of eastern Bolivia. The mountain valleys, although significant to agricultural production in that nation, are largely ignored. These recommendations would have only limited application in such areas.

Bereday mentioned another problem which was a delimitation of this study:

A young field of study inevitably runs into suspicion from older

¹¹Wilbur E. Ringler and Curtis Trent, Selling Ideas and Programs Through Social Action (Manhattan: Kansas State University Extension Service, 1967), p. 4.

disciplines, some motivated by real concern for scholarly quality and for endless proliferation of subfields of academic study, others swayed by proprietary interest and fear that a vigorous newcomer can move in on their preserve.¹²

V. LIMITATIONS

"Obtaining necessary data will be difficult where few if any quantitative records have been kept, and where communication and transportation are not developed adequately."¹³

At the time of the study the colony program in Eastern Bolivia was quite recent and agricultural education was just beginning. It was therefore difficult to secure evaluation of the recommendations from experts; neither were there any sophisticated measuring devices available to better evaluate the recommendation. The use of an opinionnaire to evaluate the study was rejected. Those experts in agricultural education who were available knew little about Eastern Bolivia. The experts on Eastern Bolivia, notably the staff of the Instituto Rural Metodista, were mostly untrained in techniques of agricultural education; and, due to their struggle to produce their own program, they could hardly have been considered unbiased.

Furthermore, it was difficult to obtain necessary sources, observations, and data on Bolivian education. Little educational research directly applicable to this study was published in the United States if the research was carried out. Bibliographies of books and articles on Bolivian education were readily available from the period of 1949 to 1957 but few sources were listed after 1958. The Educational Index mentioned little after 1959. The

¹²Bereday, op. cit., p. ix.

¹³Montgomery, op. cit., p. 9.

last entry on Bolivia in the Yearbook of Education was in 1963. Such dearth of sources forced the investigator to approach the selected references in terms of broad features of Latin Education. Observations and interviews were then included to make the survey of literature more specifically applicable.

VI. DEFINITION OF TERMS

It was the opinion of the writer that there were no terms used in this paper which had unusual meaning requiring a definition. Due to the ambiguity, however, of the term "developing country," it was defined.

Developing country: included the term "underdeveloped nations" and "emerging countries" and was a misleading one. It was a relative term which depended upon "developed" nations for comparison. It concerned the economy of a nation which does not have the availability or desirable employment of the correct proportions of land, labor, and capital, under stable conditions to satisfy the basic wants and needs of its population and have something leftover for trade. As long as one society has a significantly higher living standard, which is the result of a more advanced technology, the other country will be under-developed or developing.

In Agan's research of school programs of rural Guatemala,

An underdeveloped society was defined as one where the functions of construction buildings, roads, bridges and irrigation systems; the growing of food, its processing and marketing; the raising of health standards and treatment of illness; the establishment of legal systems, the organization and administration of government; and the teaching of the young are performed at low levels of skill, technique and effectiveness. As men become capable of carrying out these tasks more efficiently and economically, the society develops.¹⁴

¹⁴Agan, op. cit., p. 1.

CHAPTER II

REVIEW OF THE LITERATURE

Much has been written concerning education in developing countries. Many books on economic development include a chapter on the role of education in the transformation of developing economies. Likewise much has been written about education in Latin America. Little, however, has been done to objectively analyze the role of education in Bolivian economic development. Scarce information was found on the subject of agricultural education in the rural schools of Bolivia necessitating a review of more general literature than was initially desired.

I. EDUCATION AS INVESTMENT

The strong desire for rapid change, the limited resources and the exceeding faith in education make the task of educational institutions difficult indeed in a developing nation. Unfortunately there are very few sophisticated research studies which shed light on the precise contributions of education to economic or social development. What work has been done is largely the result of efforts by economists and, more rarely, sociologists. While such research has failed to uncover many specifics with regard to the interaction of education and other development variables, there has been a growing suspicion on the part of some scholars that educational transformation is often antecedent to economic change, and thus at certain phases of development, expenditures on human resources may be more productive than expenditures on material resources.¹

Schultz concurs and adds,

Although it is obvious that people acquire useful skills and knowledge, it is not obvious that these skills and knowledge are a form of capital, that this capital is in substantial part a product of deliberate investment, that it has grown in western societies at a much faster rate than conventional (nonhuman) capital, and that its growth may well be the most distinctive feature of the economic system. It has been widely observed that increases in national output have been large compared with the

¹Thut and Adams, op. cit., p. 340.

increases of inputs of land, manhours, and physical reproducible capital. Investment in human capital is probably the major explanation for this difference.²

Galbraith emphasized that human capital was more essential to underdeveloped nations than other forms of capital since human capital was a prerequisite to social and community capital.³ Obviously the building of a vocational or technical school to impart skills and knowledge that will contribute directly to gross national product was a valuable investment. Shultz, Galbraith, and Thut have emphasized, however, that investment in programs of education, research, teacher training, and other human resources was also economically sound and desirable.

II. CHARACTERISTICS OF DEVELOPING COUNTRIES WHICH AFFECT EDUCATION

Whenever one discusses sociological factors of Latin America one must consider population. Although few children of the lower economic class completed their elementary studies and fewer yet completed a secondary curriculum, the numbers of high school students was increasing according to Gamboa. Population in Latin America, she indicated, should double in the period from 1950 to 1980; also the population was becoming more urban.⁴

Swanson argued that, "urbanization and rural exodus does not decrease

²Ibid., p. 342.

³John Kenneth Galbraith, Economic Development in Perspective (Cambridge: Harvard University Press, 1962), pp. 47-48.

⁴Emma Gamboa, "The Task of Educational Development Confronting Latin America," Education for National Development, Focus: Latin America (Pittsburgh: The American Association of Colleges for Teacher Education, 1964), p. 12.

the need for agricultural education, it merely adds to its complexities."⁵

Another source concluded:

Three factors have special relevance to the contemporary economic problems of Latin America. First, a population growth rate which has averaged 2.5 per cent annually since World War II has placed great strain on production capacity. Second, Latin Americans, like the people of other underdeveloped areas, have been affected by what economists have colorfully dubbed "the demonstration effect;" that is, the desires of the people have been stimulated by continued exposure through various means of communication to the higher standard of living in the more developed nations. Third, Latin American economies rely heavily on the sale of primary products which are subject to wide price fluctuations on the world market. A further structural difficulty involves the important agricultural sector which remains technologically underdeveloped and, therefore, productively inefficient.⁶

Swanson observed that from 50 to 80 per cent of the population was engaged in agricultural production and decided that a majority of children alive today would spend their lives in this rural environment. He also mentioned that, "More than half of the farmers who will produce the food needed in the year 2000 have already been born and at least 25 per cent of them are already involved, at least to some degree, in farming activities." Most of the food and fibre for the next three decades, he concluded, would come from land already under cultivation--much of it in the developing countries.⁷

Montgomery and Swanson listed several characteristics of underdevelopment including: isolation due to poor communication and transportation; absence of innovation due to inability to assume risk when living at a subsistence level; and an agricultural situation which was incompatible with features essential in commercial agricultural (i.e., small farms, simple

⁵Swanson, op. cit., p. 5.

⁶Thut and Adams, op. cit., p. 363.

⁷Swanson, op. cit., p. 4.

tools, human and animal power, lack of market orientation, and functional illiteracy).⁸

Montgomery mentioned a significant feature of education in developing nations was low esteem for farmers and downgrading attitudes toward physical labor.⁹ Thus explained this phenomenon as a result of traditional education oriented to a class system. He delineated two lower classes composed of peasants or agricultural workers in the rural areas and of industrial workers in the urban centers and two upper classes which included members of the landed aristocracy and the new business and political elite.¹⁰ "Race, culture, and economic position are the strongest determinants of social class position in Latin America."¹¹

Swanson pointed out the lack of a systematic instructional program in agricultural vocations at either the primary or secondary level. "No other occupational training need has been so completely overlooked by the developing countries themselves and, more tragically, by technical assistance agencies purporting to assist them." He also stated:

Most of the problems of rural and agricultural development can be traced directly to the scarcity of farmer-oriented agricultural education at the community school level Education in rural areas is either absent or of extremely low quality and, if available, it has little relevance to the real needs of the people, either youth or adult The pattern is designed for a type of intellectual performance that offers no reward for achievement in agricultural knowledge or practices.¹²

⁸Montgomery, op. cit., p. 2; and Swanson, op. cit., p. 3.

⁹Montgomery, op. cit., p. 9.

¹⁰Thut and Adams, op. cit., pp. 365-366.

¹¹William S. Stokes, Latin American Politics (New York: Crowell, 1959), p. 13.

¹²Swanson, op. cit., pp. 5 and 11.

Montgomery referred to similar problems with textbooks and reference materials. "Vocational-oriented programs of training usually involve application of science or technical knowledge. Such knowledge in an applied form seldom is available in existing texts or reference materials." He also stated that books from North America or Europe were usually not suitable if available.¹³

According to Gamboa poor articulation was another characteristic in a majority of the countries surveyed. 50 per cent to 60 per cent of the children dropped out of primary school before the third grade.¹⁴

It can be readily seen that these elements of economic backwardness may be linked together in cause and effect relationships to produce a series of vicious circles demonstrating how underdevelopment perpetuates itself . . .

A low educational level, for example, often leads to low productivity, which results in low income and prohibits educational advancement, etc. It becomes apparent that regardless of the vicious circle that is drawn, an educational factor is involved, although its significance and exact dimensions may be debatable.¹⁵

Educational problems in developing countries, obviously, were related to social, political, and economic problems. Education was needed to help alleviate social, political and economic problems; but the effectiveness of educational programs depended upon governmental priority (a change in political decision patterns), funds (an economic function), and popular support (reorientation of social values). The complications became more apparent along with the conclusion that a quick and simple solution was unrealistic.

¹³Montgomery, op. cit., p. 27.

¹⁴Gamboa, op. cit., p. 14.

¹⁵Thut and Adams, op. cit., p. 338.

III. THE CONTRIBUTION OF EDUCATION TO AGRICULTURAL DEVELOPMENT

Wharton considers ". . . education in its broad sense as the totality of any man's experience by which he adds to his knowledge--knowledge which helps him to conduct all his affairs of life." This definition includes both deliberate and non-deliberate kinds of education by which man acquires an increased reservoir of knowledge about the world around him. It includes formal schooling (primary, secondary, university). It includes on-the-job training such as special courses a business firm gives to its employees and workers. It includes non-deliberate education and training such as ". . . the socialization process by which each society transmits its culture to the new generation." The term "developmental education" was also used by Wharton. He defined it as the process of transmitting economically-useful knowledge.¹⁶

Thut and Adams claimed that there was much evidence of expansion and revision of educational programs to provide greater opportunities for "industrial, technical, and vocational education." A trend toward greater individual opportunity and self-determination was also observed. Further attention was noted to education for adults. All of these trends were likely to encourage a middle class to emerge according to the authors.¹⁷

The upward social mobility in Latin America produces a continuous increase in the middle class, and this middle class is composed of the groups destined to exercise the greatest influence upon the social,

¹⁶Clifton R. Wharton, Jr., The Role of Farmer Education in Agricultural Growth (New York: The Agricultural Development Council, Inc., 1963), p. 2.

¹⁷Thut and Adams, op. cit., p. 19.

economic and political progress of this part of the continent.¹⁸

One might assume such a middle class to be a valuable asset, even a necessity, to a commercial agriculture.

At this point it was necessary to distinguish between vocational, technical, and professional education. Montgomery defined vocational education as training for a given occupation or type of productive activity. He described technical education as stressing in-depth training in special areas or sciences. "Professional education consists of preparation for areas of specialized service, such as law, medicine, or veterinary medicine."¹⁹ The writer felt further clarification was necessary. Training was usually considered to mean manipulative skills while education included learning to apply knowledge in uncharted areas. Education meant more than accumulation of facts. It meant learning how to define, then solve problems, and learning how to learn to enable perpetual self-education. Developmental education, then, included more than classical disciplines and by necessity it encompassed more than basic skills. Montgomery believed the basic objectives of education and training were those of production and institution building.²⁰ Wharton suggested that perhaps the right approach was "tool building" rather than "problem-solving."²¹ When education began to accomplish these objectives then the contributions would become apparent.

¹⁸Gamboa, op. cit., p. 12.

¹⁹Montgomery, op. cit., p. 21.

²⁰Ibid., p. 2.

²¹C. R. Wharton, Jr., Revolutionizing Higher Education in the Developing World: Observations on Southeast Asia (New York: The Agricultural Development Council, 1965), p. 23.

Change was perhaps one of the greatest contributions, according to Montgomery who said that development required change centered on the abilities, aspirations, and actions of individuals. For rural persons, especially farmers, change required the ability to act independently rather than by direction. This source elaborated further that traditionally and habitually the lower classes had acted by instruction from a superior (i.e., head of the family, a tribal leader, political leader, or patron). It was emphasized that ability to act independently was necessary as democratization progressed.

Montgomery also felt that education and training contributed to the following:

- a. ability to understand, to accept and to use knowledge about improved practices and new enterprises.
- b. ability to analyze alternative actions or enterprises, ability to make independent choices, and having made the choice proceed to act on the basis of the decision, and
- c. ability as individuals to cooperate with others and participate in group activities in developing institutions and undertaking group projects.²²

Quillen supported these conclusions.²³

An Organization of American States report concluded that strengthening higher education was an indispensable condition for the transformation and expansion of the educational system as a whole to enable better use by developing countries of external financial aid and for general orientation of the societies towards goals of genuine liberty and democracy.²⁴

Education promoted the development of middle men such as traders and

²²Montgomery, op. cit., p. 5.

²³J. James Quillen, "Problems and Prospects," in George D. Spindler, *Education and Culture* (New York: Holt, Rinehart and Winston, 1964), pp. 50-52.

²⁴Organization of American States, La Educacion Superior en America Latina y la Cooperacion Latino-Americano (Washington: Pan American Union, 1961), p. iv.

business men who provided those services essential for commercial agriculture, according to Montgomery. "Another function for which education is essential is the development of personnel for planning and implementing projects." Decisions concerning kind, content, and objectives of programs as well as sources of finances and systems of effective supervision and administration were included as a result of the latter function.²⁵

"An efficient educational technology will greatly assist the 'multiplier' and 'diffusion' effects of learning." Gamboa pointed out that such a multiplier effect would be best utilized by stressing teacher training.²⁶

In quantitative terms the contribution of education in Latin America was apparent.

The quantitative increase of education between 1955 and 1960 is a significant index of progress achieved in this period. The increase in effective registration was:

40 per cent in primary education

58.8 per cent in secondary education

22 per cent in higher education.

These figures testify to the will of the governments to develop human resources at a faster rate than their economy.²⁷

Lewis concluded that the unique contribution of education was not technical in the narrow sense but it was found in the social motivation for scientific work, in the objective method of thought, in freedom of inquiry (both expression and action), and in an organization and government based on

²⁵Montgomery, op. cit., p. 5.

²⁶Gamboa, op. cit., pp. 11-20.

²⁷Organization of American States, Perspectivas de Desarrollos de la Educacion en las Paises Latino-Americanos (Washington: Instituto Desarrollo Economico y Social de la Universidad de Paris, 1963), p. 11.

popular freedom and responsibility. This ". . . is the right and duty of education."²⁸

IV. ADULT EDUCATION AND TRAINING

Thut and Adams stated that, "Provisions should be made for extensive out-of-school education." These provisions included part-time but articulated schooling for adults. It was also observed that effective use could be made of "multi-purpose village workers, social education organizers, and agricultural extension specialists in cooperation with the teachers,"²⁹

Adult education is for furthering the development of abilities of persons who have reached maturity. In respect to content adult education may be the essentials of basic education including literacy and communication skills. Or it may be on-the-job training for the development of special skills and abilities required for specific occupations. The most important adult education in developing countries, and the kind most important for rural persons is extension education.³⁰

Mosher maintained that the importance of extension education was as a process of out of school education. The essentials of this process he listed were:

1. working with rural people along those lines of their current interest and need which are closely related to gaining a livelihood, improving the physical level of living, and fostering community welfare;
2. utilizing particular teaching techniques; 3. conducted with the aid of supporting activities; and 4. carried on with a distinctive spirit of cooperation and mutual respect.³¹

²⁸A. B. Lewis, What the Land Grant Colleges Can Contribute to Agricultural Programs in Under-Developed Countries (Paper presented at Southwest Social Science Meetings, Unpublished), p. 16.

²⁹Thut and Adams, op. cit., p. 349.

³⁰Montgomery, op. cit., p. 21.

³¹A. T. Mosher, Varieties of Extension Education and Community Development (Ithaca: Cornell University Extension Service, 1958), p. 12.

A Food and Agriculture Organization report assigned the responsibility to the government for an "adequate" extension service for the "entire country."

This survey report listed three different types of extension organizations:

1. a divided type of organization where each department has its own extension service; 2. a unified type where one service is concerned with all technical matters; 3. an organization in which there is a two way flow by having subject matter specialists serve as a link between research stations and extension workers to provide a flow of useful information and a channel for referring farm problems back to research stations.³²

From the writers observations and experiences the first of these types was satisfactory only in rare circumstances. Usually this organization led to fragmentalization, duplication of effort, competition between departments, and breakdown in communication and efficiency. The nature of institutions in each country determined which of the other two systems was best and to what extent variations and extra features were required.

"No single system of extension, no transfer of an established system without adaptation will meet the requirement of an individual country." Also, "For adult education there should be appraisals of methods of teaching according to the knowledge or information to be transferred and to the level of understanding among those receiving the instruction."³³

V. SOME CHARACTERISTICS OF LATIN AMERICAN COUNTRIES IMPORTANT TO EDUCATION

Education in Latin America was analyzed by Thut and Adams along with other continental factors which have influenced education. Two factors stood

³²F.A.O., Extension Survey Report (New York: United Nations Printing Service, 1962), pp. 23-25.

³³Montgomery, op. cit., pp. 4 and 32.

out in the analysis. "First, the nations of Latin America have not been able to take full advantage of their economic potential. Second, the advances that have been made have not been evenly distributed." A more specific list of conditions included a long background of political instability, illiteracy, social elitism, poverty, social frustration, and real or imaginary fears of the various forms of imperialism. Independence (1811-1830 for most nations) failed to change the legacy of colonialism. Such conditions still existed in the 1960s.³⁴ In Bolivia the literacy was recorded as only 30 to 35 per cent. This put Bolivia in 18th place among Latin American countries.³⁵

Many North American observers viewed the absence of a strong middle class as very crucial according to Thut and Adams. Political insecurity was present because technological advancement had failed to keep pace with the desires of the people. Compounding this situation was a centralized and authoritarian structure of society with a class stratification which largely prevented evolutionary or democratic change. Inequitable tax systems and land tenure practices also held back development and added to class tension.³⁶ Even when a middle class emerged it was characterized by ". . . personalism, kinship, hierarchy and stratification, materialism of a special kind, transcendentalism or interest in spiritual values, the high worth of inner states and emotional expression and fatalism."³⁷

³⁴Thut and Adams, op. cit., pp. 356-361.

³⁵UNESCO, World Illiteracy at Mid-Century, Monographs on Fundamental Education, XI (Paris: United Nations Printing Service, 1957).

³⁶Thut and Adams, op. cit., pp. 362-363.

³⁷John P. Gillin, "Some Signposts for Policy," in Richard N. Adams et al., Social Change in Latin America Today, Council on Foreign Relations (New York: Harper and Row, 1960), p. 25.

Much of the educational program in Latin America traced its origins to the Jesuit priests of the colonial period according to Thut and Adams. The Jesuits made their greatest impact in secondary and higher education founding the colegios, the prototype of many existing Latin secondary schools. In the colegios the curriculum manifested the traditional liberal arts and served the elite. Colleges and Universities were quite similar both in curriculum orientation and clientele. Schools founded by the priests for the lower classes emphasized trade skills, the three R's, and religion. For the Indians, instruction was mainly limited to religion, Spanish, and crafts. Basic instruction in religion was considered sufficient instruction for the majority of the population. This multiple track education reflected the traditional European concept of literacy and professional curricula and it served to "harden the boundaries of highly segmented societies."³⁸

Thut and Adams also contended that Latin American schools were narrow in their curriculum offerings, formal in educational methods, and providing sharply limited educational opportunities.

Though significant variances exist in methodology throughout Latin America, the following generalizations can be made: (1) Accumulation of factual knowledge is a major consideration; therefore the teacher lectures or dictates, and the pupils are expected to take careful notes. Pupils do not read extensively in supplementary books; in fact, the lack of appropriate reading materials contributes to a recurrence of illiteracy among school dropouts. (2) There are few pupil discussions or other forms of pupil participation. (3) There is little recognition of differences in pupils' interests and abilities. (4) The social skills and attitudes emphasized so much in North American schools receive little attention. As in most underdeveloped areas where teachers are ill-trained and facilities poor, traditional teaching techniques involve excessive memorization and verbalism.³⁹

³⁸Thut and Adams, op. cit., pp. 356-359.

³⁹Ibid., p. 373.

It was not felt that the schools had yet made their maximum contribution either to economic or social development. Low initial attendance and a rapid dropout rate were observed to have produced an average level of education in Latin America barely above the first grade.⁴⁰

Part of the low attendance and high dropout rate was explained by Thut and Adams by apathy and even hostility of the rural adult population. The rural schools had not adapted to the rural environment so farm parents could see little value in sending their children. The schools often demonstrated no relevance to the daily problems of life. The elementary school was not designed to provide terminal education yet a limited exposure to the rural school was the last formal education experienced by most persons. The elementary school was designed for preparatory education yet it failed to provide the prevocational experiences and motivations necessary for self-sufficiency. A reason given for many examples of low quality was the low priority given the rural sector by national governments in comparison with other development demands. The problem of large Indian populations in rural areas further complicated the issue. Additional problems arose with language differences, lack of funds for school, and inability to spare potential labor from the family farm. The teacher's success was directly related, in such situations, to his bilingual ability.⁴¹

The "nuclear" school was described by Thut and Adams. Bolivia, Peru, and Guatemala initiated this program to help solve the "Indian problem." It was hoped that this program would provide, within the limited financial means

⁴⁰Ibid., p. 371.

⁴¹Ibid., pp. 371-373.

available, motivation, knowledge, and skills to improve living standards.

Under the nuclear school arrangements, each geographic region has a designated nucleus where a central school is located and from which a number of subsidiary schools (usually fifteen to thirty) draw equipment, supplies, and professional supervision. Each area with its complement of schools may thus be considered a social and cultural region. The curricula of the nuclear schools typically include health education, instruction in the national language, arithmetic, moral and social education, pre-vocational instruction, domestic arts, crafts, and farm management. In the subsidiary schools the course of studies is generally more simple and of shorter duration.⁴²

In 1962 a Conference on Education and Economic and Social Development in Latin America was held in Santiago, Chile, and sponsored jointly by the Organization of American States, the United Nations Educational, Scientific and Cultural Organization, the Economic Committee for Latin America and the Office for Social Studies of the United Nations.

The most acute problem, according to the documents, is the spectacular disparity between primary school populations in urban zones and in rural areas. The enrollment is rated as medium in the cities and catastrophic in the country. The Chile Conference recommended that the governments give prime importance to the improvement of elementary education.⁴³

The study emphasizes the need to carry out a priority effort to improve the quality of education and points out that "the training of qualified teachers and the continued training for teachers in service would constitute one of the most efficient means to remedy this situation."⁴⁴

Gamboa found only 59 per cent of the high school teachers in Latin America were academically qualified and these were not necessarily professionally qualified.⁴⁵

⁴²Ibid., pp. 380-381.

⁴³Pan American Union, "Conferencia Sobre Educacion y Desarrollo Economico y Social en America-Latin," La Educacion, Ano VII (January, June, 1962), p. 85.

⁴⁴Organization of American States, 1963, op. cit., p. 12.

⁴⁵Gamboa, op. cit., p. 16.

A common observation was that ". . . in parts of Latin America a major problem has been to enlarge the number of persons trained vocationally by secondary level institutions."⁴⁶ However, ". . . attempts to broaden the secondary school curriculum to include vocational and prevocational skills or to provide large numbers of vocational secondary schools, have just begun."⁴⁷

A list of educational needs compiled in the Act of Bogota, 1960, included:

- b. The adequacy of training in the industrial arts and sciences with due emphasis on laboratory and work experience and on the practical application of knowledge for the solution of social and economic problems;
- c. The need to provide instruction in rural schools not only in basic subjects but also in agriculture, health, sanitation, nutrition, and in methods of home and community improvement;
- e. Specialized trade and industrial education related to the commercial and industrial needs of the community;
- f. Vocational agricultural instruction; . . .⁴⁸

Thut and Adams also point out that there was a brighter side to Latin American education. They mentioned the large number of great Latin American thinkers in the political, artistic, social, and educational fields. The colonial policies of Spain and Portugal also "set a course that prevented the development of flagrant racial and ethnic discrimination in Latin America."⁴⁹

Other innovations are fostered by private, national and international agencies. Increased services in agricultural and home economics extension and in developing a more wholesome home life are having a significant grass-roots effect. Mobile training units, modernized versions of the Mexican cultural missions, made up of specially trained teachers and provided with audio-visual equipment, conduct literacy campaigns and

⁴⁶Thut and Adams, op. cit., p. 345.

⁴⁷Ibid., p. 374.

⁴⁸Special Study Mission to Latin America: Venezuela, Brazil, Argentina, Chile, Bolivia and Panama, Appendix A. (Washington: U.S. Government Printing Office, 1961), p. 43.

⁴⁹Thut and Adams, op. cit., p. 356.

community development projects in remote areas. The "radio-phonic" schools of Colombia have had some success in literacy and community education. Government-sponsored production of low-cost instructional and supplementary reading materials is having a significant effect in maintaining and improving literacy among those who have had but little schooling. Experiments in low-cost school buildings may produce a partial answer to the enormous school-building needs existing in most rural areas. While all these innovations and experiments are making contributions to educational development, the need for large-scale comprehensive efforts persists.⁵⁰

VI. PLANNING PROGRAMS AND FACILITIES FOR EDUCATION

To this day no school program can be adequately explained without reference to the ultimate philosophical commitment of the society it serves, nor can educational changes be compared while ignoring the historical period in which they take place.⁵¹

Such an approach necessitated consideration of national character which Mallinson said was a state of mind which guaranteed a common purpose and group effort. "It is a kind of large scale sentiment and is the result of the qualities needed by the whole group, for the attainment of the group ideal."⁵²

Cramer maintained:

. . . the national character as identified may be used to explain distinctive features of the national system of education, and sometimes to predict probable trends of future development. . . . persons, therefore, attempt to identify components of the group image that may be described in more specific terms.

1. Sense of national unity
2. General economic situation
3. Basic beliefs and traditions, including religious and cultural heritage
4. Status of progressive educational thought
5. Language problems

⁵⁰Ibid., p. 381-382.

⁵¹Bereday, op. cit., p. 21.

⁵²Vernon Mallinson, An Introduction to the Study of Comparative Education (London: Heinemann, 1957), p. 4.

6. Political backgrounds: communism, democracy
7. Attitude toward international cooperation and understanding.⁵³

Thut and Adams felt it necessary to pose several questions at this point: what were the social philosophies of the groups supporting education; what were the educational activities anticipated to achieve; what were the administrative controls essential for success; what was the nature and number of instructional programs and institutions needed; and what opportunities were to be provided for which classes of individuals? "The decisive role played by philosophical commitments in shaping social institutions and practices is nowhere more evident than in the forms of administrative control employed by societies in their educational systems."

According to Thut and Adams authoritarian societies assert that the individual pupil existed to serve the state while in democratic societies the state was created to serve the individual. Such a philosophical issue was important in planning educational programs. However, while helping individuals may be the ultimate goal, "The determining policy clearly is to serve the needs of the state . . ."⁵⁴

Parnes said:

Educational needs is not a term without ambiguity. There is no such thing as a need in education (nor for the individual or the society) except in terms of values or goals attainable and the total amount of resources available for attaining such goals. The needs of a country for education, in other words, depend on the selected criteria and even so, can be arrived at only with references to a comparative needs chart.⁵⁵

⁵³John Francis Cramer and George Stephenson Browne, Contemporary Education (New York: Harcourt, Brace, 1956), p. 5.

⁵⁴Thut and Adams, op. cit., pp. 15-18.

⁵⁵Herbert S. Parnes, Forecasting Educational Needs for Economic and Social Development (Paris: Andre Pascal, O.E.D. Publications, 1962).

Harbison and Myers emphasized that setting targets rather than making forecasts should concern a human resource planner who was estimating future requirements. Their reasoning was that a target indicates a direction for action.⁵⁶ According to Montgomery it was necessary to decide how much emphasis to place on the following areas of consideration: "improvement of the total life of the village; increasing productivity of individuals through the development of skills; development of citizenship and leadership; and inspiring and motivating village youth."⁵⁷

Providing a climate of innovation and experimentation was Swanson's main concern in estimating future requirements. He predicted that "an inventory of the past" to determine future possibilities would hopefully lead to an atmosphere of flexibility and creativity. A pattern which tolerated revision in traditional customs and hypotheses was needed.⁵⁸

Schultz questioned whether the economic principles taught in the West were really appropriate for general application. He expressed a fear that they were culture-bound and relevant mainly to "industrial capitalistic countries."⁵⁹

Economic policies certainly entered into educational planning since it was established that education was desired to improve developing nations economically as well as politically and socially. Schultz's comments, moreover, shed light on the caution necessary on the part of a western agent of

⁵⁶Harbison and Myers, op. cit., pp. 192-208.

⁵⁷Montgomery, op. cit., p. 23.

⁵⁸Swanson, op. cit., p. 3.

⁵⁹T. W. Schultz, Economic Value of Education (New York: Columbia University Press, 1963), p. v.

assistance working in a developing nation.

It is quite widely accepted that a nation's educational policy must be developed by the native leaders of that country. The choice of basic values to be promoted and the selection of educational priorities do not fall within the prerogatives of a foreign advisor. Yet there remains a role for the outside specialist, a sensitive but important role. A foreign educational advisor presumably holds certain knowledge and skills not found among the native educators; furthermore, he has a professional detachment which increases his objectivity.⁶⁰

Montgomery observed that usually rapid achievement was desired by persons in developing nations. Priorities, then, were necessary. Decisions were necessary concerning kind of education and training, how the system was to be developed, courses and material to be presented, physical facilities to be provided, and sources of funds.⁶¹

Thut and Adams also point out the need for priorities due to a shortage of funds and talent required to move forward in all areas with equal rapidity.

There appear to be two major factors impinging on any valid approach to the selection of educational priorities. The first has to do with the cultural goals and stage of development of the nation in question and the second is related to the pertinence of the experiences provided by the various educational institutions to the development process.⁶²

Montgomery said:

An important measure of accomplishment of education for agricultural development is the extent to which farmers and rural people adopt improved practices and improve their productivity. Adoption of new, improved practices and procedures by individual farmers is the manner in which traditional agriculture is transformed into a more productive system.⁶³

⁶⁰Thut and Adams, op. cit., pp. 350-351.

⁶¹Montgomery, op. cit., p. 1.

⁶²Thut and Adams, op. cit., p. 345.

⁶³Montgomery, op. cit., p. 28.

The adoption of improvements, he continued, was the reason traditional agriculture was transformed into a more productive system.

A development-oriented curriculum was recommended by Thut and Adams. Such a curriculum would have to provide technical and scientific skills needed by a developing nation and also encourage certain personal drives and social attitudes.

Objectivity, rationality, and a favorable view toward change as a process are said to be attitudes conducive to economic and social change. This being the case, the peoples of the underdeveloped areas need new images, new values, new spirit, and new faith in the future. They need to envision a new culture and their place in that culture. Since new values and attitudes often will run into conflict with existing societal patterns, family structure, and various entrenched political and religious institutions, the reconstructive nature of a curricular experience becomes apparent. It may be expected that schools which seek to promote creativity, innovation, respect for entrepreneurship, and belief in the worth of hand skills will promote grave dissatisfaction with a nation's traditional values. To ease the divisive effects of a widening schism between school and society, extensive communication and close interaction must be maintained between the two.

Prestige was needed for vocational courses, also. It was anticipated that new knowledge and new ideas might conflict with tradition but new approaches were needed, ". . . if the schools are going to ease the traumatic effect of social change."⁶⁴

Other implications of educational approaches to cultural change were discussed as follows:

1. . . . people do not vary their customary behavior unless they feel some need which existing ways do not satisfy.
2. Needs cannot be established by fiat.
3. Devising means for participation in the light of knowledge of culture and social organization would seem to be a fundamental procedure in the process of directing cultural change.⁶⁵

⁶⁴Thut and Adams, op. cit., pp. 347-349.

⁶⁵Edward H. Spicer, Human Problems in Technological Change (New York: Russell Sage, 1952), pp. 292-293.

Thut and Adams advised caution when working to affect change. The "tenacity with which many people--teachers as well as laymen--still cling to inherited biases for 'their' school system" was noted.⁶⁶

Havinghurst suggested that education should be adapted to children of every diverse cultural background. He also recommended that education should help a great number of children to change their status by moving from one social class to another.⁶⁷

Gamboa urged improvement of libraries and educational materials. New teaching areas were needed to contribute to training of youth.⁶⁸

For maximum efficiency national educational programs should be developed for the use of various media. Designated schools may be used as audio-visual centers or as outlets for national centers. Mobile training units carrying audio-visual equipment and operated by a team of educational and communication specialists are a necessity in the most rural areas. Such units have had considerable success in India, the Near East, and Latin America. Visual demonstrations have been particularly effective in teaching the illiterates, because visual experience appears to be a most influential factor in their decision making process. Many of the techniques mentioned here have yielded dramatic results in rural communities or small towns, but there have been discouragingly few nationwide attempts to use them. A conservative attitude toward experimentation seems to prevent their all-out use for a real educational breakthrough.⁶⁹

The Chile Conference recommended that more personnel training was needed to include not only teachers but also supervisors, counselors, administrators, and other specialists. Incorporation of such training into the national educational system was needed.⁷⁰ Gamboa said that several

⁶⁶Thut and Adams, op. cit., p. 1.

⁶⁷Robert J. Havinghurst y Colaboradores, La Sociedad y la Educacion en America Latina (Buenos Aires, University Editorial, 1962), p. 170.

⁶⁸Gamboa, op. cit., p. 18.

⁶⁹Thut and Adams, op. cit., p. 350.

⁷⁰Pan American Union, op. cit., p. 28.

conferences of ministers of education had been largely directed toward planning the necessary changes. The transformation however depended upon adequate response of teacher training institutions.⁷¹ Rodriguez maintained that coordination should be established with the Ministries of Education to provide cooperation in the initiation of both immediate and long range plans for the in-service training of teachers. He recommended short courses in areas of specialization especially in science, mathematics, and in administration and supervision.⁷²

The Institute for Educational Research and Development summarized a few of the important needs of educational institutions.

- To increase the number of prospective high school teachers through economic encouragement, adequate academic systems and attractive conditions in the exercise of their profession.
- To review programs in order to assure an adequate proportion and quality in general studies, specialized studies and professional education.
- To open new areas for high school that are not being given or that are taught in only some institutions, such as: music, physical education, home economics, business & industrial education, fine arts, foreign languages (English & French), and agriculture.
- To improve and increase the programs for the teachers in service.
- To establish a graduate program to train the personnel needed in Central America for school administration and supervision.
- To promote the improvement and enrichment of the faculties offering teacher training programs.
- To open one or more education research centers related to graduate programs of instruction.
- To open one or more centers for the production of educational materials.⁷³

The great challenge to educators, Gamboa felt, was (1) to understand the social revolution, (2) to change their attitudes and the attitudes of

⁷¹Gamboa, op. cit., p. 15.

⁷²Ismael Rodriguez Bou, Informe Sobre la Situación, Necesidades y Soluciones Aconsejables para el Desarrollo de la Educación Superior en América Latina (San Jose, Costa Rica: Unpublished), p. 173.

⁷³Gamboa, op. cit., p. 17.

others to bring about cooperation and understanding, (3) to spread this understanding to existing organizations and institutions, and to create new organizations and institutions where needed.⁷⁴

Several miscalculations in agricultural development were enumerated by Swanson. He indicated that the most serious miscalculation has been the idea that development of agriculture could be accomplished without an agricultural education program at the local community school level for farmers and prospective farmers. He claimed that a review of the facts showed that the extent of this miscalculation was appalling. Secondly, he alleged that there were miscalculations concerning the conditions under which agricultural technology was useful. Development of present technology was perhaps more important than inputs of new technology.⁷⁵

Thirdly, he maintained a miscalculation has been the implicit conclusion that there is a single acceptable model of agricultural development. He said that the "acceptable model" has been the establishment of an agricultural college with a teaching and a research function and the creation of an extension service. Although this model contained some of the necessary essentials, it was not sufficient. He observed that this model was important in the United States due to a high level of rural literacy and a rural dominated political system. He also claimed that the "public school system has always invested more resources in the preparation of 'middle-level agricultural manpower' and the training of farmers than any other segment of the educational system."⁷⁶

⁷⁴Ibid., p. 21.

⁷⁵Swanson, op. cit., pp. 4-5.

⁷⁶Ibid., pp. 9-10.

The essential ingredient is systematic, curriculum-oriented education programs for those who are now farming and also for future farmers; a program provided through the community educational system. In essence, what is needed is a program that will provide an agriculturally literate population on the land. Without a massive increase in the absorptive capacity of the people on the land increased technology may be an academic triumph but a sterile achievement.⁷⁷

In Chile the Commission for the Gradual Renovation of Secondary Education recommended school life be organized into six areas: Health education; economic and vocational education; esthetic education and use of leisure time; language, communication, and expression; scientific education; and philosophical education.⁷⁸ If followed that recommendation would balance the traditional Latin curriculum and raise questions about initiation of new educational programs and rethinking of present programs.

VII. THE MONTERO AREA

Montero was a small village located 50 kilometers north of Santa Cruz de la Sierra (Appendix II). The latter was capital of the department of Santa Cruz which was divided into thirteen provinces (Appendix III).

According to White ten of the thirteen provinces of Santa Cruz were tropical and sub-tropical regions (Appendix IV). The average annual temperature in the city of Santa Cruz was 64.7°F with a yearly high of 91.2°F, an average annual rainfall of 55 to 65 inches and an average annual humidity of 71 percent. There was no snow or frost.⁷⁹

⁷⁷Ibid., p. 17.

⁷⁸Armando Samper, A Case Study in Cooperation in Secondary Education in Chile (Washington: National Planning Association, 1957), p. 24.

⁷⁹Sanford W. White, "Assembled report of the Operations Officer USAID on the Santa Cruz Area," (Santa Cruz, Bolivia: Unpublished).

White indicated that in 1965 there were 400,000 inhabitants in the department of Santa Cruz. This was an increase of 50,000 over the volunteer colonization in the Yapacani and Rio Grande areas (Appendix II). The density population of the department ($.95/\text{km}^2$) was lower than the national average ($3.6/\text{km}^2$).

Characteristics:

- a.) Fifty-four per cent population is from birth to 18 years of age.
- b.) Nine and one-tenth per cent of the Santa Cruz population lives in the rural areas which represents six per cent of the total population of Bolivia. (Estimated in 1965 which has increased at least one per cent since 1955).
- c.) Thirty-nine and seven-tenths per cent represents the producers (economic producers) in Santa Cruz department in 1950.
- d.) Percentage of distribution of the active population obtained from 1950 census.

Agriculture	52.7 per cent
Industrial	10.8 per cent
Services	21.6 per cent
Not classified	14.9 per cent ⁸⁰

White mentioned that the population was quite mobile. As a result the ties of neighborhood and community solidarity never developed any degree of strength.⁸¹

Sandler pointed out that basic health problems of Eastern Bolivia were those common to most developing nations:

- (1) a general lack of knowledge in environmental sanitation; (2) malnutrition; (3) infectious diseases and parasitic diseases; (4) high fertility and infant mortality and morbidity.

He also stated that 33 per cent of all children in this area died before they were one year old and 50 per cent died by the age of five. The most common causes of death were diarrhea, pneumonia, and measles---illnesses which rarely resulted in death in a well-nourished population. Infections and parasitic

⁸⁰Ibid.

⁸¹Ibid.

infestations were common; plague, yellow fever, tuberculosis and leprosy were present; and parasitosis was rampant. "The high fertility is not a problem as yet in Bolivia due to the extremely high infant death rate which is a reflection of the problems discussed above."⁸²

The soil characteristics in the area between rivers Grande and Piray 6,208 km² were reported by White. Soils in general were of alluvial origin; 38 per cent of the area was bottom land which was well drained, fertile and had scattered trees; and the area was generally level. Ten per cent of the soils consisted of sandy soil covered with short pasture grasses while 52 per cent had light sandy soils of medium texture.⁸³

Only 10.2 per cent (3,800,000 Ha.) of the department was listed by White as used for agriculture. Of the agricultural area only 3.6 per cent was cultivated in 1960. This was due to a low density of population and therefore, a shortage of labor.⁸⁴

Resources abounded in the area according to White and O'Hara. Santa Cruz possessed 48 per cent of the forest area in the country. Principal species were mahogany, cedar, oak and additional hard woods. The forests yielded an average of 68 cubic meters per Hectare of wood. Oil was being produced and indications were favorable for future expansion of production. The major crops grown were corn, sugar cane, and rice followed closely by yucca, fruits, coffee, wheat, and potatoes. Cotton, cacao, tobacco, barley and sweet potatoes were also produced.⁸⁵

⁸²Ibid.

⁸³Ibid.

⁸⁴Ibid.

⁸⁵Ibid.; and Hazel O'Hara, "Bolivia's Adventure in Learning," Natural History (Vol. 63, No. 10, December, 1964), pp. 140-147.

Livestock statistics were as follows:

Cattle--365,000 head, which gives Santa Cruz the second place after Beni.

Swine--100,000 of swine, 13 per cent of national production and third place.

Poultry--365,000 (in 1958), 450,000 (in 1965).

Sheep--100,000 head.

The subtropical environment of the Department of Santa Cruz was well suited for the production of cattle.⁸⁶

FAO reported that consumption of beef was increasing more rapidly than production in Bolivia. This fact indicated that the market prospects for beef in both Latin American and the world markets were good.⁸⁷

White discussed the problems of ranching in Santa Cruz. He maintained that certain political and social changes plus the appearance of rabies and foot and mouth diseases combined to reduce the cattle population of the department during the last 10 to 20 years. Although total numbers of cattle were apparently no longer decreasing, conception rates were low and mortality of calves was high. Indiscriminate slaughter (especially in breeding herds) poor growth rates, late maturity, and general slaughtering at immature weights were "preventing the cattle industry from developing its enormous natural potential." Many owners kept no records of production preventing business efficiency analysis. Poor communications was cited as a prime reason for continuing lack of education and consequent inability to improve management skill on ranches, unattractiveness of ranching to younger people, ineffective servicing of the ranches with technical support (vaccines, medicines, cattle salt, barbed wire, etc.), and inefficiency in the marketing of cattle products.

⁸⁶White, loc. cit.

⁸⁷Ibid.

White also claimed ranching was undercapitalized.

It is however necessary to point out, that in the opinion of the World Bank Commission capital loans on similar terms to those now offered by the Banco Agricolo,* are economic for the cattle producer, if they are properly invested and if good technical advice is obtained and followed, in order to increase productivity.⁸⁸

These problems revealed many barriers to agricultural production in the Santa Cruz area.

Among the practices which needed to be generally adopted, White recommended, are: proper record-keeping, attention to market trends, vaccination (now available for about 10 cents per head), use of mineral supplements, attention to water supplies and provision of bull and calving paddocks. Also suggested were introduction of early weaning of calves, protection of young heifers, fencing of cultivated legume-grass pasture, proper culling of barren female stock, careful selection of bulls, and a "good breeding policy which can be followed without frequent changes . . ."⁸⁹

Most of the above recommendations were echoed by Caulderbank and Cole concerning dairy production.

The Santa Cruz area is considered to be favorably placed to provide the major part of growth in national milk production--with a potential saving of imports currently costing nearly two million dollars per year . . . There is an immediate local market potential in the region of 10,000 liters per day, and the prospect of a total market (including both local and national fractions) of at least 25,000 liters per day . . ."⁹⁰

Caulderbank and Cole pointed out several recent developments which influenced cattle production in the Department. Included were: more, though

* Agricultural Bank

⁸⁸Ibid.

⁸⁹Ibid.

⁹⁰Ibid.

still insufficient, technical advice; rising prices; improving, though inadequate, communications; guaranteed vaccines for certain diseases; new legume and grass varieties; introduction of new breeds of livestock; less expensive fencing; and assistance by the World Bank, USAID, British Mission, FAO, and other foreign organizations.

An agricultural extension service was established in 1951 in the department according to White. USAID operated this service until 1961 when it was transferred to the Ministry of Agriculture. "From 1951 to 1961 over 175,000 farmers attended one or more extension demonstrations. During this same period, the agents made 9,743 visits to farms and 12,889 farmers visited the Extension Offices."⁹¹

It was reported that the Saavedra Experiment Station, established in 1949, has contributed to production increases in rice, sugar cane, and corn. Valuable information has been disseminated concerning the application of sprays, herbicides, and fertilizers.⁹²

Peterson detailed Peace Corps activities in the department of Santa Cruz. Of the 50 volunteers assigned, 20 were working in rural education to improve teacher quality, to introduce modern methods of teaching including audio-visual aids, and to set up model classes where reason was emphasized in contrast to rote learning. Twelve volunteers were working in the rural activities of the National Federation of Savings and Credit Cooperatives. Other volunteers worked in university teaching and community development programs.

⁹¹Ibid.

⁹²Ibid.

Projections were for 80 volunteers, to work mainly in the above mentioned endeavors.⁹³

Olsen described the role of the Centro Boliviano Americano (Bolivian American Center). The primary responsibility was observed to be teaching of English. The centers were established to facilitate the work of USIA* and a library of 4,000 books (2nd largest in the city of Santa Cruz) was available to this end. The Center, observation revealed, also coordinated the activities of the American Field Service, International Institute of Education, USAID, and the Catholic Welfare League.

USAID provided loans for a multitude of projects which were enumerated by White. Twelve thousand, two hundred loans were made to the Santa Cruz farmers between 1955 and 1961. Funds were used by a colony cooperative, a sugar mill, and other industries in the area. A machinery pool was set up to clear farmer's land at prices below actual cost. Fifteen thousand hectares of land were cleared and thirty-four thousand were deep plowed. Special loans were also established to encourage certain agricultural enterprises. USAID loans were being utilized to build and maintain highways, improve health and sanitation, construct rural schools, and aid in community development (mainly in the colonies). In the colonies part of the loans were used for a radio communications system.⁹⁴

Smith described efforts to establish an international airport 13 kilometers north of Santa Cruz. The potential impact of this activity was

⁹³Ibid.

* United States Information Agency

⁹⁴Ibid.

expected to be enormous. Smith also described the special projects which could be utilized for small needs (up to \$5,000). Seventeen of these projects were administered in the previous two years by the Santa Cruz office of USAID. The eight currently in operation included construction of schools and hospitals.⁹⁵

White concluded that due to climatic condition, soils, and the amount of land available, the area around the city of Santa Cruz was a "boom area for agriculture." The chief obstacle was marketing the products; therefore expanded national demands for consumption and export were needed.⁹⁶

VIII. THE AMERICAN FARM SCHOOL OF THESSALONIKI, GREECE

Littell indicated climatic and topographic barriers to agricultural production in Greece. He spoke of isolated villages, seasonal weather extremes, and rockpile pastures. Traditional methods of production and lack of economic diversification plagued farmers in this nation.⁹⁷

According to Linn an approach to agricultural education has been developed at a farm school near Thessaloniki, however, which has been quite successful. It has introduced milk pasteurization, grain sorghum, certain varieties of hybrid corn, purebred dairy stock, beef cattle, silos, balanced feeds, meat-type hogs, plus many other kinds of equipment and practices. It

⁹⁵Ibid.

⁹⁶Ibid.

⁹⁷Robert Littell, "They're Helping Greeks to Help Themselves," Reader's Digest Reprint (Pleasantville, New York: Reader's Digest Assoc., 1961), p. 1.

supplies what Linn called, "America's most exceptional, but often underrated exports--American farm know-how."⁹⁸ He also stated, "The American Farm School is having a far more valuable impact on Greek agriculture than millions in foreign aid."⁹⁹

Established in 1902 by a missionary, the 52 acres of wasteland had expanded to 375 acres farmed by modern machinery on a budget of \$450,000. Two hundred boys and fifty buildings were currently in evidence where originally there were only ten orphans to begin the school.¹⁰⁰

Because of the restricted enrollment, each first-year boy is carefully chosen. Only the applicants who appear most likely to make the most of their education--for themselves and their community--gain admittance. Every prospective student must be in line to inherit or otherwise obtain land where he can apply what he learns. He must be recommended by the local government agriculturalist, his priest, or someone else with responsibility in the community. He must be the son of a good farmer who will be receptive to the new ideas the graduate will bring back to the family farm. He must be between 12 and 16 and have completed the local elementary school with a good grade average. Candidates who meet these qualifications are then interviewed by Mr. Mikos*, who makes the final recommendation.¹⁰¹

Each year approximately 40 boys were graduated. The director of the school, Bruce Lansdale, said, "We give our students a good general education, but the last thing we want is to make white-collar workers out of them. We try to give them the knowledge, the skills and attitudes which they will need as leaders in their own villages."¹⁰²

⁹⁸Alan Linn, "Thessaloniki Farm School," Farm Quarterly, (Cincinnati: F and W Publishing Corporation, Summer, 1966), p. 76.

⁹⁹Ibid., p. 74.

¹⁰⁰Littell, op. cit., p. 4.; and Linn, op. cit., p. 76.

* A Greek administrator at the school.

¹⁰¹Linn, op. cit., pp. 77 and 147.

¹⁰²Littell, op. cit., p. 2.

According to Linn there were few texts, for these courses, which were written in the Greek language and the foreign texts were generally too advanced. Several instructors at the school, therefore, wrote their own texts. Since the boys were from country schools where there usually was one teacher for grades one through six, the subjects were started at a very basic level.¹⁰³ Nonetheless, by the time an AFS student had finished his four year program he had studied biology, beekeeping, animal husbandry, plant and animal diseases, plant industries, vegetable gardening, nutrition, viticulture, pomology, botany, marketing, chemistry, hygiene, agricultural engineering, farm management, extension education, accounting and agronomy as well as Greek, English, physics, history and religion.¹⁰⁴

Approximately half the time, the boys are in the fields or workshops for practical courses in machinery repair, farm construction, farm animals (pigs, cattle, poultry and sheep), dairy industry and vineyard or orchard management. The newness of many of the agricultural concepts often requires teaching techniques far different from those most American students have encountered. While the freshman and sophomore boys are in the classroom in the morning, the older boys are in the fields and shops. They rotate in the afternoon.¹⁰⁵

As a result all the courses were coordinated with each other and with the practical shop and field work. When animal physiology was the class topic it was also discussed in personal hygiene, and it was demonstrated in the animals used for group projects.¹⁰⁶

It was a school policy that at vacation time, or whenever the boys went home, each one took something he had made, or raised, or could raise at

¹⁰³Linn, op. cit., pp. 147 and 148.

¹⁰⁴Ibid., p. 147.

¹⁰⁵Ibid., pp. 147-148.

¹⁰⁶Ibid.

home. "But the most important thing they take home is intangible: 'we've seen it done at the Farm School, so we know it can be done at home.'"107

Linn indicated that field work supports classroom instruction. Field work was also a proving ground for new ideas and an opportunity for personal projects. Such projects were financed by the school which acted as an agricultural bank. The work for the pigs, chickens, or vegetable plots was provided by groups from one class. The group also shared in the profits or losses.108

One of the newest and smallest buildings at the school is a student-operated periptero. These are the ubiquitous Greek kiosks or minute sidewalk shops which sell almost everything. The boys financed the venture by selling stock. Every afternoon during free time it's open and sells ice cream and notions. It's currently making money and paying its stockholders dividends.

These class projects were profitable enough to finance class trips at the end of the school year. Usually the trips were to outstanding farm operations which provided more ideas and interest in the theory taught at the school.109

The graduate takes with him the latest agricultural methods which are applicable to his location when he leaves school. The first effect is, of course, that he becomes a much better farmer. He takes the new practices and materials with him and often the whole village waits with a skeptical eye to see how they work.110

One graduate set out the first pear orchard in his village. Another built the first modern poultry house. Still another graduate was the first in his area to fatten calves for market. This last practice could be especially important to a country which annually imported 40 million dollars worth of

107Littell, op. cit., pp. 2-3.

108Linn, op. cit., p. 148.

109Ibid.

110Linn, op. cit., pp. 76-77.

meat and livestock. An enterprising A. F. S. graduate organized a dairy cooperative with himself as manager over 106 other farmers. A former refugee orphan brought his adopted village its first tractor, its first running water, 56 wells and irrigation for 1000 acres of vineyards. "'Every year I make two projects,' he said in workable English, 'one for myself and one for the village.'"¹¹¹

Other services were provided by the American Farm School. Adult Short Courses were two-week intensive programs which in 1960 were attended by 500 farmers and farm wives¹¹² and in 1966 were serving 1,500 adults.¹¹³

Farm machinery, irrigation, pumping, livestock, 4-H clubs, rural leadership, food preservation and rural electrification are subjects covered. The courses are sponsored in cooperation with the Extension Service of the Greek Ministry of Agriculture and the U.S. Feed Grains Council.¹¹⁴

Also:

Graduate follow-up keeps the school's graduates in touch with new techniques and materials as they are received and developed by the school. "Extension agents" from the school visit graduates regularly to help them apply what they learned at the school and to aid the graduate's village in adopting the improved practices.

Livestock Improvement Programs supply improved breeds of livestock and poultry to the graduates and their communities. In addition, the school furnishes the community with about 300 pigs, 100,000 hatching eggs and chicks and all its surplus dairy and beef stock each year. The stock is bred at the school and sold at cost.¹¹⁵

Each year more than 10,000 visitors observed the school in operation. Many of these visitors were farmers from all over Greece. Some of the guests

¹¹¹Littell, op. cit., p. 3.

¹¹²Ibid., p. 4.

¹¹³Linn, op. cit., p. 148.

¹¹⁴Ibid.

¹¹⁵Ibid.

were from other developing countries of Asia, Africa, and South America.¹¹⁶

One of the most important of the special services provided by the school was community development. Village leaders were trained to improve their communities by carrying instruction and leadership to their neighbors. The special self-help courses were aimed at unique features of the Greek farmer's psychology.¹¹⁷

Getting the Greek farmer to cooperate with other Greek farmers is perhaps the greatest problem we have in helping to improve the agricultural economy," a high American Official explained. "The Greek has had no one to fall back on in so many instances throughout his history, he now finds it foreign to his nature to engage in the cooperative measures which could do wonders for the agricultural economy and the people themselves as well.

"The purpose of our program is to teach the villagers how to solve their own problem," said Mr. Stavros Androulidakis, The chief of the program for the school. "We get the villagers talking about their common needs and then we help them learn how to work together for a solution."¹¹⁸

According to Linn the school was an integral part of the Greek educational system. Since 90 per cent of the permanent staff was Greek, the Greeks "rightfully think of it as 'their school'".¹¹⁹

Wheat sold to the Greek government for seed and milk sold in Athens made the school two-thirds self supporting. The rest of the operating capital came from endowment funds and foundations plus small individual gifts. "Tuition is free, but each of the 200 boys' families pays what it can afford of his board."¹²⁰

"What the American Farm School is trying to do in Greece could and

¹¹⁶Ibid.

¹¹⁷Ibid.

¹¹⁸Ibid.

¹¹⁹Ibid., p. 149.

¹²⁰Littell, op. cit., pp. 4-5.

should be done in nearly every other country in the world: to water the inhabited deserts of the land with youth, knowledge, and hope."¹²¹

IX. SUMMARY

To summarize this chapter, a review of literature indicated that education was definitely a form of investment. Research was not sufficient to specifically indicate the value of educational inputs compared to capital inputs but some sources felt education was more important than other forms of investment or a prerequisite for other forms of investment.

Characteristics of developing countries which affected education included: (1) a rapidly increasing population which was mainly rural but was becoming more urban; (2) high expectations as a result of improving communication with the industrial nations; (3) economies which relied on the sale of primary products; (4) isolated rural areas resulting from an infrastructure which was still insufficient; (5) a subsistence agricultural sector which was not able to utilize commercial techniques, innovation, or productive resources; (6) lack of agricultural and occupational education and low rural esteem for schools which appeared irrelevant to daily life; and (7) a vicious circle of poverty, political instability, and social immobility.

Education definitely contributed to agricultural development. It provided economically useful knowledge resulting in more opportunities and self determination. Education was suggested as the best impetus to a middle class which was needed to influence social, economic, and political progress. Technical, vocational, and professional improvement resulted from education.

¹²¹Ibid., p. 5.

Tool and institution building, change, and personal independence were listed as contributions of education; but it was felt that cooperation would result. Education was necessary to properly utilize external aid and assistance. It also provided middle men to expand agricultural services and personnel to plan and lead programs of local development.

Adult education and training was a definite need in developing nations. Literacy and communication skills as well as working with adults' interests and needs, and improving their standard of living and welfare, were all important functions of adult education. Extension education, the sources revealed, was the best form of adult education. Flexibility was emphasized and no single model was thought to be appropriate in all nations.

Characteristics of Latin American countries important to education were: (1) a centralized, stratified, and authoritarian social structure which stifled change; (2) a fragmented curriculum which stressed mainly liberal arts, and was traditionally prejudiced against the lower classes; (3) educational methods and opportunities that were formal and narrow discouraging classroom discussion, individual initiative, social skills, and diversity of interests between pupils; (4) language and cultural problems of indigenous groups; (5) poor facilities and equipment; (6) quantitative and qualitative improvements needed for teacher training; plus the general characteristics of developing countries mentioned earlier in this chapter.

In planning educational programs and facilities national character, goals, philosophies, and existing programs were important considerations. One source cited the necessity of setting targets rather than making forecasts. A climate of innovation was also mentioned. A warning was issued about applying principles of industrial countries in developing nations and also about

overlooking native leaders. Because of extensive demands and limited funds, priorities were needed. Strong emphasis on techniques and attitudes for improved agricultural production was pointed out along with the concurrent need of school-community communication as change was affected. Cultural universality, improvement of teaching materials and resources, new teaching areas, teacher training, evaluation, research, and new institutions where needed were all necessary goals of educational programs. One source maintained that there had been miscalculations in previous educational programs in developing nations: (1) the idea that agricultural development could be accomplished without a program at the local community school level; (2) the idea that new inputs of technology were more important than developing present technology; and (3) the idea that there is a single model of agricultural development.

Montero was a village in the Amazon basin of Eastern Bolivia. The tropical climate and cover, and accompanying diseases were eminent. A sparse population was not realizing the natural resources. Poor production methods were utilized and poor communication, absence of local markets, and other barriers to agricultural production were cited. Activities of the Peace Corps, an experiment station, and USAID were detailed.

The American Farm School of Thessaloniki, Greece, was described. A four-year curriculum in agriculture served the entire nation. Careful selection of students, native instructors, an agriculturally intensive curriculum, and field experience produced graduates who return to their villages as change agents. Excellent rapport was maintained with the home communities. Group cooperatives were formed and individual projects were supervised for practical experience. Adult short courses, graduate follow-up, demonstrations on campus and off, and community development were essential features.

CHAPTER III

OBSERVATIONS AND RESULTS OF INTERVIEWS

It was the writer's conclusion that certain unique features of the land and people of Bolivia were responsible for many phenomena observed. A review of some of these factors was necessary.

Three geographical areas were observed in Bolivia.

The Altiplano is a plateau area over twelve thousand feet high formed by a split in the Andes. Here over half of the population lives in 16 per cent of Bolivia's land area. To the east, the second natural land division, is a valley area eight thousand feet high comprising 14 per cent of the country. The third area is the tropical lowlands of the east, which cover more than 70 per cent of Bolivia, but accommodate less than 30 per cent of her people.

Bolivia's population is 53 per cent indigenous, 32 per cent mestizos, and 15 per cent of European descent. Of the total population of three and a half million, at least 60 per cent is illiterate. The per capita income is about seventy dollars per year which, next to Haiti's is the lowest in this hemisphere. The average life-span is thirty-six years. Almost 70 per cent of the population is under thirty years of age. Only 29 per cent of school-age children are enrolled in schools. Of every one hundred children who begin first grade, only twenty-nine finish the sixth grade and only three complete high school.

Until recently Bolivia, like so many countries, depended upon one industry--mining. Because of the drop in the tin market and loss of productivity in the mines, however, the nationalized mines are operating at a loss of about thirty cents per ton. The second element in the economy is agriculture, which occupies 72 per cent of the population on about two per cent of the tillable land.¹

According to McCleary the revolution of 1952 brought about nationalization of the mining companies and agrarian reforms which redistributed the land held by 50,000 families to 800,000 families. Educational reforms brought universal free education and more than 5,000 new schools. Universal suffrage which brought equality and dignity to citizenship, was another result.

Bolivia is experiencing a rare problem: while the country has rich

¹Paul McCleary, Bolivia, Land of Opportunity (Cincinnati: Board of Missions of the Methodist Church, Undated), p. 4.

natural resources, it still suffers a serious economic crises because it lacks sufficient capital to develop them. Wise government control and foreign aid can prove to be the means of development.²

I. RELIGION

While in Bolivia the writer had an opportunity to discuss the influence of religion upon education with persons representing Protestant and Catholic views and persons who claimed no religious commitments. In all three categories were Bolivians and North Americans.

Ninety per cent of the population of Bolivia was listed as Catholic by McCleary.³ It appeared, then, that the Catholic Church had a great influence upon society including education. The conclusion reached was that the Catholic Church, historically, has been more than a church organization, or a belief system, or a set of rites. It has been the dominant element in the whole culture. Under the Latin tradition the family was a very strong social unit. The center of religion was, furthermore, in the family and not so much in the house of worship. The result was that a person was born a Catholic (into a Catholic family) and since family ties were very strong his loyalty to the Catholic Church was often stronger than his religious convictions.

Other historical characteristics of Catholicism included aloofness, cosmological myths, supernatural forces, and ritual passivity. Action now was irrelevant and unimportant for salvation. The church heirarchy had become quite active and influential in secular affairs, government, business, and society sometimes at the expense of religious interests and social concerns.

²Ibid., pp. 4-5.

³Ibid., p. 6.

When protestant schools were first established in Bolivia, those who attended were threatened with excommunication. It was observed that the Catholic Church was in the process of changing its ritual orientation to a social orientation. Exciting movements were taking place in the church as it was adapting to modern needs and opportunities. The traditions, however, were very strong and were observed to be important to present educational programs.

II. SOCIAL LIFE

Certain tensions were observed to be influential in the social life of Bolivia. Tensions centered around such poles as urban versus rural migrants, middle versus upper class, foreign corporations versus national business interests, church versus liberals, and parents versus children (although family was still the strongest solidarity unit).

Because of the deeply institutionalized cultural base frustrations were detected. Lack of facilities to accomplish one's goals, the capacity of the social structure to limit personal decisiveness and individual autonomy, traditional barriers to women's rights, thwarted occupational initiative, and a national inferiority complex were often apparant.

Release from such frustrations came from watching athletic competition (usually soccer) and eating, drinking, and talking in public. Communal fiestas often permitted release. Beating the system also helped alleviate the frustrations and, rarely, leaving the system was another answer.

III. GENERAL EDUCATION

In education, most of the characteristics associated with Latin American education also applied to Bolivia. Shortages of educational materials

plagued virtually all classrooms. Rationing of chalk and erasers was witnessed. Audio-visual teaching aids were even scarcer. Lecture and memorization methods in the classroom were often caused as much by shortages of supplies and textbooks as by tradition or low quality of teachers. Art classes were virtually impossible because of the demands on material which were too expensive or non-existent. For the same reasons, lab courses and scientific courses have been neglected.

An acute teacher shortage was evident in Bolivia. By necessity, unqualified teachers were pressed into service. Some very dedicated instructors were teaching a full schedule of classes in each of two school systems. Such a practice did not allow much opportunity for lesson preparation, innovation, self evaluation, and the multitude of activities required of a teacher. Low pay led to dissatisfaction among teachers. Since teachers' salaries were controlled by the federal government, the only form of protest was to strike. Strikes perennially lengthened scheduled vacations and in 1968 they closed all of the nation's schools five weeks early.

North American teachers in Bolivia indicated the average attention span of the Bolivian student was shorter than his North American counterpart. The investigator observed behavior which indicated some support of this assumption. Quantitative assessment of this phenomenon, however was only slightly more reliable than qualitative assessment. Research was insufficient to conclude the extent of truth in this observation or if the short attention span observed was a factor influencing future programs in Bolivian education or merely a variable directly resulting from the student's classroom experience.

Discipline was observed to be lacking generally in the classroom.

Talking out loud to neighbors continued in spite of repeated and varied admonitions. This infraction was not observed to be malicious but rather a habit which was extremely difficult to break. Talking out loud occurred even when the class appeared to be highly motivated. Often interest was shown by apparently spontaneous outbursts for which the student was sometimes embarrassed afterward. The investigator had only limited observation of Bolivian teachers but was told discipline was generally not enforced by native teachers. The investigator concluded, after admittedly limited observation that Bolivian students respected discipline fairly administered and they had less respect for a teacher who did not maintain a favorable learning environment.

Examinations were usually objective, usually administered in packed classrooms with less than sufficient proctoring. These conditions were especially true for final examinations. These conditions combined with the tremendous pressure of a large number of subjects, large amount of facts required to be memorized, and extreme pressure for high grades, caused the students to resort to cheating. Apparently there were few scruples associated with cheating. It appeared to be more of an obligation than a violation. The major fault was in getting caught.

The curricular faults of traditional Latin American education stated in the review of literature were especially evident in Bolivia. Reportedly changes were anticipated in the near future. The investigator was told that the Ministry of Education was reviewing curriculum requirements. A course of study more similar to North American educational systems was anticipated. A relaxation of the rather authoritarian requirements was expected.

While many criticisms of Bolivian education were in order, the investigator found positive features and favorable potential in Bolivian education.

The investigator found that Bolivian students could respond very intelligently when properly motivated. In advanced English classes of sophomores, juniors, and seniors the investigator introduced Whitman's poem, "Oh Captain My Captain." After the vocabulary was clarified and after the poem was "performed" twice with expression and dramatic effect the classes entered into a discussion of "rhyme, rhythm, mood, speed, words, changes, form and symbols." Even with limited background in United States history and no previous acquaintance with the poem the classes were able to analyze the poem quite completely in English. The sustained discussion extended over two class sessions. Performance of the class was above expectations of equivalent North American classes. In some ways performance equaled that of freshmen in U.S. colleges.

Role playing was also found to be a successful means of motivation. This technique was utilized to teach vocabulary and English grammar--endeavors usually attempted by drills and memorization. Though discussions were reported in the review of literature to be seldom used traditionally in Latin America, experimentation produced enthusiastic class involvement. It was possible that after the newness of such techniques was gone, evidence would not be as obvious. The investigator felt, however, that use of such techniques with other techniques, effective classroom control, and more attention to lesson planning, would improve the teaching/learning experiences in the classroom.

IV. VOCATIONAL EDUCATION

The above observations, the writer felt, were also applicable to classes in vocational agriculture. Because there possibly was less motivation among rural boys for an uninterrupted diet of lectures, the emphasis on

creative teaching and use of varied techniques needed to be stronger. Rural boys, who were used to outside activity, were not expected to be as easily motivated in the classroom as urban secondary students who were consciously preparing for a university education.

Lack of facilities became more acute for programs of vocational agriculture with its expensive demand for shop tools and materials, as well as equipment for classroom demonstrations. For rural schools attempting instruction in agriculture it was anticipated that expense could run considerably higher where budgets were probably considerably lower than urban schools.

"Too little has been done in rural areas everywhere to develop the school farm as indispensable to the rural school."⁴ This was also felt to be true at Montero. One of the philosophies observed was that equipment, housing, and feeds used on the school farm should be those available to the colonists who had limited funds. The investigator agreed completely with this outlook. However care must be taken to make the best use of that equipment, housing, and feed. When emulating conditions in the colonies it was felt important not to emulate inefficient or impractical practices. The writer also felt more emphasis was needed to make the farm a demonstration center not only for the students but also for visiting farmers.

Although observations were limited, little evidence was uncovered of instruction or practice in the principles of cooperation. Larrea said, "In all Latin American countries the school cooperative has been the agency through which, from the lowest to the highest grades of society, the greatest

⁴Julio Larrea, "Economics and Education in Latin America," The Yearbook of Education, 1956, (New York: The World Book Company, 1956), 573.

benefits have been received. It has created incentives to feelings of responsibility and solidarity."⁵ From the situation that existed in the colonies the need for such emphasis seemed apparent.

V. THE INSTITUTO RURAL METODISTA

During the summer (winter in Bolivia) of 1968 the investigator observed the Instituto Rural Metodista for one week and interviewed both faculty members and students. This school consisted of three educational programs: secondary education (six years), seminary, and agriculture. Secondary education has already been discussed and the seminary program was not a part of this study. Approximately 30 boys were enrolled in a program of vocational agriculture which included classes from 2:00 P.M. until 4:30 P.M. and work experience from 4:30 P.M. until 5:30 P.M. (Appendix V) This program was an addition to the standard liberal arts curriculum which the Ministry of Education required of all secondary students. In addition, three special students were enrolled at the Instituto in an intensive one year agricultural program. These students spent full time learning and working on agricultural skills and did not attempt the standard secondary education curriculum.

Mr. Harry Peacock, the director of the school and a lifetime missionary, explained some of the areas of responsibility of the school not included in the curriculum offerings. The school worked with the Ministry of Rural Education to establish programs of primary and secondary education in the colonies. This endeavor was flexible; it was in response to expressed needs; and the Instituto pulled out when the colony school was self sufficient.

⁵Ibid.

Adult education was another responsibility. Although basic literacy programs were very important, Mr. Peacock indicated it was the responsibility of another organization in the Montero area. The Instituto's main concern was short courses in home economics for women and agriculture for men. Mobile demonstrations were envisioned to take the classroom to the colonies. Mr. Peacock emphasized the great demand for adult education and his feeling that mobile demonstrations were the answer, furthermore a kindergarten program was a part of the Instituto's activities. Older girls in the community were employed to teach children of illiterate parents. Finally a program in arts and crafts was being tried on an experimental basis. Creativity was emphasized in classes of children and teenage girls.

Another activity of the school initially not educational, was in community development. The Instituto had been instrumental in helping establish the colonies in the area. Responsibility was still felt through contacts with the colonies. Early in 1968 widespread floods in Bolivia had left thousands homeless. Many of the victims were resettled in the colonies near Montero through cooperation of the Bolivian government, the Instituto, and a local Catholic organization which included North Americans.

The writer learned much about the school's curriculum in agriculture from Marshal Martin, a short term missionary, who was teaching in the school. Mr. Martin held an M.S. degree in Agricultural Economics. In the school he was the instructor in animal nutrition, soils, crops, advanced farm machinery, farmstead planning and building, and record keeping, in addition to duties in administration and special individualized study. According to Mr. Martin the faculty in agriculture included himself, a Bolivian who taught horticulture, a Bolivian who taught poultry, a Bolivian instructor in dairy and animal

sanitation and health, and two Americans serving under the Mennonite Central Committee, one teaching farm mechanics and machinery and the other responsible for the school farm areas of hogs and poultry. The seventh faculty member was borrowed from another part of the school to teach carpentry.

Mr. Martin indicated that a veterinarian was scheduled to arrive in June to work in the colonies and help teach in the school. Another missionary who had a degree in agriculture education was also expected in December to replace Mr. Martin. Another anticipated addition was a Bolivian expert in agricultural engineering who had been studying in the United States.

In response to questioning about the administrative structure, Mr. Martin indicated that there were both vague and overlapping relationships but he defended these relationships as "probably necessary." The director, Mr. Peacock, was, of course, the chief administrator. There was a Bolivian business manager in charge of dormitories, student housing, meals, fees and general administration. Another Bolivian, an instructor in the agriculture program, had administrative responsibility for the livestock, land devoted to garden, crops, or pasture, and all agricultural facilities of the school. Any of the above men could authorize expenditures. A treasurer for the school was employed who, according to Mr. Martin used a "good record system." The chief cook for the school was kitchen administrator and operated from a special fund. This kitchen served most of the students but was separate from a dormitory kitchen which apparently had another administrator and another account.

The writer was shown a new building which was called the "communication center." It contained a developing library, storage for audio-visual aids, work rooms to prepare visuals, rooms for conferences, and a room projected to contain radio facilities for contact with the colonies. This

communication center illustrated one of the philosophies of both Mr. Peacock and Mr. Martin; that the school should act as a base of operations to go out to the people in the colonies instead of expecting the people to come into a "compound" (the School). It was anticipated that the communication center would serve in establishing and developing programs in special education, kindergarten, manual arts, crafts, teacher training, and a miniature YM-YWCA.

A need for flexibility within a formalized program was emphasized by Mr. Martin. He also preferred more budget power to department heads which would provide them with more administrative power. A lack of time for student counseling was expressed. Also a dropout problem was said to result from the need of labor on the family farms.

Mr. Peacock told of the background of the Montero area. He said that there were small agriculturally related industries in the area until eight years ago. Increased consumption of agriculture products then brought about expansion of the industries as well as immigration into the area. This immigration, especially of the highland Indians, resulted in diverse examples of physical, social, psychological, and religious fragmentation. The transition period, although extremely difficult, made the colonists more susceptible to change.

Two types of farmers were cited by Mr. Peacock: a minority of large mechanized farmers or large ranchers; and the great mass of small farmers who were living mainly at a subsistence level. The latter group was generally poor but dynamic. Their situation was unlike anywhere else. Seventy per cent of the population in the Montero area was engaged in agriculture according to Mr. Peacock. He also pointed out needs to (1) bridge the gap between a subsistence and a commercial agriculture, (2) improve the market structure to

allow specialization, and (3) provide information and assistance for diversified farming where needed. These were needs of the subsistence farmers. Mr. Peacock felt the future program would have to be shorter courses (than the six year program) and short courses in specific areas. He also mentioned a need for education concerning nutrition, not only for women but also for men and for the students at the school.

Shop facilities were relatively complete and up-to-date when compared with North American vocational agricultural shops. Most of the tools and equipment were present to teach basic skills in farm mechanics, repair, and construction. Improvements, however, were needed to provide a clean, safe, efficient work area. Tool storage was not well organized resulting in clutter, dirty tools, and wasted space. Safety equipment was not well marked nor were the dangerous working parts of power tools. It appeared that the work areas for hot and cold metal work, machinery repair, and welding were all mixed together. Carpentry was separated at the other end of the building behind a partition which had been erected across the center width of the shop. Naturally the partition became used as a wall and materials were piled up against it from both sides further reducing the available work area.

Pereira observed, "Needless to say, a mature environment in the shops favors ingenuity in the students, and they often surprise us with their resourcefulness." He suggested using tool cribs and dutch doors, a check out system, safety zones, and posters.⁶

The investigator believed that because of the type of activities carried out in a farm shop, it has a tendency to become cluttered and inefficient.

⁶Juan Pereira, "Bolivia's Industrial Schools," Americas, (Vol. 9., No. 5, May, 1957), pp. 21-25.

In a school attempting to change attitudes, however, it appeared that a different shop atmosphere was essential. Attention to safety, cleanliness, organization, efficiency and over-all pride in appearance were all thought to be essential by the investigator.

CHAPTER IV

RECOMMENDATIONS

The basic program recommended for the Instituto Rural Metodista was a three year program of agriculture and closely related subjects as follows:

<u>Year</u>	<u>Class</u>	<u>Shop</u>	<u>Farm</u>
I	Plant Science	Farm Tools	Garden
	Ag Mathematics	Carpentry	Greenhouse
	General Ag	Cold Metal	Records
	Oral and Written Communications	Projects	Small Projects
II	Soils	Conservation	Crops Plots
	Crop Production	Welding-Hot Metal	Orchard
	Ag Opportunities	Farm Machinery and Repair	Poultry
	Community Development	Projects	Special
III	Animal Production and Management	Farm Buildings	Practicums
	Ag Economics	Electricity	Animal Projects
	Science	Livestock Projects	Special 5 Year Plan
	Problems in Ag	Special Interests	

See Appendix VI.

The first year should serve as an introduction to scientific agriculture. Basic courses are needed and flexibility must be maintained to take account of the abilities, educational level, and interests of each student.

The course in plant science will tie in with experiments conducted during the field phases of garden and greenhouse work. Fundamentals of botany should be included encompassing physiology, light, moisture, nutrient requirements, ecology, pests, and environmental conditions (climate, topography, and management).

Agricultural mathematics would introduce record keeping to be practiced in the field and the shop. Problems in figuring capacities, dimensions, and budgeting (perhaps a simple problem in personal finance) could be included. The new math system could be used here if it is determined to be desirable.

General agriculture would be an introduction to the national and local scope and organization. A survey of enterprises and production techniques of the nation but especially of the Eastern lowlands would be appropriate. The writer recommends instruction be included in how to study and the facilities and procedures of the school.

The course in oral and written communication could fit together with the general agricultural course quite easily. The objective of this course would be to improve the individual's ability to express himself. Written reports on general agricultural topics could be prepared then delivered orally. Role playing should be used in this class. As many diversified situations as possible should be anticipated and practiced in this course through extensive use of role playing.

In the shop, management and safety should be emphasized at the outset. A shop policy for safety, cleanup, tool check-out, and discipline should be

introduced, discussed, then carried out. The use, care, and repair of shop tools will be an important topic. Cold metal work will be included as well as carpentry. Here students should be required to draw simple plans and figure a bill of materials. Selection of lumber, cutting, sanding, mitering, and preservatives (resin, varnish, and paint) should be covered. Proper design of a farm shop should be discussed along with cost and value of such a shop. Students should have some time left over for special projects which might be equipment for field work, equipment for the shop, or something of use for the home farm.

A greenhouse was not available at the institute. The writer recommended consideration of building one. Field work for first year could include responsibility for a small garden plot or greenhouse space. Students should be guided in keeping field records. Light, moisture, and nutrient deficiency experiments for plant science class could be coordinated with the fieldwork. Special interest projects could be utilized. The students might be allowed to select beekeeping, rabbits, or a similar project.

The second year would emphasize crops and soils. Activities in the shop and field would compliment the classroom. Soil science would be comprised of soil chemistry, composition, forming factors, nutrients, fertilizers, liming, drainage, evapo-transpiration, mulching, irrigation, and other management practices. At times it may be necessary to hold two-hour labs then make up later for the course that was replaced for that day.

Crop production should cover recommended practices concerning planting, cultivation, harvesting, machinery requirements, and marketing. The major local crops should be surveyed allowing the first part of the year mostly for theory and the second part for more field trips, demonstrations, and practice.

The course in agricultural opportunities should include several important areas. Principles of cooperation would be a very important topic. A school cooperative or cooperative arrangements between students might help in this area. Information should be disseminated about agricultural agencies, facilities and organizations which could be utilized by local farmers. Where to go for information is important as well as principles of extension education. While these courses might fit into other areas, it was felt that a single course was necessary to complete gaps and talk about opportunities as a single topic.

Community development could work closely with the above course but its nature is different. This course would study the colony as an institution and attempt to derive leadership needs, opportunities to carry out community projects, and principles of group dynamics.

Shop activities would emphasize hot metal work including soldering, forging, and welding. Skills could be used to build simple projects relating to crop production. Conservation should also be covered (how to establish terraces, ditches, waterlines, diversions, reservoirs, etc.). Farm machinery repair and maintenance fit in with the general area of crops and soils. Types of implements and how to take care of them along with the possibility of some machinery construction would be beneficial. Again some time would be set aside for special projects.

Field work should include responsibility for management of a small plot of a crop enterprise. Orchards might be included as an elective or a part of the standard field work. Poultry would also be important and probably should be studied during this year as a part of field work.

The senior or third year emphasizes livestock courses. Animal production and management would be the basic course. It would include introduction

to breeds, desirable types, and management procedures for dairy, beef, and hogs. Marketing would be discussed as a part of management. The first part of the year would be mostly theory with the boys being allowed to choose one of the three areas for more practical work and study during the second half of the year. Areas to be covered are purchasing and selling, feeding, housing, vaccinations and equipment.

A course in general agricultural economics will probably be necessary to tie together all aspects of record keeping, budgeting, long run planning, capital improvements, machinery cost, effective utilization of equipment and facilities, and principles of marketing. A science course will be needed to provide knowledge in necessary basics of chemistry, biology, entomology, anatomy, and physiology. Also needed are courses in nutrition (human as well as animal), how to balance a ration, and reproduction. This course should be flexible enough to fill the gaps and unify information taught in the other courses.

Problems in agriculture is envisioned to be a core-type course which brings together elements of psychology, sociology, politics, geography, and economics into discussions of specific problems of Bolivian agriculture. Some suggested topics are economic diversification, resettlement, education, infrastructure, resources, and family living.

Shop courses would study farm buildings, their construction, planning, cost, utilization, arrangement in the farmstead scheme, and upkeep. Class construction projects might be the best approach since a building is a little involved for one person to construct. Electricity should also be included. Principles in wiring, safety, and electrical projects might be covered. Students would be allowed to construct livestock equipment utilizing any of the

skills previously learned.

In the field livestock projects would be carried out in coordination with classroom activities. During the theory part of the course students would receive instruction then animal practicums could be demonstrated and practiced after class. This would mean selection, grooming, marking, dehorning, castrating, and making equipment for handling livestock would be studied then practiced. Field trips might be made to local farmers who offered invitations to work on their cattle. Some free time should be left for special interests, also.

As a part of graduation requirements it is recommended that each student be required to submit a five-year plan for his farming operation. He would survey his capital, land, and other resources and project expansion over the five-year period. This would help each student to think about his specific operation and set some goals.

The investigator found barriers to making specific recommendations. The rapid evolution of the school means that observations and recommendations made in this study may no longer be timely and other problems not covered here may have become important. Institutions in developing countries operate under conditions of uncertainty meaning budget and staff anticipations are extremely difficult. There is also uncertainty on the extent to which the administration of the school will agree and implement the recommendations since there is much room for differences of opinion which only the future can resolve. Finally it will be necessary to maintain a high degree of flexibility in implementing a program like the one proposed. Some steps in implementing the program depends upon response in previous steps. For these reasons, the writer kept the recommendations general in certain areas to allow for flexibility.

Objectives should be determined at the outset. Agan has suggested goals which would be applicable in this situation.

- a. develop the pupil harmoniously and integrally.
- b. prepare the pupils to live together efficiently and advantageously within the national community developing a conscience within him of the cultural reality, history and socio-economy.
- c. develop and fortify within Guatemalans the favorable attitude for reestablishment of Central American unity taking as a basic principle educational integration.
- d. prepare the pupils to live a life of work, to use and conserve natural resources, to convert themselves into good producers and consumers, to adopt modern techniques in their possibilities of achievement.
- e. develop an ample and basic sense of organization, responsibility, order and cooperation.
- f. fortify the importance of the family as the basic social nucleus in its formative function and regulator of values.¹

Agan also said that education should, "stimulate in each child the affection and interest for the others in order to gradually lessen complexes of inferiority and isolation and the conformist attitude that prevails in the majority." His last point was, "stimulate activities of the parents and relatives of the child and adolescent in order that they might cooperate in a growing reciprocal closeness and understanding between school and family."² Objectives will need to be specific and must come from the local level at the time the program is implemented. Some examples of objectives might be: to enroll 20 boys in the first year program; to return 80 per cent of those boys for the second year program; to return 80 per cent of the graduates to the farms; to place graduates in each colony or geographical area to act as innovators and contacts for future programs; to install radios within walking distance of each household for radio classes; and to train "x" teachers for

¹Agan, op.cit., pp. 23-24.

²Ibid.

the staff of the institute or to begin teaching classes in certain areas in the colonies.

Students should be recruited on the assumption that they are literate in Spanish and that they have an opportunity, which they will accept, to return to a farm. Interviews with potential students will be needed to select the best qualified to fulfil the school's objectives and also to determine the starting point and level of instruction to be offered.

More Bolivians should be added to the faculty as they become qualified. There should be a conscious effort to make this a Bolivian program, not a North American program. Conceivably four instructors could comprise the staff but six or seven would be desirable. The livestock area should probably be taught by one instructor but team teaching could be very effective in the crops area. A well qualified shop teacher will be especially important. One of the faculty members should be designated counselor. The flexibility and allowance for special interests will probably cause some administrative problems but additional instructors might help alleviate this problem. The administrative structure should be reworked to clearly define responsibility and authority. Simplicity and span of control should be considered.

This program was designed with existing facilities in mind. Little modification of present facilities should be necessary to implement this proposal. Attention, however should be given to the shop to make it more effective. Designation of work areas, safety features, and clear policies are needed. A color code system should be included in these plans (Appendix VII).

Other resources, advice, and aid might be secured through existing aid organizations, the Bolivian government, or liaison with a North American University. The latter especially should be investigated. Another useful

resource would be an advisory council consisting of rural leaders (from the colonies) and representatives of influential local agricultural agencies. This council could be beneficial in a variety of ways.

The curriculum will need to be offered at a time convenient with the agricultural calendar. Since families will be reluctant to release potential labor it may be necessary to offer the curriculum during the six months of least agricultural activity. An alternative might be to go during the regular school year but provide adequate vacation time to enable the boys to help their families at critical times. Time for field work is allowed in the early morning and late afternoon. It will also be desirable to allow time for physical education.

The teaching approach may well be the most critical factor in the extent of success of this program. In general a problem approach should be used for the theoretical and practical instruction. Lecture and memorization should be avoided and competency stressed in place of competition. Creativity should be used in the teaching approach and creativity should be emphasized in the solving of problems. Teaching machines may be utilized, discussion techniques (Appendix VIII) and varied uses of audio-visuals and teaching methods. Field trips are very beneficial if properly conducted and are recommended (Appendix IX). In attempting to fortify the basic program radios and other media may be developed, mobile demonstrations should have a very favorable effect, and field days, farmers' institutes, drama, and folksinging and dancing may all prove beneficial to enriching and extending the three year program to those who cannot attend the Institute.

To alleviate the strain of implementing such a program special instructors may be recruited from Peace Corps, the Mennonite Central Committee

and short-term missionaries. These could be used to develop the courses, experiment with techniques, and otherwise help take the strain off of the existing faculty and administration. The first classes, therefore, would be pilot classes. Objectives should be to impart attitudes, and not to fill students in the first classes with knowledge (this will be impossible until the courses are developed anyway).

Supplementary activities should also be initiated as time allows but as early as possible. One of these would be the development of a future farmers organization as an extracurricular activity at the school. The specific purpose would be to teach principles of leadership, citizenship, and democracy. The organization could incorporate ceremonies to motivate the boys and reaffirm the value of work, responsibility, and cooperation.

A follow-up program has already been alluded to earlier. This would be a planned effort to keep in touch with graduates to supply them with help and information. There will also need to be contact with rural people who do not attend the Institute but who can benefit from short courses, traveling libraries, demonstrations, and a multitude of other learning situations.

Effective communication should be established with agricultural facilities, agencies, and leaders in the area both on formal and informal levels. Also research activities should be planned and projections made as to how the Institute can best be utilized as a discoverer of new knowledge needed by farmers.

For this program to be implemented it will be necessary to sell it to those whom it will serve, to those who will participate in it, and to outsiders who will determine if the program succeeds or fails (i.e., those who control finance, those who legitimize institutions, those who will contribute

manpower needed by the institution). The social action method of selling ideas and programs established guidelines for such an undertaking (Appendix I).

Recognition of social systems will include the social system of all those potentially instrumental in the vocational agriculture program. The unique characteristics of each colony which will cause the program to be supported or rejected should be identified. The social system of other rural farmers must be considered as well as the social system of government officials who must accept and support the program.

Recognition of prior social situations will include the success of the Institute in educational programs and in community development. Past experience with the school, with similar programs, or with people involved will be important to critical decision makers. The Greek farm school is another previous situation that should be analyzed and utilized.

Defining the problem may be a little more difficult than first examination would indicate. One must be careful to identify causes instead of symptoms. In this situation the problem will include the problem as defined at the outset of this paper plus the specific barriers and opportunities once the program is in effect.

The initiating set will consist of those at the Institute who support the program and desire to implement it. Outside specialists may be called in since this is the "idea stage."

Legitimizing the program will be a very critical point. The program must be legitimized by government officials, rural (colony) leaders, and key agriculturalists in the area. The program must appear valid and not conflict with existing programs.

Diffusion is the step to secure widespread knowledge and support of the program. Here the mass media will be utilized. Colony visits by esteemed public figures may be useful. Awareness is created at this stage to catalyze adoption.

In establishing the need in the minds of the people one must take account of national, local, and possibly even outside individuals. This stage will overlap with the diffusion step and it will continue as long as the program exists. The program will always have to either reinforce or raise doubts about its worthiness. The first class, therefore, will be especially important.

Getting commitments to action is next. The government must publicly endorse the program. Funds must be committed especially for salaries, equipment, and student's tuition. There must be commitments for instructors also and support from the people in the colonies to send their boys.

Formulation of goals should include local leaders, educators, and government officials. Some probable goals will be: 1. provide students with a basic general education plus skills, habits and knowledge in agriculture and family living; 2. return students to farms as innovators to affect changes; 3. establish an extension network; and 4. provide for the expansion and modification of the initial program. Goals must be based on the specific objectives.

In determining means the writer suggests a trial group of students at the institution be used. Classes would be graduated annually meaning special abbreviated curriculums would be needed for the first two or three years. By realizing the commitments and establishing an advisory council the proposal could be realized. Much will depend on the quality of the first graduates.

Developing a plan of action requires careful attention. An organization of administration should be organized. Funds are assumed to be committed. A time schedule must be established for all preparations. Personnel must be recruited, assembled, and organized. Teaching materials must be acquired as well as arrangements made for temporary instructors. This plan will necessarily be flexible but time is important. If interest of the people has been created through diffusion, results should be produced as quickly as possible without sacrificing too much quality.

Launching the program will be the occasion for a prestigious dedication ceremony reminding all of the importance of the project and instilling purpose in the students, pride in parents, and exposure to government officials (politicians) and others.

Evaluation must take place from the very beginning and be objectively carried out at every stage. Care must be taken to keep the program moving. Modifications will be necessary constantly. Objectives will need to be continuously examined and revised to achieve the goals keeping in mind that the program is on trial and is progressing through uncharted territory.

CHAPTER V

SUMMARY AND CONCLUSIONS

I. SUMMARY

The problem was to explore the barriers and opportunities to establishing a program of vocational agricultural education at the Instituto Rural Metodista of Montero, Bolivia. Recommendations to exploit the barriers and possibilities of establishing this program were needed and were developed.

An historical research was carried out to determine the important features of education in Bolivia, the agricultural situation of Montero, and the features of the American Farm School of Thessaloniki, Greece. Then a comparison was made with the Greek program and the potential of the Instituto Rural of Montero in order to formulate a set of recommendations. Because little has been written on agricultural education around Montero--or even Bolivia--it was necessary to review literature dealing with agricultural problems of developing nations in general and with the educational system in Latin America. A trip to Montero in July, 1968, and teaching experience in a Bolivian secondary school were utilized to make interviews and observations. The information accumulated on this trip was used to make the general review of literature applicable to Montero, Bolivia. A trip to Thessaloniki, Greece, in 1965 also helped to evaluate literature dealing with the farm school there.

A social action process of selling ideas and programs was a device included in the study. The writer felt his recommendations could best be implemented by using this device.

The review of literature (see summary to Chapter II on page 46) revealed that education is definitely a form of investment. Some sources felt

it was more important than capital investments.

Population problems, rising expectations, economies which rely on single products, isolation, and a weak infra-structure were characteristics of developing countries which affected education. The problems associated with a subsistence agriculture, lack of vocational and technical education, poverty, political instability, and social immobility were other characteristics.

Contributions of education to agricultural development included economically useful knowledge, impetus to the formation of a middle class, and technical, vocational, and professional improvement. Institution building, the attitude of change, personal independence, group cooperation, development of more middlemen, and training for planning personnel were other contributions.

Adult education, including literacy, communication skills, interests, and economic and social needs, was felt important. Other functions (welfare and improving the standard of living) were mentioned. An adapted program of extension education was cited as the best form of adult education.

Education in Latin America was characterized by schools developed in a history of class elitism with a curriculum that was formal, fragmented, and devoted too much to the liberal arts. Teaching methods were seldom varied, failed to consider individual differences, and were further influenced by a shortage of adequate teacher training programs. Indigenous groups were at a disadvantage due to tradition, language, and culture.

Recommendations for planning programs of education included taking account of national goals, philosophies, and existing programs. Setting targets, encouraging innovation, using native leadership, and setting priorities were also suggested. Emphasis on production techniques and attitudes, close

communication with the student's homes, provision for cultural universality, and improvement in teaching factors were mentioned. Evaluation, research, and new institutions were recommended. Miscalculations in previous agricultural education programs were discussed.

A description of the Montero area from reports of USAID revealed the problems of climate, jungle, difficult living conditions, and underdevelopment of the vast natural potential of the area. Activities in agricultural development were described.

The program of the American Farm School in Greece featured a four-year curriculum in mainly agricultural courses for carefully selected students. The program of the school produced change agents for local villages. Other activities of the school included adult education, community development, and graduate follow-up.

Observations included a brief sketch of Bolivia relevant to the discussion on characteristics of developing nations. Observations were also offered on religion, social life, general education, vocational education, and the Instituto Rural Metodista. The description of the Institute included the educational objectives, administration, curricula, off campus activities, and facilities. Anticipated needs and areas of emphasis were discussed with faculty members.

A three-year program of intensive agricultural courses was recommended as the basis of the school's vocational program. The first year emphasized general agriculture, the second was involved with crops and soils, and the third year featured livestock production. A daily schedule was included which broke activities up into classroom instruction, agricultural engineering shop-work, and practical projects on the school farm.

Recommendations were made in regard to formulating objectives, recruiting students, use and development of native instructors, improvement of the shop, utilization of outside resources, and implementing the curriculum. Also recommendations were made regarding the teaching approach, supplementary activities, and communication with agricultural organizations and institutions in the area.

The social action process mentioned earlier was used at this point. It described the necessary steps for implementing the recommended program; recognition of social systems; recognition of prior social situations; defining the problem; initiating the idea; legitimizing; diffusion; establishing the need in the minds of people; getting commitments; setting goals; determining means; developing a plan of action; launching the program, and evaluating results.

II. CONCLUSIONS

Since such little research has been attempted in vocational agricultural programs in developing countries, this study raised more questions than answers: what is the best method of cooperating with existing educational institutions in the country; what specific content should be included in the courses; what extent does culture affect teaching techniques or content; which supplementary activities are most important and how can they be implemented; what methods and sources of finance will be appropriate?

Some exploration would also be in order to determine alternatives to the proposed three-year program. A one-year intensive curriculum with short courses might be developed or a two-year curriculum with an additional year of supervised activities at home might be devised. Research is needed, also, to

determine the appropriate local application of principles of organization, administration, financing, and parent participation.

It was concluded, however, from the literature that a sustained program was needed to develop the "absorptive capacity" mentioned earlier. A three-year program at a central location, the Instituto Rural Metodista, was considered to be the most efficient especially in utilization of facilities, staff, time and funds. Close contact with rural areas was necessary but it was doubtful if a completely mobile program "to the doorstep" would be as successful as an on-campus program.

Many problems are likely to occur at each phase necessitating flexibility and sensitivity. The social action process, then, is not a recipe for success but a guide. Success will depend on accuracy of analysis, salesmanship, and leadership. Once the program is established success will depend upon progress. Outside factors could have a bearing but these and other problems must be solved when they occur.

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APPENDIX

APPENDIX I

EXTENSION SERVICE, KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS



selling
IDEAS and PROGRAMS
through SOCIAL ACTION



Right-of-Way Purchases OK For Six Major Highway Jobs

The Highway Commission Wednesday authorized acquisition of right-of-way for planning six major highway projects. The right-of-way department was given authority to acquire:

- 10.3 miles of right-of-way to rebuild from Horton east and southeast to Wellington east
- 10.3 miles of right-of-way to rebuild from Horton east and southeast to Wellington east
- 10.3 miles of right-of-way to rebuild from Horton east and southeast to Wellington east

The commission authorized agreements with engineering firms for:

- Construction plans for a modern two-lane highway on US-77 from the Riley-Marshall county line south four miles.
- General and detailed construction plans for 10.3 miles of Interstate 70 beginning two miles east and two miles south of Russell and extending east to a point miles west of Borranche.
- Construction plans for 1 mile Interstate 70 beginning three miles west of Russell and extending east to miles west of Borranche.
- Construction plans for 12 miles of Interstate 70 beginning three miles west of Russell and extending east to miles west of Borranche.
- Construction plans for 12 miles of Interstate 70 beginning three miles west of Russell and extending east to miles west of Borranche.

BONDS WIN AT BELTON

Only 47 Vote Against Proposal for the Schools

Belton voters yesterday approved a \$200,000 school bond issue by a vote of 237 to 47. Dr. C. F. Yeokum, superintendent of Belton schools, said the money will be used to construct elementary classrooms.



Old P.O. Building A Museum

By MARON S. BONER
Independence Daily Reporter

For The Associated Press
INDEPENDENCE, Kan. (AP) — Many old post office buildings are giving way to progress, but the 52-year-old structure here has been rescued from the demolition crews. Last summer the site might be cleared for a parking lot. Then the Ladies Library and Art Association, an organization dating back to the 1880's, visualized the building becoming a museum for art and history. A small kitchen is planned and a stage will be erected. As soon as the sale was announced gifts started pouring in. One former California school teacher in

NO MERGER FOR HICKMAN MILLS

School District Rejects Annexation to Kansas City

W. POWELL VOTE TURNOUT
ONE of Nine Polling Places Heavily Against

Residents of the Hickman Mills school district voted decisively yesterday against annexation to the Kansas City school district.

Voters Keep School Open in Saffordville

SAFFORDVILLE — (Special)

Patrons of the Saffordville school district have voted to keep the rural high school here in operation for the next term despite decreasing enrollments. A total of 24 students are enrolled in the school — five more than when the term began in September.

Indian Fund Bill Approved

WASHINGTON — (AP) — A bill by Rep. Tom Steed, D-Okla., to provide machinery for distributing approximately \$1,135,000 among members of the Shawnee Indian tribe received approval of the House Interior Committee Wednesday.

REFERENCES: (1) National Project in Agricultural Communications, Michigan State University. (2) *Springboards to Community Action*, Extension Service, Colorado State University, Fort Collins, Colorado.

Selling IDEAS and PROGRAMS through SOCIAL ACTION

WILBER E. RINGLER,
Assistant Extension Director

CURTIS TRENT, Coordinator,
Extension Personnel Training



IS THERE ONE OF YOU who has not opened his newspaper in recent weeks and noted headlines such as these:

Bond Issue Fails

**Community Chest
Goes Over the Top**

**New Hospital
To Be Built**

City Adopts Zoning Regulations

**County Acquires
New Industry**

Street Improvement Program Fails

Why do some projects succeed and others fail?

Why does one program click and another fail to tick?

Why is one area dead while others move ahead?

These are some of the questions this pamphlet proposes to answer.

Steps to Success

Research and experience have shown that there are certain basic steps necessary to success in any group effort.

If these steps are followed closely—success is assured. If they are not followed—failure is almost certain.

What are these steps to success?

There are two things which we must recognize at the outset:

1. All group effort takes place in some sort of *social system*—a club is a social system, your church, your community, your state, your county, your family. Any group of people with some interest in common is a social system.

2. For every group action program there exists within the social system some past experience, either good or bad.

Somewhere in the background there has been a similar effort or one related to the idea we want to put across with a history of success, failure, crisis, or conflict.

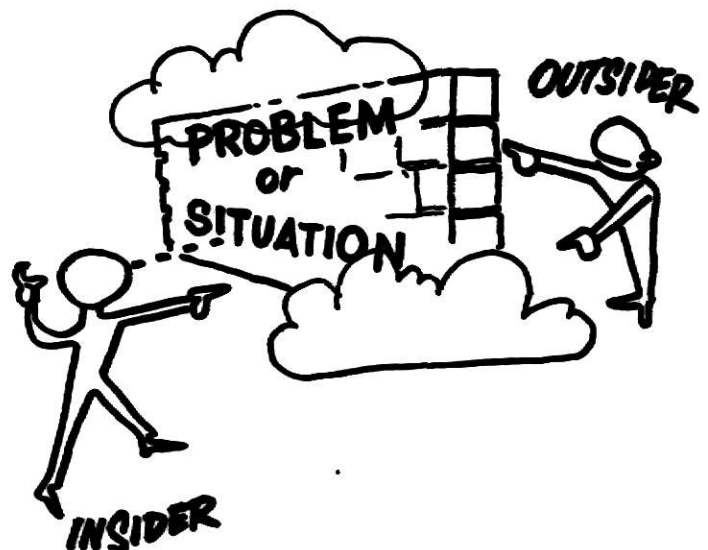


We will refer to this as the PRIOR SOCIAL SITUATION.

Problem Situation

The first step in initiating any idea or program is the identification of a problem, a situation or opportunity about which two or more people agree that something should be done.

This problem, situation, or opportunity may be identified by someone within the social system (*an insider*) or it may be identified by someone outside the social system (*an outsider*).



The Initiating Set

After the problem, situation, or opportunity has been identified, there will be at least a small group of people who feel that "something should be done" about it. They decide that the situation is important enough that they are willing to initiate action in its favor.

We refer to this group as the *initiating set*. The initiating set consists of two or more people, usually not a very large group. These are the thinkers—the "idea" men.

In many instances, more than one initiating set may be involved. They add ideas, alternatives, and actually originate action on the idea or program.



The Legitimizers

In almost every social system there are certain people or groups whose approval of proposed projects is necessary to make things legitimate. They put the stamp of approval or rejection upon an idea or program.

We call these people *legitimizers*.

The initiating set usually takes the problem to the legitimizers. To bypass this group usually spells failure.

Legitimizers may be either formal or informal. They may have power because of money, prestige, key position, knowledge, or past correct judgments.

A legitimizer may heartily endorse, say maybe, yes, no, nothing, you may use my name, won't oppose, etc.

If you bypass a legitimizer his position is challenged. At times the legitimizer may have to be bypassed if it is felt the program or idea really merits action. This should be done with consequences in mind.



The Diffusion Set

After an idea or program has been "legitimized," it is ready to be moved on to the diffusion stage or to the *diffusion set*.

Remember that up to this point only a few people have been involved—perhaps four or five initiators and the legitimizers. Both of these small groups have okayed the idea and have accepted it as a need worthy of action.

The next step is to take the idea to the people to help them see the need for the program and accept it as their own problem.

Careful consideration should be given to the selection of those to serve as members of the diffusion set or sets. They should be "salesmen" and "showmen." The idea people may not necessarily be the best people to convince others that a problem or opportunity exists.





Definition of Need

How do we help the general public see a real need for the program being advocated? It is the responsibility of the diffusion set or sets to try to make the problem become the *people's* problem.

There are certain techniques which have proved to be successful at this step. Some of these are:

- **Basic Education**

This is a long range program. It does get the facts to the people.

- **Program Development Committees**

Certain key people in the community study situations, problems, resources, etc. By this method people begin to see a need.

- **Comparison and Competition**

Use approach of "Our community or our farm is not as good as someone else's." (Ex: People are going to another town because they have a swimming pool.)

- **Exploiting Crisis**

When crisis arises make a play on certain needs.

- **Demonstration or Trial**

Set up a demonstration to show improvement can be made. Create a need for comparison.

- **Building on Past Experiences**

(Ex: We now use fertilizer; let's test soil and use fertilizer "efficiently.")

- **Channeling Gripes**

If people are against something, their negativity can be transferred into being for something.

- **Survey or Questionnaire**

The processes of planning for conducting and analyzing surveys give participants a clearer insight into the problem or situation.



Commitment to Action

Quite often people appear to accept an idea, but they are not interested enough to act.

It is easy to get them to nod their heads and agree, but when it comes right down to being willing to give time, money, and resources, that is something else again.

We must get them to make a public commitment to do something.

If a man says he will attend meetings, contribute so much money, or take responsibility publicly in front of his friends and neighbors, you can count on him to live up to his commitment.

A commitment to action is one of the most important steps in the social action process.



Goals

Once the people have felt a real need for the program some definite targets, *goals*, or objectives must be set.

The people should have a part in helping to set specific goals or objectives. What is the ultimate objective? How far can we go in one year?

These goals or objectives should be set down on paper and communicated to all concerned.

Means

Usually we have more trouble agreeing on how we are going to do something than we do on what we are actually trying to do.

All alternatives or different ways of doing the job should be considered. The best alternative should be selected and put into action.



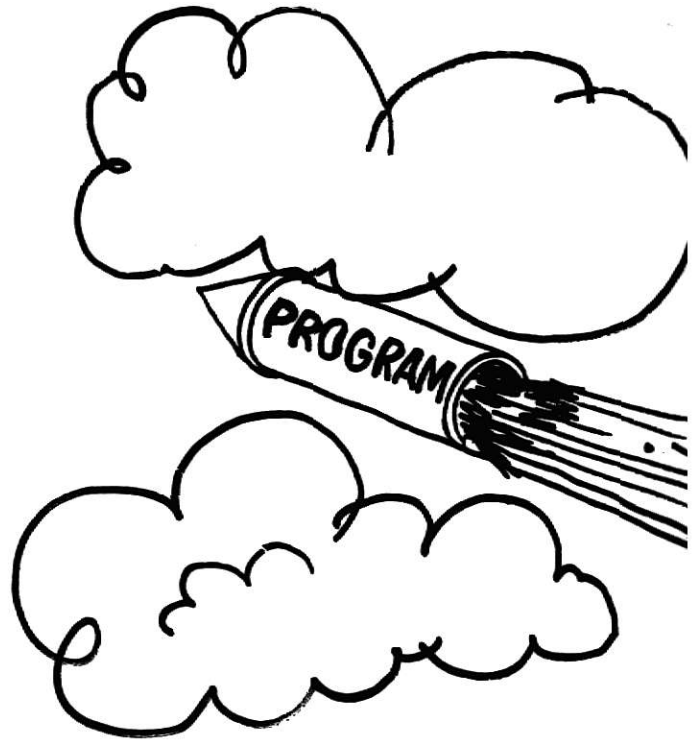
Plan of Action

After we have set up our goals and objectives and decided upon the basic methods we should use, then we will want to develop a plan of action and the organizational structure to carry it out.

The plan of action should include such items as:

1. A time schedule.
2. Committee organization.
3. Types of personnel needed.
4. Buildings required.
5. Visual aids needed.
6. Methods and techniques to be used.
7. Needs for meetings.
8. Publicity.

Definite plans should be developed and reduced to an outline on paper. There must be a wide understanding and acceptance of the plan so that all will know their part in the total effort.



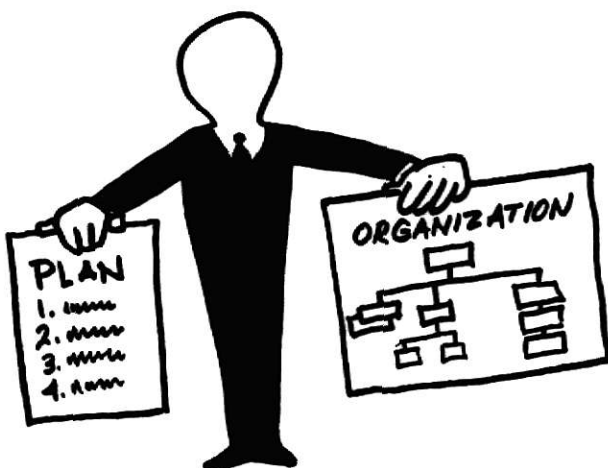
Organize Manpower and Resources

Once we have laid down our plan of action, then we must organize our resources so the plan can be carried out. Thus, once we have the plan on paper we must find:

1. The time.
2. The people.
3. The resources.
4. The physical facilities.
5. Whatever else is needed to actually carry the plan into action.

Most important in this step is: "Fit the man for the job." Remember that man has certain basic desires which when appealed to will move him to action. Give him a job that will fulfill his basic desires and he will work his best. Select those who demonstrate a desire to work.

Give recognition freely. It costs you nothing. *Build men*, and the projects will take care of themselves.



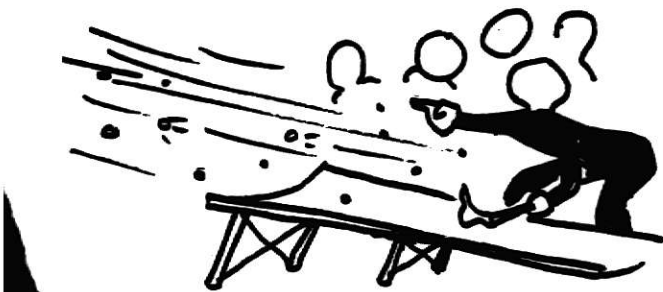
Launching the Program

As we move into gear in terms of social action, some programs basically break down into sort of a launching process. This launching might take the form of:

- A fund drive.
- A series of tours.
- A kick-off dinner.
- A full-page newspaper ad.
- A telephone network call.
- A big publicity splurge.

The purpose of a launching program is to create a big event so that people will know we are now into the action stages of the program.

LAUNCHING

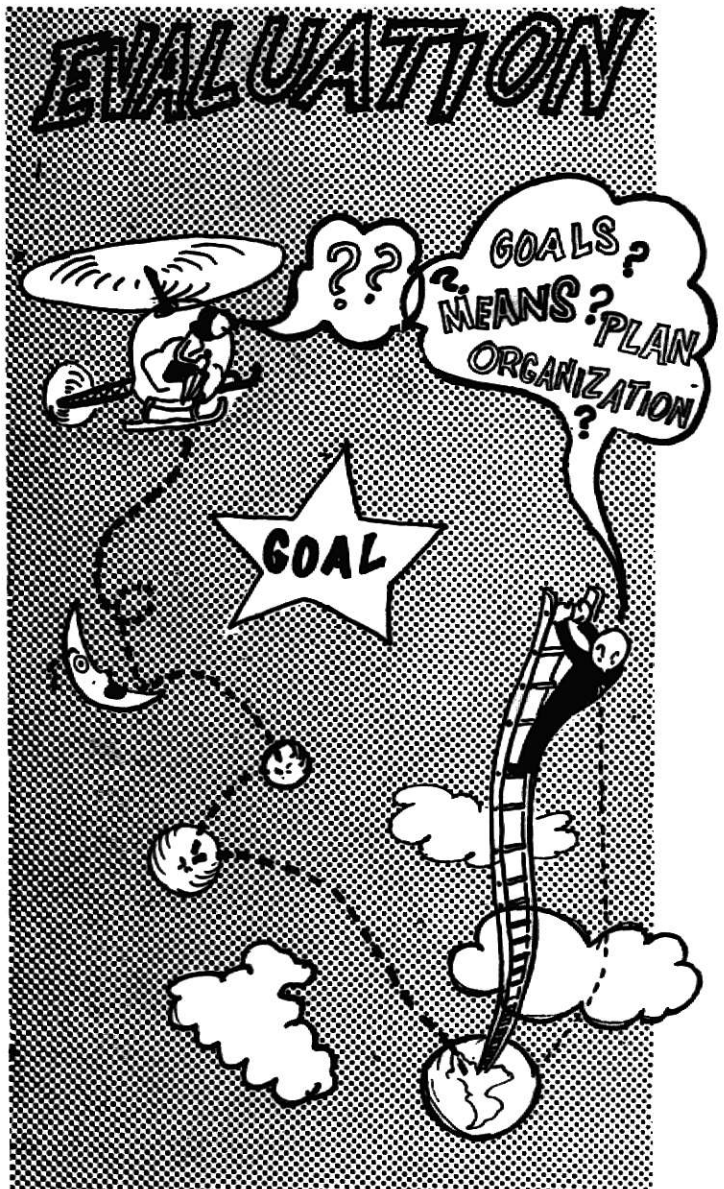


Take Action

Nothing becomes a reality without work on someone's part. Action should follow the plan or the plan should be changed if action is not getting the desired results.

Follow the timetable of action. Keep all concerned informed of what the plan is and the progress being made.

TAKE ACTION

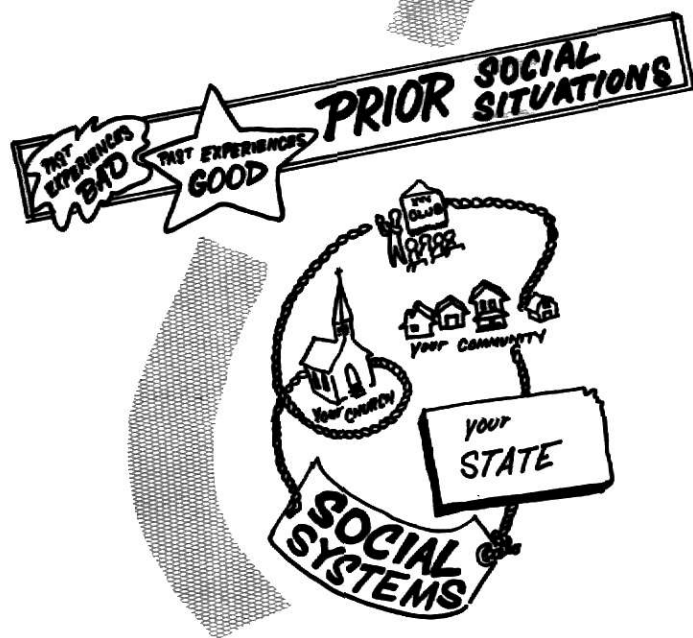
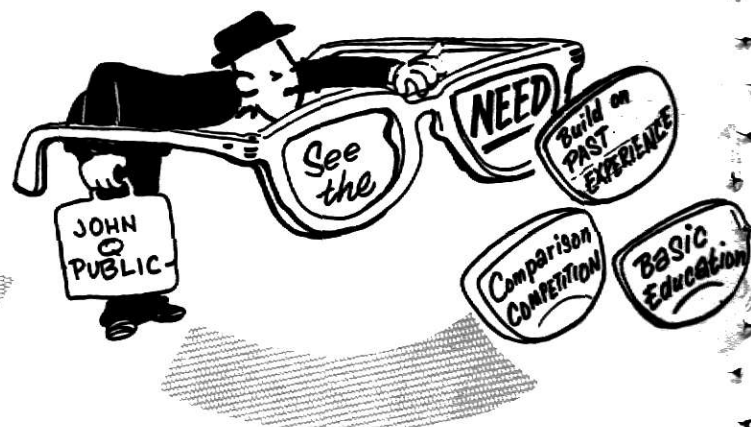


Evaluation

Between each of the action steps as well as at the end of the social action process, we stop and evaluate. We evaluate what we have done; our next immediate goal, and alternatives for reaching that goal.

Have you ever taken the wrong fork of a road when traveling? When one realizes he is lost, he usually seeks out original reference points on his map, retraces his steps or finds a shortcut to his original road so he can eventually reach his original objective.

It is possible in life for an individual or group effort to get lost and travel in the wrong direction. That is why it is important to often check one's course of action with his original goals or objectives.

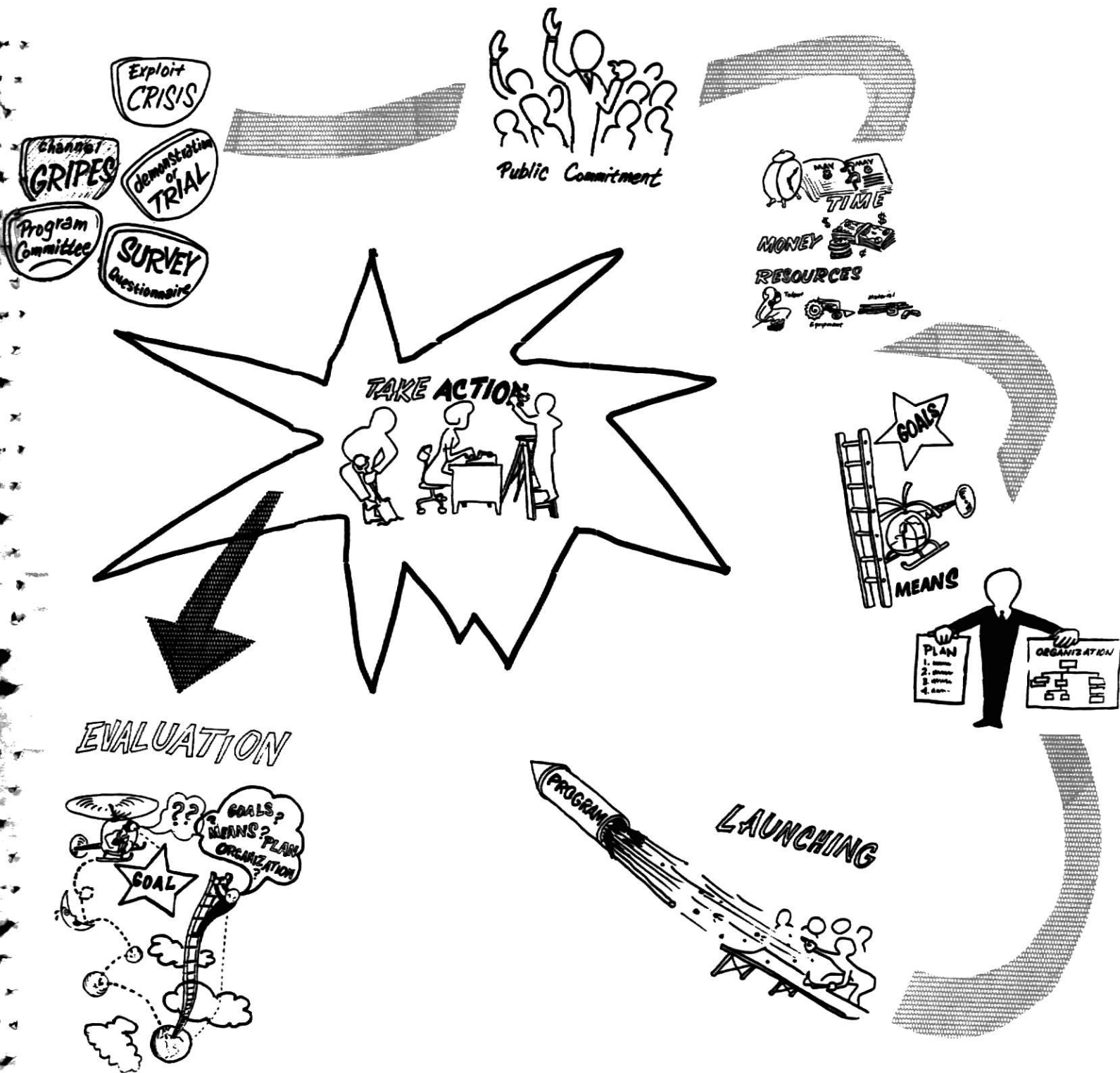


Summary

We have explored the following basic steps to selling ideas and programs:

1. Recognition of social systems.
2. Recognition of prior social situations.
3. Identification of the problem or opportunity.
4. Initiating the idea.
5. Legitimizing the idea.
6. Diffusing the idea.
7. Establishing the need in the minds of the people.
8. Getting commitments to action.
9. Setting goals.
10. Determining means.
11. Developing a plan of action.
12. Organizing manpower and other resources.
13. Launching the program.
14. Taking action.
15. Evaluating results in light of our original goals.

There is nothing that cannot be accomplished for action according to the proven pattern that



by men who are willing to organize themselves
brings success to any effort.

Extension Service, Kansas State University, Manhattan, Kansas

C-326

August, 1967

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U. S. Department of Agriculture. Harold E. Jones, Director, Kansas State University of Agriculture and Applied Science.

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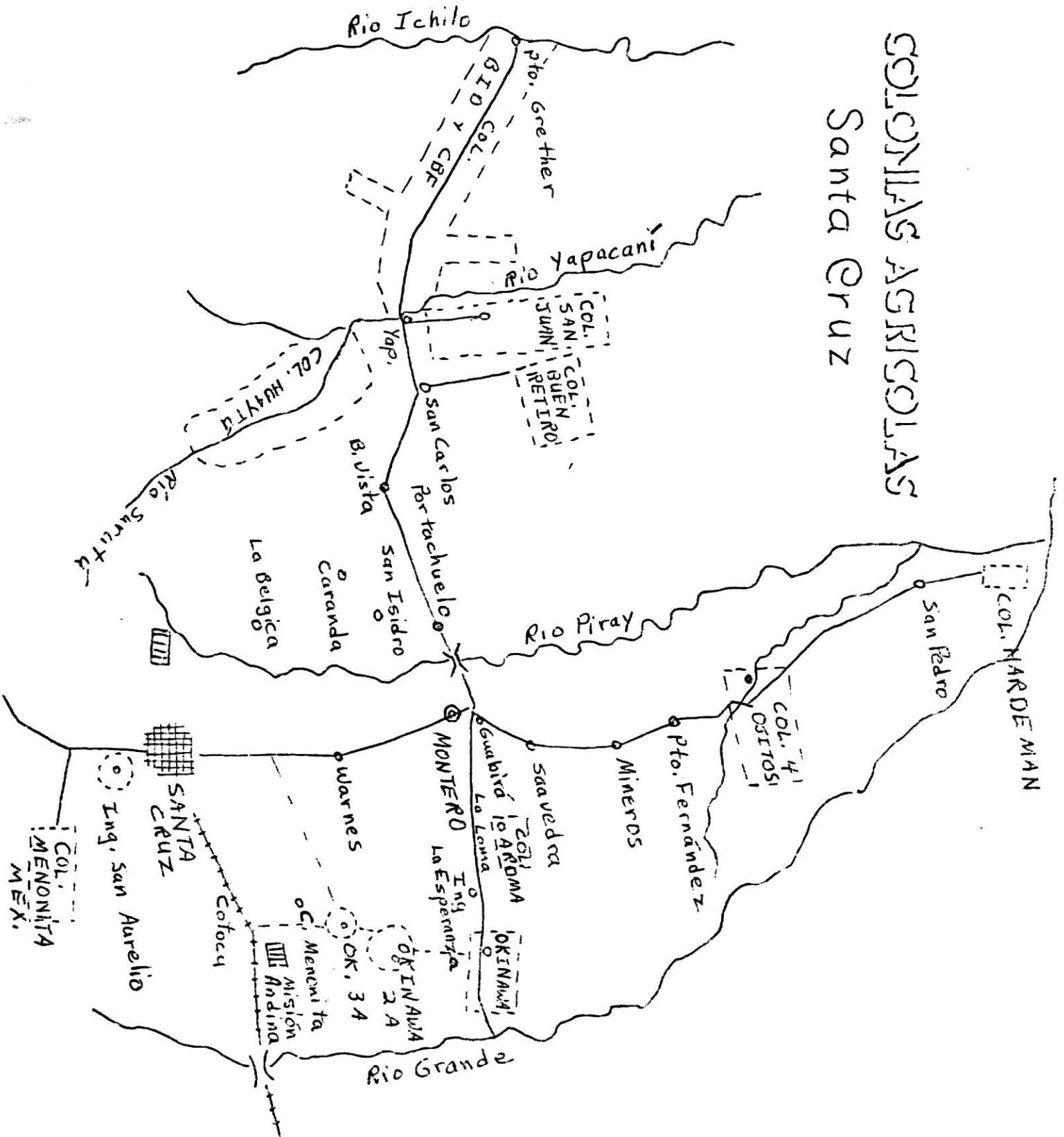


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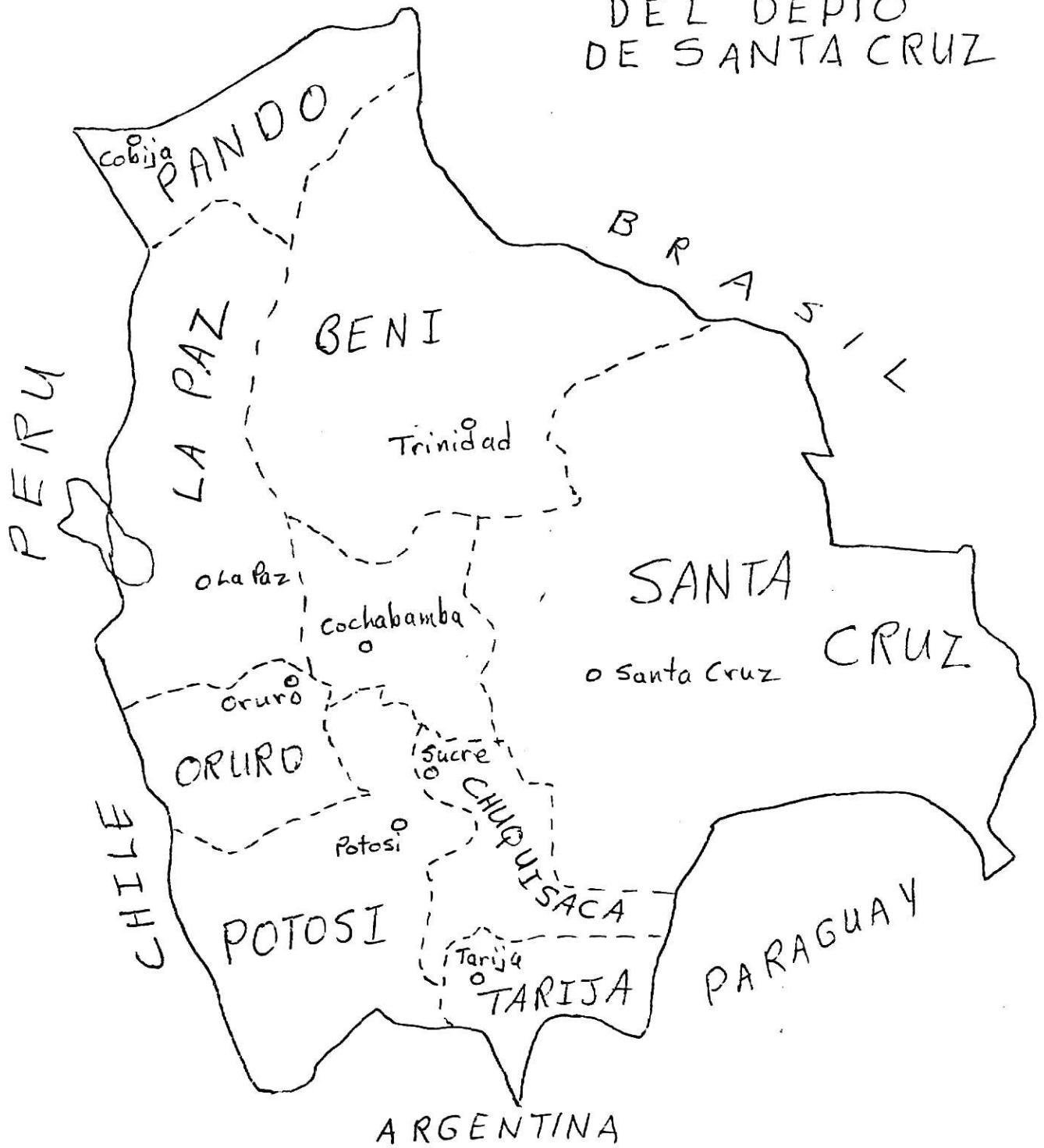
APPENDIX II

COLONIAS AGRICOLAS Santa Cruz



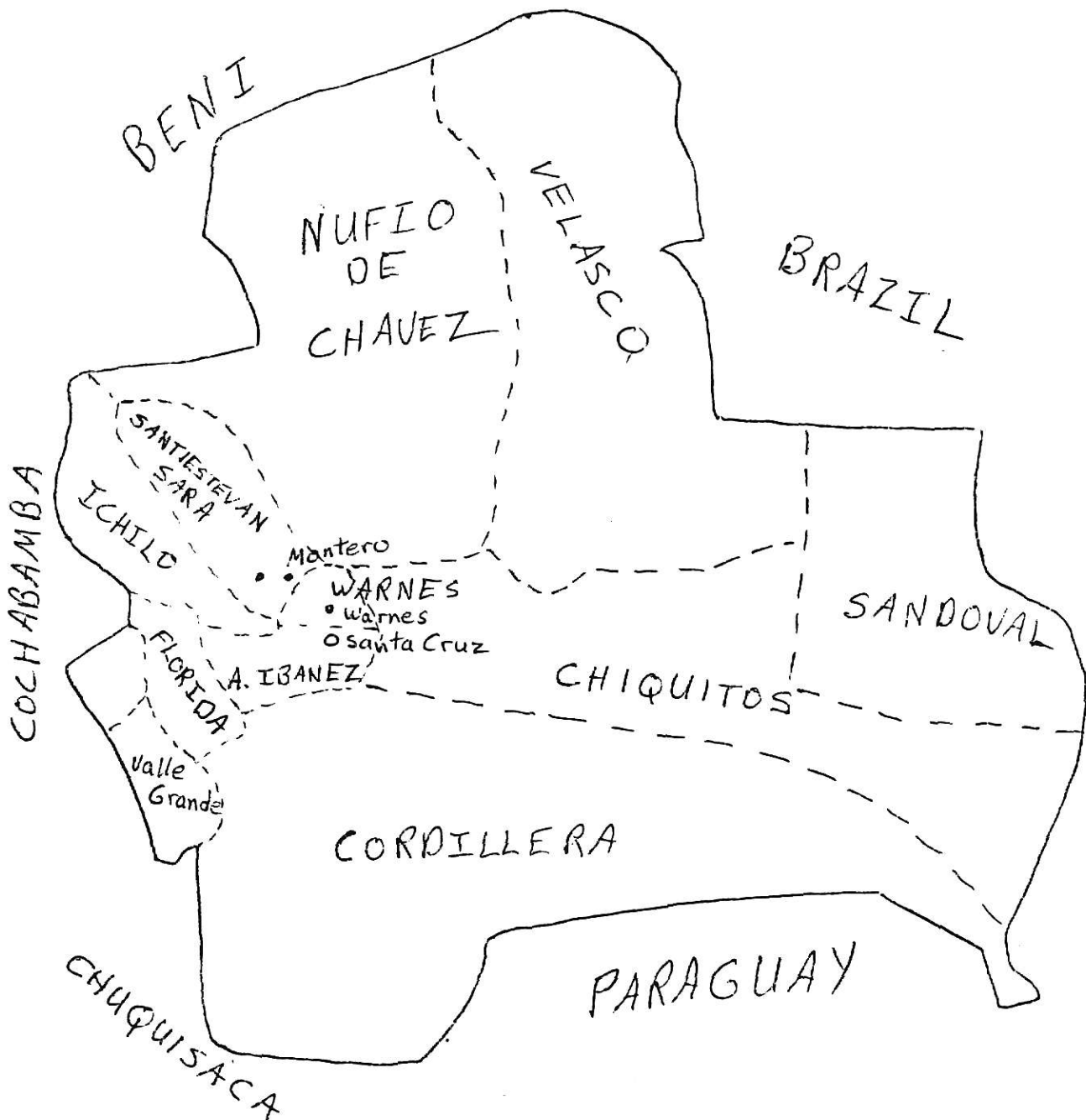
APPENDIX III

UBICACION
DEL DEPTO
DE SANTA CRUZ



APPENDIX IV

DEPARTAMENTO
DE
SANTA CRUZ



APPENDIX V

YOUNG MEN

Grade	MONDAY (2-4:30)	TUESDAY (2-4:30)	WEDNESDAY (2-4:30)	THURSDAY (2-4:30)	
7th	Horticulture	Carpentry & Mechanics	Horticulture	Horticulture	
8th	Poultry Class-Practice	Poultry- Practice	Mechanics Workshop	Poultry- Practice	
Fr.	Ag Machinery	Swine	Animal Nutrition	Projects & Study	Swine
So.	Ag Machinery	Cattle			Cattle
Jr.	Advanced Studies	Advanced Studies			Advanced Studies

Everyone has work every day in his department daily from 4:30 until 5:30. The same is true for the mornings.

APPENDIX VI

	8:00-8:50	8:55-9:45	9:50-10:40	10:40-10:55	10:55-11:45	11:50-12:40	1:30-2:20	2:25-3:15
I	Field	Plant Science	Ag Math	Break	Oral & Written Comp.	General Ag	Shop	Shop
II	Field	Shop	Shop	Break	Ag Opport	Comm. Devel.	Soils	Crop Prod.
III	Field	Ag Econ	Problems In Ag	Break	Shop	Shop	Science	Animal Prod. & Mgmt.

APPENDIX VII

Du Pont Safety Color Code

**A Universal System of Color
Identification . . . Designed to Promote
Safety and Boost Production**



Color Speaks a Universal Language

Through popular acceptance of the Du Pont Safety Color Code, there is now a *uniform* system of color signals for *all* types of industry. Based on research and traditional association, this system establishes colors and symbols to indicate accident hazards, identify protective equipment and assure orderly arrangement and good housekeeping.

Color is important in railroad and traffic signal codes. It marks poisons, dangerous gases and explosives. It is used to identify piping. Through intelligent application, color is being used to promote everyday industrial safety.

While color was frequently used for safety in industry, many of its applications were inconsistent and confusing. A hue like yellow, for example, or red, may be applied in a wide variety of ways and with little regularity or meaning. Obviously, any application of color should hold all possible significance and not merely wave brightly before the eye. If red is used to indicate fire protection equipment, it should not, at the same time, be used to indicate hazards. Yellow has been given widely different applications—some hazardous and some safe. This inconsistent use of color is not only confusing—it defeats its very purpose.

Color in a safety program should attract the worker's attention, call forth specific pre-determined associations, and respect previous usage. The association of red with fire protection, of green with safety, is traditional. A practical program must take into consideration the commonly recognized colors, each of which can be readily identified by name.

Color speaks a universal language to the mind through the eye. High visibility under all lighting conditions must be considered. The relatively high frequency of color blindness must also be regarded in order to avoid confusion. Markings, symbols and legends, especially in cases of color blindness, will further aid color identification.

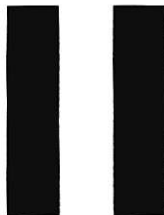
When the Safety Color Code is adopted in a plant or institution, the worker quickly learns the meaning of these colors and symbols. His reaction to any emergency becomes spontaneous. As he moves from one building to another, he knows that the color signals he sees in one place indicate the same things elsewhere. This is good SAFETY practice.

The Safety Color Code has been recognized by leading industrialists because it provides a coordinated standard of practice for any plant in any industry. Its consistent application lowers accident rates, reduces man-hours lost through absenteeism and improves morale. Higher standards of operating efficiency are the result.

The Du Pont Safety Color Code was first announced at the 15th Annual Safety Convention, Greater New York Safety Council, on March 28, 1944. In July 1945, the American Standards Association standardized red, green, yellow and white, with orange, blue, and purple being added in 1953. The A.S.A. Code, however, uses red to indicate three hazards (danger, stop, fire). Many plant managers will follow the A.S.A. Code, but will use red for fire protection only—adding Alert Orange for danger and Precaution Blue for electrical controls.

CAUTION: It is not intended that these colors be substituted for adequate guarding. They should be used, however, as a "spotlighting" supplement.

HIGH VISIBILITY YELLOW



To mark strike-against, stumbling, falling or tripping hazards.

Use on trucking equipment, protruding parts, curbing, dead-ends, low beams, railings, loading buckets, stairway approaches, floor pan edges, etc.

ALERT ORANGE



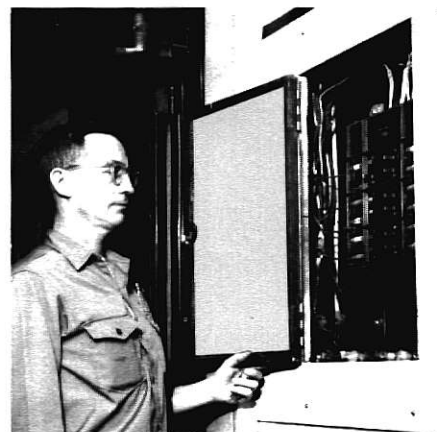
To mark portions of machines or equipment that might cut, crush, electrocute, or otherwise injure a worker.

Use on interior surfaces of fuse boxes and power boxes, machinery guards, exposed parts such as pulleys, gears or cutting devices, etc.

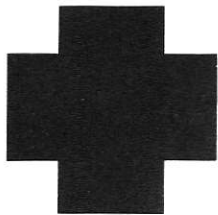
"DUCK YOUR HEAD!"



"LOOK OUT—LIVE WIRES EXPOSED!
SHUT THIS DOOR!"



SAFETY GREEN



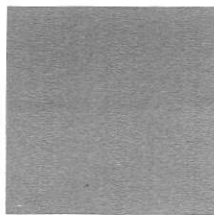
To mark First-aid equipment.

Use on dispensaries, medicine cabinets, stretchers, gas mask containers, respirator containers, surgical wagons, etc.

"FIRST AID!"



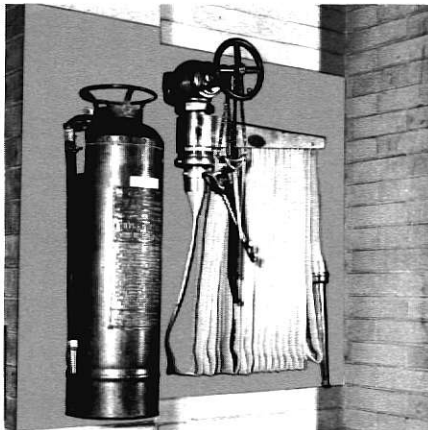
FIRE PROTECTION RED



To mark instruments for combatting fire.

Use on extinguishers, fire hose, hose connections, hydrants, apparatus, fire blankets, alarm stations, etc.

"FIRE EQUIPMENT!"



PRECAUTION BLUE



To mark electrical controls and equipment under repair.

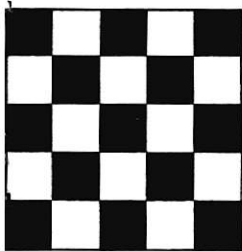
Use on ovens, vats, electrical controls, boilers, valves, kilns, dryers, tanks, compressors, scaffolding, etc.

"DON'T OPERATE—YOU MAY INJURE BOTH YOURSELF AND THE MACHINE!"



TWO MORE SAFETY COLOR CODES

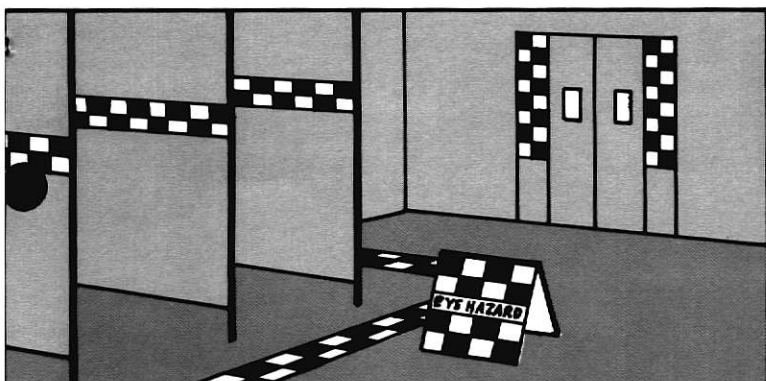
EYE HAZARDS



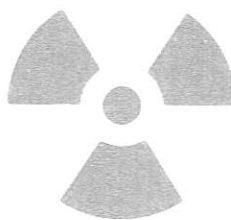
A checkerboard symbol made with Du Pont High-Visibility Yellow and Black (already adopted by the U. S. Navy) has been designed to mark eye hazard areas where there may be flying particles due to welding, grinding, the handling of acids, etc. This code should be placed on welding booths, floors, doors, door frames, and portable signs. Eye protection equipment is also required in these areas.

Although a code of High-Visibility Yellow and Black offers a constant reminder to

employees, it is not to be considered a substitute for proper guarding and the use of safety glasses.



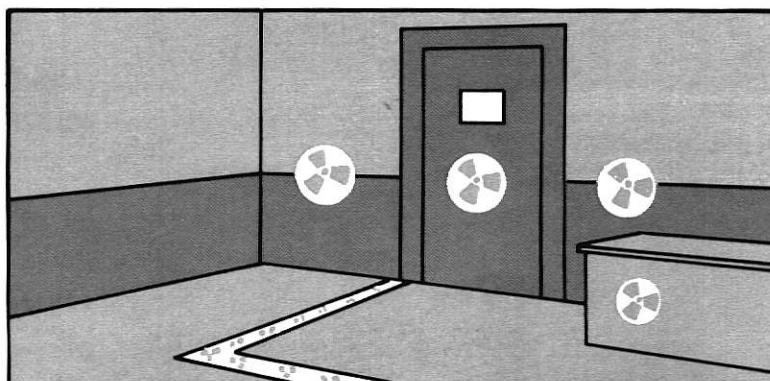
RADIATION HAZARDS



A special symbol, consisting of Du Pont Radiation Purple on a background of High-Visibility Yellow, is now standard for marking radiation hazards associated with radioactive isotopes, radiochemicals and fissionable materials. This code is approved and recommended by both the U. S. Atomic Energy Commission and the American Standards Association. It should be placed on doors, wall areas on both sides of door frames, floors, containers, and any

equipment which represents a hazard.

Du Pont Radiation Purple is available on special order to the Du Pont Finishes Division in Wilmington. The color itself is not too permanent. It should be reapplied at frequent intervals and confined chiefly to interior use.





PIPING IDENTIFICATION

A SUGGESTED STANDARD FOR EFFICIENT IDENTIFICATION

PURPOSE—This standard simplifies the identification of piping throughout a plant. It minimizes the difficulty of tracing pipe lines, conserves time and labor in maintaining the lines, makes it easier to train new personnel and promotes safety.

METHOD—Paint pipes that are located inside buildings the same color as their adjacent surface. Mark all piping, indoor and outdoor, with a distinctive color band bearing a stenciled or written legend to indicate the contents of the pipe. Apply these bands at valves, couplings, and wherever pipes pass through walls.

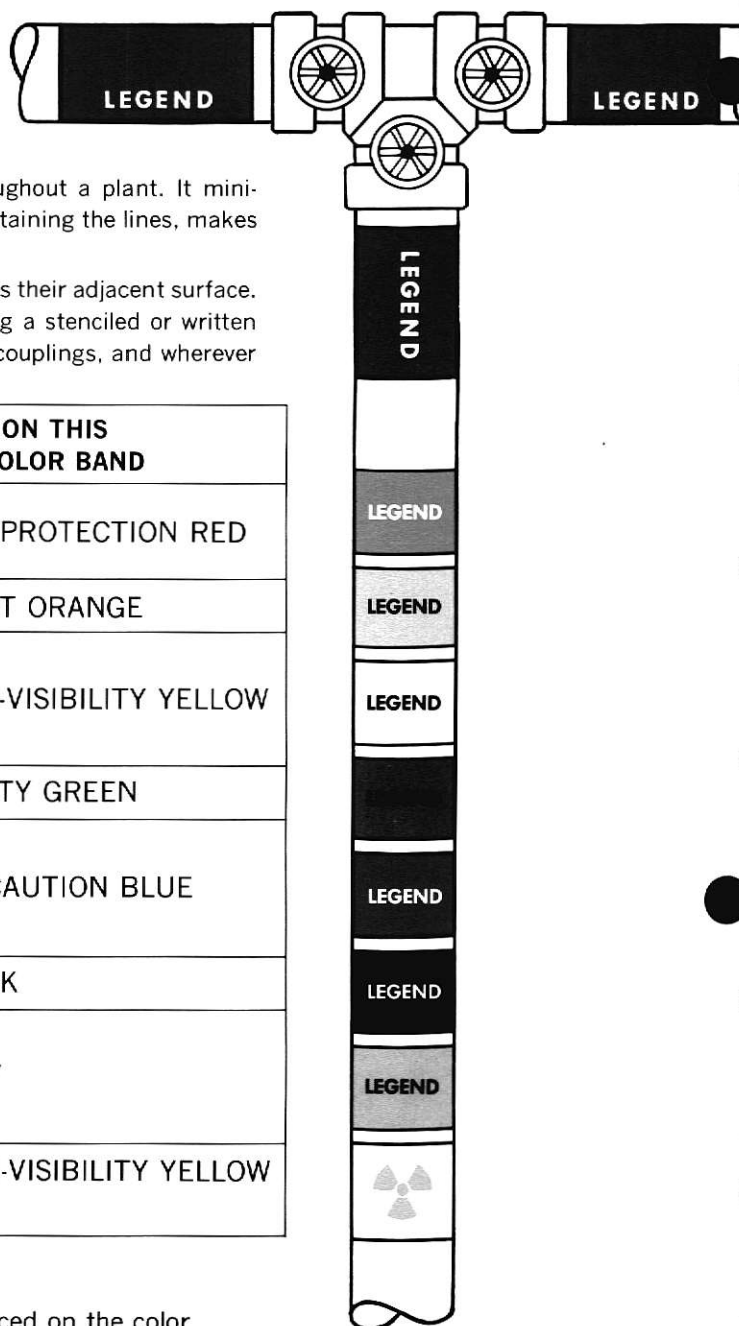
TO IDENTIFY & READILY LOCATE	USE THIS COLOR LEGEND	ON THIS COLOR BAND
FIRE-FIGHTING EQUIPMENT	WHITE	FIRE PROTECTION RED
STEAM LINES	BLACK	ALERT ORANGE
HAZARDOUS GASES, AND LIQUIDS INCLUDING COMPRESSED AIR	BLACK	HIGH-VISIBILITY YELLOW
WATER	BLACK	SAFETY GREEN
PROTECTIVE MATERIALS OTHER THAN FIRE PROTECTION, SUCH AS INERT GAS	WHITE	PRECAUTION BLUE
ELECTRIC CONDUIT	YELLOW	BLACK
NONHAZARDOUS PROCESS MATERIALS INCLUDING VACUUM	BLACK	GRAY
RADIATION HAZARDS	HAZARD PURPLE (Magenta)	HIGH-VISIBILITY YELLOW

Color bands are adjacent to valves, couplings, etc. Legends are placed on the color bands where they can be most easily read by employees in the immediate area.

SIZE OF COLOR BAND AND STENCIL LETTERS

Outside Diameter of Pipe	Width of Color Band	Size of Letter
Up to 2"	8"	3/4"
2 1/2" to 6"	12"	1 1/4"
7" to 10"	24"	2 1/2"
Over 10"	32"	3 1/2"

E. I. DU PONT DE NEMOURS & CO. (INC.)
FABRICS & FINISHES DEPARTMENT
INDUSTRIAL MAINTENANCE FINISHES
WILMINGTON, DELAWARE 19898



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APPENDIX VIII

Figure ____ . MEDIA ANALYSIS CHART FOR SELECTION OF TECHNIQUES

Methods or Techniques	Sensory Appeal	Relevant Learning Process	Advantages
Lecture	Sound, Sight	Information, comprehension	Handle large groups. Fast way to cover large amount of material
Group Discussion	Sound, Sight	Information, synthesis, analysis, evaluation	Involves students in decision making
Students Reports	Sound, Sight, Touch	Information, comprehension	Involves Students
Field trips	Sight, Sound, Touch, Smell, Taste	Information, analysis, comprehension, synthesis, application, evaluation	Practical experience with real thing
On-the-job training	Sight, Sound, Touch, Smell, Taste	Information, analysis, comprehension, synthesis, application, evaluation	Practical experience with real thing
Team teaching	Sight, Sound, Touch, Smell	Information, synthesis, comprehension	Allows for greater specialization and flexibility. Maximum efficiency.
Programmed Learning	Sight, Sound, Touch	Information, application, analysis, synthesis, evaluation, comprehension	Learner can proceed at his own pace. Immediate reinforcement.
Demonstration	Sight, Sound, Smell, Touch, Taste	Information, analysis, evaluation, comprehension	See how to perform a given task.

Listed below are examples of additional techniques which may be developed:

Role playing	Group leadership	Question and answer
Buzz session	Debates	Resource units
Panel discussion	Problem solving	Brainstorming
Guest speakers	Drill	

APPENDIX IX

Considerations for Planning Field Trips

- a. define aims and purposes
- b. advance planning: contact host, pre-visit the area, prepare students and facilities
- c. choose appropriate time
(weather - relevant and timely to class)
- d. decide on transportation
- e. conduct on the trip: students are still in school--public relations are important
- f. evaluate
- g. followup--send appreciation note to host

Taken from notes on the course, "Principles of Teaching Ag Mechanics."

A PROPOSED EDUCATIONAL PROGRAM IN VOCATIONAL AGRICULTURE
FOR THE INSTITUTO RURAL METODISTA OF MONTERO, BOLIVIA

by

ARLEN W. ETLING

B. S., Kansas State University, 1967

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1969

The problem was to explore the barriers and opportunities to establishing a program of vocational agricultural education at the Instituto Rural Metodista of Montero, Bolivia. Secondly, recommendations to exploit the barriers and opportunities to establishing such a program were developed.

An historical research of education in Bolivia, agriculture at Montero, and the American Farm School of Thessaloniki, Greece was carried out. A comparison was made between the features of the Greek school and the potential of the Instituto Rural to develop a set of recommendations. A review of literature on the specific areas reported was facilitated by literature dealing with education in developing countries and education in Latin American countries. The review of literature was also aided by visits by the investigator to both Montero and Thessaloniki.

Also included in the study was a recommended method of implementing the findings. The device used was a social action process of selling ideas and programs. This device was developed by the Kansas State University Extension Service.

Research indicated that economists consider education a sound investment. Some sources felt education was more important than capital investment.

A list of problems in developing countries which affected education included increasing population and a high proportion of the people engaged in agriculture. A shortage of funds and supplies, the lack of a necessary infrastructure, low federal priority given to rural areas, and low regard of rural people for the schools were other problems cited.

Several benefits of education for development were cited. The formation of social and individual mobility and a middle class were mentioned. Institution and tool building was another contribution as was the creation of

an attitude of change. Technical improvement, provided through education, helped greatly.

Adult education was considered quite significant in developing nations. Extension education was favored as the best approach here.

Characteristics of education in Latin American nations stem from a European colonial social structure which was changed little after independence until recently. Narrow curriculum offerings, limited opportunities, social class discrimination, and lack of creativity were all listed. Static teaching techniques, inadequate training of educators, high drop-out rates, and a need for vocational training were all affirmed.

Cautions were pointed out for developing educational programs. The current and historical cultural influences and the danger of external models were mentioned. Local planning of relevant, development-oriented curriculums was important. The need for supporting institutions, especially teacher-training colleges was great. The development of local vocational programs, especially in agriculture, was supported.

Considering, Bolivia, the Montero area (described in U.S.A.I.D. reports), the Instituto Rural Metodista, and the Greek school, a recommended program for vocational agriculture was developed. A three year program of agricultural and closely related subjects was suggested. The program divided the educational experiences into four areas: Classroom instruction, shop skills and practice, supervised experience on the school farm, and extra-curricular activities of a young farmer club. The first year was devoted to general agriculture, the second featured crops and soils, and the third emphasized livestock.

Specific recommendations were made to formulate objectives, recruit

students, emphasize development of Bolivian teachers, and improve the existing facilities. Also suggestions for the curriculum, the teaching approach, resources, and supplementary activities were made.