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AUTHOR Diaz, Heliodoro; Felstehausen, Herman
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ABSTRACT

A theoretical framework for integrating concepts of communication and institutional change based on experience with the Puebla Project in Mexico is given. The Puebla Project is a program to introduce high yield corn technology on a broad scale to 50,000 dry land corn farmers in Puebla, Mexico. The first part of the paper points out how institutional analyses can have limited value when restrictive concepts are used. Events observed in Puebla can be better explained by defining "institution" as a set of rules or norms which govern the behavior of individuals in different roles or positions. Broad scale analyses are facilitated because rules can be classified into groups as can roles. Then communication becomes an intellectual process analogous to problem solving (displaying ideas so the idea can be transformed, not the person). The second part of the paper describes the Puebla Project in the context of Mexican development and explains the main institutional issues which were taken into account in organizing the field program. The project stresses institutional and operational factors, such as (1) continuous research and evaluation to change operating rules of both technical staff and campesinos; (2) fostering of campesino organization as a means to ensure that rule changes will be relevant, (3) direct involvement of campesinos in communicating new rules and procedures, (4) continuous on-the-job training of new personnel to expand the number of personnel who understand institutional concepts, and (5) gradual change in the rules governing the distribution of agricultural credit and supply organizations. (NQ)

COMMUNICATION AND INSTITUTIONAL CHANGE IN MEXICAN AGRICULTURAL DEVELOPMENT*

by

Heliodoro Diaz** and Herman Felstehausen***

*Paper prepared for presentation at the Third World Congress for Rural Sociology, Baton Rouge, Louisiana, August 23-24, 1972.

**Rockefeller Foundation graduate fellow in the Ph.D. in Development program, University of Wisconsin, Madison, and former staff technician with the Puebla Project, Mexico.

***Associate Professor of Agricultural Journalism in the Land Tenure Center, University of Wisconsin, Madison.

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This paper presents a theoretical framework for integrating concepts of communication and institutional change based on experience with the Puebla Project in Mexico. The Puebla Project is a program to rapidly introduce high yield corn technology on a broad scale to 50,000 dry land corn farmers in the State of Puebla, Mexico.

The first part of the paper points out how institutional analyses can have limited value when restrictive concepts are used. The conventional approach consists of defining an institution as an organization leading, by logical progression, to a focus on goals and values. In the same way, communication becomes focused on attitude change and traditional value orientations. Conventional concepts can be useful to a point, but as with modern physics and genetics, wider explanations of observed phenomena are not possible until many of the conventional concepts were replaced by concepts which refocus the theories and bring new data into the picture.

The events observed in Puebla, it is suggested in this paper, can be better explained by defining institution as a set of rules or norms which govern the behavior of individuals in different roles or positions. Broadscale analyses are facilitated because rules can be classified into groups as can roles. Communication, when placed in this context, is no longer a process of manipulating information in order to change traditional attitudes to modern ones. (We would classify the manipulation process as information theory rather than communication theory in order to keep the concepts clear.) Communication is an intellectual process analogous to problem solving--literally, displaying ideas so the idea can be transformed, not the person per se.

The second part of the paper describes the Puebla Project in the context of Mexican development and explains the main institutional issues which were taken into account in organizing the field program. The project is considered more comprehensive than most pilot programs and atypical in terms of the variables considered for evaluating progress. Instead of stressing productivity and modernization (even though these are certainly considered essential), the project stresses institutional and operational factors. They are: 1) continuous research and evaluation to change the operating procedures (rules) of both the technical staff and campesinos, 2) fostering of campesino organization as a means to ensure that rule changes will be relevant, 3) direct involvement of campesinos in communicating new rules and procedures, 4) continuous on the job training of new personnel to expand the number of personnel who understand institutional concepts, and 5) gradual change in the rules governing the distribution of agricultural credit and supply organizations.

Each of the institutional factors is described with examples from Puebla. The number of campesinos known to be participating in the project with a registered credit source grew from 103 in 1968 to 5,240 in 1971.

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Introduction

Two contrasting approaches have guided the planning of most rural development projects in Latin America. One approach has been to identify key economic variables or factors and mount a focused attack to correct specific shortcomings in present production systems or to make injections of missing inputs so existing enterprises could be expanded. This approach focuses development planning primarily on questions of economic organization and the allocation of physical and technical inputs.

The second approach is to view development basically as a complex set of interrelated rules or norms which control the behavior of individuals who distribute resources, allocate benefits and regulate the use of inputs and services. The subject of attention in this second approach is focused on the individuals who occupy decision making roles and on factors which govern behavior of all kinds (including economic behavior). This formulation considers development to be primarily a human problem, which most agree it is anyway, but for which few have formulated explanations.[1]

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***Associate Professor of Agricultural Journalism in the Land Tenure Center, University of Wisconsin, Madison.

The concern with rules which control behavior is what is termed the institutional approach in this paper.

The Puebla Project in Mexico constitutes an instructive demonstration of the complexity of factors which must be confronted in order to make some lasting change in rural conditions in Latin America. Furthermore, the project is an example of a scheme where institutional change constitutes the major criterion of project success.

Institutional and communication processes will be described and defined in this presentation in an attempt to remove some of the confusion about the meaning and significance of this approach. Following the explanation of concepts, an attempt will be made to illustrate the concepts with examples from the Puebla Project experience in Mexico.

Part I

Communication and Institutional Change Concepts, by Herman Felstehausen

The usual meaning of "institution" among both specialists and non-specialists is a meaning which is analogous to "organization or agency." By such convention, rural development institutions are those which play a role in agricultural production or rural social order. This customary definition logically leads to analyses of organizational form, formalized functions, and agency goals. An extensive literature has been developed around precisely such concepts.[2]

A number of organizations have been identified as playing important roles in the Puebla Project. They include the credit banks, (which also distribute fertilizers), the crop insurance program, the Puebla Project technical service, government and private markets, farm supply agencies, transportation owners and operators, and campesino organizations.

All organizations exist to provide for a division of labor and to establish a system of order in carrying out social and economic functions. There are also numerous manifestations of organizations which sometimes become more important than the division of labor itself. These include the division of authority into a hierarchical pattern which results in the phenomena of power and the possibility of leadership.[3]

Organizational analyses indicate which functions an organization performs and how the work is divided and allocated; they do not specify what controls these functions. The institutionalists[4] recognized a long time ago that organizational changes are only superficially understood by examining an organization's hierarchical structure and the division of labor. An examination of the hierarchical structure reveals the patterns of work, but control over the behavior of the individuals who perform the work is obtained by an examination of the organizational rules. Sociologists would probably prefer the term norms to rules; lawyers would include laws and administrative orders as kinds of rules. In the Wisconsin tradition, norms are called "working rules" to encompass not just the normative statements, but also the sanctions, both positive and negative, which define the norms and their applications.

The Puebla Project in Mexico will be used to illustrate the nature of working rules with respect to a specific rural development case. The illustration is, by necessity, general and unrefined since many parts of the program are still evolving and a systematic evaluation of the rules has not been produced.

The behavioral groups in our case include those who are actually involved in project experiences--50,000 campesinos who produce corn on

small farms in the State of Puebla, bankers who control the lending of credit, marketing agents who protect their profit margins, project technicians who question what they will get out of working in the country while their colleagues hold urban jobs, and other service agents who deal with farmers.

Organizational theories frequently stress that behavior is conditioned by goals and values.[5] Investigators who accept this premise are led to seek statements of organizational goals and lists of the common values and attitudes of the individuals who make up the organizations. Confidence in this approach explains the extensive use of attitudinal measures in many social change studies. When results are inconclusive, investigators often blame the shortcomings on unresolved measurement problems. While the whole enterprise is still at an elementary stage, the basic problem is not measurement but the lack of an adequate theory.

Furthermore, the problem of goals is wrought with controversy over how they are to be chosen and what their role should be once specified.[6] A widely accepted position in planning circles is to accept goals as given by the organization under study, or to arrive at goals by some political process and then to concentrate on seeking efficient means to achieve them.[7] The problem with such approaches is that one has no way to consider the worth of the goals sought to know whether they would resolve development problems once achieved. At the same time, the approach tends to focus the analysis on instruments of action only (means). In a highly technically oriented society, means can take over the ends and begin to displace goals. Consequently, available means dictate action and judgments about what should be achieved. The institutional approach does not eliminate

the goals question. It faces it in a different way by focusing on development problems to be resolved and on the rules which control repeated patterns of behavior or action.

Clarification of the behavioral issues which are basic to institutional studies has come from recent advances in psychology. The psychologists have been able to establish through joint experimentation in biology, genetics and behavior, that man is a product of his physical-chemical makeup (his biological history), plus his environment (his experiential history).[8] This evidence puts biological and environmental conditions into a causal role.

The institutional approach refocuses the values-goals problem by shifting the analysis to rules and their associated sanctions as the controling forces in determining behavior. Thus rules rather than attitudes control behavior. Developmental change means changing organizational rules not individual attitudes. Rules or norms also provide a useful level for generalizing inasmuch as they apply to groups of actors rather than being singular and unique for each person in the social system. The assortment of individuals who occupy positions governed and sanctioned in the same ways are lumped into categories called role occupants. Classification, a first step in science, is possible through the consideration of classes of role occupants without regard to the naming of the specific individuals who occupy the roles. Each individual occupies numerous roles at the same time, each role being defined by a set of rules and sanctions. For example, a given person may occupy the role of school teacher for which certain rules and sanctions apply. But while driving to work the same person also occupies the role of motorist for which an entirely different set of rules and sanctions apply.

Sanctions can be both formal and informal. The kinds of sanctions which are in practice applied to a given class of role of occupants is what defines "working rule." Customary practice which defines accepted limits of behavior sets up the "working rules" for each role.

An institution is, by definition, not an organization--it is a set of working rules which define the behavior of a class of role occupants. Yet rules never exist without some organizational structure so it is always useful to look at bureaucracies to see how rules operate. As you can see by these definitions, farming is an institution just as practing law or teaching school are institutions.

Institutional change, therefore, means changing the rules applying to defined role occupants. Development is an attempt to get specific classes of role occupants to change their present behavior to some other behavior with respect to economic and social functions. The institutional approach focuses the attention on the ways the working rules are changed rather than stressing the effects of changes in attitudes, technology, or input delivery.

The concepts just described are so unfamiliar to many technicians and scientists who work with development that they might be viewed with skepticism or rejected outright. Perhaps it will help allay some of the doubts of those who have been trained within biological and physical science disciplines to point out that, abstractly speaking, one can view a human family or a community as a behavioral system in the same way one can classify a corn plant or a bee hive as a behavioral system. The point of this exercise has been to provide a more useful way to view behavioral systems. A crude model for studying the yield of a corn plant would be

to control for soil moisture and soil fertility. However, it was not until the genetic links to corn yield were described and used did scientists find a broad base for experimental action with respect to the behavior of a corn plant.

In the same way, one should not expect to have a broad base of inference for exploring the behavioral components of development until we have an adequate explanation of the rules which control different human behaviors. Recent evidence suggests that these explanations are of a different kind than those found by inspecting organizational hierarchy, concepts of leadership goals-values and attitudes even though one needs information about such factors just as the geneticist continues to pay attention to moisture and fertility in his genetics work.

The second concept to be addressed by this paper is communication. Much of the confusion about communication results from mixing various uses and definitions of communication without concern for which use or concept is intended. Throughout communication literature, the theoretical focus has been upon information transmission and encoding-decoding processes.[9] Mechanical models have frequently been proposed to provide analogies for these processes. The concepts of information transmission and information coding processes, are relatively clear and straightforward in spite of the fact that there are numerous measurement problems. If the intent is to transmit a certain message to a defined mass of persons, or if one wishes certain persons to believe a certain statement to be true or false, what is known from the study of mass media, persuasion, and advertising, makes it fairly clear what should be done in attempting to accomplish that objective.

The area of difficulty in communication research rests with communication as an intellectual or problem solving process. Here the theories are meager and generally inadequate.[10] Communication as a mental process means using ideas about specific events or existences as hypothetical concepts in order to identify and test possible means for producing a planned outcome. Communication is directly associated with our previous concept of institutional change. In order to deliberately accomplish a change in the rules which govern a particular behavior, one must hold up an idea of what the "desired" behavior would be like, and then intellectually screen alternatives which rationally can be expected to produce the stated result. This is a way of looking at communication as it goes on inside one's head. By this definition, communication and problem solving mean the same thing.

The kind of communication described here also applies to interpersonal situations. Because ideas are created by the use of language symbols, they can be "put up for display" so to speak, and considered by two or more persons at the same time. And recalling that every individual is the product of his biological and environmental past dictates that no two persons will manipulate the display of ideas in exactly the same way. The process of repeated display, manipulation and display of an idea among various persons is what is meant by interpersonal communication. It is to be distinguished from information transmission or reporting. For me to tell you that it is now 3:45 p.m. is information transmission rather than communication by this definition.

The ideas which are produced by a process of interpersonal communication, of course, cannot be labeled as belonging to a given individual.

The idea becomes an entirely unique artifact, an existence apart from the persons who created it, as a result of being submitted to communication. Individuals may still recognize the components which they originated. Furthermore, the act of engaging in such communication creates new individuals out of those who communicated. Communication means displaying and viewing the displays of new and unique ideas which, once displayed, become a part of the environmental history of those individuals and therefore affect the next communication encounter.

Learning, in this way, is a process of both communication and information transmission. Information transmission alone, however, is at best, a kind of "impoverished learning." Paulo Freire calls information transmission a "banking system" of learning. People end up with varying sized factual accounts which they can draw out on call, but they lack the history of experiences in manipulating ideas that are indispensable to problem solving and therefore to learning.[11] Communication is the manipulation of information to produce an idea. Persuasion is the manipulation of information to produce a previously defined behavior in specified individuals.

The concepts of communication and working rules are developed here in order to show how the Puebla Project is in many ways unique in already operating with many of these premises. The following description and evidence will be used to illustrate how the project's technical staff, working with campesino organizations, have attempted to change the working rules governing farm production in the area. The concept of communication is an integral part of this transformation with both the campesinos and the technicians continually attempting to invent a new order and, at the same time, redefining the nature of the development they are seeking.

Part II

Mexico and the Puebla Project Case, by Heliodoro Diaz

The Puebla Project was started in 1967 to address the problems of subsistence agriculture in Mexico.[12] Specifically the objectives of the program were: 1) to field test and refine a strategy for rapidly increasing the yield of corn on a large number of small farms, 2) to train technicians in the region and from other regions in the elements and successful use of the strategy, and 3) to build in procedures for evaluation which would help the farmer participants and others learn from their current experience.

The State of Puebla is located in the central highlands east of Mexico City. The region contains about 120,000 hectares of arable land. Less than 15 percent of the crop area is irrigated. Corn is the main crop in the region and accounts for about 80 percent of the total cultivated acreage. There were 50,000 heads of families in 1967 implying an average of about 2.5 hectares of land per family.

Most of the corn grown on small farms is consumed by the family which grows it. In spite of favorable ecological conditions, actual corn yields are low. It is estimated that it would be possible to raise yields by at least 100 percent with the use of modern agricultural inputs and technology. Politically, there is support for the program.

Puebla is part of a much larger problem of small farm production. Mexico has about 24 million hectares of tillable land. These lands constitute only about 14 percent of the total land area with less than a half hectare of tillable land per inhabitant. Yet agriculture contributes only 17 percent of the GNP although it is the source of employment for about 50 percent of the total labor force.[13] This figure is paradoxical, given that Mexican agriculture is considered to be one of the more dynamic activities in the process of modernization.

Up to the middle of the 1950's Mexico still imported basic food stuffs. By the beginning of the 1960's Mexico had satisfied its internal needs and had become an important exporter of wheat and corn.[14] The paradox of Mexican agriculture and the story of its "green revolution" is that less than 1 percent of farmers account for most of the food exports. A group of medium and large sized farmers (between 15-16%) produce enough to satisfy most of the basic food needs of the urban population. The broadest majority of farm families (more than 80 percent) are producing just enough to satisfy the needs of their own families and make little or no contribution to national markets.[15] Most subsistence scale farmers cultivate a parcel without irrigation that averages less than 3.0 hectares in size. Although in most regions ecological conditions are favorable for growing corn and basic crops, these farmers are not able to increase their land area or their yields using conventional inputs. They are frozen into a status of poverty as long as present institutions and the state of the arts remain constant. This means that without new technology, or new rules for allocating resources, the marginal productivity of labor will decrease as family size increases on a fixed land area.

With an annual family income of less than 500 dollars, children of rural families seldom have an opportunity to complete elementary school. As a consequence when they leave the countryside to go to the cities looking for better opportunities they usually find themselves worse off than they had been in the villages. Their limited rural education does not qualify them for a decent job; they become unemployed inhabitants of the city slums. Thus, they also complicate the already serious problems of the urban sector. This is the main reason why Mexico, at the beginning of the 1970's is still classified as a "poor" country.

If Mexico is going to take a definite step toward a sustained overall development program, the problems of a large number of small producers have to be resolved in a relatively short time. The Puebla Project is an attempt to respond to the urgency of this task. The organizers of the Puebla Project concluded that limited programs which concentrated on only a few key factors were slow and incapable of addressing the wide range of issues confronting small farmers. Instead, development here is viewed as a large set of interacting elements about which relatively little is known in a specific and detailed way.[16]

While the specific details of development processes were not known, the program staff was concerned with many issues besides production and recognized that these issues could be identified in general categories. The plan had to be more comprehensive than a typical pilot project would suggest and yet there was no model in mind.[17] The approach which was selected, and which sets the Puebla Project apart from many similar projects, was to address a broad set of rules governing the full range of rural community functions including farm production activities, the development and application of technology, and the provision of supporting services. This was done with the assumption that most of these institutions needed adjustment, but that the specific nature of the adjustments were not known ahead of time. Instead, they had to be judged and evaluated in the course of trying different alternative procedures--literally, selecting rules and sanctions on the basis of those which brought about successful rural transformations.

This kind of project obviously could not move ahead without some criteria to determine when major issues had been addressed and to some

extent resolved. The first criterion applied was that all procedures had to be potentially applicable among large numbers of small farm producers. Previous experience with countless development projects had been that they are highly region or group specific or they benefit large scale or commercial farmers far more than small scale farmers. Without commenting on the unequal effects of development, such programs are obviously inadequate inasmuch as the vast majority of Mexican farmers fall into the small farm corn growing class. If their economic and social conditions are not changed, agricultural development will, by definition, have failed.

Five additional criteria, covering broad procedures of operation, were also followed in organizing and operating the project. You will note that these are all more concerned with the direction and quality of rule changes than with traditional measures of production and technical change. They are: 1) A program of continuous project evaluation designed to change the operating procedures of both project staff as well as campesinos, 2) The fostering of campesino organization to ensure relevant rule changes, 3) Involvement of farm producers in the communication of new rules and procedures, 4) Continuous on the job training of new personnel by the technical staff of the Puebla Project, and 5) Eventual change in the rules governing the distribution of agricultural credit and supplies for small producers.

Continuous evaluation

Evaluation is an integral part of the Puebla Project action program. Evaluations are conducted by the project staff to serve both as a training device to acquaint new staff members with the campesino and field conditions and also to redirect program activities. The members of the staff have

conducted two surveys based on a statistical sample of campesinos in the region. Also the evaluation program has evaluated the corn yields of both participants and non-participants in the program. The results of these surveys and yield estimations have been immediately passed on to the rest of the staff and to managers of the credit and fertilizer agencies. In this way the credit agencies are assured that lending for corn is sound and campesinos realize the added risk is worth taking.

Information concerning the repayment of loans is communicated to the banks and campesinos so they may take internal measures to preserve the flow of credit. Responses toward actual and proposed new organizations for the campesinos in the project are also communicated to the staff technicians.

Research personnel conducting the evaluations of the Puebla Project had received advanced research training from the National School of Agriculture at Chapingo and some had studied abroad. They were also able to consult regularly with senior staff of the International Maize and Wheat Improvement Center (CIMMYT), the Statistics and Computing Center at Chapingo, and other research programs.

Five stages were considered to be essential to provide a continuum of interaction among campesinos, technicians and supply agencies:[18] 1) The first stage of research in the Puebla Project concentrated on technical and agronomic problems. Experiments were designed to determine optimum fertilizer application rates and schedules, plant varieties and planting densities, planting dates, and suitable tillage methods. On the basis of the analysis

of the results, the researchers would be able to derive a general package of recommendations to deliver to the campesinos, 2) An evaluation was made of present socio-economic conditions of the subsistence farmers through a sample survey before starting the action program. The results of this evaluation would provide a bench mark for future comparison on which the success of the program would be built. Also, the results of the survey would help the staff understand the different roles of each of the socio-political organizations at the community level. Information about the channels of communication through which farmers received news from the outside were also obtained. 3) The director of the program, in addition to his administrative duties, gave priority to the task of gradually developing interest within the farm supply sector to provide the required credit and fertilizer. This was a prerequisite to promoting further changes. 4) The action program in the field started during the crop cycle of 1968. The staff technicians offered the package of new recommendations to volunteers. These volunteers agreed to operate under the new set of rules suggested by the program. The researcher group continued to establish experiments throughout the area with the purpose of refining the package of recommendations to fit different ecological conditions, 5) The evaluation team evaluated (on the basis of a statistical sample), the yields of traditional crops and the crops of the volunteers who planted high yield corn plots. A second phase of the Project was initiated in 1969. From then on, efforts were concentrated on reaching the masses of subsistence farmers through the organization of groups at the community level and through

direct contacts with the credit and fertilizer dealers. It was agreed that organizations could not be imposed by the staff technicians.

During the first year, (1968) the program was carried out by providing technical assistance directly to individual participants. The purchase of inputs and arrangements for transportation were purely a personal matter. After the first year, however, the participants felt the cost of inputs was too high, and they suggested that they form a purchase group to decrease the costs of fertilizers and transportation for the following year. The first participants of 1968 played a key role in the general meetings which were held in each community in the promotional stage at the beginning of the 1969 crop cycle. The technicians and first participants emphasized that forming producer groups would also increase the possibilities of obtaining credit from the banks. This was the beginning of the organizational stage, gradually groups were formed in most villages, and at the suggestion of the campesinos, more than one group was often formed. These groups have been functioning satisfactorily since 1969. Since the organization of groups, the staff technician has periodically visited each village to provide his regular service. If there is an emergency that requires technical advise in the village the technician of the zone is requested to pay an additional visit. In this way, the role of the technician is more effective and allows for greater communication and interpersonal relationships with the campesinos.

Once a group is organized, the members established their own set of working rules and sanctions.

Campesino organization

Rules exist only in the context of organization. And in a society where most organization is centralized in the national capital, it is not

surprising to find that campesinos make few of the social and economic rules which govern their day to day lives. By the same token, if they are to produce corn according to different rules, they need some organizational context within which to design and institute the new rules and sanctions.

Campesino organization has always been encouraged in the Puebla Project but always allowed to follow local customs. No set formula for organizing campesinos was given because no single model is known to produce results in all contexts. In fact, much more experience can be gained from diversity and experimentation even though the process is slower and technically more costly.

Campesino organizations were formed first to obtain group credit. Once the campesinos organized, the credit banks were under presure to also change their rules of operation. The field agent who used to deal with individuals now is mainly occupied promoting the organization of agricultural credit societies to operate with an official bank at the community level. A society can be formed in a community when at least 10 of the members are willing to organize for borrowing funds.[19] Each society is formed by three or four officers (called representatives) and seven or more members (called socios). The three or four representatives are the 1) president or socio delegado in the case of the Ejidos, 2) general secretary, 3) treasurer, and 4) president of the vigilance committee. The president or socio delegado is the direct representative of the society for any official business with the bank. The bank does not have any authority over individual members of the society; the maximum authority is represented by the society itself. Once the society is formed, new members can enter if the assembly of the society

agrees to accept them. The number of members of a society of agricultural credit usually ranges between 10 and 150. There are several general prerequisites to form a credit society:

1) An application to a bank by the group to form a society.

2) A visit to the community by the bank's field agent to record general agricultural conditions and production potentials.

3) Approval of the application from the bank's central office in Mexico City.

4) A map of the Ejido or of the private properties of the members.

5) A copy of the Ejidos agrarian certificate or of documents of private property.

6) A signed charter between the bank and the society.

7) A final list of the members of the society.

Once the society is formally organized, the field agent and the president or socio delegado usually make the administrative arrangement in order to obtain a group loan. When necessary, the members of the society are called to a general meeting in order to communicate aspects of general interest to members of the group.

Once the societies are formed, they often begin acting as pressure groups to speed transactions, increase the size of loans and let regional leaders know agriculture needs more capital. They facilitate the functions of the banks at the same time. They regularize the flow of funds, cut down on the number of individual transactions and police their own members making it easier for the banks to collect on loans. The most radical group sanctions is expulsion for farmers who deliberately default in their payments to credit agencies. The second sanction is to accept a common responsibility to collaborate in order to solve internal conflicts and to preserve the existence of the group.

Response from the credit agencies had been definitely inadequate prior to 1967. Banks had given credit to less than 7 percent of the farmers in the region. Although 22 percent of the farmers had obtained some form of credit in the past, they avoided regular borrowing because of poor service from the banks.[20]

The communication strategy:

The concept of communication in the strategy of a development project is frequently understood as a way to manipulate the campesinos by the professionals rather than to display ideas growing out of experiences of both extension agents and campesinos.

In the Puebla Project, ideas were first generated mainly from demonstrations of new technology displayed during each stage of the growth of the crop. The demonstrations included a general explanation of what the package of recommendations entailed--the need any crop has for the three basic fertilizer elements. Next, projectaides demonstrated how to mix and distribute the fertilizers to obtain a uniform application. After the campesinos observed the procedure, they were invited to try it themselves.

The first demonstration ended with an invitation to attend the next demonstration which would take place 45 days later. The final demonstration was carried out at harvest time. On each occasion, the campesinos asked the technicians to clarify procedures. The campesinos also made suggestions regarding their preference for specific types of fertilizers or seeds.

This process of promoting the use of the new package of inputs seems very simple. And it is indeed; however, in reality it demands a great deal

of patience and insight. First it is necessary to understand the language of the campesinos and to transcribe the message into their own words. Also, it takes time and patience to teach aides (who are campesino leaders and helpers hired within the area and trained to assist the technician) to gain the skill necessary to teach others.

Two or three regional field days are organized each year at harvest time. Government officers and managers of agricultural agencies were invited to view the results of experiments which are used as the basis for recommendations during the next year. In this way, political leaders and administrators have the opportunity to exchange ideas with campesinos and technicians who are involved in the same enterprise.

Another example of the process of communication as an interpersonal communication is a series of interchanges among campesinos from different communities within the area. This was suggested by the campesinos themselves who knew the technical staff had a large area to service. A series of interchanges within the region was begun by mid 1969.

An even more exciting experience is the weekly meeting which occurs in one of the most important towns of the region (San Martin Texmelucan) where one of the technicians lives. Each Tuesday the campesinos go to the market to buy and sell products so they asked the field agent to remain in the village that day, so they could ask him questions or arrange for appointments. Soon they initiated a regular weekly meeting. Each campesino felt he had something to communicate to the group, and something to gain from the group.

One of the most effective media for promoting participation in the corn project was a motion picture using local volunteers who had participated in the program as leading actors. The campesinos are able to identify

completely with those in the movie who are using the new recommended package of inputs. They are able to recognize that they, too, have the same resources as those who have already been successful. Emphasis of course, is placed on the spectacular differences in yeild between those who had followed the recommendations in comparison with those still farming by traditional methods.

The movie was produced in such a way that the agent can give more specific information regarding the recommendations. It includes an intermission which allows for specific questions to be raised and discussed. The final part is shown after a discussion is held and is devoted to informing the farmers of the procedure of getting in touch with the technical staff and the organizing of a group.

The technical staff of the Puebla Project and the training program.

One important part of the Puebla Project was not just to get the campesinos to change, but also to redirect the work of the technical staff. This was done on the grounds that traditionally trained agronomists are likely to support the status quo while the success of the Puebla Project depended on quickly adapting to new rules. The selection of technicians was carefully carried out to admit those who were disposed to operate with new procedures.

Unlike many pilot projects in Mexico, where the concentration is on quantity of technical personnel rather than quality, the Puebla Project technical staff was kept to a minimum (5 in 1967 and a maximum of 11 in 1972). Emphasis was on quality of personnel. This policy was considered essential to the success of the program since the technical personnel would occupy new roles in the task of rapidly increasing yields of corn.

These new roles would be sanctioned by completely different rules in comparison to the rules sanctioning traditional agronomists in other projects.

Stress was placed on the following qualities: 1) Ideology or outlook. Prospective employees were informed in detail of the objectives, organization, and functions of the project. The need for the staff to work together as a team, (performing specific activities to reach a common goal), was emphasized. The candidates had to show commitment to agricultural development where the main beneficiaries would be campesinos. It also meant long hours of work and absolute dedication. 2) Technical ability. Previous employment and especially academic preparation and professional goals of the candidates were considered important in evaluating the candidate's technical qualifications. 3) Experience in the field. By observing reactions in field interviews every effort was made to select only those people capable of working smoothly with other staff members and all kinds of farmers. Also, candidates were judged on their ability to communicate effectively with technical people, and with representatives of agricultural institutions from small distributors to high government officials. 4) Objectivity. In interviewing candidates and studying their previous activities, every effort was made to assure the project that they employed the scientific method with complete honesty and were eager to present their plans and results for the criticism of others. 5) Age. Because of the strenuous nature of the work and the need for flexibility and innovation in resolving problems, a preference was shown for people between 30 and 35 years of age. Also, it was necessary that the candidates accepted living in villages and rural towns.

As mentioned earlier the second main goal of the Puebla Project was to train technical personnel for other regions, if the strategy proved to be successful. In this way the experience gained in the Puebla Project could make a contribution in the long run to gradually transform subsistence agriculture into a modernized enterprize. The purpose of the training program has been to provide the trainees with a realistic and objective program where they could learn by doing. Through this method they could grasp the essential elements of the organizational strategy more easily.

The training program was initiated formally in 1970 with its goal of preparing two teams for Mexico, one team for Colombia, and one for Peru.[21] Previous to that time, the training program had been carried out on an informal basis. During the process of on-the-job training the trainee soon learns that there are no prescriptions for solving problems. The only way is to have the ability to identify these problems according to their relevance and to discover a solution according to priorities. Under these circumstances, a necessary condition that an individual has to fulfill is to be open minded and as free as possible of any kind of personal bias.

Of course, personal characteristics as those described in the selection of the personnel of the Puebla Project is an important factor in the selection of the trainee candidates. The director of the Puebla Project has given his personal attention to the selection of candidates.

Credit, fertilizer and insurance agencies

The present law establishes that the main purpose of the Agricultural Bank and the Ejido Banks in Mexico are not only to provide long and short term loans to the campesinos, but also of equal importance, to assist the campesinos in such a way that they can obtain maximum benefits from credit. The banks store fertilizers in the communities and provide most of the credit in the form of product. It is a function of field agents paid for by the banks, to assist in organizing local credit societies and to clearly explain to members their rights and obligations. The credit law currently provides that banks will function through regional and local branches in each state with a certain degree of independence from the central bank office in Mexico City. The regional and local banks deal directly with clients (either individually or in societies) and assist in solving field problems. Local lending and technical assistance decisions are made without need for approval from the central office in Mexico City.

Both agricultural banks are authorized by law to provide the following types of credit:[22]

1) Short term production loans (credito de avío). These loans can be guaranteed by the harvest in the case of annual crops or by the animals in the case of livestock products. They also can be guaranteed by a certificate of ownership in the case of small private property owners.

2) Intermediate term loans, (credito refaccionario a plazo intermedio) for farm improvements. This credit can be used to dig a well, buy a pump, buy milk cows, etc.

3) Long term loans (credito inmobiliario a largo plazo). This credit is mainly for the purchase of agricultural machinery and for permanent agricultural construction.

The main obligation of the client is to use the credit for the specified purpose and meet the repayment schedule. The obligation of the bank is to

supervise the correct use and to assist the borrower to make adjustments as needed. These two banks have been the main source of credit for most of the participant farmers in the last two years.

In 1961 an agricultural insurance law was passed by congress complimenting the credit program.[23] The institution that was created by this law is known as National Agricultural and Livestock Insurance (Aseguradora Nacional Agricola y Ganadera). Agricultural insurance operates in connection with credit and is intended to protect the campesinos against natural risks in crop and livestock production. The insurance, of course, also protects the banks by increasing the chance of payback in case of crop failure.

The origin of National Agricultural Insurance was the campesinos themselves who were borrowing from the agricultural banks. Local credit societies protected themselves by asking each member to provide a cash reserve for each hectare planted. On this basis the Ejido Bank and the Agricultural Bank were assured of collecting on loans to societies and sometimes became the requirement for a society to obtain credit. The societies agreed to let the bank allocate the collected money within a region among those campesinos whose crops were damaged. This group of societies in turn formed what was known as Mutual Agricultural Insurance Societies (Mutualidades de Seguro Agricola).

By creating the national system it was attempted to distribute the risks among the campesinos of the whole country. Each mutual society under the new legislation is obligated to reinsure itself with Aseguradora Agricola y Ganadera. It is clear that the system is basically sound and can perform efficiently to provide the service to the participants in the project if some bureaucratic problems are overcome in the future.

Finally, a third agricultural bank was founded on March 2, 1965 with the purpose of reinforcing the other two. The new bank is the "Banco Agropecuario", (Agricultural and Livestock Bank). It was founded by Executive Decree in order to quickly improve distribution of agricultural credit in the main agricultural regions of the country. This bank has the dual function of providing credit to both "ejidatarios" and small operators. The aim of the bank is to provide credit to groups of campesinos organized in societies. Groups have preference over individual clients. The Agricultural and Livestock Bank, besides its administrative and organizational functions, provides technical assistance to its clients. The participation of this bank has been less important, though it represents a great potential as a source of credit in the future.

In addition to the official agricultural banks, there are a number of private banks or lenders who distribute fertilizer on credit. "Impulsora de Puebla" has been the leading firm in the action programs.

One of the problems faced by the field staff and the bank agents in dealing with the credit program is that most campesino groups contain some members who have past debts with the official banks. Fortunately, the managers of the banks have reacted positively to that problem. They agreed to provide new credit to the group if there were promises to gradually repay past debts in the coming crop years. In this way a large number of groups were started by working again with the official banks. Now they have the advantage of technical assistance from the project. About 70 percent of the participants received credit from the official banks in 1970. During the 1971 crop year, 75 percent of the campesinos in the program borrowed from the official banks. A summary of total project participation is presented in the following table.

OPERATIONAL PROGRESS AND IMPACT OF THE PARTICIPATION OF OFFICIAL BANKS AND A PRIVATE FIRM IN PROVIDING CREDIT TO THE PARTICIPANTS OF THE PUEBLA PROJECT.

Source of Credit	1968		1969		1970		1971	
	Farmers	Has.	Farmers	Has.	Farmers	Has.	Farmers	Has.
Private	103	70	2019	1602	1750	4682	1631	3395
Official	0	0	542	4236	3089	7920	3609	11,043
Total	103	70	2561	5838	4839	12,602	5240	14,438

FOOTNOTES

[1]Gunnar Myrdal, The Challenge of World Poverty (New York: Pantheon Books, 1971), pp. 3-24.

[2]Anthony Downs, Inside Bureaucracy (Boston: Little, Brown and Company, 1967). Organizations are called bureaus--and together they are called bureaucracy. The way they are put together, the way they function, and their impact on individuals on the inside and on the outside is the subject of organization research.

[3]Robert Michels, Political Parties (New York: Crowell-Collier Publishing Company, 1962). Free Press paperback, 1966. "Democracy and the Iron Law of Oligarchy" presents the idea that organization and bureaucracy result in class structure and consequently power and oligarchic rule; pp. 342-346.

[4]John R. Commons, Legal Foundations of Capitalism (Madison: The University of Wisconsin Press, 1959). Man has no rights except as they are defined within groups. See especially the last two chapters.

[5]Max Weber,"Bureaucracy." See From Max Weber: Essays on Sociology edited by Gerth and Mills, (Oxford University Press, Inc., 1946), pp. 196-244. Also: Blau and Scott, Formal Organizations (Chandler Publishing Company, 1962), pp. 31-58.

[6]Judith Blake and Kingsley Davis, "Norms, Values and Sanctions," in Robert E. L. Faris, editor, Handbook of Modern Sociology (Chicago: Rand McNally & Company, 1964), Chapter 3, pp. 456-484.

[7]David Braybrooke and C.E. Lindblom, A Strategy for Decision (New York: Free Press of Glencoe, 1963).

[8]B.F. Skinner, Beyond Freedom and Dignity (New York: Alfred A. Knopf, 1971), pp. 184-215.

[9]Wilbur Schramm, The Process and Effect of Mass Communication (University of Illinois Press, eighth printing, 1970).

[10]Herman Felstehausen, Conceptual Limits of Development Communications Theory. Paper presented at the 54th Convention of the Association for Education in Journalism (Columbia, S.C.: University of South Carolina, August 1971).

[11]Paulo Freire, Pedagogy of the Oppressed (New York: Herder & Herder, 1971),"The Banking Concept of Education," pp. 57-74.

[12]Delbert T. Myren, Editor, El Proyecto Puebla 1967-69: Avances de un Programa Para Aumentar Rendimientos de Maiz entre Pequeños Productores México City: Centro Internacional de Mejoramiento de Maiz y Trigo, 1969).

[13]Edmundo Flores, "From Land Reform to Industrial Revolution: The Mexican Case," The Developing Economies, Vol. VII, No. 1, (March 1969), p. 88.

[14]Edmundo Flores, Cómo Funciona El Sector Agropecuario de México? Land Tenure Center Reprint No. 40S, (Madison, Wisconsin: The University of Wisconsin), p. 702.

[15]Leobardo Jímenez, "The Puebla Project: A Regional Program for Rapidly Increasing Corn Yields Among 50,000 Small Farmers," in Myren The Puebla Project, op. cit., p. 12.

[16]Although no objective evaluation has been made of the numerous pilot projects in the different regions of Mexico, when they ended or reached their final stage, the general conclusion has been that the results are far from satisfactory.

[17]Delbert T. Myren, "The Puebla Project: A Developmental Strategy for Low Income Farmers." Paper presented for a seminar on Small Farmer Development Strategies (Columbus, Ohio: Ohio State University, The Agricultural Development Council, Sept. 13-15, 1971).

[18]Delbert T. Myren, Editor, The Puebla Project: Strategies for Increasing Agricultural Production on Small Holdings (Mexico City: International Maiz and Wheat Improvement Center, 1970). pp. 11-17, 63-68.

[19]Ley de Crédito Agrícola de 30 de Diciembre de 1951. Editado por Banco Nacional de Crédito Ejidal, S.A. de C.V. México, D.F. 1964.

[20]Myren, The Puebla Project, op. cit., p. 23.

[21]R. J. Laird, "Possible Roles of CIMMYT in National Programs to Obtain Rapid Yield Increases," in Myren, The Puebla Project, op. cit., pp. 73-77.

[22]Ley de Crédito Agrícola de 30 de Diciembre de 1951. op. cit..

[23]Guillermo Gonzalez Diaz Lombardo. "El Seguro Agrícola Integral y Ganadero." Documento C.P. # 4, México, D.F. 1964.

Response from the credit agencies had been definitely inadequate prior to 1967. Banks had given credit to less than 7 percent of the farmers in the region. Although 22 percent of the farmers had obtained some form of credit in the past, they avoided regular borrowing because of poor service from the banks.[20]

The communication strategy:

The concept of communication in the strategy of a development project is frequently understood as a way to manipulate the campesinos by the professionals rather than to display ideas growing out of experiences of both extension agents and campesinos.

In the Puebla Project, ideas were first generated mainly from demonstrations of new technology displayed during each stage of the growth of the crop. The demonstrations included a general explanation of what the package of recommendations entailed--the need any crop has for the three basic fertilizer elements. Next, projectaides demonstrated how to mix and distribute the fertilizers to obtain a uniform application. After the campesinos observed the procedure, they were invited to try it themselves.

The first demonstration ended with an invitation to attend the next demonstration which would take place 45 days later. The final demonstration was carried out at harvest time. On each occasion, the campesinos asked the technicians to clarify procedures. The campesinos also made suggestions regarding their preference for specific types of fertilizers or seeds.

This process of promoting the use of the new package of inputs seems very simple. And it is indeed; however, in reality it demands a great deal