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FITTING AGRICULTURAL EXTENSION TO THE DEVELOPMENT
NEEDS OF COLOMBIA*

by

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Developing nations face the difficult task of increasing food production while simultaneously trying to improve incomes, services, living conditions, and political expression. In the agricultural sector this task is generally defined as one of helping a large number of traditional, unskilled, inefficient and isolated farmers to manage their resources better, increase their use of modern technology, and market their products wisely. Such a task is obviously complex and involves a mix of organizational, physical and biological problems. In agricultural development planning, production problems are frequently highlighted, while organizational and infrastructural problems, not so well understood, are quickly passed over. Yet improving production often forces consideration of organizational problems.

Increased production is normally achieved by bringing new lands into cultivation or through the application of continuous increments of new or improved technology. With most of the world's good agricultural land already occupied, new technology provides the greater prospect for the increases in food and fiber production needed to feed and clothe growing populations. Frontier settlement is generally a limited solution because it deals with only one factor--land. Technology, on the other hand, can produce dramatic results because it offers literally an infinite number of new combinations which make growth possible.

Yet in spite of the inherent advantages of technology over new land settlement, Colombia and some other Latin American countries continue to achieve most of their gains in agricultural production by cultivating new land.¹ Technology has produced advances for some but not all large producers.² Even with a large frontier, improved

¹Jay Atkinson, "Agricultural Production and Technology in Colombia," Bogotá: Ministry of Agriculture, 1968; also, Food and Agricultural Organization of the United Nations, Production Yearbook, 1966, Vol. 20, FAO, Rome, 1967, pp. 3-5.

²Solon Barraclough and Arthur Domike, "Agrarian Structure in Seven Latin American Countries," Land Economics, Vol. 42, No. 4, November 1966, pp. 391-424.

technology is still required to develop and sustain production on new lands,³ while large injections of new technology are needed to maintain production in deteriorating older areas.⁴

From a national standpoint, the success of an investment in technology depends on obtaining its widespread use on a large percentage of farms, a necessity which implies improvements in infrastructure. In the United States, Canada, Western Europe and other advanced countries, this has been variously achieved through activities of agricultural colleges, private enterprise, cooperatives, farmer organizations, and agricultural extension and information services.

The purpose of this article is to bring modern theories of organization to bear on the analysis of the kinds of technical assistance services Colombia should choose to meet its agricultural development needs. This article will also demonstrate that an analytical approach to technical assistance needs will produce substantially different conclusions than a model chosen a priori on the basis of its successes elsewhere.

There are currently more than a dozen agricultural agencies which distribute technical information to farmers in Colombia. These are mainly semi-autonomous institutions which provide technical assistance as a part of commodity programs, marketing controls, credit and other specialized activities. Farmer response to these agricultural programs, as measured by new production, has not been dramatic.⁵ As a result, extension programs are continually under attack as having questionable usefulness in the development process. For example, Carlos G. Buritica says Colombia's repeated attempts at agricultural extension over 30 years can all be characterized by one word: "Failure!"⁶

³Karl Wierer, "Economics of Improving Marketing Organization and Facilities to Accelerate Agricultural Development in Land Settlement Projects," Bogotá: Instituto Latinoamericano de Mercadeo Agrícola, September 1967.

⁴Emil B. Haney, Jr., "The Possibilities for an Economic Reorganization of Minifundia in the Colombian Highlands," Unpublished doctoral dissertation, University of Wisconsin, Madison, in process.

⁵Atkinson, op. cit.

⁶Carlos G. Buritica, "Comentarios: Extensión Agrícola," Agricultura Tropical, Vol. 24, No. 8, Agosto 1968, pp. 438-440.

Contemporary models of extension are frequently copied from the United States. But these models are also criticized because they assume the existence of a strong industrial base, elaborate systems of agricultural research and teaching, governmentally regulated prices and markets, cheap transportation, abundant credit, and reliable crop and family insurance. Colombia still lacks most of the supporting elements which could make U.S. extension models more successful. T. W. Schultz says United States agricultural extension has been oversold in developing countries--that we have an "extension bias" to the neglect of other more urgent questions.⁷

The North American model of agricultural extension is typified by the Cooperative Extension Service in the U.S. Corn Belt, and consists of three basic organizational elements.

1) Community-level workers (county agents) respond to organized demands and challenges from farm clients. They provide headquarters for organizing local activities, distribute technical information, demonstrate new methods, and provide contacts with other government and private authorities. At times they distribute free or low-cost inputs.

2) Agricultural research and training centers--usually agricultural colleges--develop and test new farm technology and at the same time train both farm operators and technicians to apply the results.

3) An information adaptation and distribution network generates information at various levels of abstraction and provides for local, regional and national distribution. Several thousand daily and weekly newspapers are supplied with regular localized news columns. Science writers and information specialists work next to researchers to make prompt information transfer possible.

Compared to North America, does a developing country require a different type of agricultural extension service or a different approach to the distribution of technology, or both? After an examination of Colombia's agricultural setting and extension experience, this article will suggest that both the form and the method of technical assistance need to be distinct from those used in the United States in recent years. These arguments will be presented under three points: 1) the Colombian development setting, 2) characteristics of extension organization in Colombia, and 3) derivations from the setting and organizational theory for adapting extension to development needs.

⁷Theodore W. Schultz, "Education and Research in Rural Development," in Kenneth L. Turck and Loy V. Crowder (eds.) Rural Development in Tropical Latin America, Ithaca: New York State College of Agriculture, 1967, pp. 391-402.

Materials for this study were gathered through visits with each of the major extension agencies in Colombia. Field information was assembled from studies by the author and other members of the Land Tenure Center research team in Colombia.

The Development Setting

Blau and Scott point out that "organizations do not exist in a vacuum but in communities and societies."⁸ Thompson and McEwen have demonstrated that choosing organizational goals "...is essentially a problem of defining desired relationships between an organization and its environment...."⁹ Out of an examination of the setting one obtains quantitative information about the magnitude of the task to be performed and criteria for specifying organizational design.

Underdeveloped countries differ from developed ones in two important ways. First, they are structurally distinct, or in other words, their social, economic and political systems have limited capacity and flexibility. Their natural or physical resources may also limit economic activity and are included as a part of structure. All of these factors considered together can be called the structural setting. In recent terminology, they can also be called the country's infrastructure.¹⁰

Second, in an underdeveloped country human judgment capabilities and skills are determined to a large extent by tradition and custom rather than by market forces, scientific knowledge, and equalitarian criteria.¹¹ This part of the setting we will call individual factors. These two terms, when used in combination, encompass all of the relevant variables--human, institutional, and physical--which need to be considered in discussing the development setting. However, for added

⁸Peter M. Blau and W. Richard Scott, Formal Organizations: A Comparative Approach, San Francisco: Chandler Publishing Company, 1962, p. 9.

⁹James D. Thompson and William J. McEwen, "Organizational Goals and Environment: Goal-Setting as an Interactional Process," American Sociological Review, Vol. 23, 1958, pp. 23-31.

¹⁰Clifton R. Wharton, Jr., "The Infrastructure for Agricultural Growth," in Herman M. Southworth and Bruce F. Johnston (eds.), Agricultural Development and Economic Growth, Ithaca: Cornell University Press, 1967, pp. 107-142.

¹¹Eric R. Wolf, Peasants, Englewood Cliffs: Prentice Hall, Foundations of Modern Anthropology Series, 1966.

clarity when talking about agriculture, a sub-area can be segregated from the structural setting and called farm factors. Farm factors are the economic and physical activities unique to farms and under the direct control of individual farm operators. These include items like farm size, crop rotations, internal availability of labor, available machinery, personal capital, fertilizer use, pest controls, available water, seeding practices, and livestock management. A brief examination of Colombia's structural setting with special reference to the farm factors will illustrate why a technical assistance service based on the current North American model faces serious adaptation problems.

The majority of farms in Colombia are minifundia. In 1960 there were approximately 1.2 million farms in Colombia of which more than 60 percent were less than five hectares (11 acres) in size. About 70,000 families control 72 percent of the agricultural land. About one-third of all Colombian farm families are workers, administrators, renters, sharecroppers, and others who do not own the land they cultivate.¹² The first element of the structural setting --the nature of a farm in Colombia--is an important factor influencing what technical assistance agencies can do and how they have to work.

A second important element of the structural setting is the transportation-marketing complex. There is a severe shortage of farm to market roads in Colombia. Most products from small farms travel the first part of their journey to market on muleback. In a large sample region in Antioquia, for example, only 12 percent of the farm parcels were accessible by road.¹³ This limits the amount of product sold, raises the consumer price, and isolates the farm from technical assistance and optimum levels of input use.¹⁴

Marketing of products from small units takes place in village squares or in negotiations with middlemen. Because each peasant farm provides only a small amount of any item, over-all quality and availability are irregular. Products are often harvested at premature or postmature stages and are partly damaged in transit. Markets lack standards of weights, measures and quality controls, and are often plagued by wide price fluctuations and informal credit commitments which cripple incentives to produce.

¹²Comité Interamericano de Desarrollo Agrícola, Tenencia de la Tierra y Desarrollo Socio-económico del Sector Agrícola: Colombia, Washington, D.C.: Pan American Union, 1966, pp. 71-136.

¹³Herman Felstehausen, "Local Government and Rural Service Barriers to Economic Development in Colombia," mimeographed, Land Tenure Center, Bogotá, June 1968. Published in Spanish by the Secretaría de Agricultura de Antioquia, Medellín.

¹⁴Wierer, op. cit.

A third factor in this setting is farm population. Rural population is increasing, farms are being further divided, and rural unemployment is increasing. In the 1938-51 intercensal period, rural areas absorbed a quarter million additional adults. In the last intercensal period of 1951-64, rural areas showed a net gain of one-half million adults in a rural population which reached 8.4 million in 1964.¹⁵ Most of the new population is added to already occupied areas rather than to new land. Rural population makes up 48 percent of total population, while 56 percent of all gainfully employed men work in agriculture.

As rural population grows and demand for land increases, the definition of a farm changes. Also, more dependent workers and part-time farmers are added to agriculture; they need different types of technical assistance than owner-operators.

Fourth, an important part of any rural structural setting is the availability of social services in the countryside: schools, health centers, communication facilities, protection for life and property, family health and life insurance, public utilities, recreation, and other "living comforts." It is worth noting that much of what is called cooperative extension in the United States, especially homemaking and youth work, is dedicated to providing services in these areas. In Colombia, serious social service problems often overshadow other needs--even farm production and management concerns.¹⁶ Country living means that children often must forego an education; sickness or accident carry high probabilities of disability or death; most homes are lighted by candles and use water from unsanitary mountain streams; rural violence endangers life and property. In this setting it is not surprising that farmers often place social services ahead of production services in their list of technical assistance priorities. Extension agencies place themselves in an unfavorable position by concentrating only on production.

A fifth factor in the structural setting is the level of institutionally supplied technology available to the farm sector. Agricultural growth depends on a constant supply of not just new, but also relevant technology. Relevant means relevant to the farm manager, the person who takes farm risks and makes individual, day-to-day management decisions. In Colombia, relevant-to-the-farm

¹⁵Departamento Administrativo Nacional de Estadística, XIII Censo Nacional de Población 1964: Resumen General. Bogotá: Imprenta Nacional, 1967.

¹⁶Felstehausen, "Local Government," op. cit.

technology often does not exist and much of the information that exists is not relevant.¹⁷ Publicly supported research is heavily weighted to benefit large producers. Recently a major field day was held in Colombia to demonstrate all-machine planting, cultivating and handling of corn, yet no similar program was provided for the thousands of farmers who perform all of these operations by hand.

Agricultural research is conducted by the Colombian Agricultural Institute (ICA) at a principal center near Bogotá and 10 substations, and by the National Federation of Coffee Growers. The work of the Agricultural Institute has been in an organizational and developmental stage with primary attention given to pest controls and seed improvements. Minor attention has thus far been given to specific farm oriented adaptations of theoretical research. The work of the Coffee Federation is more advanced but highly specific for one crop; it also has a biological focus with little attention to management. Technicians know how to spray a crop against insects but know little about crop choices or combinations.¹⁸

Individual factors form the second part of the development setting. The first of these is education. The amount of formal education is often considered the most important measure of individual skills, capacity to reason logically, and ability to adapt new information to specific problems.

Formal education in Colombia is concentrated mainly in the cities and high quality education is provided almost entirely by private schools.¹⁹ Rural youth are denied intermediate and advanced level training unless their parents can afford to send them to the larger towns and cities. Most do not even have access to a complete primary education (which is five years in Colombia) because the majority of rural schools offer only two years of classes. For this reason, commercial farm operators live in the cities in order to be closer to schools and services.

¹⁷James E. Grunig, "Information, Entrepreneurship, and Economic Development: A Study of the Decision Making Process of Colombian Latifundistas," Unpublished doctoral dissertation, University of Wisconsin, Madison, 1968.

¹⁸Luis Acuña M. "Evaluación de la Preparación de los Ingenieros Agrónomos en Colombia," Undergraduate thesis project, College of Agriculture, Palmira, in process.

¹⁹Orlando Fals Borda, "Bases for a Sociological Interpretation of Education in Colombia," in A. Curtis Wilgus (ed.) The Caribbean: Contemporary Colombia, Gainesville: University of Florida Press, 1962, pp. 183-213.

In one sample area of Colombia encompassing one-half million rural people, only 11 out of 646 rural schools offered a full five-year primary program.²⁰ Rural youth in the area who cannot go away to school have less than a three percent chance of finishing primary schooling. Education, as measured by the rate of illiteracy, has improved in the cities while remaining low in the country. Adult illiteracy has dropped to 15 percent in urban areas but is 41 percent among rural adults.²¹

Low levels of education and literacy imply that print media are not always the most useful way to distribute information and technical assistance. Extension services working in this setting may need to make additional investments in especially designed materials and programs in order to meet farm operators in new ways.

The second individual factor is what sociologists often call "traditionalism," or "social resistance." Traditional attitudes, habits and social values often hamper change agents in their attempts to distribute new technology and get it accepted.²² Extension agencies in developing countries often fall short in meeting this resistance because of inappropriate methods used to reach farmer clientele. Francis C. Byrnes has carefully documented a number of these "resistance factors" in technical assistance work, and points out that many so-called traditional responses from farmers are simply rational defenses against bureaucratic abuse, poorly understood biological phenomena, limited individual resources, and lack of complementary inputs.²³ Understood in this setting, traditionalism calls as much for an adjustment in approach and attitude from the extension agency as from the farm operator.

The third personal factor which affects the ability of technical assistance agencies to reach individual farm clients is the degree of farmer participation in organized activities and local governmental decisions. Community organizations serve important functions in facilitating the flow of information, providing social

²⁰Felstehausen, "Local Government," op. cit.

²¹Departamento Administrativo Nacional de Estadística, op. cit., p. 74.

²²Everett M. Rogers, Diffusion of Innovations, New York: The Free Press of Glencoe, 1962. The Spanish translation of the book contains additional examples for Colombia: Elementos de Cambio Social: Difusión de Inovaciones, Bogotá: Ediciones Tercer Mundo, 1966.

²³Francis C. Byrnes, "Some Missing Variables in Diffusion Research and Innovation Strategy," Reprint, Agricultural Development Council, New York, March 1968.

support and error correction among colleagues, and in the division of labor (and often risk) in the adaptation of new methods or inputs.²⁴ In Colombia participation by farmers and lower urban classes tends to be low. In a study of property owners in two counties of Colombia, Davis reports that only 36 percent of the heads of farms had any contact with local officials, and only eight percent had participated in any local government meetings.²⁵ In a study of small-farm credit users and potential credit users in another county none of the farmers held memberships in any agricultural organization. The credit itself was furnished by government agencies, but without administrative or policy control by the borrowers.²⁶

The five structural factors and three individual factors thus far described all point to an agricultural setting that is clearly different from that of North America. To unquestioningly apply the North American model of agricultural extension in this setting would be to deny that extension programs need to be shaped and molded by local conditions and farm needs. Or as Schultz has said, it is an expansion of a biased assumption that an institutional success in the United States will be automatically useful elsewhere.²⁷

Characteristics of Agricultural Extension Organizations

Up to this point we have considered the individual and structural setting specific to Colombia within which a modernized extension organization must be fitted. We now turn to a description of the organizational setting, or the institutional setting as it could also be called. The basic characteristics of this setting will be obtained by examining Colombia's recent experience with agricultural extension.

As with the structural setting, this analysis provides criteria for designing new organizational structures and programs relevant to the task and the setting. Every society contains a set of organizational norms, values, and working relationships. Unless there has

²⁴Blau and Scott, op. cit., chapters 2-4.

²⁵L. Harlan Davis, "Economics of the Property Tax in Rural Areas of Colombia," Unpublished doctoral dissertation, University of Wisconsin, 1968, p. 94.

²⁶Herman Felstehausen, "Economic Knowledge, Participation, and Farmer Decision Making in a Developed and an Underdeveloped Country," International Journal of Agrarian Affairs, Vol. 5, No. 4 (in press).

²⁷Schultz, op. cit.

been a major revolution, or a deliberate restructuring, many of these working rules will be borrowed when a new organization is established.²⁸ This is why it is worthwhile to examine previous organizational experience in order to try to head off common errors.

Technical assistance and information are provided to Colombian farmers by a variety of agencies operating at several levels; there is no comprehensive nation-wide extension service.

The first set of characteristics that describe technical assistance has to do with the nature of the organizational forms. Technical assistance agencies can be characterized as autonomous, independent, overlapping and uncoordinated. Related to these characteristics is a lack of client control and participation; that which does exist is dominated by large producers.

The three largest technical assistance programs in terms of personnel and coverage are operated by the National Federation of Coffee Growers, the National Agrarian Reform Institute (INCORA), and community action boards called Acción Comunal. The Coffee Federation and INCORA are semi-autonomous national agencies. Community Action is locally based but chartered, supervised, and to some degree, supported by the national government.

The Coffee Federation is the oldest and also the largest agricultural assistance agency. It works only in coffee growing areas thus limiting itself to about one-third of the counties in Colombia. It employs more than 500 workers in technical assistance and information programs. Control is centralized. Every coffee grower is theoretically a member with voice, but in practice a few large producers outvote thousands of small ones. Technical assistance goes primarily to farms of five hectares and above, eliminating half of the nation's 300,000 coffee farms.²⁹

Important factors contributing to the independence and power of the Coffee Federation are its stable and guaranteed source of income and its control over market prices, product quality and export requirements. Colombia earns more than 60 percent of its foreign exchange from coffee sales abroad. Growers are taxed domestically through complicated double pricing systems and straight deductions regulated by the Federation. About six percent of foreign sales

²⁸Blau and Scott, op. cit., chapter 8. The concept of continuity in institutional patterns is documented historically in John R. Commons, Legal Foundations of Capitalism, Madison: University of Wisconsin Press, 1959.

²⁹Pat M. Holt, Colombia Today and Tomorrow, New York: Frederick Praeger, 1964, chapter 6.

are earmarked for technical assistance activities, giving the Federation more than 18 million dollars annually with which to operate. The Coffee Federation has strengthened its already independent position through other investments including a coffee growers' bank and a merchant fleet.

INCORA operates the second largest technical assistance program in Colombia by providing assistance along with farm credit. INCORA was created in 1961 by Law 135, which calls for agrarian reform and development of family farms. By the end of 1967 INCORA had about 20 million dollars on loan to small and medium-sized farms with the program supervised through approximately 90 zone offices and 440 field workers.

INCORA also operates independently but receives its operating funds through annual government appropriations. INCORA has agreed not to overlap areas served by the Coffee Federation. Decision and control are centralized; borrowers often must submit to rigid prerequisites in order to obtain credit--such as the compulsory purchase of shares in INCORA farm supply cooperatives. The agency has no unit which develops and adapts farm technology. Field agents obtain information from any source available--a process which is haphazard and incomplete.

Community Action programs perform a different kind of technical assistance. Some would not classify them with other agricultural assistance agencies, yet in scope and function they probably have more impact on rural areas than the centralized institutes. Community Action is a modern name for an indigenous form of community work called la minga. These community efforts were given legal sanction in 1958 and provided with central government support in the form of an assistance fund and about 450 full-time community agents called "promoters."

Community Action committees work mainly on infrastructural projects in direct response to non-operative local government in the countryside. Matthew Edel reports that investments by community clubs were between 10 and 13 million dollars in 1964--greater than total investments by local and regional governments in the same areas.³⁰

While government services are often over-centralized, Community Action suffers from lack of support and coordination. Local units have a meaningless "independence" since funds and technical personnel are controlled from the top.

³⁰Matthew D. Edel, "The Colombian Community Action Program: An Economic Evaluation," Unpublished doctoral dissertation, Yale University, 1967.

Besides the programs already described, Colombia has numerous commodity and regional assistance agencies. The main commodity agencies are for cotton, tobacco, rice, barley, cocoa and livestock. The main regional groups are in the Bogotá Plateau, the Cauca Valley, the Magdalena Valley, and the State of Antioquia. These programs provide examples of large producer domination, and usually, specialized narrow-spectrum services. Together they employ about 500 agricultural technicians and in the case of mechanized crops such as cotton and rice, often serve only a few thousand producers.

At the time of the preparation of this article, the Colombian Agricultural Institute (ICA) is launching a nation-wide extension service connected with the national agricultural research station and the National University, and patterned after the United States land grant college system. By the end of 1968, ICA plans to have 42 district offices operating and about 250 technicians in the field.³¹ The program has absorbed the remnants of an extension program of the Ministry of Agriculture which was founded in the mid-1950's through assistance from the United States International Cooperation Administration (now AID).

The second set of characteristics describing technical assistance is provided by an examination of the program orientations and work patterns of existing agencies. Program orientations are characterized by narrow-spectrum, limited-problem approaches. Emphases are biological rather than structural. Intelligence gathering is numerical rather than analytical. Programs are sometimes designed without direct attention to the structural setting.

Work patterns are influenced strongly by structural conditions. Lack of roads and vehicles, for example, make many programs office-bound. Programs are passive and not compulsive--the client seeks the technician. Treatments are simplistic and often attack symptoms rather than causes of problems. Use of North American extension criteria aggravate rather than correct these shortcomings by suggesting that technical assistance is primarily an educational process--a philosophy which says that if only information is made available, problems will be solved.³²

³¹ Instituto Colombiano Agropecuario, "Política y Programación: Proyecciones Futuras," División de Extensión, Publicación No. 1, Tibaitatá, 1968.

³² Joseph Di Franco and Roy A. Clifford, "Analytic Study of Five Extension Organizations in Colombia," Inter American Institute of Agricultural Sciences, Turrialba, June 1962.

A few examples will illustrate these points. The program plan for the new ICA extension service calls for farm visits, demonstrations, field days, meetings, activities for homemakers and youth and organizations for local farmers.³³ This type of work orientation does little to help extension workers distinguish between archaic and modern technical assistance. One supervisor for a producers' organization reports that his program is limited almost entirely to insect and pest control problems.³⁴ Technicians fulfill farm visit requirements by making insect counts.

Farmers in the INCORA supervised credit program are supposed to receive regular visits to resolve technical problems. Field observations indicate that after initial loan arrangements are made, supervisors often have little new information or assistance to offer. Yet a study of supervision in one zone in Antioquia shows program costs to be approximately 100 dollars per borrower per year.³⁵

The Coffee Federation has the most comprehensive technical assistance program. It not only deals with biological matters, but also helps design processing and handling equipment and provides direct assistance for community roads, schools, water systems, sanitation and storage. Yet the assistance is highly oriented to coffee. There is little attention to over-all farm planning, to problems of land use, and to unemployment in over-populated areas.

Fitting Extension to the Need

The final step in this organizational analysis is to use the structural and organizational data previously summarized as criteria for fitting an improved agricultural extension organization to Colombia's need for "continuous increments of new or improved technology" on the nation's farms.

As already noted, the existing structural and individual settings are characterized by many small farms, lack of transportation, growing rural populations, archaic infrastructure, and poorly educated, traditional and unorganized farm operators. The organizational setting is characterized by independent, uncoordinated, overlapping and large-producer dominated programs. Services are narrow-spectrum

³³Instituto Colombiano Agropecuario, op. cit.

³⁴Luis Acuña M., op. cit.

³⁵Bernardo Mora C. and Jesus M. Sierra, "Organización, Actividades y Costos de Tres Servicios de Extensión Agrícola en Antioquia," Unpublished undergraduate thesis, College of Agriculture, Medellín, 1968.

with office-bound methods and symptomatic treatments. Given these conditions, there is little evidence to support the adoption of the current North American model of agricultural extension for Colombia.

The first requirement in adapting extension to the Colombian setting is a program orientation that includes organizational efforts and pressure group activities. This broader orientation demands a greater degree of client control and feedback than is now available, in order to bring services to small farmers and to the hundreds of rural communities where infrastructure is now deficient.

In order to meet this objective, extension agencies would need to dedicate a large part of all their rural activities to organizing farmer clientele. Community action committees and a new organization called "Users Groups" provide organizational forms which could be used to initiate the effort. However, more specific and relevant organizational goals first need to be specified by these groups.³⁶ Community Action is fragmented and uncoordinated. The Users Groups are governmentally controlled--getting farmers organized is essentially the only objective. As organizational theory would predict, the effect is to neutralize and stifle moves toward action.³⁷

Some projects should be directed at improving rural infrastructure. This would provide extension agencies with specific and measurable goals while helping to correct the deficiencies of inoperative local governments. Eventually farmers should be allowed to take over the decisions and operations of local agencies and local units of government. Application of the contemporary North American extension model has had the effect of suggesting that a bureaucratic structure be created first with a program of work and participation to be developed later. This approach reinforces already prevailing paternalistic and centralistic tendencies. Farmers themselves thus never get to report on the priority problems and relevant technologies as they see them.

Instead of using the contemporary North American extension model, it would be more instructive for developing countries to look at the formative stages of technical assistance when highly structured services did not exist. Even in the United States, farm operators identified problems first and then sought organizational tools to help solve the problems. For example, agricultural extension in the

³⁶Mario Suárez, M., "Campaña Nacional de Organización Campesina," Bogota: Ministerio de Agricultura, 1967.

³⁷James G. March and Herbert A. Simon, Organizations. New York: Wiley, 1958.

state of Wisconsin grew out of more than 40 years of struggle by local "farmers' clubs." A state convention of farmers in 1884 called on the state government to create a college of agriculture, and filed petitions in the state assembly signed by thousands of farmers in order to fight off opposition from state industries and railroads who called the plan "class legislation."³⁸ After creation of a college of agriculture and extension service (then called farmer institutes), they fought the American railroads' high freight rates and the private milk processors' inefficient and unsanitary practices.

The milk marketing problem was met by farmer organized cooperative creameries and cheese factories. These groups in turn pressured the state government to clamp down on unsanitary practices, establish standards of quality, and compensate farmers who had to dispose of diseased animals.

When farmer teamed with extension agent and pitted themselves against big business and conservative government, many other programs followed: market regulations, subsidized land clearing, rural mail delivery, farm to market roads, a state soil survey, drainage districts, and many other public investments.

Characteristically, early U.S. extension efforts found that many problems were infrastructural and not biological--and often solutions involved pressure group activities. It is also significant that the task was conceived of as "a struggle" with the extension service commanded into battle by impatient farmers. A far different relationship prevails when the technician is placed in the community as an expert who answers questions if he has the time, or if he can get the head office to send him the right reference material.

A second step needed to achieve more effective extension organization in Colombia is to change the criteria used to measure the performance of field personnel. Now the common method of reviewing worker performance is to request records on the number of telephone calls, office visits, farm visits, school lectures, demonstrations, and field days completed by the staff member. This sounds surprisingly like a recent edition of a North American extension guide.

It would be better to measure performance by the number of improvements made in local infrastructure or farm production. An extension worker who helped a farm community build 10 miles or rural

³⁸E. R. McIntyre, Fifty Years of Cooperative Extension in Wisconsin 1912-1962, Madison, Wisconsin: College of Agriculture, University of Wisconsin, Madison, 1962).

roads and brought 50 additional farms into the milk market should surely be rewarded more than the one who received 1,000 telephone calls and gave 100 community lectures and demonstrations. Measuring performance by local progress also demands that technicians be more inventive and adaptable to local conditions. It would not really matter whether an extension worker in Colombia ever used a telephone or a typewriter if he were effective in improving community structures and farm production.

The third improvement needed in extension programs would come from directing services to the entire production-marketing complex, not just to isolated physical or biological problems. Ten years ago a food processing company in the Cauca Valley stimulated the production of high yielding, uniform quality tomatoes for canning and manufacturing. The expected result was provision of both a new crop alternative as well as a ready market for small farmers. In fact, the total supply for the processing industry is provided under contracts with only nine growers. In addition, by having control over large quantities, processors have driven prices down.³⁹ Meanwhile, the hundreds of small farmers who also raise tomatoes face the same kind of inefficient and uncertain market as before.

The only solution for a small farmer is to attempt to gain some control over both supply and market procedures. This is not an easy task, but it is one in which agricultural extension could play a major role just as it did with milk, fruit, and horticultural products in the United States and Western Europe.

An important limitation to the effectiveness of technical assistance activities in Colombia is the lack of relevant and adapted farm technology for all stages of production, including processing and handling. This demand has not been met by the national agricultural research centers and only partially so by the coffee experiment station. Since adaptations need to be specific for area, crop and special factors like farm size, markets, transportation and other local factors, the adaptation task cannot proceed without including the farm operator as a principal decision maker and organizer.

To improve effectiveness and to increase the impact in new areas, extension agencies should serve as middlemen in getting farmers together to share ideas. The extension agent can serve both as the catalyst to bring groups together as well as the analyst to help focus the problems. Given farm numbers, technicians can never hope to visit farms one at a time to distribute necessary information.

³⁹Personal interviews with Fruco and other food handlers in Cali.

The fourth requirement for fitting extension to the organizational and structural setting is to recognize that there is a basic difference in the technical assistance needs of mechanized-capitalized farms and hand-cultivated peasant farms. Large farms are justifiably concerned with mechanization, aerial crop spraying, export markets, bulk purchase of fertilizers and supplies, and private ownership of transportation. At the same time commercial farmers almost all live in the cities, so they are not concerned about rural schools, country doctors, or rural electrification and communication.

A small farmer, because he runs a hand operation and is a full-time rural resident, has different interests and requirements. From the study of rural services, it is now apparent that services and inputs exist in almost all parts of Colombia but that they are irrelevant to many small producers.⁴⁰ Aerial crop spraying is of no use to a peasant farmer, neither is a two-ton truck, a four-row corn planter, or a bulk fertilizer service. At the same time, such a farmer is vitally concerned with rural schools, a country doctor, an improved ox cart or a garden-sized tractor. He also needs a market where he can sell a dozen eggs and a bushel of tomatoes with some compensation for quality and uniformity.

While the same technician who demonstrates four-row corn planters could theoretically also demonstrate the planting stick, it does not happen. Training and research centers might undertake both kinds of work, but it would require deliberate and separate efforts. At the present time the peasant farmer is given only token service. Yet a much greater investment in peasants is justified simply by the amount of product they produce and the huge market they represent for the purchase of consumption goods and inputs.

A fifth and final adaptation needed is experimentation with the integration of public services at the community level. Colombia has dozens of regional and national service organizations--most of them operating from separate offices and with separate semi-autonomous hierarchical structures. As pointed out in the previous section, farmers are in effect often the victims of structures which were intended to provide services. Besides this, fragmentation has endless built-in inefficiencies which a poor country can ill afford to maintain.

Because of political considerations and near-sacred constitutional rules, it is probably folly to talk about integration. On the other hand, fragmentation cannot proceed forever. When forces begin calling for regrouping, there are many arguments for doing it at the local level and at the top. Numerous advantages are possible.

⁴⁰Felstehausen, "Local Government," op. cit.

A technical assistance organization that would result from this analysis of the structural and organizational settings would look much more like a community service center than an extension office. This center should bring together government agencies of various levels. A key activity should be to help farmers organize to participate in production, service and market decisions. A center where farm supplies, credit, veterinary services, road and school plans, and technical assistance were handled together would give both officials and farmers practice in coordinating public investments and would expose bottlenecks.

A single center where the government's resources could be put at the disposal of the community could reduce red tape, speed tax and fee collections, and give the local community, for the first time in the history of the nation, an opportunity to bring modern financial, communication, and planning methods to bear on agricultural problems. Such an approach has the further advantage of putting infrastructural assistance next to production assistance, since agriculture cannot develop by taking a one dimensional approach. Rural communities, through Community Action projects, have already demonstrated that they have the capacity to undertake and direct major investments. This process is not furthered by limiting technical assistance to biological problems. It calls for concentrating talents and resources in country towns, and not in urban centers.