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New Techniques, Agricultural Extension Services and Credit Facilities as Instruments of Economic Development, with Special Reference to Latin America

1. FOCUSING THE PROBLEM

In writing this paper one can be misleading because the best policies in the interests of rural development do not always coincide with the best policies for the development of the economy as a whole. Therefore, I have amplified the scope of the paper, using the concept of economic development instead of rural development. It is convenient first to point out the general agricultural policy objectives in the furtherence of the economic development of a country.

2. AGRICULTURAL POLICY OBJECTIVES

The following objectives could be suited to any country whatever its degree of development; although priorities would differ with the particular social, economic, and political conditions.

(i) To produce food in the quantity, quality and on the timing appropriate to the needs of the population so far as it is economically possible.

(ii) To produce agricultural raw materials, in terms appropriate to the demand of national industry, in so far as it is economically feasible.

(iii) To produce food and agricultural raw materials for export when the level of international prices makes it profitable to produce them.

(iv) To maintain an increasing rate of farm productivity.

(v) To generate a level of farm income and wages that permit the satisfaction of the needs of the rural population, at a similar level to the non-farm sector. Such a level of income should permit also a rate of saving and investment to promote a rate of growth of the farm sector similar, or superior, to that of the non-farm sector.

(vi) To increase the income of the lower agricultural groups faster than the high income groups, so as to reduce the range in income distribution.

(vii) To give full employment to the rural population, permitting their

* Ecuador

transference to the urban sector, whenever the level of technique allows it, and in accordance with the labour demand of the urban sector.

(viii) To conserve and improve natural resources so that they can be more useful in the future.

Even though there could be contradictions between these objectives within a general agricultural policy, it is also possible that with due regard to priorities – according to the social, economic and political conditions of each country – such objectives could be complementary to each other. The priorities and emphasis given by each country to those objectives will depend on the power structure in its government at the time concerned.

3. PRINCIPAL CONSTRAINTS TO ACHIEVING THE OBJECTIVES

3.1. *Land tenure*

To achieve the first four objectives related to production of food and raw materials for domestic consumption and for export, and the increase in production and productivity, requires optimum combination of land, labour, capital and management at a higher technical level to maximise revenue. Such an optimum combination will depend essentially on the size of farm units. In other words, the relation of man to land is a key factor in the rate of development of the agricultural sector. That relationship, unfortunately, is inadequate in Latin American countries, with few exceptions. Furthermore, the size of farms is tied to inflexible private or public ownership and so the problem cannot be solved in the short-run, and perhaps not in the long-run, except through a revolutionary change.

To illustrate the situation, in Latin America some 47% of the total number of farmers hold farm units of less than 5 hectares each and occupy only 0·7% of the total farm land. On the other hand, only 1% of farmers (approximately 100 000) hold 60% of farm land in farm units of over 1000 hectares.*

Farm units of less than 5 hectares present the following obstacles for development:

(i) There is an excess supply of farm labour which is offered to other farmers or to urban areas or simply remains as under-employed.

(ii) Such a low income is generated that it does not permit an adequate satisfaction of needs, especially of food, and this lowers the working capacity of farmers. Savings for future improvements are not possible, either.

(iii) The use of machinery to free labour from farming is not practicable on such small farms.

(iv) Farmers cannot go for higher education to accelerate farm labour mobility to urban areas.

(v) New subdivisions of land by inheritance continues the vicious circle of poverty from one generation to another.

(vi) Small farms make any programme of technical and financial assistance

* *Estructura Agraria de las Naciones Americanas* – Instituto Interamericano de Estadistica – 1961.

costly and ineffective, because a large number of people cannot improve their working capacity on such small holdings.

On the other side of the problem, big land holdings of over 1000 hectares present the following hindrances to development:

(i) The maximum use of land is hampered because of lack of capital. It is difficult for one family to accumulate capital needed to farm intensively 1000 has.

(ii) It ties farm development to the family cycle, causing stagnant and declining periods during the old age of the owner.

(iii) It make for an uneven distribution of income among farm owners and farm labour.

(iv) It impairs the social, cultural and economic development of farm labour working for the big owners.

(v) It discourages any utilization of new techniques, especially capital intensive ones, because there is ample labour at low wages.

(vi) It gives no encouragement to new inventions because owners are usually absentees in urban areas and are not sensitive to production problems.

The minifundia and latifundia problem was inherited from Indian and Spanish cultures and, since the colonial period, Latin America – with few exceptions – has been unable to solve this problem. Although during the 1960's almost all countries have passed agrarian reform laws, the land tenure systems remain almost unchanged with the exception of Cuba, Peru and Chile, which have undergone very important changes. Since the structural changes are slow and difficult, as history has taught us, we have to orientate agricultural research, extension services and credit facilities in the light of our deficient land tenure system which is a hindrance to any real effort for rural and economic development.

3.2. *Power structure*

A second important factor in achieving sound agricultural policy objectives is a well balanced power structure in each government. Policy-making groups should be constituted from representatives of farmers, merchants, manufacturers, consumers, and workers, in such a way that their decision power should be the synthesis of all national interests. In addition, governments should follow a sound method for reaching policy decisions, which should include the following steps:

(i) discussion of policy objectives;

(ii) a search for alternative solutions to problems in achieving such objectives;

(iii) a search for resources needed for the resolution of those problems; and

(iv) to be able to control such resources for use according to the decision taken.

Using such a method, in a well balanced policy decision group, the resulting

policy ought to be in the interest of the majority, setting up priorities to achieve a sound economic growth in the long-run.

In that way, the method could guide the setting up of a framework of:

(i) stability, in the sense that the laws and regulations which determine the rules of the game are well known and more or less permanent;

(ii) flexibility, to adapt such rules to changes in the social and economic conditions;

(iii) efficiency, so that it permits a thorough knowledge of each problem, taking into consideration all the variables involved in its discussion and resolution – using the procedure set out above;

(iv) effectiveness, to take opportune action within the time limit the population requires.

Unfortunately, the power structure in Latin American countries is conditioned by the land tenure and land distribution and that of other capital goods related to industry, mines, trade, etc. Therefore, the average Latin American country does not enjoy a well balanced democracy where the policy decison groups are representative of the interests of all sectors in harmonious proportions. Almost all Latin American countries are going through an institutional crisis; Colombia and Venezuela are the only democracies in South America. The rest are governed by military dictators with professional rather than national interests. They do not take into consideration the real motivations, needs and desires of the majority who are participating in the daily work of the farm sector. Consequently, we should take into consideration the deficiencies in the power and government structure as a given factor which cannot be modified in the near future.

3.3. *Other incentives for farmers*

It is convenient now to single out some basic requirements if farmers are to be stimulated to accepting programmes of rural development, based on new techniques, extension services and credit facilities.

Farmers require security, especially for long-run farm family plans; security in respect of outcome of investment, production and prices in holding land and in the ownership of other capital goods. Risk and uncertainty are deterrents to farm investment. Such security is far from being present in most Latin American countries. Agrarian reforms that never end are always threatening large, medium and even small farmers. Most of the countries do not have a price support programme. There is a lack of storage facilities. Transport facilities are not adequate for perishable products. There are no adequate price information systems to guide farmers' decisions on when and what to produce. Farmers are in general isolated, depending on their own resources, and are often misled by absentee big landlords who do not know the real problems of the medium and small farmer.

4. NEW TECHNIQUES

Agricultural research in Latin America, as in most developing countries, has followed the pattern of research in North America and Europe. The research

methods are experimental, using induction and statistical methods to generalise results.

The Latin American agricultural researchers, with some exception, have not focused their research towards their own real conditions. The problems of what crops require research, how and why, have been almost forgotten in many experimental stations, because they have followed the European or North American patterns. Experimental stations have usually been under the Ministry of Agriculture, and the Ministry most often is associated with big landlords and most of the researchers come from medium and high income groups with professional interest rather than the idea of service to the people at large. Thus the selections of groups to be improved and the techniques of research have been mostly exercised in the interests of big landlords, merchants, exporters and not for the well-being of the domestic consumer and producer.

Using the agricultural policy objectives already set out, the following criteria could be used to select an order of priority for the crops to be researched.

(i) Crops produced domestically that supply most food for domestic consumption.
(ii) Crops which most farmers are engaged in producing.
(iii) Crops with the largest area under cultivation.
(iv) Export crops which earn the largest amount of foreign exchange.

The history of experimental stations in Latin America leads to the conclusion that the last two criteria have been the basis of priorities. In the past, attention has been given in the main to coffee, cocoa, sugar cane, and bananas – all export products – rather than to beans, green peas, broad beans, maize or rice, which are basic food crops for our people. Only in the last two decades has more attention been given to basic food crops, such as corn and rice. Research on wheat and barley has been mainly in developed countries. Thus one of the most important features in research is the careful selection of crops whose improved techniques could benefit the pockets of the majority of the country's domestic producers and consumers.

The solution, as we have indicated, will depend on the power structure in government; and as we have said, the prevailing structure is not the best. By coincidence one crop may be the main food supplier and at the same time most farmers may have been engaged in its production, and it has also occupied more land – but it is not a usual case. More often export crops like coffee or cocoa are not for general consumption.

The second problem in agricultural research is the selection of techniques which are going to be researched for teaching to farmers. There are techniques aimed at substituting labour for machinery; others to increase land productivity; another to get more production out of labour. Extensive farming with low use of capital and labour is characteristic of big holdings, and in many experimental stations more attention has been given to techniques applicable to kinds of pasture, banana, sugar cane, beef and dairy cattle, rather than to techniques on horticulture, fruitculture, seeding distances,

intercropping, rotations, etc., that are labour intensive techniques. Little attention has been paid to indigenous crops of the Andean region exceptionally rich in nutrients such as quinoa,* chocho,† and melloco which are almost unknown in experimental stations.

Another problem regarding research is that of coordination with extension services, credit facilities and, especially, with the main interest of farmers. Scientists often spend their time in research for research's sake, or for personal prestige, rather than for the wellbeing of those who are paying their salaries through taxes collected by government.

In summary, I consider that selection techniques should follow the main objectives of the agricultural policy in giving priority to:

(i) the practices which could be most easily understood and applied by most farmers.

(ii) those techniques that are less costly and that produce higher returns for most farmers, and

(iii) More sophisticated techniques for the use of big enterprises.

5. AGRICULTURAL EXTENSION SERVICES

In a generally accepted concept Extension is considered as "an informal, out-of-school, educational service for training and influencing farmers and their families to adopt improved practices in crop and livestock production, management, conservation and marketing".‡

According to this concept it is not only concerned with teaching and securing the adoption of a particular improved practice, but with changing the outlook of the farmer to the point where he will be receptive and, on his own initiative, will continuously seek means of improving his farm business at home. In rather marked contrast to this, is the concept of "Extension as an organization responsible for all Ministry of agriculture activities at the field level, including regulation, the provision of services, the collection of statistics, and with very little attention paid to the educational activity". In addition, there is the view that Agricultural Extension must be conducted as part of the broad extension efforts, going beyond the scope of the Ministry of Agriculture and involving health, education and other factors in the life of farm populations. To us, the main purpose of extension must be the dissemination of information derived from agricultural science and technology and it must be seen as part of an educational process directed to each farmer to improve his production and raise his standard of living.

The effectiveness of extension is measured by the ability of extension activities to change the static situation which prevails in rural areas into a dynamic one. One of the problems extension must overcome is the tendency of rural communities to resist changes. This tendency accounts for indifference, if not the hostility, farmers may show to any pressure of progress.

* Species of goosefoot

† Lupine.

‡ Science and technology for development, United Nations (1963).

Successful application usually requires changes in people's knowledge, attitudes, skills and habits and in the way people and their work are organized. It is true that relatively little has been done in the way of sociological, anthropological and psychological research on methods that may be effective in securing the adoption of new methods by farmers in various cultural and economic-political environments.

Latin American countries are facing the problem of the target for extension services: should they be directed to more than four million smallholders of less than 5 has. each, to 100 000 big landlords, or to the rest of medium owner operators. The teaching techniques required are different for each sector of the public. The big owners are urban people with medium and high educational levels; the smallholders are rural residents – illiterate or, at most, with primary schooling. Perhaps the best alternative would be to concentrate attention on medium size owner operators on farms larger than 5 has. and smaller than 200 has., and leave agrarian reform to solve the problem of latifundia and minifundia in the future. The alternative of giving more attention to medium size farms is convenient as the number of extension agents is quite insufficient – less than one for 4 000 farmers* in most of the Latin American countries.

In the face of those facts, and considering the agricultural policy objectives set out above, extension services should take into consideration the following suggestions:

(i) to teach groups and not individual farmers, in order to lower operational costs;

(ii) to use mass communication media, especially radio, to reach as many farmers as possible at the same time;

(iii) to select simple and more profitable techniques which can be easily understood and followed by farmers;

(iv) to prefer medium size owner operators;

(v) to use local leaders as extension agents to get acceptance of new ideas and facilitate communication between farmers and technical people; and

(vi) extension agents should teach small farmers how to organize in cooperatives or any other societies to facilitate introduction of new techniques.

6. FARM CREDIT

6.1. *Sources of finance*

Farmers' own savings finance most of the inputs, machinery, cattle, land improvements and many other investments in farming. Banking credit, or loans from dealers, finance only a small part of farm investments. In the case of Perú and Ecuador, for instance, banking credit does not finance more than 20% of total annual farm investment. I doubt that in any developing country farm credit finances more than 40% of total investment.

In spite of the small proportion financed by banking credit, it plays a very important role in rural development, for the following reasons:

* *Estado de la Agricultura y la alimentación*, FAO (1961).

(i) It is a complement to savings and investments and so credit accelerates the rate of capital formation and technical improvement.

(ii) Banking credit is usually selective as to farmers as well as to crops and techniques, therefore, the marginal efficiency of this capital is higher than that of farmers' own investments.

(iii) Loan conditions in terms of amount, maturity and repayment, are usually according to farmers's repayment capacity from farm revenue, generating additional income.

(iv) Interest rates are often lower than the free money market and loans are a kind of subsidy to farming. Inflation makes such subsidy higher and, in many cases, the interest rate becomes negative, with the exception of countries like Chile, Argentina, Brasil, where there is an automatic adjustment of debts.

7. THE MAIN CONSTRAINTS AND AGRICULTURAL CREDIT PROBLEMS

Providing farm credit is a costly and risky operation, and private banks, in many developing countries, are not interested in serving such a sector. For this reason most Latin American countries have state development banks specializing in agricultural credit. These banks face the same problem that researchers and extension agents face in selecting their clientele from among large numbers of small farmers and big landlords. To solve such problems some banks have established two types of credit: supervised credit for the small and some medium family farm owners, and banking credit as such, for large and medium size farm owners.

Supervised credit for the small farmer is a combination of technical and financial assistance. It finances integral farm plans to introduce permanent improvements, taking into consideration the farm family. Conditions for such loans regarding amount, security, interest rates and repayment periods are usually softer than for banking credit. Supervised credit programmes were set up in some South American countries during the 1960's. In Ecuador, for instance, a programme began in 1966, and the results measured by three evaluations show a success in terms of the amount invested, income received, and repayment, which were higher than what was planned.

Another problem which the development banks are facing is credit orientation, not only to small and big land owners but to specific areas and crops. Such orientation depends on the political structure of each country. Often those banks are governed by pressure groups of big farmers who direct the loans towards large commercial farms and for export crops.

To obtain resources for agricultural farm credit is perhaps the main problem for the state banks financed usually through state budget. When governments take the decision to finance farming by subsidising interest rates, it is difficult to get savings in the free money market for such purpose. Resources go to activities with a high rate of return such as housing, trade, industry; farm credit being costly and risky cannot compete in that market. Resources from international financial institutions have been a very interesting source of

farm credit, especially for solving the foreign money scarcity, but unfortunately the amount for disposal is very limited.

To attack this problem countries like Columbia, for instance, have established a system for capturing public savings through saving and current accounts. Some 60% of total bank savings are channelled by Caja Agraria Industrial y Minera in some 650 banking offices throughout the country. Ecuador set up a similar system through the Banco Nacional de Fomento and public savings increased from US 10 million dollars in 1968 to US 100 million dollars in 1975. In the same period private banks increased their deposits only three times. Those examples show the possibility of using more savings and current accounts in state banks for financing agriculture.

Another of the serious problems which the state development banks are facing is how to obtain coordination between different agencies in charge of the execution of agricultural policy. The decisions on what crops to research and what techniques to teach are usually taken by Agricultural Ministries' personnel; but the decisions on what products to finance and what farmers get loans lie with bank personnel. Besides, farmers request loans not for the purposes set by Planning Boards or Agricultural Ministries, but for the crops which farmers consider to be most profitable. Therefore, after the completion of each agricultural national plan every evaluation of its achievement has shown how far the actual production figures are from what were supposed to be reached under the plan.*

Extension agents have been in charge of promoting some crops and techniques in some countries, but usually the result has been insignificant unless the preaching of extension agents has been accompanied by increasing prices or good weather conditions. This statement does not mean that I am in favour of the laws of demand and supply ruling agricultural production. Planning is a necessity for any approach to balanced agricultural development; but planning should be more on the side of the policy-decision-making process rather than in the pure planning figures.

To avoid the problems which arise from the participation of many organisations in policy decisions and their execution, the latest idea has been to organize so called "package programmes". This is discussed elsewhere in the conference but from what I saw in Ethiopia, package programmes are not the solution for planning and agricultural development at national level. Those packages are bad substitutes for adequate government organization in farm planning and policy decision systems. Consequently, agricultural economists should pay more attention to power structure and the policy decision process, rather than to planning techniques alone. In this respect it is convenient to set out some ideas for discussion here.

(i) In agricultural planning more attention should be paid to general policy objectives than to specific production figures.

(ii) Farmers, marketing firms, consumers and government officials, representing the main executive agencies, and research and extension services and

* If we are going to be serious we should write as a final footnote in every economic plan "Any similarity to real life is pure coincidence".

farm credit agencies, should participate in discussing general agricultural policy objectives.

(iii) Basic data for planning purposes should be collected and prepared by a central specialized planning agency.

(iv) In programming agricultural development each objective should be accompanied by a set of policies to stimulate or otherwise steer farmers to follow the guide lines set up in the plan. The policies and the plan should be well-known to farmers, marketing firms, agroindustrialists, and all institutions operating in the farm sector.

(v) The functions of researchers, extension agents and development banks should be clearly defined, avoiding all interference among them. Overlapping of functions, especially between technical assistance and farm credit, is a source of friction, misunderstanding and distrust between farmers and government officials.

(vi) In dealing with credit and technical assistance, this last concept should be divided in two aspects: technical assistance in farm management for investment purposes – which should be taught by banking personnel – and the farm practices – which should be taught by extension people at group level. In this way all the responsibility of credit will remain in the banks' hands and it will not be shared by extension agents who have a different philosophy with emphasis on agricultural development. They are usually most interested in production increase, whereas bank staff are more profit-minded, in line with the farmers' interest.

Finally, the more important problem in getting adequate policy decisions is the method and process employed. Method was discussed earlier, now it is convenient to set up criteria for the process in policy decisions.

(i) One of the most important tasks for an agricultural economist is to single out the issue and to present the problem as clearly as possible so that it is fully appreciated by the pressure groups concerned.

(ii) All the variables involved in the problem should be analysed pointing out the behaviour of each of them in order to make the problem understandable to everybody.

(iii) The participation of all the pressure groups should be secured in the discussion of the issue, making sure that they know the essence of the problem.

(iv) Alternatives for the solution of the problem should be presented and thoroughly discussed.

(v) The discussion should be steered towards the most adequate resolution of the problem, by evaluating the results of the possible alternatives and showing the way in which the interest of the pressure groups would be affected by it.

Unfortunately, this scheme can only be applied in a democratic organization. In military dictatorships something could be done in the above sense – although within very narrow limits. Therefore, more attention should be paid to power structure and politics, to get done what agricultural economics theory teaches us.

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DISCUSSION OPENING – M. Ngeze, *Tanzania*

In this paper the writer shows us a deplorable current state of affairs as regards land tenure system in Latin-American countries, agricultural system, administration of agricultural extension and credit facilities, agricultural research, power structure, etc., as instruments of economic development, and then presents suggestions, which, if accepted by governments and all concerned, he believes would speed up economic, and especially rural, development.

Dr. Benalcazar divides the Latin-American countries into two main groups; those which he refers to as being under dictatorial rule, examplified by Cuba, Peru and Chile (which I prefer to call revolutionary countries) and those with democratic rule, namely Columbia and Venezuala.

My impression from reading the paper is that the writer does not believe in, or sympathise keenly with, socialist aspiration.

The main challenge to those in government in developing countries is to choose between (i) continuing to assist those few who are already developed and enjoying a good level of living and (ii) paying more attention to the majority of the population who are still poor. This is the same thing as asking what is the purpose of rural development? Should governments in developing countries continue to develop a few individuals, who are already developed, living in towns but being called farmers? The grounds presumably would be that they own farms of over 1,000 hectares and employ hundreds of labourers who are being paid the minimum government wages of, say 150/- per month. Or should the purpose be to "to improve the living standards of the mass of the low income population residing in rural areas and making the process of their development self-sustaining"? (this is to

borrow Uma Lele's definition of rural development). The choice will depend on the political ideologies in each country, the socialist countries will choose the latter and the capitalist countries the former.

With the limited resources available to developing countries, we cannot expect that the level of living of the masses will be improved through employing new techniques of agricultural production, agricultural extension, and credit facilities, so long as (a) these things continue to be accorded to those who do not need them very much, (b) virtually the land is in the hands of few individuals (c) there are urban dwellers who are farmers only in the sense that they own large farms worked by hired labour.

What is the future of those thousands of lowly paid farm labourers? These are the very ones who know very little about family planning. Are they not part of the rural population which rural development is all about? Is it not natural for these people to pray for a revolution? Could they also not be farmers and masters of themselves if assisted by government?

These are some questions not found in the paper. There is, for instance, no suggestion that there might be some form of co-operative farming system (such as block-farming) as one way to solve the problems of small farms. Although the author lists several disadvantages of large farms under absentee landlords he does not suggest what action is needed in relation to them. The paper does not suggest how to go about solving the problems caused by a few people owning the whole land and the majority being landless. To focus on essentials, –

(i) The writer tells the disadvantages of having small farms of less than 5 hectares and even also the disadvantages of big farms of over 1,000 hectares. He should tell us what he thinks is the optimum size for the different categories of farmers in Latin American countries.

(ii) The writer does not tell us the size of a farm which a normal family can manage.

(iii) He does not tell us the amount or resources which are available to the average family farmer, e.g. tractors, ploughs, and if every one can afford to hire labour.

In concluding my points I would like, once again, to praise the paper and mention that in developing countries, besides the suggestions he has made, there must be a revolution in land tenure system. The land should belong to the state and each citizen who can make economic use of it should have a right to it. Secondly, the purpose of development in these countries should be MAN – not a few men, but the people.

DISCUSSION OPENING – P. F. Philipp, *U.S.A.*

As Dr. Benalcazar mentioned, he changed his topic from "The agricultural extension services, new techniques and credit facilities as instruments of rural development", to "New Techniques, agricultural extension services and credit facilities as instruments of economic development, with special

reference to Latin America." I want to open by referring to some consequences of the substitution of the words "economic development" with "rural development" in the paper.

Economic development deals with all income groups in a country while rural development, according to recent definitions – particularly by World Bank representatives – has a more limited target group. For example, Uma Lele, in *The design of rural development:lessons from Africa,* (John Hopkins University Press, 1975) uses the following description for integrated rural development: "Improving living standards of the mass of the low-income population residing in rural areas and making the process of their development self-sustaining." According to M. Yudelman's paper this morning rural development also implies "giving the target group the opportunity to enjoy the benefits of development; improved education, health, and nutrition, among other things".

Dr. Benalcazar's change of his topic from rural to economic development greatly affects policy conclusions. Take for example his question "to whom to direct the extension services in Latin-American countries"? Should the extension service serve the more than four million minifundia farmers operating less than five hectares each, who make up 47 per cent of the total number of farmers and hold only 0.7 per cent of the total farm land, or should it serve the 100,000 latifundia farmers with 1000 hectares or more each, who comprise only 1 per cent of all farmers but hold 60 per cent of all the farm land? Dr. Benalcazar comes to the conclusion in his written paper "To concentrate attention to medium-size owner operators on farms larger than 5 hectares and lower than 200 hectares", and let the future solve the problem of latifundio and minifundio. Had Dr. Benalcazar dealt with rural rather than with economic development, he would have had to conclude that the extension service needs to direct its attention primarily to the smallholders who clearly represent the mass of the low-income population. Similarly he would have had to reach different results with regard to new techniques.

Let me now contribute to Dr. Benalcazar's statement in his concluding sentence "to get done what agricultural economics teaches us in theory". I would like to discuss some of the practical issues and problems of agricultural extension, new techniques, and credit as instruments of rural development. Not withstanding the broad definition of rural development to which I previously referred, when we talk about the effect of extension, new techniques and credit on rural development, we obviously think primarily of the impact of these inputs on improving production.

The author seems to have some reservations about some aspects of the so-called "package program" in rural development, but he would probably agree that a complete package is needed to bring about improved output. This package must include such varied components as knowledge of the physical, biological, human, cultural and social conditions on the farm and in the village; farming know-how, markets, transportation, etc.

To expect a substantial increase in production from extension, new techniques and credit, these inputs need to be acceptable to the farmer. Let

us look at extension first. What is agricultural extension? Dr. Benalcazar gives a good review of various definitions of extension. I prefer the following slightly different and simple definition which is common in the United States "Agricultural extension means helping farmers to help themselves".

To be of any use, an extension agent must be acceptable and not potentially harmful to the farmer. For example, in some parts of developing Asia, the extension agent is, as Dr. Benzlcazar puts it "responsible for all Ministry of Agriculture activities at the field level *including* regulation.....". To many an Asian farmer such a bureaucrat is a potentially harmful person – not unlike the tax collector. Add to this that the extension agent is often young, which is against him in many Asian cultures, or that he may extract payment from the farmer for his services. Finally, the farmer may ask himself whether such a city-trained extension agent, who frequently does not even want to get his hands dirty, really knows the practical problems of what he tries to teach. In short, is such an extension worker really acceptable to the farmer?

How about the new techniques which the extension agent tries to introduce? Are they really profitable at the farm level? True, the yields were much higher on the far-away experiment station, but production methods, conditions, know-how and risks are very different on the farmer's own farm.

And how about credit? Scarcity of subsidized credit, mentioned by Dr. Benalcazar, may not always be such a limiting factor. If a new technique has proved profitable in the village, the farmer would probably be willing to pay an unsubsidized rate of interest. However, will the promised government credit actually be available to the farmer in the village, on time and at the government rate, or will bureaucratic inefficiency and corruption make a shambles of the government system?

In summary, agricultural extension, new techniques and credit facilities are, of course, potentially vital instruments of rural development, but let us use realistic coefficients and not omit relevant variables in our production function models.

RAPPORTEUR'S REPORT – H. J. Plunkett, *Australia*

The general discussion, in effect, posed a range of questions in the process of clarifying issues.

One group of issues concerned political will, in one form or another. Thus the possibilities of development might be limited by insufficient political will to give concessional credit to appropriate target groups. Similarly a solution depended on the will to undertake land reform and to carry it through.

Possibly political will was concerned in the discussion of why there should be conflict over the needs of disadvantaged groups under military dictatorships if the latter only arose when there were domestic problems not solved by the existing political system. In these respects the author stressed that his concern was primarily with the role of other agricultural economists in identifying problems and proposing alternatives for action within the operative

political system.

The proposed scope and priorities of research and extension were seen by several speakers as unduly narrow or unbalanced. For instance, the paper tended to give research priority to crops and agricultural technology without adequate attention to the social needs of farmers. Similarly it was questioned why extension was confined to agriculture and omitted health, education, etc. Indeed, doubts about the concentration of extension on middle sized farmers might fall under the same heading. It was noted that the arguments for some priority to this group was that they had the most readily realised potential.

The usefulness of seeking greater application of mechanised techniques in order to release labour was widely doubted in a country with high and expanding population. Prestige tended to overweight the attraction of mechanisation.

Finally, in relation to credit in addition to restraints from political hesitancy and generalised administrative inefficiency, the effect was noted of those administering it themselves probably wanting credit and being reluctant to help others to get it on concessional terms.