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CONTRIBUTION OF AGRICULTURAL INSURANCE TOWARD ECONOMIC DEVELOPMENT

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1. Let me start with a broad definition of what an "insurance programme" means in the context of this exposé: some kind of arrangement by means of which farmers (individually or as a group) agree with an insurance institution that the latter will indemnify them for financial losses they may suffer as a result of an agreed set of meteorological or natural unavoidable and uncontrollable hazards. In return for this promise, farmers pay a premium. They may also undertake to follow certain rules (e.g. adoption of loss prevention measures or specified cultivation practices).

2. The economics of an insurance programme involve, therefore, a flow of financial resources, from farmers to the insurance agency (premiums) and from the latter to farmers (indemnities). It does not matter, for the time being, whether this reciprocal flow balances over a given period of time, whether it leaves some profit for the insurance agency or whether it needs some financial injections from the outside (e.g. subsidies from the Government). At a first stage of the analysis, what really matters is that the farmer is given a promise that he will get an indemnity when unexpected and unavoidable losses occur and that the very existence of this promise is expected to yield, in itself, some economic effects. For example, the farmer may in this way be encouraged to engage in cultivation of a risky single crop, while he would otherwise feel more prudent to

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diversify his production into a series of different crops less susceptible to be hit by a single hazard.

3. Similarly, when the farmer is supplied with an insurance policy, he may be induced to invest more in his land, or to resort to heavier mechanization; with this purpose in mind, he may tend to hoard less or to resort to credit more. Better and more advanced agricultural practices may also be the outcome of the insurance policy. The economic effects of an insurance contract start, therefore, much before any loss occurs and these effects are expected to be reflected in the agricultural output of the country as a whole. This is the first point I should like to develop to some extent: the effects of an insurance programme before it has been given the opportunity to meet its purposes and pay indemnities.

4. A second point of my exposé will concern the economic effects arising from the payment of indemnities to farmers. These payments will permit them to continue their rural exploitation. Thanks to indemnities, for instance, they will be able to buy new seeds, to repay loans and get new credits, to pay wages to laborers, and so on. In this way, it can be expected that disruptions in national economic life that generally go along with a natural calamity, can be staved off, at least partially.

5. Indemnities, and administration expenses of the insurance programme, entail costs for the country. To say that an insurance organization provides for the indemnities does not reveal much about where the indemnities really originate. The insurance agency collects premiums. It may also get State subsidies or benefit from indirect taxes collected through marketing boards from the consumers. In this way, consumer prices, or the farmers' profits, or the amounts from taxpayers, may change as a result. These changes may, therefore, affect economic and social sectors other than rural and a new allocation of resources may result from the existence of the insurance programme. I should like to say also something on this subject.

6. Before concluding these introductory remarks, I should like to point out that there is no single "insurance programme" but, in fact, many different programmes, according to the different shapes they each can take. Each of the conceivable programmes will produce different economic effects. It would be necessary, therefore, to make a selection among the different alternatives that a programme can take according to the different general economic options and priorities that have been set in the country where the insurance programme is to be established. Answers to questions like the list of agricultural products to be covered, the geographical base to which the insurance should be extended, the percentage of risk which should be insured, the kind of insurance institution which should administer the programme, and so on, should be made in harmony with some basic objectives, which are generally drawn in national development plans. In addition, account should be taken of the fact that some of the results which can normally be expected from a fully operational insurance programme may be out of the reach of some countries because technical, financial, structural or administrative constraints do exist. The last words of this exposé will refer to these constraints.

(a) The Insurance Programme as a Means of Promoting Increased and Selected Agricultural Production

7. An insurance programme is meant to increase and orient specialized agricultural production mainly because it promotes:
(i) higher specialization in single cash crops;
(ii) more intensive investments in rural development and better credit facilities;
(iii) higher land productivity through the use of more advanced techniques and agricultural practices.

(i) Higher crop specialization

8. As I pointed out before, the mere existence of an insurance policy against some or all natural perils might have a serious bearing on agricultural production - in both quantity of the output and the kind of crop

which is produced. Empirical evidence suggests that where insurance is not available, farmers tend to protect on their own by either hoarding, or by diversifying the cultures, or both. Hoarding involves a withdrawal of savings from investment, a factor resulting often in less production than that which would have been possible. (I shall come to this point further on). Diversification of cultures often results in a shift from intensive specialized cash crops to more diversified subsistence production. It especially happens in areas where the former crops (e.g. cotton, jute, etc.) are grown in land which can be used for other purposes (vegetables and other food), particularly products for self-consumption or those which can be marketed within a restricted local area. Farmers rightly reason that planting different crops in the various ecological settings reduces the probability of a complete loss through some unforeseen disaster. Therefore, this tendency towards diversification into several goods takes place not because a market stimulation dictates the decision, but because diversified production is believed to carry the least amount of risk.

9. Diversification of cultures and lack of interest in certain specialized cash crops because they involve too much risk may be detrimental to national interests or may result in a waste of potential national resources. Development plans often underline the importance of more efforts to be put on this or that crop and they are also explicit on the comparative advantages over traditional crops being grown in the country. For example, it may be felt that it is desirable to produce a given kind of food for increased protein in-take or some given agricultural commodities for export or for import substitution. However, much resistance is being put up against those guidelines only because adhering to them often results in a crop specialization and hence in excessive risks for the producer. This is why success in agricultural development planning is often dependent on a successful insurance programme.

10. My contention, therefore, is that insurance indirectly promotes higher specialization in cash crops and, consequently, a more rational use of land, labour and other resources through modified crop patterns. The question as to how the risk of physical destruction that prevents the farmer from engaging in a particular crop does not necessarily mean a risk for the whole country to lose that crop, is a matter which belongs to the fundamentals of insurance techniques.
Let me put this in the following way: the insured farmer is likely to grow something at the expense of more diversified crops carrying less risk, but the fact remains that if the new crop is actually destroyed, this physical destruction is lost for good to the country, whether the farmer is indemnified or not. In this sense, more risk for the farmer would involve more risk for the country. However, the existence of an insurance programme may induce many other farmers, in different ecological settings, to take the same course of action and grow that particular crop, so the loss to which I was referring must be weighted against the increase in production that the country as a whole may have experienced.

11. In other words, while it is true that weather conditions, insects, diseases, plagues or fires bring about losses and that these losses may be higher, on an individual scale, with specialized crops than with more diversified patterns of production, it is also true that what applies to the individual farmer does not necessarily apply to the country as a whole. We have contended that if the farmer knows that he is protected, he will be inclined to engage in cultivations which would otherwise be progressively abandoned. On a national scale, the more decisions of this kind are taken, the less fluctuations for the individual farmer will be translated into fluctuations for the country as a whole. Some of the individual crops will be lost but, on average, national production will rise. Therefore, although all too often large national catastrophes put a strict limit to this contention, it can be said that the individual risk-free decisions to cultivate, taken by many and spread over a large territory, are the only ones which make it possible to achieve a rising or regular

national production. In addition, it should be borne in mind that, as I am going to discuss now, natural hazards often have a less severe impact on production if the farmer has enjoyed for some time an insurance protection, mainly because this protection has permitted higher investments and infrastructure which render crops less vulnerable to external negative factors.

(ii) More intensive investments and better credit facilities

12. The effects of new investments (preparation of new soils, new irrigation systems, fertilization, housing, storage facilities, etc.) on the level of production and on the productivity rate does not need to be underscored. Although mechanization and capital-intensive practices are not always considered as being necessarily beneficial to developing countries - particularly where vigorous action is needed to expand employment opportunities - there seems to be a correlation between investments and crop yields. However, investment in the agricultural sector means an allocation of financial resources which are thus foregone for other economic sectors. The intensity with which this reallocation will take place depends not only on the financial returns which might be expected from the amounts so invested but also on the different degree of risk and uncertainty associated with it. Other alternative use of investments (e.g. industry, building) are generally insured, the risk factor being, therefore, a matter of less importance in the decision to invest. If crops are also insured, the balance is re-established and only the return factor would then play a rôle in such a decision to invest.

13. Therefore, the absence of insurance protection often results in a disincentive for rural investment. This is more so as these investments can often only be effected with the help of loans. Now, without insurance, farmers may be reluctant to borrow, while credit institutions may be reluctant to lend. On the farmers' side, the fact that their income may fall or rise depending on natural hazards, while payment of debts incurred by the investments effected remain stable, tends to

accentuate the variance of their net income; the smaller the investment the smaller also the risk. If, as pointed out before, investments play a major role in agricultural productivity, avoidance of risk as a normal attitude of the producer will have a negative bearing on the level of that production.

14. Similarly, the credit system will obviously be more encouraged to lend when, thanks to insurance, there is some kind of guarantee for the borrower's income. Interest rates are expected to go down as a rssult of the insurance programme. More credit outlets may be set up. This may create new incentives for investment with concommitant effects on productivity and output.

15. Promotion of infrastructure in rural areas would also become more attractive if it were known that those investments could be financed out of a steady and regular agricultural income. Provision for transport facilities, flood control, power and water supplies, public health and education, would be better facilitated in this way. In turn, these public investments are a major component of agricultural output and of its regular production. In addition, the enhancement of public facilities in the rural areas may help to ease the problem of emigration of population from rural to urban areas.

16. Therefore, whereas agricultural insurance helps provide increased investments in the agricultural sector, it generates at the same time the mechanism through which its functioning is made easier and its costs less considerable. In this respect, it has been pointed out that the major improvement of the Japanese insurance programme's position, from 1954 onwards, " was probably because of the increasing use of ... investments in land improvement, which have tended to reduce the losses due to natural calamities". Thus, there seems to exist a mutual reinforcing process between insurance and investments in the sense that insurance encourages investment and this, in turn, lowers the rate of damage and permits the insurance programme to function better and to amplify its scope.

(iii) Advanced techniques and practices

17. Most developing countries depend heavily on agriculture and yet are not the best users of advanced agricultural technology. On the contrary, farming in most developing countries sticks to practices which are below the optimal ones. At least two plausible explanations could be given for such a state of affairs: one is that techniques were developed for other countries and the search for tailor-made ones is too costly to be undertaken by individual small production units. The other explanation is that the risk aversion of the farmers is larger the closer their incomes are to subsistence level, as seems to be the case in many developing countries, and thus farmers will hardly experiment with a new practice which involves a good chance of being superior than the ones they use presently if it also carries a small chance (which may be only due to an improper adoption) of being worse. The dis-utility attached to the latter result is such that the farmer is better off not switching techniques. This high risk aversion is very understandable if one considers that a poor move could mean starvation.

18. Removal of the risks inherent in the adoption of new techniques may, therefore, contribute to higher productivity and can again have an impact on the country's self reliance process. Agricultural insurance can also help in other respects: first the programme is in a better position than individual farmers to absorb the cost associated with conducting experiments aiming at finding techniques suitable to local conditions. The practices which are found to be the best ones could later be spread out by providing better insurance conditions to farmers who adopt them.

19. Agricultural insurance can also help indirectly towards the same objective by providing equipment and materials which are necessary to the control of diseases and by advising the farmers on how to protect their crops. In this way, the insurance programme not only contributes to increasing national agricultural productivity, but also protects the insurer from incurring claims which, in the absence of those measures and advice it may be bound to indemnify. This role of the insurer is,

therefore, within its strict competence. In the performance of this rôle, the insurer should be given possibilities to rely on the services of agricultural extension programmes and other interested government agencies.

(b) The Insurance Programme as a Means for Re-allocation of Economic Resources and Thus Ensuring a More even National Development

20. Indemnities paid to farmers when a loss occurs result in a financial injection to the national economic system that would not exist in the absence of an insurance programme. The indemnities also entail costs for the country, which the insurance programme distributes among different national interests. Let me briefly examine these two different aspects of what indemnities involve for the national economy.

21. When crops are hit by natural perils, farmers may find their incomes reduced to levels which may cause bankruptcy. Bankruptcies, or near bankruptcies, are accompanied by loss of assets, interruption of production and unemployment. The insurance protection supplies the farmers with resources in otherwise hard moments and, in this way, helps stabilize the purchasing power, not only of the groups directly linked with agriculture (e.g. farmers and their employees) but of a series of indirect dependents of the agricultural process (e.g. suppliers, shopkeepers, transportation industries, and so on). Existing insurance programmes suggest that indemnities paid in some years amounting to 30 percent or more of the average incomes of a village are not an exception. Therefore, indemnities are spread over the whole economic life which would otherwise collapse. (By the way, this consideration has apparently played a major role in the establishment, in 1938, of the "Federal Crop Insurance Corporation", in the U.S.A.). When the crops covered by a programme are quantitatively significant to the country's economy, as is the case in many developing countries which depend on two or three basic

crops, the income stabilizing potential of crop insurance is vital.

22. In the absence of a formal system of insurance, farmers severely affected by agricultural hazards turn for direct help from the Government, which sometimes provides some kind of financial assistance out of the general budget. This help, however, is given more on grounds of charity than as a matter of right; it is not only uncertain as to the extent the Government is capable of supplying, but it is usually insufficient to indemnify the farmer. Farmers, therefore, prefer not to depend on such a compensation scheme, no matter how good is the intention which accompanies it. They rather prefer to enjoy a right to being indemnified than a hope to being assisted.

23. Indemnities, however, involve a cost for the country. To say that this cost is borne out of the funds owned by the insurance organization would gloss over the real final bearer. The insurance organization, presumably set up by the Government for the administration of the programme, distributes the cost, i.e. it indemnifies the losses and collects contributions. This results in a redistribution of national wealth, and this operation may carry effects upon consumer prices, taxation, national budget and balance of payments.

24. Let me explain this with some more detail: in a country where no insurance is available, losses are borne by the farmer. As I have said before, the risk aversion attitude of the farmers (like that of any other kind of entrepreneur) will prompt them to plan their industries under a particular pattern of production and they will take a number of measures aimed at risk minimization. They may also expect that subsidies will come by in case of large national catastrophe. By and large, however, they will anticipate major ups and downs in their future incomes.

25. To what extent this expectation will affect the prices for agricultural production it is difficult to evaluate. This mainly depends on the specific conditions of the country concerned, including the type of crop, the land tenure system, the marketing system, the extent and volume and geographical spread of past losses, whether these losses affect the production of one year's crop (e.g. wheat) or of several years' crop (e.g. orange trees), the degree and extent of market competition, the existence of Governemnt farm price stabilization policy, and other factors. However, although no ready and general answer is available, one of the most likely outcomes is that prices for many agricultural products would not account, to a sufficient extent, for the loss of production brought about by some major natural hazards. In other words, the consumer would pay more if the major losses were included in the market price during normal years. On a longer run, however, relatively low prices and decapitalization of farmers, due to natural losses, will likely be responsible for a discontinuation of the production, or for lack of investments, or for agricultural practices under optimum levels. This often results in a built-in system of high prices for consumers, without a corresponding profit for the farmers. These high prices are no longer associated with the particular loss that the farmer might have sustained that year.

26. At the other extreme of the spectrum, let me examine the case where an insurance programme covers every risk in full. The farmer pays a regular annual premium to the insurance agency. It is also plausible to assume that the Government subsidizes the programme with important annual contributions from its budget. In this case, the concept of "loss" is made independent from the concept of "accident" and of "randomness". In other words, losses occur then every year for every one, because the programme involves payment of premiums and subsidies. Thus, the concept of loss becomes more and more akin to that of a regular production cost and this conceptual shift permits losses to be better incorporated into the market prices and to amounts otherwise contributed by the national economy. Market prices may not necessarily be higher,

however, as a result of the existence of the insurance programme if, as suggested before, the programme brings about increased and better oriented production.

27. The distribution of losses so effected is then not only a matter of social justice - a most important objective but which clearly falls beyond the scope of this exposé. The distribution so achieved is going to exert an influence over the whole economic life of the national community as well. Indemnities which, in a final analysis, will regularly be raised from the consumer and, more p rticularly, from the wealthier classes of the population, including that of the rural sector, may bring about modified consumption patterns. If, as a result of the insurance programme, farmers are able to undertake higher rural investments in their lands, then the credit system and the outlets for the local agro-industry may undergo new avenues for development.

28. The balance of payments could also experience some changes as a result of the new allocation of insurance costs. I have already referred to the possibility that the insurance programme promotes the production of specific food or oı agro-industrial exportable production or of production aimed at import substitution. I would now like to underline the impact of price stabilization brought about by the insurance programme on exports. This stabilization is most important for the economies of many developing countries. Among other factors, proper account should be taken of the fact that price instabilities resulting from production upheavals spur the search for synthetic substitutes in the importing countries or stimulate industries in these countries to adapt plants and equipments to the use of other materials. Even when the production is back to normal levels, the market situation may not be the same as before, to the detriment of the exporting country. The price stabilization that an insurance programme would help bring about would surely palliate these negative effects.

Conclusion

29. If I may sum up, I think that a demonstration is made that an insurance programme is expected to yield very positive fruits and be of strong help in the process of economic planning and development in developing countries. I mean by that that resources allocated to a well designed agricultural programme are expected to produce more positive benefits than if they were allocated to many other fields and sectors. This could be the conclusion of the arguments I have just developed. The question arises, therefore, as to how it is that the programmes are so scarcely spread in the developing world and also how some of the existing programmes have been less successful than they were expected to be or even have failed altogether.

30. To my mind, the discrepancy between a theoretical analysis of the kind I have tried to develop here and the current practices arises because important constraints are inevitably glossed over when those analyses are carried out. For example, I myself have implicitly admitted all along in my exposé that farmers are able to pay reasonable premiums for the risks transferred to the insurance organization, and you all know that the cash position of peasants in many developing countries would not permit that. I have also implicitly admitted that future indemnities and administration costs of an insurance programme may be evaluated in advance, so that sufficient premiums and subsidies are readily available when the loss or t e catastrophe occurs, and you all know that natural catastrophes or meteorological adversities can be so devastating that such an evaluation may be far from realistic in many countries. On the other hand, collection of premiums and subsidies on a realistic actuarial basis may involve huge amounts of money to be set aside and invested by the insurance agency, which the country could not afford or which would be withdrawn from other economic sectors. Another constraint, among many others, is the necessity of setting up an efficient insurance organization endowed with efficient and trained personnel and with the many administrative and technical elements that it needs.

This may not be available in many develpping countries. The "moral hazard" that the existence of an insurance programme may generate - i.e. the risk that the protected farmer creates artificial claims or that he does not look after his crop with the same care when the production is insured as when it is not - is also a heavy obstacle for the successful running of an insurance programme. All these and other factors add up to a situation where the setting up of an insurance programme is not the clear issue that it is suggested by a superficial examination of the economic benefits it provides for the country as a whole.

31. It is to be expected that lectures and discussions which will take place at this seminar will help clarify some of these issues. We all indeed look forward to hearing from you as to how, in a specific situation and under concrete circumstances, these constraints have been dealt with and what the results have been. Whether the results have been positive or negative, I am sure we will learn much more from consideration of concrete cases and specific experiences than from abstract considerations like the one I wanted to present to you. Therefore, it is time for me to leave the floor and request my colleagues to take over. Before that, however, if anyone would like to comment on the points I have raised, or would like me to elaborate further, I encourage him or her to do so. Thank you.