

## AGRICULTURE

By

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Whatever may be the precise pattern of development of the Philippine economy in the next two decades one can be certain of one thing, namely, that the agricultural sector will continue to play a pivotal role in that development as an absorber of labour, a source of foreign exchange earnings and a provider of wage goods to the rest of the economy. Sustained development of the whole economy also requires a rise in income in the agricultural sector to provide a market for the products of other sectors. It is against this background that any analysis of the agricultural sector and policy prescriptions relating to the sector must be evaluated. Decisions (or the lack of decision) relating to agriculture will have a profound effect on the pace and pattern of development in the next two decades.

The *Report* devotes three chapters to agricultural matters, together with an appendix on land reform. In all, about one fifth of the text is directly concerned with agriculture and other chapters contain material relevant to an analysis of the agricultural sector.

Chapter 5, "Profile of the Rural Sector" which should be read together with Appendix A, "Land Reform", presents a clear, readable account of the main features of the rural economy supported by some useful tables which, when taken together, provides students and other interested persons with a good overview of the background to current policy issues and discussions. It is unfortunate, however, that the mission did not have access to the complete results of the 1970 Census of Agriculture when it was preparing its report.

A substantial portion of this chapter is devoted to the structure of public administration and its inadequacies from the point of view of fostering local initiative in relation to agrarian projects which is so important in a country with large differences between regions (and within regions) in climate, irrigation facilities, topography, etc. The

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case for greater decentralization together with an elimination of some of the overlapping of functions of the many agencies which deal with agriculture is strongly made. In doing this, the World Bank reiterates many of the points earlier put by the I.L.O. Mission<sup>1</sup>. The importance of the problem is such, however, as to amply justify reiteration of the need for change.

Chapter 6, entitled "Strategies for Rural Development: Expansion of Agricultural and Fishery Production", will not produce great surprises for those already familiar with work on the Philippine economy over the last decade.<sup>2</sup> After making the point that the land frontier is approaching closures<sup>3</sup> and that already since 1960, the growth of agricultural output has been increasingly the result of yield increases rather than of area expansion as was the case in the first 60 years of this century, the *Report* goes on to argue that future growth must come largely from increased yields and a shift to higher value crops. This is argued to require substantial investments in irrigation facilities, both large scale facilities provided by the National Irrigation Authority and the smaller scale operations of farmers and local communities (proposals relating to irrigation appear in Chapter 7).

The bulk of the chapter is devoted to an analysis of the prospects for the main food producing and export activities. There are sections on rice, corn, sugar, coconuts, fish, meat and poultry. While these activities taken together certainly account for a high percentage of

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<sup>1</sup> I.L.O. [1974]. One might perhaps be forgiven for noting the somewhat incestuous relations which appear to exist between international agencies. The I.B.R.D. mission frequently quotes and draws on material from the I.L.O. mission's report which, in turn, relied fairly heavily on the World Bank's 1973 Agricultural Sector Survey (I.B.R.D., 1973).

<sup>2</sup> See, for example, Hicks and McNichole [1971], Barker and Crisostomo [1972], I.L.O. [1974], Mangahas [1976].

<sup>3</sup> This is a somewhat controversial point and there is no general agreement on how much land is still available to be taken into cultivation. Lack of proper surveys and land classification data make it impossible to reach a definite conclusion. One estimate puts the figure for land which could be brought under cultivation as high as 8.6 million hectares [I.L.O., 1974, p. 456-7. This estimate was prepared by the United Nations Development Programme]. Even if only, say, 8 million hectares of this was actually suitable to agriculture this would represent about 25% of the existing agricultural area. I.B.R.D. projections are much more conservative and assume, for example, a growth of about 2 million hectares in harvested area (i.e., allowing for multiple cropping) between 1970 and 1985 [I.B.R.D. 1976, p. 130].



rural employment and income, it is somewhat disappointing that the mission did not devote space to discussing prospects for some other actual or potential export crops such as coffee, rubber, and tobacco. This is particularly so in view of the fact that the Bank projects export earnings to increase at a slower rate than import payments [pp. 452-60] and so implies that the economy will be even more dependent on foreign capital inflows in the next decade than it is already. Volume of agricultural exports is expected to grow no more rapidly than world demand (projected at 4% per annum), a position which implies that the Philippines has no scope for expanding exports by lowering costs relative to other suppliers. While this pessimism may be justified it is this writer's opinion that the analysis in the *Report* does not fully establish the Bank's position.

Chapter 7, "Strategies for Rural Development: Supporting Services and Infrastructure" develops at length the Bank's views on the institutional framework required for the successful promotion of growth and rising incomes in the agrarian sector.

In places the *Report* is frustratingly vague. For example, on pages 168-9 we are informed that small scale irrigation projects have low investment costs per hectare but high operating costs. The reverse is the case with large scale projects.<sup>4</sup> This is nothing unusual, but one would have expected an agency which has been active in the use of cost-benefit analysis to have indicated what discount rate would render the two alternatives of equal present value. This could, in fact, be calculated from data available on Table 7.4 (p. 167) if assumptions were made about the life span and gestation periods of the two alternatives. But the mission would have improved this section by giving an illustrative set of calculations. Choice in this area can have a crucial impact on resource use, regional growth patterns and income distribution.

In this chapter the mission returns to the points made in Chapter 5 regarding the overcentralization of administration and the confusing overlapping of agency functions. There are insufficient and inadequate channels of communication for ascertaining the real needs of farmers in particular localities. Decisions on the allocation of investment and other resources tend to be made in Manila. Decentraliza-

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<sup>4</sup> Line 26 page 168 clearly contains a misprint. With reference to large scale projects it is surely intended to say — "their current costs are 50 per cent lower than for small scale projects" (my emphasis).

tion, along with the development of a local institutional framework to facilitate effective local decision making, is long overdue. The *Report* remains silent on the extent to which such decentralization is consistent with the generally centralizing tendencies associated with the Martial Law regime.<sup>5</sup>

Apart from recommending the need for large investments<sup>6</sup> in irrigation and water control facilities, the Mission advocates a substantial expansion of extension services and institutional credit facilities. In a brief final section to the chapter, the inadequacies of existing road transport and port facilities are pointed out.

In my view the *Report* lays too much emphasis on the importance of extension and institutional credit facilities as a prerequisite for the successful achievement of the yield-raising strategy which it is advocating. This emphasis is common in the literature, but on what evidence is it based? The rapid spread of high yielding rice varieties in the last decade,<sup>7</sup> even in areas such as Mindanao and the Cagayan Valley<sup>8</sup> where extension and institutional credit facilities are considered to be very "inadequate" by the I.B.R.D. and other commentators, would seem to call the generality of the accepted view into question. Different rates of adoption between areas can be explained to a considerable degree by the relative prices of palay and fertilizers, the latter being an important complementary input to high yielding varieties. The International Labour Office [I.L.O., 1974, p. 463] has pointed out that adoption rates in the Cagayan Valley have been adversely affected by low farm gate prices for palay and high fertilizer prices. This price pattern, in turn, is a consequence of high transport costs.

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<sup>5</sup> See Mangahas (1976, p. 132) for an indication of some of these tendencies in agricultural policy.

<sup>6</sup> The Bank recommendations are not nearly as ambitious as those of the National Irrigation Authority in its ten-years program. The latter calls for new large scale gravity systems on 800,000 hectares. IBRD recommends only 200,000 hectare coverage for large scale projects [IBRD, 1976, p. 168-9].

<sup>7</sup> The Report states [p. 133] that in 1970, 60% of the irrigated area was planted to high yielding varieties.

<sup>8</sup> For details see Mangahas, Librero [1973]. Their study shows that the proportion of rice area under high yielding varieties in South and West Mindanao was nearly 50% in 1971/2. In the Cagayan Valley the % of harvested area under high yielding varieties rose from 10% in 1967/8 to 42% in 1971/2.



All this is not, of course, to deny that the *speed* of adoption may not be faster in areas served by well designed demonstration programmes, but it does challenge the view, which the Mission comes close to at times, that extension and institutional credit are necessary if yields are to be raised. Clearly, one would like to see some attempt to quantify the impact of extension and institutional credit. One looks in vain in the *Report* for any effort in this direction or even real recognition of the need for studies to attempt to disentangle the importance of institutional credit and other services.

These considerations lead me to question whether the Mission puts sufficient emphasis on the importance of transport improvements as a necessary condition for agricultural development. The *Report* [pp. 181-4] does stress that in many areas, roads are inadequate as are port facilities. What is not given sufficient emphasis is that with improved local government organization and a willingness to finance road building in response to locally expressed needs on the part of the central government, there is almost certainly a significant potential for yields and crop area to be raised in some areas without the need for expensive irrigation investments or provision of institutional credit and marketing facilities. It is simply, not worthwhile producing some cash crops in some parts of the country because of high transport costs.

It might also be possible to be rather more optimistic than the Mission appears to be concerning prospects for combining growth with equity if feeder road building were done in such areas by employing off-season labour from farms.<sup>9</sup> This would have the additional, highly significant benefit of giving farm households an opportunity of accumulating cash surpluses which, in turn, could provide cash to purchase inputs needed in future seasons when it become profitable to extend and intensify agricultural activities. This would be much preferable to promoting a plethora of official credit organizations with the heavy overheads often involved.

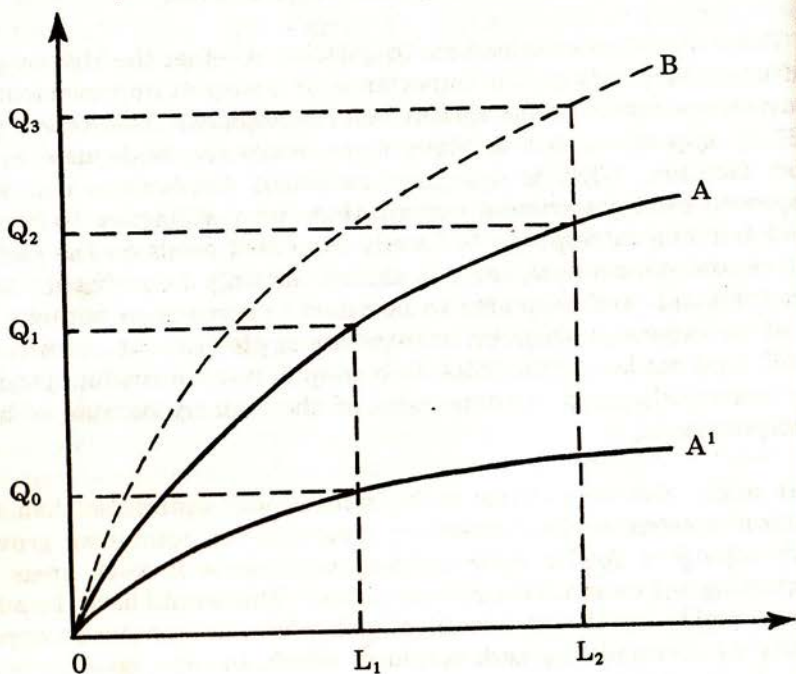
Care is needed, however, in identifying the localities which have growth potential presently constrained by a transport bottleneck. The I.B.R.D. is quite right to emphasize that the farmers themselves are the most likely people to be aware of the extent to which they can respond positively to improved transport. Where present low

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<sup>9</sup>See Lal [1974] for a discussion of the scope for using labour intensive techniques of road building in Philippine conditions.

yields and high underemployment are the consequence of lack of outlets one could expect a good deal of output growth simply from a better utilization of labour over the year even with no change in techniques. The argument can be illustrated by means of a simple diagram (Fig. 1), based on a model first developed by E.K. Fish [1964].

Figure 1



In the figure, OA represents a production function for a farm using traditional techniques. It relates labour input, measured in man hours, to output. Lack of profitable market outlets may result in only  $OL_1$  of labour being applied, to produce output  $OQ_1$ , despite an available labour input of  $OL_2$ . Transport improvements, which raise the farm gate price of crops could be expected to stimulate an increase in labour input. Suppose for simplicity that the new labour input is  $OL_2$  output rises to  $OQ_2$ . However, we could also expect on the basis of the adoption pattern of high yielding rice varieties that there would be a concomitant adoption of a more fertilizer and insecticide intensive technology. This would shift the production function in the diagram to OB and output would rise to  $OQ_3$ .



In some localities, however, population growth in relation to available land area may have been such that the labour force is already producing near the maximum output possible with existing technology. With labour input on each farm  $OL_1$  output on each farm is lower than  $OQ_1$  due to smaller farm sizes as a consequence of population pressure. This situation is represented by the production function  $OA_1$ . Output with labour input  $OL_1$  is  $OQ_0$ . In this case each member of the labour force may be underemployed for a significant part of the year but there is little scope for raising output by applying more labour due to the presence of rapidly diminishing returns.<sup>10</sup> This situation will be characterized by low returns to transport improvements and what is required is irrigation and water control to directly raise yields. While transport facilities may be a bottleneck they are not the only one in this second situation.

By a fortunate coincidence it would appear very probable that many of the areas which would give high return to transport investments are areas where farm incomes are below the mean (e.g. Cagayan Valley) or where, as in Mindanao, the Government is committed to increasing developmental investments. It is my guess that road building in Mindanao could have the effect of expanding exports and food crop production significantly and that the social cost-benefit ratio at the margin would be more favorable than investments in large scale irrigation schemes benefitting mainly rice producers. It is certainly a possibility which deserves more detailed analysis than given in the *Report*.

One must, I think, question how far institutional credit is a necessity when a 1973 study is quoted [p. 176] to the effect that farmers with less than 3 hectares received less than 2% of their production credit from institutional sources, and when we are further told [p. 172] that the last decade saw no growth in real terms in institutional credit. Despite these facts, it is clear that small farmers have adopted new varieties of rice and have been able to raise yields on corn and other crops.<sup>11</sup>

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<sup>10</sup> Use of fertilizers, etc. in response to transport improvements would still give some scope for raising output.

<sup>11</sup> Paradoxically, one sector where institutional credit may be needed to promote higher yields is not given any special emphasis by the *Report*. This concerns the replanting of coconut trees, where it seems highly likely that the oldest, low yielding trees are on the smallest holdings. Malaysian experience with rubber replanting suggests that the long gestation period is a real problem for the

Although recognizing the difficulties which official credit programs have experienced (e.g. in repayment performance) and their generally disappointing results [pp. 179-80] the *Report* advocates a major effort to extend the scope of institutional credit. One of its key statements deserves to be quoted:

“Little is known about the amount of agricultural credit available for financing production inputs and farm development. It is generally believed however, that the amount has been inadequate and that a lack of credit available on reasonable terms has constrained the growth of agricultural production.” [p. 172]

I hope that I have already indicated that there are grounds for questioning this as a generalization. Also, it may be noted, that a number of studies published in the last few years<sup>1 2</sup> shed considerable light on the nature of the credit process and show that interest rate may be quite “reasonable” when allowance is made for risk and for costs of administering small loans — costs which are nonetheless real even when hidden in the subsidized activities of official agencies. All too often discussion focuses on extremes in the interest rate structure, rates usually associated with “distress” borrowing for consumption purposes. The I.B.R.D. is guilty of this when it says that there are cases of exorbitant interest rates “that reach up to 300 percent a year” [p. 172]. But how common are these cases? What is the modal interest rate?

On the very next page a study is quoted giving rates averaging between 10% and 50% per year. Even 50% can be argued to be a competitive rate when account is taken of default risks and administrative costs.<sup>1 3</sup>

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very small farmer who loses a major source of income for a period of years. Private money lenders and other sources of credit are not geared to the provision of long term loans for financing consumption until tree crops begin to yield. See [I.B.R.D., 1976, p. 149] for the case for replanting.

<sup>1 2</sup> e.g. Ghatak [1972], Long [1968], Bottomley [1970] Usher [1967].

<sup>1 3</sup> If default rates are 20% and the opportunity cost of funds in risk free investments is 10%, the equilibrium interest rate, without allowance for administrative costs, is 37.5%. This is obtained by solving for  $r$  in:  $0.8(1+r) = 1.10$ .

It may be noted that default rates of 20% are by no means an unrealistic assumption. See, for example, Mangahas, Miralao and de los Reyes [1970 pp. 71-2]. In addition, in areas where typhoon damage regularly occurs, an 80% collection record can be considered extremely good [I.B.R.D. 1976, p. 180]



The real answer to high interest rates is to improve the productivity and income of farms, as suggested by Bottomley. The argument above suggests that the hypothesis that raising yields and income on farms can be done without the need to supplant private credit suppliers such as moneylenders and merchants cannot be rejected on the basis of Philippine experience.

This brings me to a final comment on the *Report*. Despite some important recommendations suggesting reliance on market processes and the problems created by extra-market allocation (e.g. in relation to charges for irrigation water, electric power, and fertilizer) the case for giving emphasis to the market as an engine of growth is never firmly made. Although the relatively high yields of corn in Thailand are mentioned [p. 139] it is not pointed out that the very rapid growth of corn in that country was based on the activities of private merchants in supplying seeds and information to farmers.<sup>14</sup> Merchants have a direct interest in raising the output of products in their area as their profits are typically closely related to the volume of their transactions. Seed firms and machinery distributors, it may be noted, played an important role in promoting productivity increases in United States agriculture. There is certainly no evidence to suggest that Filipino farmers are unable to grasp opportunities which become available.<sup>15</sup>

A strong case can be made for the Government concentrating its development efforts on basic agricultural research<sup>16</sup> particularly on such crops as corn, coconut, and tobacco, hitherto largely neglected — and on the provision of services characterized by large indivisibilities such as roads, ports, and irrigation projects.<sup>17</sup> Private entrepre-

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Subsidized credit may well encourage the production of crops which are particularly typhoon proved as well as encouraging at the margin the cultivation of areas which should remain uncultivated.

<sup>14</sup> See Muscat [1966] for detail.

<sup>15</sup> A recent newspaper report tells how Ifugao farmers have greatly expanded coffee production in response to new market opportunities. The report refers to "the pioneering efforts of enterprising native farmers". [Bulletin Today, February 20, 1977].

<sup>16</sup> An activity typically characterized by substantial divergences between private and social costs and benefits.

<sup>17</sup> Another area which requires urgent government intervention is the control of forest cutting. The free market most certainly does not produce an optimum

neurial ability is capable of providing the marketing, credit, and input supplies needed by farmers without the need for a vast array of cumbersome, subsidized credit and other institutions. It is disappointing that the Mission did not attempt to re-affirm the crucial role which private market institutions can play in the development of agriculture.

It would not, however, be right to end on a carping note. There is much that one can agree with in the Report. Examples are the need to charge marginal cost prices for irrigation waters and power on grounds of both equity and efficiency. The case for a land tax based on potential productivity would seem to be a sensible way of encouraging larger owners who may hold land largely as an asset, to either cultivate it or sell it.<sup>18</sup> The case for some measure of land reform on equity grounds is also reasonable, especially given the evidence that land reform is basically neutral with regard to productivity.

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rate of cutting and externalities about. Denudation of forests is causing floods in areas of Mindanao previously unaffected and it is reported that the land area cultivated in Abra has fallen as a consequence of denudation. Irrigation facilities are being adversely affected by silting in many places. Effective regulatory and remedial action is urgently needed to prevent further loss of agricultural land and facilities. (I am most grateful to Gerard Rikken of the University of the Philippines for bringing this point to my attention.)

<sup>18</sup> Large owners who keep land idle are not necessarily irrational. Management costs and risks associated with the possibility that tenants may gain ownership rights may make the decision privately rational. This is particularly so if, as seems reasonable when population is rising rapidly, land values increase over time. For the role of land prices in asset holding behavior, see Nicholls, [1970].



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