Agrarian Reform and Employment: Potential and Problems

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A NUMBER OF ARTICLES have appeared in the *International Labour Review* [2], particularly in recent months, devoted to two inter-related problems that are among the most critical facing the developing nations of the world today—agricultural backwardness and the steady growth of unemployment and underemployment.

Each in its own way, in the context of the area examined and depending on whether major changes in agrarian structure have already taken place or are merely contemplated, explores the actual and potential effect of agrarian reform measures on the level of remunerative employment in agriculture and, by extension, the impact such measures have had or could have on the over-all employment problem. To a lesser extent, each provides some background for the examination of the topic within the more general framework of problems besetting the area involved. None attempts to place these problems in their broadest context: that is the task to which the present article is directed.

The employment problem

Increased employment is looked upon as one of the objectives of economic growth and development, particularly in the less developed

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[2] M. J. Sternberg: " Agrarian reform and employment, with special reference to Latin America ", Vol. 95, Nos. 1-2, Jan.-Feb. 1967, pp. 1-26; Zubeida M. Ahmad and Marvin J. Sternberg: " Agrarian reform and employment, with special reference to Asia ", Vol. 99, No. 2, Feb. 1969, pp. 159-183; Doreen Warriner: " Employment and income aspects of recent agrarian reforms in the Middle East ", Vol. 101, No. 6, June 1970, pp. 605-625; Peter Dorner and Herman Felstehausen: " Agrarian reform and employment: the Colombian case ", Vol. 102, No. 3, Sep. 1970, pp. 221-240; Eric S. Clayton: " Agrarian reform, agricultural planning and employment in Kenya ", Vol. 102, No. 5, Nov. 1970, pp. 431-453; and Takeo Misawa: " Agrarian reform, employment and rural incomes in Japan ", Vol. 103, No. 4, Apr. 1971, pp. 393-413. A further article by Anthony Y. C. Koo: " Agrarian reform and employment in Taiwan " will appear in the July issue.

countries (LDCs). At the same time it can itself be a contributing factor to such growth and development, and by bringing about a more equitable distribution of income it helps to raise the living levels of the mass of the population. The fact remains that, as a recent publication of the OECD put it, " until recently problems of low labour utilisation and low earnings have not been among the central preoccupations of either economists and planners or the governments (including aid donors) whom they advise ".[1]

The ILO, which has been concerned with problems of unemployment and underemployment in both the industrialised countries and the LDCs since its inception, has devoted increased attention to these problems in recent years and a large part of its resources is now directed to the World Employment Programme. Concurrently with the expansion of ILO activities has come an increasing awareness that, as the Pearson Report states: " In many, if not most of them [the LDCs], unemployment is turning into a major social problem and obstacle to development. The failure to create meaningful employment is the most tragic failure of development. All indications are that unemployment and underutilisation of human resources have increased in the 1960s, and that the problem will grow even more serious." [2]

The reasons for this growing concern are painfully evident: more unemployed and underemployed; more blatant disparities in levels of income; the burgeoning of urban slums, to name but a few. The rate of growth of output and its composition have been such that insufficient jobs have been created to utilise the available workforce, swollen by a high and increasing rate of population growth. The more dynamic sectors of the developing economies, e.g. industry, transport and the " modern service " sector, which have been favoured by development planners, have certainly increased their share of GDP significantly but have failed to increase their proportion of the labour force in a like manner. The agricultural sector with its limited growth rate has had to absorb a large share of the newcomers to the labour force, while the traditional service sector has been forced to take up the difference. Most indicators show that the situation is likely to deteriorate further unless: (1) the growth rates of the LDCs are dramatically increased; (2) rural-urban migration is considerably reduced (implying the creation of a large number of jobs in agriculture and other rural pursuits); and/or (3) some " new " alternative approach is developed.[3]

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[1] David Turnham and I. Jaeger: *The employment problem in less developed countries: a review of evidence* (Paris, OECD, 1970), p. 1.

[2] *Partners in development*, Report of the Commission on International Development (London, Praeger, 1969), p. 58.

[3] Marvin J. Sternberg: *Towards a new analytical framework for the solution of unemployment problems in the less developed countries* (mimeographed, 1970). Here the focus is on the reduction in the size of the workforce and redistribution of income.

The solution of employment problems through increased rates of growth alone appears extremely difficult if not impossible. In his recent report to the Inter-American Development Bank, for example, Raúl Prebisch ascribes the major problems of social and economic development in Latin American countries to the " insufficient dynamism " of their economies, of which " the most serious symptom . . . is the steady growth of the redundant labour force. . .", and argues that a growth rate in the order of 8 per cent per annum for the next twenty years is required in order to absorb productively the anticipated increases in the workforce, to eliminate existing unemployment and underemployment, and to correct the current distortion in the occupational structure.[1] Another study estimates that in Asian countries with a per capita income of US$100 a year and a population growth rate of 2.5 per cent, GDP would have to increase at an annual rate of 10.2 per cent to absorb all increases of the workforce outside the agricultural sector; GDP would have to grow at 11 per cent a year in African countries with a per capita income of $100 and a 2.7 per cent population growth rate, and at 9.3 per cent in Latin American countries with a per capita income of $300 and a 3.1 per cent rate of population growth.[2]

These growth rates are obviously beyond the capabilities of most LDCs. However, it should be noted that they are predicated on existing labour/output ratios in each economic sector and, in the Singh study, without regard for the possible expansion of employment in agriculture.

A contrasting approach recognises that many measures for employment promotion will also promote economic growth, such as, in appropriate conditions, vocational training, the development of viable small-scale labour-intensive industry, rural works projects, and similar activities of the sort carried out under ILO technical assistance programmes. Gearing agrarian reform to employment objectives offers good prospects of achieving a significant reduction in agricultural underemployment without sacrificing concomitant goals of increased output, improved welfare and a fairer distribution of income, wealth and opportunity in the agricultural sector.

Undoubtedly the employment creation approach, like the economic growth approach, has its limitations, and it is possible that neither offers any final solution to the growing problems of unemployment and underemployment as they now exist in the LDCs.[3] How serious these limitations are is a question that has to be examined on a regional and country basis, a task which in essence has been performed by the articles listed earlier. Before turning to the specifics, however, it is worth underlining

[1] Raúl Prebisch: *Change and development : Latin America's great task* (Washington, Inter-American Development Bank, 1970), pp. 190, 221 and 223.

[2] S. K. Singh: *Aggregate employment function : evaluation of employment prospects in LDCs* (Washington, World Bank, Basic Research Center, 1969) (mimeographed), p. 60.

[3] Sternberg: *Towards a new analytical framework . . .*, op. cit.

that the ILO has consistently argued not only that jobs must be created, but that they should be sufficiently productive to provide workers and their families with an adequate income by the standards of the country concerned.[1] This consideration is of the utmost importance in assessing the employment potential of any sector of the economy, and particularly of agriculture, a generally low-productivity and (until the advent of rapid urbanisation and a swollen service sector) the only large-scale residual employment sector. The possibility of creating remunerative employment in agriculture is thus related to the over-all availability of non-human resources in agriculture, the level of technology and investment sources and uses, as well as to their redistribution and redeployment in a more rational manner. The focus of agrarian reform is primarily on the redistribution and redeployment aspects, and, as the articles show, agrarian reforms have had or could have a considerable impact on jobs in agriculture, subject of course to the limitations imposed by the factors mentioned and others as well.

The agrarian problem

The employment problem *per se* in agriculture, which we shall examine in greater detail, is but one facet of the agrarian problem as manifest in the majority of the LDCs. Different factors of the agrarian problem are closely interrelated, and their manifestations—rural poverty, maldistribution of income and wealth, deficient resources allocation and use, insufficient production and productivity or whatever other specific aspects are evident in a given country—must be dealt with as a whole. Thus one can argue that even a " green revolution " which " solves " the production problem in agriculture may exacerbate many ills or leave them untouched, including the employment problem which is our central concern here. From such an evaluation of the agrarian problem have the proponents of agrarian reform drawn their strength.

In this connection it is worth reiterating what I said in my contribution on Latin America: " agrarian reform may well be a prerequisite for the achievement of employment objectives ".[2] Yet, as Dorner and Felstehausen point out, " agrarian reform is not initiated and carried forward solely on the basis of rational and deliberate arguments of planners and analysts. Battles for reform are fought in political arenas by representatives of differing vested interests." [3] And agrarian reform may also fail to achieve its objectives, even if it is geared to worth-while political or socio-economic goals. It will none the less be argued below

[1] ILO: *Employment and economic growth*, Studies and Reports, New Series, No. 67 (Geneva, 1964), p. 47 and passim.

[2] Sternberg: " Agrarian reform and employment . . . ", op. cit., p. 1.

[3] Dorner and Felstehausen, op. cit., p. 221.

that, by virtue of its ability to overcome the obstacles to development and increased employment in the agricultural sectors of the LDCs, agrarian reform does have, within certain limits, a great potential to advance such goals.

The agricultural employment problem

The problem of agricultural employment or rather the lack of it in the low-income countries of Africa, Asia, Latin America and the Middle East can be outlined quite succinctly in a few paragraphs with a few qualifications to take account of regional and national variations. I start with the proposition that the agricultural sectors of the LDCs generally suffer from widespread underemployment and, to a lesser degree, overt unemployment. To be sure, there are substantive as well as definitional difficulties in evaluating the extent of the problem, but I shall accept what can be considered as reliable sources for the figures used and refer the reader to debates on measurement elsewhere.[1]

The most comprehensive study of agricultural underemployment and unemployment has been carried out in the Latin American region by the Latin American Institute for Economic and Social Planning and the Latin American Demographic Centre.[2] This estimated that in 1960 there was an average " unemployment equivalent "—i.e. the sum of unemployment and of underemployment and part-time unemployment calculated proportionally—of 32.6 per cent among the agricultural workforce of the region.[3] The range was from 24.1 per cent in countries classified in Group I to 50.2 per cent in those belonging to Group III.[4] The bulk of the unemployment equivalent for agriculture derived, as might be suspected, from underemployment. As regards conditions in other regions, the data available, although not strictly comparable with those for Latin America, appear to show somewhat lower but still high levels of combined unemployment and underemployment.[5] Whatever the precise level of these may be, there is no doubt that a substantial number of job opportunities must be created in the LDCs to provide even for the present workforce, the exact number varying with the country and the degree to which existing underemployment is localised or dispersed among the agricultural population.

[1] See Turnham and Jaeger, op. cit., and particularly ILO: *Measurement of underemployment : concepts and methods*, Report IV, Eleventh International Conference of Labour Statisticians, Geneva, October 1966 (Geneva, 1966).

[2] ILPES-CELADE: *Elementos para la elaboración de una política de desarrollo con integración para América Latina* (Santiago de Chile, 1968).

[3] Ibid., p. II-5.

[4] Ibid., p. II-9. Group I: Argentina, Brazil and Mexico; Group III: Bolivia, Central America, Dominican Republic, Ecuador, Haiti, Panama and Paraguay.

[5] Ahmad and Sternberg, op. cit., p. 162.

Another aspect of the problem is the rapid growth of population, which not only exacerbates the underemployment problems in agriculture but fuels the exodus of rural dwellers to the towns and cities. Once in the urban areas they swell the mushrooming slums, adding to the unemployment rolls or finding unproductive work in traditional services. As pointed out above, the growth rates of GDP that would be necessary to absorb these migrants productively into the urban sector are in most cases impossibly high—highest and making the problem most acute in the least developed and most agrarian of the LDCs. The ability of an economy to absorb workers into its non-agricultural sectors unfortunately appears to be directly correlated with its level of per capita income and its rate of growth of GDP and inversely correlated with the proportion of its population in agriculture and the rate of growth of population and workforce.[1] If these relationships cannot be altered, it is the least developed and poorest countries that must generate the most jobs in agriculture to cope with their growing unemployment and underemployment problems.

One last feature of the agricultural employment problem should be borne in mind. It must be recognised that many of the employment opportunities that do exist for the vast majority of the agricultural population—small owners, tenants, share-croppers and landless labourers—are insufficiently remunerative, by any standard, to provide them and their families with a decent living. Not only are per capita incomes considerably lower in agriculture than in other sectors of these economies but, owing to the even more unequal distribution of what income is generated, they are especially low for the bulk of persons in the categories listed. Even in the average Latin American country and the more developed countries of Asia (excluding Japan and possibly Taiwan), it is unlikely that the majority of the active agricultural population earn more than US$300 each per annum. In the more populous countries of Asia and in Africa it is doubtful if the figure is as high as $100. Thus, on a per capita basis, one could guess that income rarely exceeds $75 per annum among the bulk of the agricultural population. Such low income levels can be only partially attributed to the amount of existing unemployment and underemployment. The problem of providing productive and remunerative employment in agriculture must therefore be seen as one affecting the mass of the agricultural workforce in most LDCs.

Obstacles to increased employment

The majority of the contributors to this series give primary attention to three major obstacles to increased agricultural employment, all of which agrarian reform can directly help to overcome.

[1] Singh, op. cit., pp. 60-61.

First is the continuing high concentration of land ownership. In Latin America this concentration divides the rural population into two major socio-economic groups: a small élite, wealthy and powerful, consisting of landowners and a few of their representatives; and the masses—small cultivators and a growing body of landless labourers. In Africa it formerly divided the bulk of the population into expatriates and nationals, and in Asia, in a somewhat more complex hierarchy, into landlords and intermediaries on the one hand and various groups of cultivators and landless labourers on the other. To the extent that these divisions result in disparate patterns of labour utilisation independent of soil and other natural factors, e.g. extensive farming on large holdings and intensive on small, there is an observable tendency for too many workers to be occupied on the small holdings and too few—in relative, if not absolute terms—on the large. This results in underemployment on small holdings and, because ownership and control of the land and complementary resources enable the élite to gain a disproportionate share of agricultural income, low earnings for the bulk of the agricultural population.

A second obstacle to increased employment is the undue fragmentation of individual plots. While it might be argued that this problem is but an extension of the first, it has developed historically in certain countries and in certain regions of others, independently of land concentration *per se*. Its effect, particularly in densely populated areas where such plots are extremely small, would seem to lie not so much in reducing the number of job opportunities as in depressing the level of remuneration of existing employment. None the less, when fragmentation and dispersion interfere with possibilities for more intensive operation, limiting crops to more extensive varieties, permitting only one instead of several crops per year and precluding much in the way of animal husbandry, then it would appear that the consolidation of holdings could lead to more as well as more remunerative employment.

The third primary obstacle is to be found in the land tenure institutions themselves; it is closely related to land concentration, but susceptible of separate analysis. The lack of security of tenure is particularly important in areas where tenancy and share-cropping predominate (as is the case in many parts of Asia), or where traditional communal holdings remain prevalent (Africa), or where illegal or semi-legal occupation of public lands is common. The link between employment and insecurity of tenure rests largely in the lack of incentives for the cultivator to invest in his holding and to intensify production, even if he has sufficient resources. The terms of tenancy have an equally important bearing on the investment behaviour of both tenant and landlord. Under relatively stable tenure arrangements providing sufficient security and incentive, landlord, tenant and share-cropper may all invest more. However, share-tenants and share-croppers in particular are likely to find that their

share of the proceeds of cultivation is insufficient for the development of the holding given their low status and bargaining power. The inability to save and invest is certainly not limited to tenants and share-croppers; it plagues the small owner as well. An additional disadvantage for the non-owning cultivator, however, is the fact that even if he is able to invest, he must generally share the gains with the landlord, thus reducing the cultivator's expectation of profit from investment and the likelihood that he will have surplus income to invest. As regards the impact of the system of tenure on the landless labourer, it is sufficient to note that the latter occupies a position of little influence (excepting organised labour on some plantations) and thus has been unable to improve his own employment possibilities, let alone open up new ones for others. A more participatory role in the production process for the landless worker could conceivably lead to increased production, productivity and employment.

Considerable attention has also been given to a number of other obstacles to increased employment that are to some extent independent of prevailing systems of land ownership and control. They have been discussed both in the context of alternatives to agrarian reform and as additional problem areas requiring action, perhaps after reform has been undertaken. These obstacles may also be subdivided into three categories.

The first category consists primarily of resource constraints directly linked to the agricultural production process—insufficient arable and agricultural land, water, fertilisers and seeds, fixed and operating capital, technology and technical and entrepreneurial skills, etc.—some imposing rigid limits on the possibilities of agricultural production and employment, others subject to relaxation over time given sufficient investment in both human and non-human resources.

Obstacles in the second category derive from the lack of supportive services—inadequate credit facilities, marketing institutions, roads and other elements of infrastructure, suppliers of agricultural inputs and technical assistance, etc.—which may be overcome in part by institutional change (reducing the monopoly power of landlords) and in part by greater investment.

The third category consists of profitability constraints which adversely affect production incentives on the one hand, and the remunerativeness of agricultural employment on the other. These are the price and cost constraints attributable to both market and non-market forces. Prices of agricultural output destined for the domestic market in the LDCs are often low relative to those of other commodities, particularly manufactures benefiting from government protectionist policies, and most export-oriented production fares little better.[1] When the disparity between

[1] ILO: *Report of the Meeting of Experts on Fiscal Policies for Employment Promotion*, Geneva, 4-8 January 1971 (document MEFPE/1971/22), para. 56 and passim. It might also be noted that given the inequitable distribution of agricultural income under pre-reform situ-

wholesale and farm-level prices is borne in mind, the disincentive effect is even more obvious. In contrast, the costs of many farm inputs—particularly those designed to raise output, such as fertilisers—are often high, and the cost of credit, especially for small cultivators, is generally exorbitant. There are some exceptions to these high costs: governments in a number of LDCs have subsidised imported farm machinery and provided low-cost credit for such imports. This may well be inconsistent with employment creation goals, however. " If more labour-intensive agricultural production is to be encouraged, it will be necessary in most countries to remove these distortions favouring mechanisation. In most cases it will be desirable to impose excise duties on labour-displacing equipment... [But,] while indiscriminate mechanisation should be discouraged, it is on the contrary necessary to encourage selective mechanisation of the type that leads to greater use of labour in agricultural production." [1]

It should be reiterated that a number of the above constraints are not absolute and can be removed by a change in government policy. The fact that they exist is often due to the nature of the political and institutional framework of the country in question. Thus illustrations will be given later of how agrarian reform—in its broadest sense including the notion of accompanying political change—can reduce or has already reduced some of these impediments to increased and more remunerative employment.

On the other hand, it cannot be denied that a number of these constraints can seriously limit employment possibilities as greatly in a post-reform as in a pre-reform situation. As Doreen Warriner so cogently points out, lack of water is a most formidable obstacle to agricultural development in the Middle East, and thus " fuller utilisation of labour depends on fuller use of water resources ".[2] The extent to which water resources were already utilised prior to reform in the United Arab Republic, for example, set narrow limits to what agrarian reform alone was able to do to increase agricultural employment.

To end this discussion of obstacles to increased employment, I should like simply to refer to what have been called " social and cultural obstacles " [3], i.e. impediments arising from religious beliefs and taboos, class and caste discrimination and similar institutional-attitudinal rigidities, and finally to make a few remarks about international constraints on employment creation in the LDCs.

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ations, it has been argued that an increase in agricultural prices would benefit small cultivators only marginally and not aid landless labourers at all. The major gains would go to the large landholders. In a post-reform situation, however, price policy could become very important.

[1] ILO: *Report of the Meeting of Experts on Fiscal Policies for Employment Promotion*, op. cit., paras. 45 and 46.

[2] Warriner, op. cit., p. 607.

[3] Ahmad and Sternberg, op. cit., pp. 172-173.

The problem of prices in world markets has already been alluded to. A related constraint is the lack of sufficient foreign exchange to enable these countries to overcome other obstacles to increased agricultural production, productivity and employment. These problems are, of course, well known and form the central concern of the United Nations Conference on Trade and Development as well as a major concern of GATT, the World Bank, the regional banks and the regional economic commissions. Then there are additional political and economic constraints, based on the dependent status of LDCs vis-à-vis the more developed nations, whose importance cannot be ignored and which have been known to discourage and frustrate domestic change, impeding the initiation and implementation of programmes of agrarian and other reforms by which the LDCs might conceivably reach their goals. While such constraints are not examined in this series of articles, I would feel it to be a major oversight if no reference—albeit minimal—were made to them.

Potentials for increased employment

In the face of all these obstacles it is obvious that few employment gains can be made without major change. But even change can do little if no potential exists. Fortunately, most of the LDCs have considerable potential, if existing non-human resources can only be better utilised and more rationally combined with the available workforce. The articles in this series concerned with regions and countries in which agrarian reform has not been introduced or is still in its early stages have sought to determine the degree to which non-human resources (particularly land resources) are currently underutilised, as a means of estimating the employment potential of the agricultural sector. Land availability has been viewed, data permitting, in absolute terms by use category and size of farm, by intensity of use and size of farm and, to assist in the interpretation of the data for a specific country or region, by means of inter- and intra-regional comparisons.

Data at the national level showing the amount of land currently used for different purposes provide but limited insight into the employment possibilities of the land resource base in the country unless sufficient supplementary information is available showing potential as well as actual land use. Similar data by size of holding are more revealing: they indicate almost without exception that in small units a much higher proportion of the land is in intensive use than in the larger units. But, again, without data on potential, little can be directly garnered from this type of information. What stands out and deserves to be underlined is the relationship between size of holding and intensity of production per unit of land. Size of holding and the value of output per unit of arable and agricultural land—a measure of intensity—are almost everywhere inversely correlated.

In Latin America, for example, the value of output per hectare of agricultural land on the sub-family-sized units (those able to employ less than two man-years of labour), is at least double the national average in all the countries studied; and a comparison per unit of arable land still shows that the sub-family farm produces a greater value of output than any other size unit (with the sole exception of medium-sized farms in Guatemala) and from 20 per cent to over 200 per cent more than the largest farm holdings.[1] In Asian countries as well—notably in India and East Pakistan, where the large units are far smaller than the Latin American *latifundia*—the figures show that output per unit of land of comparable quality is significantly (15 to 30 per cent) greater on the smaller units.[2] In Africa, too, similar relationships have been observed to exist between the various sizes of holding under permanent cultivation [3]; less correlation would be expected under more transitory forms of agriculture where in any case it is difficult even to estimate the actual size of a holding. Some areas in the Middle East may provide exceptions to this rule, as Warriner suggests.[4]

There are clear and relatively obvious reasons why such a relationship should exist. A large part of agricultural production in the LDCs conforms to the pattern of operation which Warriner characterises as Model B, where ". . . the large properties are large enterprises employing paid labour, while the smaller properties employ, or partly employ, the labour of the farm family. The intensity of land use varies inversely with the size of the holding; that is to say large properties, aiming at maximising net profit by minimising costs of management and labour, practise extensive types of farming, with low labour requirements except at peak seasons. The smaller holdings, with a family employment commitment, obtain higher yields by applying more labour to the acre . . . . " [5]

The link between the relationship of size of holding and value of output, on the one hand, and employment opportunities in agriculture, on the other, should be quite apparent. In the first place, one can argue that the size-value relationship is, in fact, determined by the existing pattern of employment opportunities, that is, by the highly intensive application

[1] Sternberg: " Agrarian reform and employment . . . ", op. cit., p. 12.

[2] Ahmad and Sternberg, op. cit., p. 166.

[3] Clayton, op. cit., pp. 439-440.

[4] Warriner, op. cit., p. 611.

[5] Ibid., p. 610. Warriner notes that although " the former agrarian structures of the UAR and Iraq conformed to Model B, . . . there was no observable inverse correlation between intensity of land use and the size of the property " (p. 611). I would submit, however, that while this disparity between theory and observation could be an exception to the rule, it might also be the result of classification errors. I would suggest that the use of the property unit is inadequate for both theory and observation; the operating unit would be more appropriate. The failure to distinguish between share-cropped units (invariably small) and those worked by hired labour (the result of classifying as large holdings, or parts thereof, what are actually small ones with the characteristic types of family employment commitment) surely tends to distort results.

of labour—often to the point of zero marginal productivity—on small holdings, which more than any other single factor is what gives them high values of output per unit of land. Secondly, and more important in terms of future possibilities, are the potential employment opportunities implicit in the differentials between labour usage, if not on the smallest farms—for much of this labour is underemployed—then on family-sized farms and on the largest units.

The available data, though patchy for some regions, appear to indicate that land/labour ratios differ considerably with size of farm. In the Latin American countries studied, for example, estimates suggest that the amount of agricultural land per worker on the large farms is from 2 to 12 times the national average and the amount of arable land per worker is from 1.7 to 4 times the average; in contrast, the agricultural and arable land area per worker on the sub-family farms is but a fraction of the national average—from $^1/_{24}$ to $^1/_4$ and from $^1/_8$ to $^2/_5$ respectively.[1] The differentials appear smaller in South Asia, where larger holdings may have 2 to 3 times the land per person found on the small, but elsewhere in Asia, as in the Philippines for example, they are very large indeed.[2]

The implications of such glaring discrepancies between land/labour ratios are clear: if land and labour resources were recombined in proportions that reflect their general availability in the agricultural sector as a whole, both could be employed more productively.

In countries where the average per capita availability of arable and agricultural land per worker is high by international standards, there is little doubt that an improvement in land/labour ratios could go a long way to solving or at least significantly reducing the agricultural unemployment and underemployment problems. Chile is a case in point.[3] Where land availability is low by international standards, there would seem to be less chance of reducing the land/labour ratio in order to create more, and more remunerative, employment opportunities. None the less, the Asian study shows that fairly substantial gains can still be

[1] Added tables in Land Tenure Center Reprint No. 25 of Solon Barraclough and Arthur Domike: "Agrarian structure in seven Latin American countries", in *Land Economics* (Madison (Wisconsin)), Vol. 42, No. 4, Nov. 1966.

[2] Ahmad and Sternberg, op. cit., p. 166.

[3] Sternberg: "Agrarian reform and employment . . .", op. cit., p. 15. In Chile, under the land use pattern existing in 1955 and with the workforce then available, arable land per agricultural worker averaged 4 hectares. This was twice the world average, 30 per cent greater than the European average and comparable with that of the USSR. The amount of arable land per worker on the large farms—comprising 68 per cent of the arable land and 38 per cent of the workforce—was 7 hectares. It was estimated that by increasing employment by between 20 and 30 per cent on large holdings, all unemployment and underemployment in Chilean agriculture could be eliminated. An increase of this amount would only reduce the land/labour ratio from 7 : 1 to roughly 5.5 : 1, leaving considerable scope for further additions to the workforce. It was estimated that if a product mix on arable land similar to that found on the sub-family-sized holdings were used on all other holdings, agricultural employment opportunities could be increased by 75 per cent in Chile.

made. Here the results of inter- and intra-regional comparisons are most illuminating; as the studies of Japan and Taiwan illustrate, it is possible to achieve relatively high levels of remuneration for the agricultural workforce with exceedingly low but relatively uniform land/labour ratios.

It is only in countries where the land/labour ratio varies little by size of holding, or where the variations are due entirely to differences in resource endowments, that no employment gains can be expected from altering land/labour ratios alone. Thus Warriner writes that no such gains were possible in the UAR and Iraq, nor would they appear to be important in countries characterised by her Model A production pattern, that is, in economies where the basic unit of production pertains to the small peasant cultivator and " . . . the landowner is a pure *rentier* who, by reason of his political power, is able to exact from cultivators a produce-rent which is in fact a tax on farm produce in return for no productive service ".[1]

The articles in this series also point to the existence of other maldistributed and/or underemployed non-human resources in a number of regions and countries and discuss the implications of this situation for employment creation. They illustrate, for example, that in some areas a more equal distribution and fuller utilisation of water resources could contribute greatly to increasing employment opportunities by enabling farmers to extend the area of cultivation and to intensify the use of currently cultivated land by the introduction of more varied and valuable crops and by allowing multiple-cropping in some instances.

The contributors are concerned as well with the employment possibilities forgone by the maldistribution of farm credit, i.e. the fact that many large landholders tend to receive the lion's share of what is available, that they tend to use it unproductively in agriculture or for production or consumption purposes outside the agricultural sector, and that what credit is available to the small holder is generally exorbitantly expensive. Thus one finds that even this scarce resource is underutilised in most LDCs.

Of related interest is the fact revealed by a number of the studies that the availability of funds for investment within the agricultural sector itself is potentially much greater than current levels and levels deemed possible by investigators in the past. The assumption that the bulk of the agricultural population with low income levels are unable to save and that only the wealthy will provide investment funds is a distortion of reality if not totally incorrect. In the first place, while much of the actual investment is done by large and medium-sized landholders, the largest proportion of their income is utilised for consumption; the percentage saved and invested is considerably lower than that of their counterparts in the

[1] Warriner, op. cit., p. 609.

more developed countries.[1] In the second place, one finds that many small cultivators do save and invest, largely as a result of the close relationship between farm income and investment and the fact that most capital formation in agriculture " accumulates by an incremental process that is best described as accretionary ".[2] That more small cultivators do not invest, and that those who do invest do not invest more, can be attributed not only to their low incomes but also to their onerous tenure arrangements and the lack of profitability already discussed.

Our examination of employment possibilities has so far focused on what increases could be obtained by improved utilisation of the non-human resources already found in agriculture in the LDCs, though perhaps not available to those who would use them most productively. The improved utilisation of these resources obviously implies the removal of a number of the obstacles to agricultural employment and development discussed earlier: the elimination of land monopoly and its corollaries of economic and social power through redistribution and the creation of new production units, the consolidation and enlargement of fragmented and sub-family-sized units and the abolition of onerous and insecure tenure arrangements—all agrarian reform measures—to name only the most important changes required. But hopes of increasing employment opportunities need not rest solely on the improved use of existing resources, particularly where these can at best provide only marginal gains. It follows that additional employment opportunities must be sought through the expansion of the resource base. The land and capital resource base might well be expanded by the opening up and settlement of undeveloped areas, the construction of dams and irrigation networks, drainage canals, penetration roads and other features of a rural infrastructure, the manufacture of agricultural equipment and requisites, the introduction of technological advances such as high-yield crop varieties and of selected animal stock, all requiring more intensive use of labour, etc. Such expansion is indeed attractive as a means of increasing employment and output, but the potential contribution of each course of action must be weighed against its cost.

In this connection, considerable attention has been given to programmes of land settlement, particularly in Latin America and Africa, where some estimates show that the area of arable land could be increased by 100 per cent and 340 per cent respectively.[3] However, experience

[1] M. J. Sternberg: " The economic impact of the *latifundista* ", in *Land Reform, Land Settlement and Cooperatives* (Rome, FAO), No. 2, 1970, pp. 21-34.

[2] Philip M. Raup: " Land reform and agricultural development ", in Herman M. Southworth and Bruce F. Johnston (eds.): *Agricultural development and economic growth* (Ithaca (New York), Cornell University Press, 1967), Ch. 8.

[3] FAO: *Provisional Indicative World Plan for Agricultural Development* (Rome, 1969), Vol. 1, p. 49, cited in Arthur L. Domike: " Colonization as an alternative to land reform ", in *Analytical Papers*, Second edition, Vol. XI of the AID Spring Review of Land Reform, June 1970.

indicates that there are often very good reasons why such lands have not been brought into cultivation in the past, and that settlement, even now, may prove to be quite costly. Nor has the experience with land settlement programmes been very encouraging. Putting it more strongly, as one investigator writes, " on a world-wide basis, it must be admitted that few spheres of economic development have a history of failure to match that of tropical land settlement ".[1] Of course, men have learned from the past, and it is more likely now that well-planned and well-executed programmes can make a positive contribution to agricultural output and employment. Yet even where this is so, as in the cases in Kenya discussed by Clayton, the cost is high.[2] Investment per job created may run up to US$10,000 and seldom drops below $2,000 (assuming that the settlement is efficiently developed), a considerable amount for most LDCs.[3]

Some of these resource-expanding investments, however, do offer considerable potential for increasing employment opportunities, not only in agriculture but in the execution of the investment projects they entail. If such projects, in either new or old settlement areas, are carried out in large part with the use of local materials and unemployed or underemployed workers, the real cost to the community may be low compared with the benefits received. And to the extent that the future beneficiaries of such projects are directly employed in their construction, minimum dislocation in the workforce will occur in the process of expanding the agricultural resource base. Rural infrastructure projects have been of major interest to the ILO in recent years, and aid to governments in the planning and execution of such projects is becoming an important element of its technical co-operation programme.

More recently, hopes for increased output and employment at relatively low cost have been based on the technological breakthrough resulting in what has been called the seed-fertiliser or " green " revolution. In view of the possible importance of this revolution, I propose to deal with it separately after examining the historical record of the impact of agrarian reform on agricultural employment.

Here I would just reiterate that the findings reported in the articles dealing with areas not experiencing major agrarian reforms do show the existence of underemployed non-human resources in agriculture which, undoubtedly, can make a significant contribution to the expansion of

[1] Michael Nelson: *Public policy for new land development in the humid tropics of Latin America* (mimeographed, 1970), p. 431, cited in Domike, op. cit.

[2] Clayton's figures do show, however, that the Mwea Irrigation Scheme was less costly per job created than some of the agrarian reform programmes involving only a reallocation of resources, and he explains some of the factors leading to this surprising result, which I believe can be attributed to poor implementation of the reforms. In addition one should add, for the general case, that most of the investments in land settlement programmes represent real resource expenditures for the country involved, whereas many of the expenses connected with reform represent merely internal transfers.

[3] Thomas Carroll: " El desarrollo rural ", in *Una década de lucha por América Latina* (Mexico City, 1970), p. 327, cited in Domike, op. cit.

employment opportunities in this sector. The precise degree to which such underemployed resources can lead to a "solution" of employment problems, however, must depend on the stage of development, the resource endowment and the gravity of the employment problems in each country and/or region thereof. Later I shall discuss the time dimension of these resource/employment problems, an element of major importance.

It was also suggested above that complementary measures might be taken to enlarge the resource base and increase employment opportunities in agriculture. Their efficacy and value will undoubtedly vary with their cost and thus depend on the financial conditions of each country and the relative employment potential of expenditures in various sectors and activities. The problems are generally most acute and intractable in the poorest and most agrarian countries, where investment capabilities for all sectors are largely dependent upon the agricultural surplus; yet nowhere would it appear that the situation is hopeless; some potential exists universally.

I cannot end this section without reference to the fact that, regardless of what limitations on agricultural employment creation exist in any LDC, there is generally considerable scope for making present jobs more remunerative. One need not be limited even by resource considerations in this connection; major gains can be made merely from the redistribution of income and earning assets—whether underutilised or not. If the share of agricultural income going to the top 10 per cent of agricultural income recipients in the LDCs were reduced from the level of about 40 per cent to 30 per cent (or if assets were correspondingly reduced), it would be possible to more than double the average family income of the bottom 20 per cent and increase that of the next 30 per cent by half.[1]

The record of agrarian reform

Three of the articles in this series deal with countries where major agrarian reforms have taken place since the end of the Second World War—Japan, Taiwan, and the UAR, Iran and Iraq—and a fourth examines the results of action to date in Kenya, where a real commitment to agrarian reform apparently exists. In contrast, the country study of Colombia focuses on what are essentially pre- or non-reformed conditions, and the regional studies of Latin America and Asia evaluate more what remains to be done than what has been accomplished, although the Asian study does refer to measures taken thus far in South Asia and to the examples of Japan and Taiwan. This recapitulation raises the question of what constitutes a valid agrarian reform, "valid" in this context meaning one whose success or failure in achieving its stated goals in general, and employment goals in particular, can be measured by its results.

[1] Sternberg: *Towards a new analytical framework . . .*, op. cit., p. 13.

In considering this question one must bear in mind the fact that agrarian reform has been very much a political issue. Its immediate goals have varied even more than would be suggested by the diversity of its promoters—be they a foreign power, a modernising élite, a military clique or a peasant army. Few reforms have been concerned with employment creation as such and a number have not been greatly concerned with improving the conditions of the farm population. In addition, many reforms, once initiated, ran out of steam: their architects were unable or unwilling to take the complementary measures necessary to ensure the achievement of stated goals and others " sold out " or were overthrown. Thus, the verdict on the ability of agrarian reform to meet any goals—let alone that of employment—rests on many variables. In this over-all review I shall limit the discussion to the countries examined in the four articles noted above and to three other cases with which I am most familiar: Mexico and Cuba, where no question exists as to whether or not a reform has taken place, and Chile, where the results of the reform programmes have been closely watched.

Here I shall be concerned primarily with the effect of reform on three aspects of the employment problem: (1) the level of remuneration of agricultural workers; (2) the amount of underemployment; and (3) the creation of new jobs in the agricultural sector.

Effect on remuneration

With regard to the first aspect, one can argue that, with the possible exception of Iraq, reforms have led to an increase in income for the beneficiaries of land redistribution, making, in essence, their employment more remunerative. In most of the countries considered—Japan, the UAR, Iran, Taiwan—there was an immediate increase in income resulting from the change in status from tenant to owner (or member of a co-operative), or from increased security of tenure and reduction in rental payments. The proportion of the farm population which so benefited varied considerably from country to country. In Japan it included the bulk of farm families and in Taiwan, by stages, it came to cover the vast majority of cultivators. In Iran about 25 per cent of farm families were affected by reform while a lesser proportion gained in the first redistribution programme in the UAR. In Mexico and Cuba, where the bulk of the agricultural workforce consisted of wage labourers and similar categories, it was these who benefited in large numbers from the major reforms, as did the *inquilinos* in Chile [1] from the more limited reforms carried out by the last administration. In Kenya land consolidation measures affecting small cultivators' have also led to increased incomes.

[1] The *inquilino* is an agricultural labourer who lives on the estate and in addition to food and accommodation is given a plot of land to supplement his wages.

Effect on underemployment

The impact of reform on the level of underemployment among the beneficiaries of land distribution is less clear. Reform has provided the opportunity for some beneficiaries to become more fully employed and has freed others from overemployment (i.e. overwork). The actual results have been mixed. Where insecurity of tenure and lack of credit prevented more intensive land use or where previously underemployed landless labourers or cultivators of sub-family-sized holdings gained access to land or more land, underemployment has been generally reduced. In contrast, where some wage workers and tenant labourers had to work long hours at low remuneration before, a reduction of their working time became possible. A less favourable result, seen for example on a few *asentamientos* (settlements) and especially in the old settlement areas of Chile, is the reduction of the personal labour input of the beneficiary and the exploitation of hired labour. On balance, however, the tendency has been to increase the labour input per unit of land affected by reform, at least initially. This has certainly been the case in Mexico, Chile, Taiwan and Kenya, and in the small producer and state farm sectors in Cuba.

Some obvious questions arise from the examination of levels of remuneration and underemployment above: (1) what have been the effects on non-beneficiaries? and (2) would the effects have differed greatly if there had been more beneficiaries? The examination of job creation *per se* below will have a bearing on the answers, but a few other points are germane as well. As regards the first question, for example, it can be shown in some cases that measures complementary to land distribution have improved conditions for other sections of the farm population. The organisation of farm labour into trade unions and the passage of wage and fringe benefit legislation in Chile have certainly pushed up levels of remuneration there. In the UAR the minimum wage legislation had the immediate effect of increasing the earnings of those who did not receive land and remained wage workers, although the gains they made have since been largely lost. In Cuba the regular sugar-cane workers (although it is difficult not to include them among the beneficiaries) have received higher incomes and more steady work; the volunteer workers, however, are another matter. In contrast, it is most doubtful, as Warriner suggests, that non-beneficiaries have made any gains in Iran. One can, however, make out a strong case to show that an increase in the number of beneficiaries in Iran would not adversely affect those who have benefited already. In Chile, too, increasing the scope of the reform should not reduce its favourable impact, save for those beneficiaries—often with relatively large holdings—who have *inquilinos* of their own and subject them to the traditional tenure relation-

ships. In Mexico an even greater increase in the number of *ejiditarios* [1], say in the 1930s, might have had adverse local effects but would probably have been to the national advantage. In the UAR, however, the possibilities for extending the scope of the reforms without adversely affecting existing beneficiaries appear to be few (though the numbers installed on new irrigated lands could be increased). In general, the evidence shows that where the coverage of a reform is broadened by expansion to previously neglected areas, no purely reform-induced adverse effects need be expected; when it is extended by the further subdivision of holdings, an adverse effect may be anticipated.

Effect on job creation

The last aspect to be examined is the impact of reform on the number of jobs in agriculture. And while there are difficulties in measuring this impact, as recognised by Koo in his contribution on Taiwan, a number of studies have been made of the results of individual projects and there are some aggregate data which are helpful in making an over-all assessment.

The case of Japan may serve as a starting point, since it has a number of interesting features. While there is little doubt that the LDCs have much to learn from the Japanese experience that will help them to increase their employment opportunities, it is interesting to note that, although affording fuller and more remunerative employment, the post-Second World War reform did not lead to any increase in the absolute number of agricultural jobs. On the contrary, the data indicate that, except for an upward surge accompanying demobilisation, the agricultural workforce has declined since the introduction of the reform. Given, however, the special conditions of Japan, such a result is neither unexpected nor undesirable; the initial size of the secondary and tertiary sectors of the economy, their rapid growth and the low rate of population increase, strongly suggest that labour redundancy was not a problem and that the drop in the farm workforce took place in response to positive rather than negative economic forces.

Taiwan, in contrast, has but recently approached the level of Japan in 1945. The creation of more agricultural employment there was necessary and, from all indications, the reform did increase the number of jobs available. Imbalances in the land/labour ratio were greatly reduced and both labour requirements and output per unit of land increased significantly. The reform also helped to attenuate the problem of agricultural labour redundancy through its impact on such contributing factors as illiteracy, the use of child and of excessive female labour, and the high birth rate. The payment of compensation to landowners partially

[1] Participants in an *ejido*, a community in which land is farmed collectively.

in the form of stocks in industrial enterprises mobilised savings for non-agricultural development and employment as well. Thus increased education, lower participation rates in the workforce and family planning—all to some extent associated with and facilitated by agrarian reform—are reducing, along with the rapid growth of the non-agricultural sectors, employment problems in Taiwan.

In the UAR it is unlikely that the change in the tenure system led to more jobs, but " the failure to increase employment through redistribution was in no way a result of mistakes in policy ".[1] No agrarian reform could by itself have solved the Malthusian problem in the UAR. However, to the extent that the reform aided in the mobilisation of resources for extending the area of cultivation—through irrigation in particular—new agricultural jobs were created, and to the degree that development of other sectors was encouraged, some new opportunities for the surplus agricultural population became available. There is general agreement that, in the absence of reform, the situation in the UAR today would have been totally untenable.

In Kenya the prospects that the reforms will have a favourable impact on jobs can be considered quite good, from the evidence to date. Clayton points, in particular, to the gains made by the land intensification and land extensification programmes, under which employment per hectare is from 3 to 25 times greater than on more traditional holdings; the programme of subdivision of large units, he notes, has led to some increases in employment as well (increases that might have been greater if traditional patterns of production had been altered more radically); in contrast, a simple transfer of ownership of large units—with no subdivision—had little impact.

Turning to Latin America, one again finds clear examples of reform increasing agricultural employment. In Chile it is estimated that employment and cultivated area had almost doubled and peasant incomes increased by close to 400 per cent on the large holdings expropriated by the Frei régime in the mid-1960s after one year of reform.[2] The Cuban reform, in particular, illustrates the possibility of an immediate and rapid increase in agricultural employment through land redistribution and the more intensive use of existing non-human resources. In Cuba the increase was most notable in three sectors: the large cattle ranches which became state farms; the smaller units, subdivided and distributed to cultivators; and the reserve areas of the plantations where diversified cropping patterns were introduced. From a labour surplus economy, Cuba has become a labour shortage economy. This change can be partially attributed to increased job opportunities in agriculture as well as to the expansion of

[1] Warriner, op. cit., p. 616.

[2] FAO-ICIRA: *Evaluación preliminar de los asentamientos de la reforma agraria de Chile* (Santiago de Chile, Ediciones ICIRA, 1967).

rural education, recruitment for the armed forces, the establishment of an eight-hour work day, and what has been called " the improper and partial use of the employed labour force ".[1]

Finally, there is the case of Mexico, where the reform is of sufficiently long standing for some additional points to be brought out. First, it should be acknowledged that there is every indication that the Mexican reform, especially in the 1930s, increased agricultural employment. For many years it slowed migration to the cities, enabling most of those who did migrate to secure work there. There is general agreement that the growth of output that has taken place in both agriculture and industry can be linked to agrarian reform, if not directly then indirectly with reform acting as a catalyst. What is distressing, however, is the fact that unemployment in agriculture has re-emerged in some regions as a problem of such proportions that it cannot be ignored. While lack of credit and technical assistance did not permit the *ejido* sector to make its maximum contribution either to output or employment, few can argue that all the gains of reform were lost. I cannot agree with one writer who considers that most agrarian reforms over the ages have been failures.[2] The Mexican reform, like others before and since, solved or attenuated some problems and bought valuable time for the solution of others. But new problems arise and old ones reappear. Times may come when it is necessary to further reform the reforms. In most cases, as I have shown, agrarian reform can increase employment opportunities and incomes in agriculture for a time, but cannot do so indefinitely; other solutions are needed in the long run.

The " green revolution " and employment

I have singled out the so-called green revolution for analysis since it is illustrative of the type of technological change which is considered by many to offer solutions to the basic agricultural problems of output and employment—and to the more general problems of hunger and poverty—without specific recourse to agrarian reform. The utilisation of new high-yield seeds along with the application of other relatively low-cost wonders of modern agricultural technology—chemical fertilisers and pesticides—it is argued, will quickly double the output of grain, the basic food of mankind, in the LDCs. Such inputs, it is also argued, require more intensive use of labour resources—in total and throughout the year—for added care is necessary in the preparation of seedbeds and sowing, and the repeated use of labour is needed for the application of fertilisers and pesticides and for weeding and other operations. But what are the facts?

[1] Antonio Gayoso: " Land reform in Cuba ", in *Country Papers*, Second edition, Vol. VII, p. 66, of the AID Spring Review of Land Reform, June 1970.

[2] Elias H. Tuma: *Twenty-six centuries of agrarian reform. A comparative analysis* (Berkeley and Los Angeles, University of California Press, 1965).

What are the real implications? May the green revolution, as Clifton Wharton suggests, turn out to be more a Pandora's box than a cornucopia? [1]

I shall not dispute the figures showing that the introduction of these new varieties of wheat, rice, corn and other coarse grains on some 40 million acres throughout the world has led to remarkable increases in food production, particularly in South and South-East Asia, nor that the long-term use of these varieties and the expansion of the area of their cultivation should be equally successful (although there is some debate about the long-term ecological effects). Rather, I am concerned here with more prosaic questions: what effect will the introduction of these new varieties have on the bulk of the agricultural population, and particularly on their employment possibilities?

One aspect of major importance in this connection is that the new varieties require adequate and controlled water supplies; a fact which suggests that much of the land and labour devoted to the cultivation of traditional varieties of these grains will be unable to benefit and will accordingly be adversely affected by the change. It has been estimated, for example, that as much as 80 per cent of the wheat land and 90 per cent of the rice land in Asia is currently unsuitable for the introduction of the new varieties.[2] One would imagine therefore that a significant if somewhat lower percentage of the workforce cultivating these crops would likewise be unable to benefit.

Another important consideration is the way the advantages conferred by the new varieties are distributed among those engaged in their production. While it is possible that short-run gains can be made by all—large landholders, intermediaries, tenants, share-croppers, small owners and wage workers—at least until prices fall, it seems likely that those now enjoying a privileged position will be able to preserve it, in which case most of the benefit will ultimately go to large landholders and intermediaries. Indications in India show that from the outset the larger holders have derived the most benefit, for it has been on the larger holdings that the bulk of the planting of new varieties has taken place (despite the supposed suitability of these varieties to farms of all sizes).[3] In Mexico, too, new wheat and corn varieties have mainly been sown on large holdings.

These few points lead me to an examination of the likely employment effects of the new varieties. On the one hand I have mentioned why increased labour inputs should be required—greater care in the use of water, fertilisers and pesticides, the need for better weed control and,

[1] Clifton R. Wharton, Jr.: "The green revolution: cornucopia or Pandora's box?", in *Foreign Affairs* (New York), Vol. 47, No. 3, Apr. 1969, pp. 464-476.

[2] Robert Shaw: *The impact of the green revolution on jobs* (Washington, Overseas Development Council, 1970) (mimeographed), Ch. 3, p. 11.

[3] Ibid., p. 14.

obviously, for gathering in the greater harvest. It has been assumed that given a doubling of output, the labour input would at most double but more likely increase by a significant but somewhat smaller proportion; the meagre data available thus far appear to support this reasoning.[1] On the other hand, however, I would suggest that such gains alone are insufficient if the over-all employment effect is to be beneficial. First, one must show that these gains are not offset by losses in the workforce producing traditional varieties. The competition from the new varieties may force small cultivators to accept lower earnings, to shift production to less familiar and less profitable crops, or even to abandon independent farming; large holders would probably cut back their output of traditional varieties and opt for more extensive production patterns (even taking advantage of lower grain costs to go in for animal husbandry, for example), displacing tenants and share-croppers and necessitating less labour in general. Second, one must show that the initial increase in the use of labour will not be rapidly offset by mechanisation. To the extent that the production of new varieties is concentrated on large holdings, the introduction of labour-saving machinery—particularly if any dent is made in the unemployed or underemployed labour supply or any other change takes place that results in higher wages—is almost inevitable.

The concern expressed here over the possible adverse affects of the green revolution cannot be dismissed as baseless. This is not the first nor the last technological breakthrough that has great potential for harm as well as for good. The following quotation is very much to the point. " Introduction of potato culture into Ireland made possible an agricultural revolution enriching a fair number of landlords and merchants. Only after one-third of Ireland's farm people had died of famine, another third had migrated to the New World and considerable social reform had taken place did that country's rural development gain momentum. One need not be an economist to realise that many peasants are being badly hurt by technological progress. " [2]

The seed-fertiliser revolution, despite its potential, is no substitute for agrarian reform, population control and other measures required to provide adequate income and opportunities and remunerative jobs to the masses in and out of agriculture in the LDCs.

Conclusion

In this over-all review I have attempted in broad strokes to indicate the principal ways in which agrarian reform can lead or has led to increased employment, topics which are certainly treated in greater detail in the regional and country studies in this series. I have given special atten-

[1] Shaw, op. cit., p. 1.

[2] Solon Barraclough: *Why agrarian reform*? (mimeographed, 1970), p. 4.

tion to the types of reform measures which have the greatest potential for improving agricultural income and employment—most notably those which would best balance the land/labour ratio and which would result in the more equal (and equitable) distribution of agricultural income. I have also raised some issues not treated in the articles but which serve as a framework within which they may be viewed—the growing problem of labour redundancy in all sectors of many LDCs and some of the alternative approaches to its solution. I have suggested that an agrarian reform type of approach, geared to employment creation, offers considerable hope, particularly where non-human resources in agriculture are underutilised or possibilities exist for the creation and mobilisation of additional resources. I have cautioned, however, against viewing agrarian reform as a final solution or a once-and-for-all change. The benefits derived from improved resource allocation and income distribution in agriculture at one point in time do not imply that the situation will not evolve. Many agrarian reforms have bought valuable time, have bought relief from the pressure of mass rural exodus and mass unemployment and underemployment. But such problems may reappear if the rest of the economy is not reformed at the same time. In many countries hunger and poverty will not easily disappear.