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THE FUTURE OF AGRICULTURE

*Technology, Policies
and Adjustment*

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Farmer Training and Its Results

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IN an old Dutch print of the 18th century, besides a fish catching the angler, a hare serving up the hunter and a horse sitting in a carriage, a child can be seen giving lessons from the teacher's desk. These are a few illustrations of that 'topsy-turvy world' the historical traditions of which students of folklore have fixed in memorable essays. Some at least of its aspects clearly reflect the world of today.

Today we have students who, if they do not actually claim to instruct their teachers, expect at least to 'order' from them a programme of what they wish to learn, just as a customer in a restaurant 'orders' the meal he wants from the head waiter. We have farmers who, tired of being taught what other people think they should learn, inform their technical advisers what subjects they are interested in learning about. The parallel is only too obvious and the analogy can be taken for granted. What faces us is a single phenomenon: the refusal of traditionally subordinate groups to accept a truth imposed on them, a vocational training based, they feel, on alien interests.

This is why colossal technical aid programmes—like the 'rice operation' in Madagascar—belong to a definite stage of human evolution, presupposing as they do, a mass of peasants awake enough to learn, but still docile enough to accept advice.*

Indulging in a sort of mysticism one might say that rice is a total expression of life in Malagasy society, a crop forming a complete culture because of its ancestral roots, so that the countryman of Tananarive and Betafo, of Fianarantsoas and Antsirabé looks upon any improvement in the cultivation of this cereal both as a homage to his ancestors and a duty to his future grandchildren. But even leaving these tempting fancies aside,

* I refer to the operation for the improvement of rice production (GOPR) launched by the Malagasy government with the support of EEC and the technical advice of the following companies: Satec (Paris), Agrar- und Hydrotechnik (Essen) and Ifagraria (Rome). In four years (1966–70) 102,000 rice-growers adopted a modern system of cultivation with increases of 23.75 quintals per hectare in paddy production. For a global approach to this operation, see Carlo Barberis, *Un intervento di assistenza tecnica per lo sviluppo agricolo nel Madagascar*, IFAGRARIA, Rome, 1972.

it is impossible not to recognize the favourable sociological conditions existing in this island where, although teaching has broken through the taboos of tradition, the pride of 'doing things one's own way' has not yet been born so that the environment is ideal for technical aid on a large scale.

In Europe programmes of this kind could have been applied successfully in some parts of southern Italy immediately after the last war. Today the historical scene has vanished for ever, except perhaps in the case of some small-holdings run by women whose husbands have emigrated or switched to other kinds of employment.

Peasant masses no longer exist and, where they do, they show clearly recognizable symptoms of differentiation. Differentiated in structure, they have also grown more sophisticated as regards cultivation.

II

Some reflections must be made concerning our civilization with its 'topsy-turvy' attitude in the field of teaching.

First of all the proliferation of sciences makes a complete synthesis out of the question nowadays. In a world obliged to give up any hope of being able to know everything, in a world in which a choice has necessarily to be made which takes the name of *specialization*, pupils may as well follow their own inclinations and teachers become 'à la carte teachers' chosen by different customers and not doled out in a shapeless mass by a squalid central kitchen. If nothing else, the self-esteem thus fostered will make up for the advantages of expert knowledge. And the best results of this new habit will probably be enjoyed by the teachers themselves, called upon to carry on their activity in the school of reality, on the market of truth.

The peasant who describes to the technical expert the terms of the diagnosis, without making it himself, is a representative figure in the cultural revolution under way in industrial societies.

Once upon a time the adviser, completely immersed in his dream of progress, behaved like the sower in the Gospel parable, without paying much attention to whether the seed fell on rocks or on fertile soil. All that mattered was that the seed be sown, the ritual duty performed. It was only later that sociological analysis—based on the many discoveries made by the American extension service—revealed the sterility of a mission not preceded by a careful study of the environment. It was only later that people began to realize that in certain situations it was better to make no proselytes and postpone the timing of the first conquest, if the neophytes, failing to be trusted by their neighbours, were only to succeed in discrediting the innovation.

This explains why the 'rice operation'—as soon as the planning stage was over—was based on strictly recorded statistics of the contacts established by the instructor with each family, compiling what might be termed a map of adoptions.

The assistance provided by this 'map' is, moreover, recognizable not

only at the technical but also at the economic and market level. Addressed to entrepreneurs, to the search for a more efficient relationship between fertilizers and field yields and between growers and processors on the market, assistance of this kind is able to maintain a decidedly polyvalent character, forming human capital capable of being transferred to experiences other than rice-growing. For this reason, too, it can be embodied in a mass programme. In the West it is the already well-established entrepreneurs who together with the specialization, choose the fittest masters. In Madagascar we find monocultivators obliged to tread the road of specialist improvement to reach full entrepreneurial capacity.

III

The passage from a paternalist type of technical aid to a form of technical consultancy, in which the farmers themselves choose the subjects they wish to learn about, thus marks the passage from a developing to an industrialized society. What continues to be true in both the former and the latter is the fact that innovation now proceeds no longer on individual but on group bases, although there is a wide difference in motivations.

In under-developed societies the innovation has to be fitted into the biological cycle of the village in order to be accepted. This enables the farmer to feel that he is not doing something unusual, and therefore sinful, all by himself. As a matter of fact the more he gains the impression that he is remaining true to his world, the more inclined he will be, carried along on the wings of the community, to make sweeping changes in his behaviour. Technical aid based on the assumption that development problems can be solved by means of a series of bilateral contacts, of individual confessions, is merely confusing the adviser's role with the priest's. Isolated, the individual remains a prisoner of his environment, he is unlikely to change and if he does it is a laborious process. Progress is, on the contrary, much swifter when it is possible to get the technical aid accepted by groups and institutions. A group change is no change, it is merely a matter of adjusting to the rules of the majority. It is on this exact intuition of mass psychology that the 'rice operation' is firmly based, exploiting the strength of the community tradition embodied in the so-called *fokonolona*. The specialist can discuss to what extent *fokonolona* may be considered an operative or an obsolete institution naturally favourable to conservatism or to progress. Actually, it struck the agronomists engaged in the 'rice operation' as the most suitable structure for group contacts owing to its function of deciding and working together at the mass level.

In the West too, moreover, the group continues to be the speediest medium of diffusion. Examples are provided by the French CETA and by circular 19 of the Italian Ministry of Agriculture, issued on 13 June 1967, establishing that technical aid be addressed primarily to groups of farmers who have shown an aptitude for associate enterprises and didactic self-

management. This brings us back once again to the subject of the didactic self-management of the peasant who needs to be, if not his own teacher, at least the instructor of his teacher.

But here the play is at one and the same time more open and more subtle.

IV

Among the principal conquests of Western civilization is the annulment of genius. Challenged by the philosophers of the old Marxist school, the role of personality has been greatly redimensioned in history to make room for the choral role of the great masses.

In the economic field contradictions are even fewer. In former days the entrepreneur was almost groping in the dark, guided by his intuition alone. Flair was the stroke of genius. Today market research and economic planning offer reliable guidance to all operators both in the field of agriculture and elsewhere.

Intelligence is of course a help also in the modern world, but some serious mistakes can be avoided with the correct use of the navigation instruments available. Perhaps, by repressing intuition, the use of these instruments is responsible for some discoveries having failed to be made. However, it also accounts for far greater stability.

This is why technical aid in the West has ceased to be a nursery of geniuses or would-be geniuses. It is not addressed to geniuses but to a solid mediocrity. It is able to explain to the latter that a mistake, provided it is repeated, ceases to be such and turns into a new truth established by the majority. The farmer who all by himself insists on planting a certain variety of pears or apples may fail, because he has placed his trust in his genius. But if the same variety of apples or pears is planted in the same area by scores or hundreds of farmers, the error becomes a truth; merchants will not neglect a market that has grown important, refrigeration plants will now be remunerative and the state—in spite of all diseconomies—will never allow such a conspicuous number of electors to face ruin.

There is an old saying that 'it is better to err with the Church than be right alone'. Sociology reveals that those who live in a community, those who form a community, are never wrong.

V

But the matter of technical aid has exciting surprises in store for teachers. It is not merely a question of hearing pupils dictate teaching programmes. It is a question of their teaching being accepted not as a hope but as a necessity which, even if it is ineluctable, is no less hard to bear. In under-developed societies the expert who teaches peasants how to produce more may delude himself that he is a heaven-sent blessing. He is dealing with poor hungry people who will certainly have no difficulty in

turning the product into more calories for themselves if the market should refuse to turn it into more money. Here the stomach is still the economy's foremost object.

But in an industrial society—by now approaching food saturation—anyone engaged in technical aid knows that helping to produce more means making farming accessible to fewer people. For each ton added, one person becomes redundant if individual incomes are not to suffer. In fact the prices of the more plentiful products will drop while production costs will increase, and considerably so, even assuming the existence of a more energetic export policy and some market protection.

That the problem of agriculture cannot be solved by increasing productivity is a concept already so generally accepted by the more advanced economies that an old adviser of President Kennedy, Professor Cochrane, drew attention to the very high toll paid by farmers to the 'technological monster'.

If the technical aid programme in Madagascar has given such brilliant results it is because the hunger for rice kept its price up. In Italy the expansion of wheat production from 57 million quintals in 1913 to 94 million in 1966—obtained, however, on a more restricted acreage—has not increased farmers' receipts by one lira because the price per unit, in lire having a constant purchasing power, has shrunk. Actually, net receipts are presumably lower owing to the constant rise in costs.

It was no mere chance therefore that the Scientific Committee of the GPR suggested, ever since its very first investigation on the spot, that the market problems caused by more plentiful rice production should be granted due attention, strengthening the small farmer's position *vis-à-vis* the merchant and the rice-miller by means of public credit or by promoting the export of the best varieties.

Both as mass and as quality product, rice continues in fact to play a part in Madagascar on both planes of the international market: that of mass foodstuffs, probably the future supply source of the Third World countries, and that of quality foodstuffs to which the industrial countries—especially in Europe—are likely to remain true longest.

VI

In industrial societies, therefore, the task entrusted to technical aid is not the indiscriminate production of larger quantities, but a more rational production. And if this does not always mean producing *less*, it will nearly always call for *fewer* producers.

Leaving the task of increasing food production chiefly to the countries of the Third World, technical aid in industrial countries, as long as it preserves its mass character and does not switch to consultation at the individual level, will thus have to take the form of: (a) education in book-keeping and (b) training for other jobs.

Too much has already been written about book-keeping and with too much show of learning. However, leaving aside all exaggerations, book-

keeping continues to occupy the place in a firm's economic life that evening meditation occupies in the life of the spirit: summing up what has been achieved and planning what is to be done in the future.

I recall the amused dismay of a French professor following the Breton Farmers' uprising in 1961, which was caused also by the fact that accounting methods, having at last reached the countryside, had given rise among farmers to the widespread feeling that their improvement efforts were useless. 'Peasants turning into accountants,' groaned the amused professor, 'but this is the end of everything!' It is of course the beginning of something new.

In addition to book-keeping, information concerning jobs available for farmers in other fields is the outstanding mass operation to be carried out.

A survey is quickly made. In Italy there were 3,600,000 farms in October 1970 but—according to the calculations of the European Economic Community contained in its 29 April 1970 directives—economically there is only room for one-tenth of them. This one-tenth at present produces about one-half of the Italian gross marketable production. Technical aid must therefore co-operate in getting 100 per cent of the latter from this 10 per cent of farms already producing 50 per cent, thus bringing about a sort of migration of the other half of Italian agricultural production now provided by nine-tenths of the farms.

To do this in as short a time as possible, many farmers will have to be channelled towards other jobs. This hardly seems realistic unless an adequate and systematic information campaign is carried out, also because the jobs needed must be such as to attract not so much youngsters as adults. They must consequently be fairly near the farmer's place of residence, of an independent character, and so on. It is no mere chance that the third directive issued by the EEC Commission on 29 April 1970 contemplates the need for special field workers able to discuss with the peasants not only their possibilities of success as farmers, but also their opportunities of switching to new jobs in any case. Partly because they must be reformulated on the basis of 350,000 farms and no longer on the basis of 3,600,000, partly because the 350,000 farms probably represent a differentiated technical and human capital, increasingly anxious to have consultants and less keen on having teachers. A new orientation of public expenditure in agriculture is bound to follow, too, as soon as the remaining farms are able to show they have reached the famous parity of incomes.

In this reversal of objectives, in this guidance leading farmers away from the land, supplied by organs traditionally entrusted with the task of persuading them to remain on it by helping them to increase their product, lies the whole drama of technical aid in the face of growth philosophy. Aggressively hopeful in Madagascar, where the cycle of progress is still at the beginning, in industrial countries its task is very different.

SPECIAL GROUP N REPORT

The farming conditions in the industrialized countries and less-developed countries differ markedly; and the objectives of farmer training have to be geared to the requirements which obtain under these situations. A salient feature of the peasant sectors of all countries was the possibility of imposing new ideas, since they had no preconceived notions. In contrast, in the developed countries, the farmers were not only less willing to be prevailed upon but also were particular about the sources of instruction received. These two contrasting situations exemplify the orientation of farmer programmes required for the LDCs and DCs. The passage from a paternalistic type of technical aid to a form of technical consultancy, in which farmers themselves choose the subject they wish to learn about, thus marks the passage from a developing to an industrialized society.

Whilst farmer training in the LDCs would be geared to greater productivity in the DCs, besides this consideration, the training of farmers to adjust to new avenues of employment, and also to have the necessary technical know-how to take up other remunerative employment, becomes fundamental.

To be acceptable it is imperative that any innovation should fit into the biological cycle of the rural environment. This enables the farmer to feel that he is not being different from the rest of the community in which he lives and on which he depends for his livelihood. This consideration warrants influences to be directed at the whole farm group, rather than at bringing about changes at the individual farm level. A 'community approach' is advocated both in the LDCs and the DCs.

The lack of proper training of officers, particularly in the appreciation of rural life, has very often led to the failure of extension programmes. Preconceived ideas about technical innovations and their potentials, without a proper understanding of the rural structure in which farmers operate and live, could very often lead to poor results of extension programmes. It behoves, all those in charge of bringing about change and development into peasant societies to be keenly aware of the fact that there are opportunity costs involved in changing the traditional behaviour of farmers. More time devoted to the intensification of farming may involve the farmer in making a choice between performing some essential household chore or a cultivation operation, which in fact may or may not be in his best interests due to the problems of risk and uncertainty involved in farming. Therefore, it is clear that there are social and cultural considerations which merit consideration, besides the purely economic ones. A multidisciplinary approach to extension programmes cannot be over-emphasized.

A tendency for the misallocation of resources in extension programmes in the developed countries has been noted. Not only are state agencies involved but also commercial organizations. It is clear that the orientation of extension programmes have to be modified according to the requirements of the farming communities involved. For instance in Brazil

it has been noted that inter-personal communication as a media of extension has had negative effects on the more affluent farming groups but had had positive effects on the poorer sections of the farming community.

Extension programmes should be planned so as to provide the necessary technical know-how to farmers, as well as to provide the necessary feedback information to scientists who are committed to help farmers to modernize their farming. The demonstration plot approach in India, and the former together with the distribution of 'mini-kits' and 'production kits' in Sri Lanka for the propagation of the new varieties of rice, are good examples of the two-way approach to extension activity. These methods not only provide farmers with a first-hand opportunity to evaluate the necessary varieties but also provide an opportunity for the scientists to evaluate the new varieties under 'field conditions'.

A consideration which merits serious thought in the LDCs is the question of the content of farmer education programmes, since the greater 'expectations' generated from rural education could be partly responsible for the urban migration of labour and the discontent with rural life which it has brought in its train. Farmer training should extend beyond the realms of farming, and should provide the farmers with the necessary balance to adjust to a changing environment.

A *sine qua non* for the success of an extension programme is that there should be adequate incentives for farmers to change and also that there should be no bottlenecks such as deficient marketing systems, the lack of adequate institutional credit, and so on.

Among the participants in the discussion were: B. R. Eddleman, *U.S.A.*; B. Dantas, *Brazil*; H. de Farcy, *France*; J. B. Hardaker, *Australia*; C. Lister, *Iran/U.K.*; B. A. R. Mokhzani, *Malaysia*; R. Platt, *U.S.A.*; J. S. Sarma, *India*; H. Tenma, *Japan*.