

# PUTTING THE INSTRUMENTS OF RURAL DEVELOPMENT INTO THE HANDS OF THE PRODUCERS

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## *Introduction*

Whether or not a "food crisis" is looming before us, agricultural development is required in most countries, if only to ensure that the small rural cultivators (the majority) are able to participate in, to contribute to and to benefit from their society's path to modernisation. When they are a part of the mainstream of their country's development, the rural producers' productivity and creativity can become an asset to their society and just relationships can be established between agriculture and industry, between the countryside and the city.

Therefore it is necessary to put the instruments of rural development into the hands of the producers. This often appears to be a complex task, because simultaneous technical, social and economic changes are involved.

One way to obtain the required changes in the institutional structure is to break down the task on a product-by-product basis. Thus, this paper (or "note") starts by briefly examining one agricultural development programme, based on a single agricultural product, milk. The programme is often popularly referred to as "Operation Flood". After a brief summary of Operation Flood's evolution, this paper examines the Programme: where it has been successful — and where it has not. On the basis of this experience, a process is broadly defined, whereby other such agricultural programmes could be formulated and implemented. No claim is made that different processes may not also be effective. The particular process discussed here is simply one which the writer has found reasonably effective, in his own practical experience. Some details of Operation Flood, which are used here as examples of a more generalised process, are inevitably peculiar to India — but there is no reason to believe that the elements of the process discussed are not adaptable to situations in other countries. The writer has eliminated most of the detailed qualifications which should be applied to many of the broad generalisations made.

Your indulgence of this broad-brush approach is requested, for the sake of brevity (and perhaps even of clarity).

### **1. *The evolution of programme: Operation Flood***

In 1943, the milk producers of Kaira District, India, struck against the exploitive prices which they received for their milk from a private, foreign, monopoly-procurement firm. They founded village co-operatives to procure and bulk their milk. Each

village co-operative had an elected managing committee which set policy and employed a paid Secretary as chief executive, on whose advice the Managing Committee appointed aid staff: milk testers, clerks etc. The village co-operatives affiliated themselves to form the Kaira District Co-operative Milk Producers' Union, Anand ("Amul"), which owned and operated a dairy plant, processed their milk and marketed the milk and milk products thus produced. Chairmen of the Union's constituent village co-operatives elected the Union's Board of Directors and Chairman, who set the Union's policies and appointed its General Manager, who as chief executive was responsible for the Union's operations.

The Anand Union grew rapidly in the 1950's. Its development was attributed to its producer-members' cohesion, its strong and honest elected office-bearers, its employment of professional managers and technical staff and governmental policy-support. Between 1955-65, the Anand Union's major internal development was its increasing emphasis on the provision of technical inputs to help milk producers increase and modernise their milk production: veterinary care, balanced cattle-feed concentrates, artificial insemination facilities — all these were provided. The associated developmental and running costs were paid out of the margins which the Union earned on the producers' milk by its use of modern technology and marketing methods, leaving enough for a small end-of-year supplementary payment which the village co-operatives distributed as a "bonus" to their members.

Con-currently, the Anand Union's major external development was the role it played in helping milk producers in Districts around Anand to set up milk co-operatives based on the Anand Pattern. The Union set up its own Projects Division to help design and build dairy processing plants and it acted as a pool of skilled manpower for the new Anand Pattern Milk Unions, which numbered five by 1965.

In that year, the Prime Minister of India, the late Shri Lal Bahadur Shastri, determined that a body should be set up, with the Government's assistance (because the Anand milk producers could not be expected to pay for it), which would replicate the Anand Pattern of Dairy Co-operative, in all the milksheds of India. Thus, the National Dairy Development Board (the "NDDB") was formed, with the General Manager of the original Anand Union as its Honorary Chairman (the writer). In the late 1960's, the NDDB built up its professional staff, to enable it to provide dairy-project design and implementation services. These services covered milk production, processing and marketing; farmers' organisation; dairy plant design and construction; manpower development and management consultancy services.

By 1969, however, it became clear that there was much resistance (which is detailed below) to such institutional change. It also became clear that the funding for such projects would have to be integrated with project design and implementation. When these difficulties became clear, in 1969, the NDDB formulated a dairy development programme which was designed to overcome them. This is the programme which came to be known popularly as Operation Flood.

What the NDDB proposed in Operation Flood, was the setting up of 18 Anand Pattern Dairy Co-operatives in the hinterland milkshed areas of India's four major cities: Bombay, Calcutta, Delhi and Madras. Each of the 18 milkshed projects would provide for co-ordinated investment in milk producers' organisation, milk production, processing and marketing. Each structure thus erected would be handed over to the producers whose milk it handled, thereby putting this instrument of development into the hands of the rural producers concerned.

Con-currently, in the four major cities, the capacities of urban dairy plants were to be built up, so that they could supply a commanding share of the demand market for milk in the four cities. Initially, dairy commodities donated from abroad were to be recombined into liquid milk, to "prime the pump" in the urban milk markets — and the funds so generated (Rs. 1000 million, then equal to some US \$127 million) were to provide the finances for the Programme as a whole.

In 1970, the Government of India accepted this proposal. It set up the Indian Dairy Corporation (the "IDC"), a wholly Government-owned corporation, to handle the donated commodities involved, the generation of funds and their disbursement for the Programme's purposes. In short, the IDC became a "finance and promotion house" for the country's dairy development. Its sister-body, the NDDB, was a non-profit making Registered Society and it was therefore deemed to be debarred from conducting the more or less commercial transactions involved. Thus, the NDDB became the official technical-expertise body for the IDC. Accordingly, it expanded its dairy development services to meet the needs of Operation Flood. The IDC and the NDDB had a common Chairman.

The Government of India also sought and obtained the support of the WFP-FAO, to provide the programme with donated dairy commodities — and of the FAO-UN and the UNDP, to provide the programme with some technical assistance. Thus, the Programme was launched in mid-1970.

Although it has suffered delays, the Programme is deemed generally to be successful: this assertion is supported by two UN Inter-Agency Missions which have reviewed the Programme. By the end of 1976, 14 Anand Pattern Milk Unions had been started under Operation Flood, with a total of 4,530 village milk co-operatives. In the four major cities, modern dairies had increased their combined outputs from 910,000 litres to 1,470,000 litres daily. The Operation's objective, vis a vis milk marketing in the four major cities, had always been stated as, "to enable the modern dairies to obtain a commanding share of their liquid-milk markets". Considerable priority was given to this objective, because the relative weight of purchasing power in the four cities was such that the stability of the national marketing system depended considerably on avoiding undue price/supply fluctuations in the dominant cities. Also, it was expected that adequate and stable supplies of economical, rurally produced milk for the major cities would replace the less economical production of milk in and around the cities. The feed and milk

animals involved would then be retained in the rural milksheds, thereby further enhancing the stability of the system and making it easier to increase rural milk production by improved breeding, feeding and management practices. The results of Operation Flood to date indicate that these marketing concepts are proving to be correct. All the Programme's physical targets are expected to be achieved by 1978/79.

The NDDB-IDC have built up considerable expertise in the financing, designing and implementation of dairy development programmes. The NDDB's services are increasingly being sought by UN agencies (e.g. the IBRD, the FAO etc.) and bilaterally by individual countries. At home, the NDDB-IDC are gearing themselves to develop entirely new techniques and technologies, in order to establish by the mid-1980's a modern dairy industry in India which will be among the largest in the world, in order that it will be adequate to the country's needs vis a vis the build-up of rural incomes and the provision of an adequate, nutritionally balanced and stable national diet. These national goals can reasonably be expected to be achieved in the mid-1980's.

The question before us now is: to what extent and in what ways does this experience provide a basis for the design and implementation of other agricultural development programmes? The rest of this paper addresses this question.

In this discussion, generalised terms are used: "Multiplying/Promoting Agency" refers to bodies like the IDC-NDDB; "live lab" to an initial field project, designed to find out and then demonstrate how to achieve a specific development target; "operating units," to institutions like the Anand Pattern of Dairy Co-operatives, operating in the field, managing the procurement, processing and marketing of an agricultural product, which is the focus of an agricultural programme — and providing assistance to producers in increasing production; a "Programme" is a co-ordinated set of investments and actions, including a number of operating units, which is planned to generate wide-spread modernisation of the production, processing and marketing of a specified agricultural product.

## **2. Difficulties encountered**

It would not be practical to list here every difficulty which Operation Flood has encountered. In implementing such a large and complex Programme, difficulties are as numerous as they are inevitable. Many of these are now abating (as discussed in a later section) — but five major difficulties, which proved particularly important, are worth some discussion. These are covered briefly below.

**The alliance of a modernising urban elite with a traditional rural elite:** The small urban elite consumes most of the country's educational investment, occupies most of the bureaucratic and industrial jobs and is interested in cheap food. The probably larger rural elite occupies most of the positions of status in the villages, combines money-lending with a mercantile/speculative approach to marketing the output of

poor, small producers (the majority) and depends on the bureaucracy for getting priority in the supply of fertiliser, irrigation water, cheap credit etc. Both elite groups therefore have an interest in maintaining the status quo and preventing institutional changes such as the Anand Pattern of Dairy Co-operative.

**Urban pricing:** It follows that the urban elite will use its power, wherever possible, to control food prices in its favour. Urban dairy plants are treated as a public utility in India. They are usually owned by the State or Municipal Governments and run departmentally. Their managements are not insulated from local political pressures. Their main pricing policy has therefore been price suppression, even at the cost of stagnant production and suppression of the incomes of small milk producers.

**The underprivileged inheritance:** Most of India's milk is produced by small producers: landless cultivators, widows and farmers with less than two hectares of land. They have little protection from exploitation by the local power-holders, who are skilled in manipulating and dividing the poor. Exploitation is not just a contemporary practice. It is a way of life, which both the exploiters and the exploited pass on from generation to generation. To unite, to form a village co-operative, to stand up against exploitation, to refuse to sell milk to the village boss-money lender... all such actions require self-confidence, the essential asset of which the underprivileged are deprived by their inheritance.

**The development assistance technocracy:** The West largely controlled technological development until the 1940's. The multi-lateral and bi-lateral agencies, which are responsible for developmental assistance, were mostly set up after World War II and they inherited Western pre-war attitudes of imperialism and paternalism. They developed the tradition of "he who pays the piper calls the tune". Their technocracies distrusted Operation Flood, because it was planned and designed by Indians for Indians to implement and because there was no means of covertly controlling it from Western capital cities.

**The developed countries' grip on resources:** Most "developed" countries regard food aid as a means of surplus disposal. Operation Flood demanded regular shipments of donated dairy commodities of good quality, whereas the food aid/disposal system is inherently unstable and sometimes disposes of time-expired commodities. Traditional commercial exporters of dairy commodities resist underdeveloped countries' attempts to achieve self-sufficiency and feel free to double or triple prices of their exports at will. Dairy equipment exporters tend to act similarly and in concert, which makes financial control difficult, especially if they have good relations with agencies of developmental assistance.

These, in brief, have been the major difficulties encountered in implementing Operation Flood. Their results were, no doubt, compounded by our own errors.

### **3. Errors made**

Ordinary human error is unavoidable. Neither we nor our helpers avoided it: for example, one of the developmental assistance agencies involved mislaid one of our early indents for equipment and we, on our part, had failed to install an early warning system to detect such errors. But these apart, the important errors are those of principle, of which three in particular merit examination. They are discussed briefly below.

**Recombination and technology:** The Plan of Operation Flood envisaged a rapid rebalancing and expansion of the modern dairies of the four major cities' modern dairies, so that they could rapidly acquire the capability of recombining large quantities of dairy commodities into liquid milk. Procurement, installation and commissioning of these expanded processing facilities all took longer than anticipated, except in Madras where (by accident) the NDDDB did the whole job on a turn-key basis. Probably, we should have persuaded the authorities concerned to let us deal with the job on a "crash" basis.

**Divided responsibility:** In the case of some of the urban dairy expansions discussed above and in other parts of the Programme, we accepted that government departments should do some parts of the job, while we would do others (e.g. civil works vs. mechanical). In practice, this approach created operational and administrative difficulties.

**A new vested interest:** Early in the Programme's implementation, we became increasingly aware of the dangers involved in divided responsibilities. We therefore advised state governments, which did not yet have a full-fledged dairy co-operative structure, to set up State Dairy Development Corporations, which would act as unified implementation agencies for the state's part of Operation Flood. Once brought into being, however, such a Corporation has an interest in not handing over completed projects to the farmers. Thus, in these cases, we helped to create a new vested interest.

### **4. Some reasons for the relative success of the Programme**

Considering the difficulties encountered and the errors made (only a few of which have been spelt out above), it is surprising that the Programme has been judged to have been relatively successful. Some of the reasons why this has been so are discussed (not in order of priority) below.

**Political and administrative leaderships:** From its inception, the Programme received strong support at the highest levels of the Government of India, the concerned State Governments and their administrators. This made complex inter-Ministerial co-operation possible. It also nullified the tinkering, meddling and petty corruption which often endangers programmes at the lower levels of the political and

administrative structures. It enabled the Project Authority to stick toughly to the policies laid down, without having to implement the Programme as a popularity contest.

**The existence of a model live lab:** The fact that the Kaira District Co-operative Milk Producer's Union (and its sister, Anand Pattern Dairy Co-operatives) actually existed at the start of the Programme was an invaluable aid. The Anand Pattern Co-ops provided much of the NDDB's initial supply of skilled, motivated man-power. They acted as a demonstration team to milk producers from other milksheds. They acted as a live lab, in which new ideas could be tested. They could do this because they were procuring, processing and marketing (very well) large quantities of milk. The technical system involved fat-testing each producers' milk for quality and payment for milk (usually within 12 hours) on the basis of tested quality. This system's viability was assured by the institutional structure, which provided for feedback on performance at each level: the farmer-member, his village co-op's Managing Committee, the Union's Board of Directors and the Union's professional staff.

**Initial knowledge of relevant skills:** Thus, the IDC-NDDB had access to a pool of professional practitioners who already possessed the key skills. From the arts involved in urban retailing to the nuances of our small rural producers' "back yard" milk-production practices, there were always one or more professional practitioners available, whose knowledge provided the basis for implementation and for producing more of such men.

**Personalities among the international technocracy:** Despite the remoteness of their HQ's from reality and the intricacies of their bureaucracies, the Programme was blessed initially when it entered the in-trays of a few out-standing personalities in the technocracies of the developmental assistance agencies concerned. Thanks to these men, in both the UN system and in the often-maligned EEC system, the Programme received strong international support (moral and material) plus the services of a professional, committed eight-man FAO-UNDP Team. The complexities of the UN system's bureaucracy are widely acknowledged. However, the very fact that the Operation Flood proposal did enter the in-trays of several distinguished leaders in the UN system raises a question: perhaps a bureaucracy should be judged by whether, ultimately, the right piece of paper does cross the right man's desk.

**Exceptions made by developed countries:** The take-off of Operation Flood was helped by several developed countries' exceptional actions: the EEC changed the systems involved to ensure that we received fresh milk powder; stainless steel exporting countries gave our indents some priority in the face of incipient shortages; and milk-powder exporting countries decided not to oppose the Programme in the WFP-FAO, although they feared that it might enable India to do without milk-powder imports (it has) .

**Committed young professionals:** The NDDDB was able to build up its services (particularly in engineering, veterinary care and farmers' organisation) because it was able to recruit large batches (20-50 at one time) of fresh Indian graduates of high calibre and commitment. Much of the NDDDB's senior officers' time was spent initially in selecting and inducting these young people and they repaid the investment one-hundred-fold.

**A strong market and a market-oriented programme:** There is a very strong, age-old demand in India for the product selected as the vehicle for the Programme, liquid milk. Moreover, the design of the Programme itself recognised a significant demand-market factor: namely, that the modernising dairy industry had to gain command over the major urban demand centres, if ever it was to stabilise its marketing systems. Hence the choice of the four major cities, where 3% of our population accounted for 6% of consumer-expenditure on milk and milk products.

**A national multiplier institution:** The Programme was designed by India's National Dairy Development Board, which then played a major role in moving it through the national and international bureaucracies involved and, subsequently, in helping to get it implemented. The fact that the NDDDB existed, that the Board included Indian dairy practitioners and scientists of proven experience, that the Programme was based on these men's experience in the field plus their experience as Board Members in being unable to get the Anand Pattern of Dairy Co-operative replicated during 1965-70 in the face of opposing, entrenched interests... all these considerations indicate the importance of the NDDDB's existence as a multiplier institution prior to the Programme's start-up.

##### ***5. Constructing a programme: conditions for success***

The process of agricultural development causes significant economic and social change. It therefore encounters the resistance of those with an interest in the status-quo. Although there may be many other difficulties, it is the inevitable resistance to change which specifies the conditions necessary for the success of an agricultural development programme. On the basis of the experience gained from Operation Flood (summarised above), the four main necessary conditions for success in the construction of an agricultural development programme, are specified briefly below.

**Clarity fo national priorities:** Every society has its own priorities and, with luck, its system of government gives them expression. Operation Flood, for example, reflected the priority to be given to erecting an institutional infrastructure for agricultural development which would enable our rural poor to increase their productivity and incomes, while contributing to the provision of an adequate, nutritionally balanced and stable national diet.

**Governmental support to programme leadership:** After Operation Flood was designed, five Secretaries to the Government of India sat down with the Programme

leadership and hammered out the details of operation and the meshing of implementation with Governmental machinery. The Programme then went to the Cabinet (and was approved). Thus, governmental support to Programme leadership was established at the programme's inception, along with procedures for effectuating that support.

**Large-scale technical inputs:** Inputs such as large dams and irrigation systems, fertilizer factories etc., are part of a country's developmental investment and they have to be created to the extent that they are needed and to which the country's resources permit. They do not, however, "develop agriculture" in themselves. They can only facilitate certain kinds of agricultural development, if properly managed. No doubt, for each country, at each stage of its development, there is some minimal level of such investment required and, to that extent, the existence of large-scale technical inputs is a necessary condition for the success of related programmes of agricultural development.

**A superior techno-economic system:** A specific agricultural development programme must be based on a producer-to-consumer system which delivers better quality and value for money than the system which it is to replace. Otherwise, it will neither give the producer a better return nor the consumer better value and it will not be accepted. This applies when producers are also consumers of the product in question. The modernising dairy system in India was known, even before Operation Flood, to be able to improve small producers' returns on high-quality milk and to be able to deliver that milk to consumers more economically and hygienically than the traditional system.

**A complementary demand:** The techno-economics of a specific programme for agricultural development must be matched by a complementary demand. That is to say, the cost-price relationships of the system to be developed must be such that the change envisaged will deliver the output with qualities and values consistent with effective demand. The demand may be by producers who are also consumers, or by non-producers who are near-neighbours to producers or who are more distant urbanities (including those in other countries, if exports are envisaged). Operation Flood's output targets, for example, were consistent with projections of effective consumer demands for milk and milk products in India.

In addition to these four conditions necessary for an agricultural development programmes's success, there are of course certain sufficient conditions. Two of these are discussed below.

**Skills and funds are sufficient conditions:** Of course, a programme must have available to it, the skills and funds needed for its implementation. If not enough are available (especially at the start), either may be imported — but, given the will, both can be generated indigenously over time. Operation Flood generated its own funds, for example — but initially did this largely by the recombination of donated dairy

commodities. The Programme was implemented using indigenously available skills, using a small amount of imported expertise to further develop indigenous skills and (especially) to help develop, in advance, the skills and techniques needed in each successive round of the programme's expansion. In other words, imported funds and skills can be helpful to start with, provided their use leads to economic viability and indigenous development of the skills required. Skills and funds, as such, can always be found: it is simply that a programme's size must be proportionate to their availability and the speed with which more of them can be generated.

## **6. *Construcing a programme: Choosing a starting point***

There does not appear to be any simple set of rules for determining the starting point of an agricultural development programme. In Operation Flood, the modernising dairy industry was an obvious starting point, because experience had already shown that it could fulfil the necessary conditions, but the choice is seldom so simple. Eight considerations, which appear to be most relevant to the choice of a starting point, are discussed briefly below.

**Why staple cereals may come last:** For the major staple cereals, rice and wheat, there does not appear to be a modernising producer-to-consumer system which fulfils the criteria discussed under "necessary conditions" above. Intensive, green-revolution technology increases production per hectare, but not necessarily the quality and value-to-consumers. Modernised storage and milling may increase edible out-turn, but not value-to-consumers per money-unit paid. Also, by definition, the dominant role of a staple cereal in a country's economy means that huge quantities of capital and/or draconian control measures would be needed to replace the traditional post-harvest institutional structure. For all these reasons, the complete, modernising development of the major staple cereals may come last.

**Why generalised "agricultural" programmes are difficult:** Although the area development concept can be a useful umbrella (especially in the command area of a dam, for example), it is difficult to plan and administer modernising producer-to-consumer systems for all of an area's crops at once. Whether public, co-operative or private, the organisation(s) involved become too unwieldy to maintain enterprising service relations with the producers.

**The relationship of demand to the techno-economic system:** Agricultural development is such that its benefits usually accrue to society over a long period of time. A programme's output targets must therefore be consistent with broad projections of demand for agriculturally produced food and fibre over the same period of time. Export demand may also be important, if the modernising techno-economic system has a comparative advantage over comparable systems in other consuming countries.

**The nature of wanted demand:** It follows that, when choosing a producer-to-

consumer system as the starting point in an agricultural development programme, there should be reason to believe that the system's techno-economics will continue, over time, to be consistent with producers' and consumers' expectations regarding incomes and prices. Export-led demand involves the danger that one's comparative advantage will be negated by importing countries' import controls and/or home subsidies — although an exception to this caveat may be "speciality" export markets: for example, a combination of spices made into a special curry powder and sold into a sophisticated market abroad, which is too small to affect the importing country's balance of payments and too specialised to be substituted by other sources of supply.

**Area specificity:** A country or region may, of course, plan the modernisation of the production of a commodity in many ecologies at once, but it appears to be desirable to organise such change on an area-specific basis. Then, in each organisation concerned, the implementors and the farmers can get to know each other and can concentrate on the production system suited to their particular ecology.

**One product at a time:** Human organisation being what it is, there may actually be at least one maxim which is almost a rule: that is, in a given area, it is best to start with one product (one producer-to-consumer system) at a time. Others may later be taken on by the institutional structure thus created — and then preferably hived off.

**Multi-product national programmes:** None of the above contra-indicates a country's undertaking simultaneously a number of area-specific product-by-product programmes. It indicates only that, though inter-dependent, each programme needs sufficient organisational independence for efficient implementation.

**Some examples:** Hopefully, the generality of these observations on choosing a starting point can best be mitigated by giving some specific (Indian) examples. In selected ecologies of India, ground-nuts may be a starting point, because the present production system is out-dated, the marketing system is clearly grossly exploitive and demand for groundnut oil has long-term strength. Cotton is another example, if only because traditional mill owners use the existing marketing system for mercantile margin-taking, instead of improving income-price relationships. Other examples may include certain pulses and analogues made from them. In each country "agricultural development" must ultimately be comprised of the development of modernising production, processing and marketing systems, which are specific to each agricultural product.

### **7. *Constructing a programme: stocking the cafeteria***

Considering the national priorities which are involved, decisiveness is necessary in mounting an agricultural development programme. Preparatory elaboration does not justify postponement of action. Based on a comparison of the opportunities for developing the production of different agricultural products versus the national priorities involved vis a vis the need for increased production of each product, it need

not be very difficult for the responsible decision-makers in each country to decide which agricultural product(s) to start with. Once this is decided, there may, of course, be many ways to construct an agricultural development programme: one action-oriented approach is described immediately below.

**Generating the model live lab:** Usually, a model live lab requires farmer organisation and a producer-to-consumer system for the production, processing and marketing of a specific agricultural product, to be designed and implemented with necessary skills and funds. It is best to select an area, product and system which are sufficiently compatible, in order to plan a project which can become viable (self-supportive) in at least 3-5 years. The activity has to be institutionalised, so that the farmers involved can learn to control it, using professional management and scientifically trained men to run it. The responsibility of the promoting agency is to see that inputs are provided on time, to monitor progress, to help apply any necessary mid-course corrections and to ensure the proper use of funds. The live lab is, of course, a process of "on the job" learning for all concerned.

**Preparing for multiplication:** The promoting agency can also be responsible for multiplying the live lab into Programme, once the live lab has developed sufficiently to become a demonstration and training ground. To be ready for this job of multiplication, the multiplier agency has to train (or get trained) the people needed for work in farmer's organisation, the production, processing and marketing of the product in question; it has to organise itself to appraise and adapt alternative technologies which can improve the producer-to-consumer system and to develop the communications and administrative arrangements which will be needed later in order to multiply the live lab into a Programme.

**Internal self-balancing for the Programme:** The Programme has to be designed to become internally self-balancing as fast as possible. Individual personnel may fail to develop or may quit - each man should always be developing two potential successors. Supplies and demands in different markets may rise and fall unpredictably and provision must be made for transport and storage to even out such spatial imbalances between supply and demand. Farmers may (tightly) modify technical input packages — they should be given choices in the matter — and the whole Programme's funds flow must be adjustable to unplanned inflows and (especially) shortfalls of funds.

**Generating the necessary skills:** Initially, a country may be lacking in one or more of the skills needed even to set up the initial level lab. If so, people with relevant education may need training for the job overseas and/or they may need backing by some imported expertise. Ultimately, it may be necessary to establish an indigenous institution of education and/or training (and/or research), but, in the early years, caution is needed to avoid superficial academicisation which is divorced from practicality and from farmers' needs. In the early years, it is best if emphasis can be on developing the live lab's capacity for multiplying the needed

skills by on-the-job training. In summary, each Programme can be focussed on an agricultural product and a producer-to-consumer system designed to facilitate modernisation of the production, processing and marketing of the agricultural product in question. Each such Programme can be started by setting up a live lab to find out how to do the job on the required scale, while also setting up a Multiplier Agency which, if necessary, will get the people trained for the live lab and which will later use it for demonstration and training at the multiplication stage, by which time it has to be able to use the experience acquired in the live lab continuously to improve the techno-economics of the producer-to-consumer system(s) used in the Programme, devising and expanding a "cafeteria" of inputs for operating units to choose from, according to their needs and the resources available.

### **8. Initiating a Programme**

A live lab may, of course, be a failure, in which case one has to start afresh. But normally speaking there comes a time when the live lab is working well enough for multiplication — and the Multiplier Agency should be ready then to start getting it multiplied into a Programme. The first Programme will not necessarily be such as to entirely overcome the scarcity of a food or fibre: the problem may at this stage be too large or complex for that. But, within 2-3 years of a live lab's start-up, the time comes to abort or to multiply it — otherwise, the live lab becomes a dilettante "experiment", removed from rural realities. Letting customers choose: Precisely because the live lab will seldom generate all the answers, it is important that the experience gained from it be used to "stock the cafeteria" (as discussed above). Then, those responsible for implementing the first round of multiplication can choose from the input technologies, methods etc. which have been devised, in order to shape their part of the Programme to their particular needs.

**Transferring resources to farmers:** Processing and marketing facilities, systems for veterinary care, extension etc. — all these work better when they are owned by farmers and operated by farmers' employees. But the farmers may not appreciate what is involved if the system is simply "given" to them (which the State may also not be able to afford). One answer is to let the farmers "buy out" the State's investment in the system, out of the margins earned on their produce. In the interim period, the promoting agency can hold the State's share of the system in trust for the farmers. This has the advantage that the State's initial investment can also become a revolving fund for further multiplication.

**The live lab and the Multiplier Agency:** It follows that the staff working with the farmers has to be of high calibre and that increasing numbers of trained personnel will be needed in farmers' organisation, production, processing and marketing. The sheer amount of on-the-job training to be done (and its constant repetition) may exhaust the live lab's personnel. It is the Multiplier Agency's prime responsibility to distribute on-the-job training among the Programme's newly formed implementing units and to maintain the quality of personnel, despite the increased quantity that is required.

In summary, the experience of the live lab provides the basis for its multiplication into a number of operating units which comprise the initial Programme. It also provides demonstration and training for these units' personnel and participating farmers. Feed-back from the multiplication process is the basis for making mid-course corrections.

### **9. Monitoring the Programme and Applying Mid-Course Corrections**

Any Programme — and especially a cafeteria-based Programme — will need mid-course corrections as experience is built up and external circumstances change. Four kinds of action are involved: information gathering; information arrayal and analysis; the devising of improved methods, procedures etc. and feed-back to obtain improved performance. Most action-oriented people dislike making and reading reports. Most "field" workers dislike interventions from "head office" (and most head offices are remote from the field). Nevertheless, as monitoring and mid-course corrections are needed, provision has to be made accordingly. The measures outlined below can help.

**National goals and a perspective view:** Precise delineation of the national diet in, say, 2000 A.D. may not be useful. A broad perspective of how the national diet (and consumption of agricultural fibres) is likely to develop is needed. Used flexibly, — in conjunction with data on incomes, prices, non-food expenditures etc. — a perspective plan can be used to check the consistency of a single Programme with broader goals for the national diet, income distribution etc.

**Professionalism and commitment:** It is generally recognised that the quality of implementation depends on the calibre of the personnel responsible. Yet it is also true that institutions wax and wane in their standards of professionalism and commitment. Most institutions live on as vegetables long after brain death occurs. Talk of "management succession" etc. seldom avoids institutional vegetation. Every institution's board of management should periodically propose the institution's dissolution and reformation, to maintain the required standards of professionalism and commitment.

Subject to the quantitative "frame" provided by a perspective plan — and to there being adequate protection of the institution's professionalism and commitment — monitoring and mid-course corrections can be applied as discussed below.

**Information:** Parameters for measuring performance and progress need to be agreed between those responsible for implementation and those responsible for monitoring it. An independent structure (internal and/or external) is needed to gather, carry and analyse information objectively on performance and progress. There should be regular (but not over-frequent) reviews of performance and progress, to recognise and record good work and to correct bad work (both in the head office and in the field).

**Identifying improvements:** At least four instruments can be used to identify improvements which can be made in the Programme: the Multiplier Agency can organise a problem-oriented programme of applied R & D, in conjunction with continuing techno-economic and managerial analysis of the operating units which are being multiplied; as successive rounds of demonstration, on-the-job training etc. are mounted, the experience of the operating units, as they try to improve their performance, can be fed into the Multiplier Agency's man-power development programmes; personnel can be rotated between implementation in the field, head-office assignments, monitoring, applied R & D, and man-power development. The number of personnel involved in the four activities (applied R & D, techno-economic and managerial analysis, man-power development and monitoring) must be limited by the resources available and by the need to avoid a counter-productive bureaucracy, but Operation Flood, for example, has benefited by provision of up to 3% of project funds for these activities.

**Obtaining change:** Even when ways are identified whereby progress and performance can be improved, change itself is often difficult to obtain. With the multiplication agency, rotation of personnel can help. It may be more difficult to obtain change within the operating units in the field as they are being multiplied, especially as unduly centralised control of these units is impracticable — and such control as there is may be rather remote (a seat on the Board of Directors, for example). Rather than seeking control as such, it may be best to use informal visits, seminars, workshops etc. and, if there is a demand, consultancy services — as a means of obtaining voluntary change. In the final analysis, most implementors do want to improve their own performance and their organisation's progress.

To sum up briefly, then: monitoring and mid-course corrections can best be obtained by four sets of actions:- using a flexible perspective plan to test the Programme's consistency with overall national goals; maintaining a dynamic within the institutional structure to set and maintain satisfying standards of professionalism and commitment; organisation within this framework of discrete units for monitoring performance and progress for using applied R & D and continuing techno-economic and managerial analysis to identify ways of improving the Programme; and the use of informal meetings, staff rotation, man-power development programmes and consultancy services to obtain change and feed-back on the results of change. When the top management is no longer convinced that it can get these four sets of actions effectively carried out, then it is probably time for the board of management to recommend its own dissolution and the reformation of the institutional structure.

## **10. The Final Thrust**

Although at first sight the tasks of agricultural development appear to be forbidding, they appear less so when they are broken down into a series of Programmes, each based on a specific agricultural product. As each Programme progresses, the time comes when light appears at the end of the tunnel, when the

national goals involved are within one's grasp. Continual adaptation of the system, to incorporate technical advances and to respond to new national aspirations, will always be needed. But the sense of running on a treadmill in the dark is no longer there and that is the time to make the "final thrust".

**Concretising the perspective:** Up to this time, such goals as, "nutritional adequacy", for example, will have seemed too distant to merit very much detailed work. But when they are within one's grasp, that is the time to harden up targets, to quantify the remaining inputs required and eliminate the bottlenecks. This process can best be started by concretising the perspective plan for the agricultural production on which the Programme is focussed, by allocating tasks accordingly and by assuring the required flow of funds.

**Internal viability and external funding:** The way that funds are made available for the final thrust depends largely on the fiscal and economic structure of the country of course. In India's mixed economy, Operation Flood has benefited from the principle that developmental investments will, as far as possible, be funded from the public exchequer. As operating units become viable (and as the entire agriculture food sector is modernised) it will be increasingly desirable that further investment in modernisation and expansion of production, processing and marketing, should be supported by internally generated funds, to help direct investment into programmes which will benefit both producers and consumers. In any case, funds from the public exchequer will be scarce for many years and they will be required for vast social investments, so it behoves each unit, as it becomes viable, to generate further funds it may require.

**Tightening the links between authority and responsibility:** In many agricultural sub-sectors, a considerable number of operating units will be needed for production, processing and marketing. As these develop, so also will their awareness of their own interest in the pursuit of national goals and policies. At that stage, it is important to encourage each unit to make its own decisions on how it can best contribute to progress. To help achieve this, the Multiplier Agency's first responsibility is to see that each unit receives timely information on production, prices, stocks and demand. Armed with such information, each unit's management can make the day-to-day decisions which are needed to ensure its unit's maximum contribution toward national goals.

**The ascent from rural poverty:** The inheritance of the underprivileged is such that, when the process of rural development starts, most poor cultivators find it hard to believe that the instruments of development are in their hands, and, therefore, harder still to decide how to use them. Moreover, many practical questions as to how the farmers' own organisations should evolve are yet to be answered: for example, single-purpose or multi-purpose co-operatives; separate or joint water and electricity co-operatives etc. On all such alternatives, there will need to be a continuing dialogue with the farmers and a flexible response as experience is gained.

Nevertheless, when the time comes for the final thrust, the Multiplier Agency is already there, with the tools for innovation and improvement in its hands. The process of multiplying the operating units in the field is known. There is enough

knowledge of the modernising process to concretise the perspective with reasonable confidence. Healthy growth of operating units eases the burden of funds generation and, as the rural people ascend out of poverty, they become increasingly effective in using the instruments of development and in developing better instruments for themselves. That, presumably, is both the purpose and the ultimate achievement of the final thrust.

### **11. *Institutions, Rural Modernisation and Humanism***

One cannot tinker with one part of a system without changes taking place in other parts of that system. When the production, processing and marketing of even one agricultural product is modernised, a more general process of rural modernisation is set in motion. Therefore, when we speak of "agricultural development", we are also speaking of "rural modernisation": we are asking people (obliging people ?) to change their way of life, to change the social fabric of village and homestead which, however deficiently, has enabled them to survive, at least, over many deprived centuries.

It is also true that, the more an institution connected with agricultural development is centralised, the more remote it is from the rural cultivators whose lives it seeks to change. This, surely, is a weakness not only of national institutions, but also of regional and international institutions for agricultural development.

Inevitably, the FAO-UN comes first to mind. It does excellent work in areas where internationalism is essential, such as codes of standards. It has also been of inestimable help to Operation Flood in finding international specialists who are competent and dedicated. But suppose, when the FAO was founded, it had started by stationing teams of mixed nationalities in every member country, to work for five years with the farmers of that country on a down-to-earth agricultural development project and then it had brought those people together to decide what (and where) the FAO should be and do. Would not the organisation be very different from what it is to day? Would it not, in fact, be more like what its new Director General is now striving to make it? Among other things, it would have placed more emphasis on helping people to learn to work with and for farmers and to plan agricultural development from the farmer up (and not from the FAO, down). It would have made its first priority the self-sufficiency of member countries in planning and implementing agricultural development, instead of perpetuating the endless "missions," "teams" and "task forces" which stream in and out Rome, Washington and New York, all trying to do agricultural development by remote control.

The next round of efforts by the international developers, after building up the FAO, was the establishment of problem-oriented centres of high level research, such as the IRRI. It is widely accepted that these centres have done and are doing excellent work. But would not their impact have penetrated deeper and faster if, as each was formed, an equal effort had been put into their communications and co-working with the member countries' agricultural development institutions? Certainly,

such matters are not always easy to arrange (the hospitality of "host countries" can be prickly), but the point is worth emphasising, because it should be considered more carefully before any new "international", "regional" or "apex" institutions are built, however remotely, onto the backs of the farmers they are supposed to help.

Since no traditional agriculture can be modernised without fundamental changes taking place in the societies which practise it, we must shape the institutional structure of agricultural development so that it develops in response to the farmers' expressed needs. For example, we have to remember that it is the young people in the villages and homesteads who are the farmers of tomorrow — and they are already a part of the world culture. They are aware of the city and its amenities. They see the city not necessarily paved with gold — but certainly freed of the barriers of custom, freed of the burdens of clan and family, freed — not of poverty itself — but of poverty's cursed inheritance, which as long as they stay at home demands that they accept the exploitation which to their fathers — and to generations before them — has been their way of life.

Freedom is the magnet of the city. This is the magnet which has to be depolarised, if our young rural people (especially the more enterprising among them) are to stay on the land. And if they do not stay, not only will urbanisation become socially intolerable, but rural modernisation also will become socially infeasible, because the brightest and best will have been drawn to the city.

This is why it is so important that neither international, nor regional, nor national institutions, which are centralised by nature, should continue to impose alien forms upon our rural communities. Instead, we must seek to learn how to work with farmers in projects designed to help them choose and create their own vision of what the village's modernising life styles and amenities should be.

Out of the acts of choice, consensus, creation and construction will come a modernising rural leadership. The man who leads the move to line his village streets gutters today, the woman who leads the movement to co-operativise the village's milk business today — that man and that woman are the leaders who tomorrow will tell us what research we should be doing, what education we should be providing for the young farmers of tomorrow — what, in fact, they expect of us, the urbanites.

The next step, therefore, should be the start-up of a number of small, flexible live-lab projects, in each country which is interested - each based on a priority agricultural product and each designed to start the learning process afresh. Each of these projects should concentrate not only on technical change in the production, processing and marketing of the agricultural product on which it is based - but also on how the farmers want to organise themselves to obtain the technical, social and economic changes they desire: changes in the infrastructure for agricultural development - and in health, education and environmental sanitation, for example. Until we knew more about that, it behoves us not to create more jobs for ourselves in centralised institutions, located in places where the amenities for health, education and sanitation are as we like them to be.