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# IMPROVING THE DESIGN AND THE ADAPTATION OF AGRICULTURAL PROJECTS

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The World Bank, in its Annual Review of Project Performance Results, assesses the success of projects and tries to detect the underlying causes of problems which have affected project performance. The 1985 Review noted a progressive decline in the 'success rate' of agricultural projects from 83% for those reviewed in 1980 to 67% for those assessed in 1985<sup>1</sup>. The situation has not improved significantly since then, according to a recent FAO Investment Centre Study<sup>2</sup>.

The FAO Investment Centre, which is involved in the preparation and appraisal of agricultural development projects, is particularly concerned that problems attributed to poor project design or appraisal have, since 1981, represented by far the most important single reason for the unsatisfactory performance of World Bank financed agricultural projects<sup>3</sup>.

The concern of the FAO Investment Centre led it to review the experience of 75 projects prepared between 1970 and 1980 for which post evaluation studies existed<sup>4</sup>. The total investment cost of the projects at the time of appraisal was about US 2.25 billion. Most of the projects were prepared for IDA and IBRD financing, but several were financed by IFAD and ASDB. The projects were distributed between the regions: 'Asia and Pacific' 27; 'Africa' 19; 'Latin America and the Caribbean' 16; 'Europe and Middle East' 13.

The FAO Review was directed towards the following objectives: identifying problems which occurred in the implementation of projects prepared by the FAO Investment Centre; assessing the extent to which the problems may reasonably be attributed to errors at the time of the preparation of the projects; and examining some alternative approaches to project preparation and analysis which could contribute to a higher project success rate. This paper draws heavily on the study<sup>5</sup>. In view of the purposes of this Conference, attention will be concentrated on outlining approaches to project

design and redesign, which could lead to increased *performance* and - in turn - to greater *achievement* in meeting the objectives of the projects. It is hoped that the lessons of experience gained predominantly outside the Caribbean may be of interest and even of some relevance to the region.

## APPROACHES TO IMPROVING PROJECT DESIGN

In the view of the FAO study, the principal limitations of the current approach to project preparation is that most project analyses are currently directed towards presenting a quantitative proof of a project's feasibility with most effort being put into various forms of cost-benefit analysis rather than contributing to improvements in the underlying concept and design of the project<sup>6</sup>. Even though the weaknesses of these analyses are widely accepted, the outcome of such cost-benefit analyses continues to carry disproportionate weight in decisions on a project feasibility.

There would seem to be considerable room for providing decision-makers with a much more informative basis on which to arrive at judgements on the feasibility of projects. Thus it may be advantageous to give greater attention to methods which implicitly leave the weighting of the various conditions to the decision-making bodies. This would imply that project feasibility studies should include a broad and systematic review of benefits (and any negative side effects) in terms of their consistency with national, political, economic, social, nutritional or environmental objectives, together with the means of assessing the chances of achieving, or not achieving, the forecast benefits.

The FAO study identifies approaches which commonly need improvement. Three principal areas - relating to the institutional, technical and social aspects of project preparation and appraisal - are treated first in this paper. Attention then turns to

issues relating to increasing beneficiary participation, to the project preparation environment, and to building national project preparation capacity. Finally, the paper refers to means of incorporating greater flexibility in projects.

## INSTITUTIONAL ISSUES

The FAO Investment Centre study established that institutional problems represented the most serious *source* of difficulties experienced by the projects under review.

For a project to be institutionally feasible there must be a matching between the tasks to be carried out, the time-frame over which they are to be implemented, and the institutional capability to execute them. (The frequent inclusion of unduly high disbursement targets for the first year of a project provides clear evidence of the need to make a methodical assessment of scheduling implications and demands on management implied by each important project 'task'.) It is also necessary to be specific in identifying the exact nature of institutional weaknesses which need to be overcome if tasks implementation is to be feasible, and to examine the comparative benefits of different approaches to overcoming these<sup>7</sup>.

As one step towards improving the realism of scheduling and the appreciation of the magnitude of demands on management/staff/skills, it would be useful to employ some form of *'task analysis'*. This could, in the case of complex projects with significant interdependence between components, involve the application of formal scheduling techniques such as network analysis or critical path analysis, which would not only identify the time-frame required to carry out a given set of actions and the optimum sequencing, but could also prove useful to project management. Alternatively less formal techniques could be adopted to confirm or refute the implicit judgements on which estimates now tend to be based. From such an exercise it would be possible to derive a reasonably accurate expenditure/profit for each component over time, an assessment of the demands on management and staff, requirements for coordination with other components or activities lying outside the project (e.g. passage of enabling legislation, and approval of an budget), and the needs for any particular skills.

The next step involves reconciling the demands implied by such an analysis with institutional capabilities. If these do not match, either the scope of the task must be reduced (for example,

by dropping peripheral components with heavy demands on management) or the institution must be reinforced to the point at which it can be realistically expected to cope with demands.

According to the review of project implementation problems, the most serious institutional problems are not so much of a structural nature as of a staffing origin. It would seem reasonable to direct greater attention in project design to assessing staff capabilities and the options for improving these, where necessary. A first step in making such an assessment, is to complete a *skills gap analysis*, on the basis of which well-founded training programmes can be developed.

Most project preparation reports tend to give some attention to the structural aspects of institutions, usually including an organogram, a list of functions and an estimate of staff requirements, as well as setting out the means to work (buildings, vehicles, and equipment). It is unusual for such reports to address what might be termed 'institutional dynamics': how the institution and its component elements will operate. An integral part of the institutional design of a project must be - if there have to be any significant structural or staffing changes - the *preparation of a manual* which clearly sets out the functions of different units and posts (including terms of reference for technical assistance staff) as well as the operating procedures to be followed within the institution.

## TECHNICAL AND SOCIAL ISSUES

One of the more disturbing findings of the FAO review is the relatively high severity of technical misjudgements. Another important problem is the relatively high frequency with which production targets - whether for crops, fish or livestock - fail to be met. In general, what seems to be required is more rigorous analysis of the underlying assumptions on which output forecasts are based, provided that it can be shown that this would significantly improve the quality of the predictions.

To take the case of crops: increases in production are the product of increases in yield in per unit areas, and changes in the area over which such yields are obtained. Yield may respond significantly to changes in technology but is also affected by a range of environmental, biological, and managerial factors, which contribute to variability in yield attainment between seasons and between farmers. In communities of independent producers, average yields will be affected by the extent to

which farmers adopt - in whole or in part - the recommended technology and by the rate of adoption in the community as a whole<sup>8</sup>. Thus predictions of increased farm output represent the outcome of an inter-related group of judgements not simply on technical issues but also on farmer behaviour.

The conventional project preparation analysis approach (as outlined in a footnote) has the merit of simplicity and may be quite adequate for predicting agricultural output under relatively stable environmental conditions (e.g. in irrigation projects with reliable water supplies) and where there are recorded precedents for the adoption of analogous innovations. In other circumstances, particularly when the viability of a project is heavily dependent on incremental farm output from small farmers in rainfed areas, further analysis would be necessary to assist decisions on committing resources to the project.

There appear to be two principal areas on which such extended analyses should focus: on gaining a better appreciation of the range or probability of yield variations between farmers and between seasons/years, in the 'with' or 'without' project situations; and on developing a better understanding of the factors affecting farmers' decision on adoption.

*Analyses of yield variability* could involve a comprehensive probability analysis requiring both reliable time series data (on yields and on the factors contributing to variation) and sophisticated statistical analysis skills, which are not always available. However, a qualitative analysis of yield prospects would be valuable in focusing attention on the underlying causes of risk, and ensuring that these are given due weight in the design of the project and the assessment of its feasibility<sup>9</sup>.

*Realistic assessment of adoption rate* of new cultural practices require an adequate understanding of how the farmers would perceive the innovations proposed for use under the project, and of how their behaviour could be influenced by various instruments (such as extension services, availability of inputs, credit, subsidies, guaranteed prices, and security of tenure)<sup>10</sup>.

## INCREASING BENEFICIARY PARTICIPATION

The issue of securing beneficiary participation in project design is both important and complicated. In most countries there are few ready means of consulting systematically with the many small farmers who ultimately make up the typical

beneficiaries of agricultural and rural development projects, and their views on priorities and the feasibility of different development options can only be assessed through the application of rapid rural appraisal techniques. Much has been done in recent years to improve these techniques, and there appears to be room for deliberately increasing their use in project identification work.

While the substantive involvement of beneficiaries in project preparation is a laudable but seldom very practical objective, given the time frame in which project preparation must take place, the feasibility of projects often depends on the development of arrangements for securing the genuine involvement of beneficiaries in planning and decision-making during project implementation. If workable arrangements for this are to be developed, it requires at the time of project preparation a heavy investment in designing and field testing of participative or consultative mechanisms (to be applied during project implementation) with the generation of data on which to base project design assumptions.

## THE PROJECT PREPARATION ENVIRONMENT

Although some of the activities already referred to can be carried out by a reallocation of staff time between tasks, or simply by using existing time commitments more efficiently, and by focusing systematically on essentials, most of the suggested approaches to improving the standards of project preparation require that some more time be assigned for the work. If emphasis continues to be given to speed in preparing projects and the very tight manpower allocations prevail, this will tend to inhibit the introduction of any improvements in project preparation techniques. It is also likely that, if the additional analyses were to be made, they would lead to more cautious assessments of investment requirements and hence to fewer and certainly smaller projects.

As long as the major financing institutions give greater weight in the evaluation of their performance and that of their staff to the number and size of loans advanced, rather than to the ultimate results of the investments made, any proposal which increases administrative costs, contributes to delays in meeting loan processing target dates, or reduces the size of justifiable loan commitments, is not likely to attract the necessary management and financial support. The effects of inadequate attention to project analysis will continue to be to:

- reduce the thoroughness with which alternative options are reviewed prior to the hardening of most aspects of project design;
- preclude apparently necessary investigations and analyses;
- make it difficult to carry the government and, still more, the beneficiaries along with a rapidly evolving project concept; and
- restrict the range of disciplines that can be represented in the project preparation team to one which precludes specialised treatment of all major components.

Even if these restrictions were to be relieved, however, there are other aspects of the project preparation environment which tend to have an adverse effect on project quality and ultimately contribution to a disappointing performance. The most serious is the almost irresistible pressure for optimism on project feasibility which makes it almost impossible to abort a project pipeline. This is a complex problem which appears to have its origins not only in the importance attached within both governments and the financing institutions to achieving agreed lending targets, but also in the perceptions of the individuals involved in the processing of projects that it is in their interest to ensure a successful outcome. Sometimes, too, the very process of project preparation tends to generate an enthusiasm and commitment to a successful result that leads to an underestimation of the difficulties and risks associated with the project.

### **BUILDING NATIONAL PROJECT PREPARATION CAPACITIES**

In view of the importance of the project as a vehicle for mobilising external finance, it is surprising that so few countries have yet succeeded in creating the necessary institutions for developing greater indigenous project preparation capacities. Amongst the reasons for this could be the focus given to the training of individuals (who quickly become upwardly mobile) rather than to the broader aspects of institutional development, but it may also be that the heavy emphasis assigned in most training activities to economic analysis fails to equip people with the wider range of skills required for project identification and preparation work. The discrete nature of projects and the relative ease with which their preparation can be contracted out may also contribute to a low priority being accorded to developing national capacity for such work. Where political conditions permit durable institutional

arrangements for project preparation to be built up, this can only be done with a strong and sustained commitment by both the concerned government, and by the various financing institutions with which it is working. Recruitment and training plans need to be drawn up to address the long-term staffing needs of the institution, and inputs of technical assistance need to be carefully orchestrated to fill gaps rather than to substitute for locally available staff.

### **INCORPORATING GREATER FLEXIBILITY IN PROJECTS**

There has been a tendency over the past years to focus attention on improving the apparent accuracy of the projections, estimates and analyses on which project designs are based. (This has been encouraged by the use of computers which have made it easier to handle large numbers of figures). A considerable effort has also gone into refining economic analysis methodologies and much of the training offered in agricultural project preparation has been focused on improving the application of such techniques.

Past experience, of complex and 'soft' projects, in particular, is that *ex ante* projections of costs and benefits tend not to be very accurate. The longer the period over which predictions have to be made, the greater the danger of inaccuracy.

It is, however, being increasingly realised that projects cannot be designed to meet particular needs and conditions, and remain unchanged as these change. What appears to be required is to design projects in such a way that they can - within generally agreed and clearly defined objectives - adapt themselves to:

- improvements in information,
- findings of monitoring work,
- perceptions of emerging new opportunities/comparative advantages,
- changing political or economic circumstances,
- unpredictable events, particularly, for the agricultural sector, those of weather-induced origin.

This implies 'loosening' design, and deliberately devolving more responsibility, for decisions on the allocation of resources and changes in policy, to the management of the project.

Various approaches to building increased flexibility into project design have been tried and would appear to warrant more frequent application. They include:

- (a) Use of 'programme loans' and 'funds', from which finance can be drawn to pay for a range of activities which are not tightly pre-specified but are consistent with the general objectives of the project and meet agreed approval criteria.
- (b) Adoption of annual operating planning arrangements: such plans would be subject to approval by the financing institutions as represented by supervision missions.
- (c) Provision for in-depth mid-term reviews, aimed at providing for 'course corrections' to projects with relatively long disbursement periods.
- (d) Commitment in principle to sustain financing for a thoroughly appraised programme over a long period, but with actual funding commitments being made for a series of short-term tranches or time-slices, each conditional upon a 'short-cut' appraisal.

While all of these approaches imply a need for less accurate long-term projections of costs according to component, they place other demands on project preparation. In particular, they require:

- (i) A very clear definition of project objectives.
- (ii) Particular attention to, defining project management arrangements and procedures, especially for monitoring (and responding to the findings emerging from monitoring mechanisms), and to the preparation and processing of annual operating plans.
- (iii) Careful definition of criteria for approval of releases of funds.
- (iv) Prior proof of the inherent viability of an array of specimen investment proposals, relating to the project.
- (v) An analysis of a range of possible outcomes, and of the extent of risk that some objectives may not be met: a critical review of the main potential sources of such risks would be essential.

It is also clear that any of the above approaches will place greater demand both on project management skills and on supervision and this may explain why some financing institutions show little apparent enthusiasm for incorporating greater flexibility in projects. The extent to which the additional supervision input could be financed through the projects as 'project implementation assistance' rather than from the administrative budget of the financing institutions, would, however, appear to warrant exploration.

The FAO study, on which this paper draws, has supported growing concern that the approach to designing projects and to the management of projects needs to be strengthened to deal with the complex and changing world in which projects have to perform. The measures proposed range from improving project analysis to the reorientation of policy and administrative procedures by donor agencies.

#### Notes:

1. *World Bank Operations Evaluation Department (1987). The Twelfth Annual Review of Project Performance Results (A World Bank Operations Evaluation Study). The World Bank, Washington p. 159, Appendix Table 2.7.*
2. *FAO (1990). The Design of Agricultural Investment Projects Lessons from Experience, (Investment Centre Technical Paper No. 6) FAO, Rome, p.1.*
3. *A World Bank Evaluation Study (1988) refers to project design as comprising: the objectives, phasing, scope and components, management structure, and financing and implementation plans. See World Bank Operations Evaluation Department Rural Development: World Bank Experience, 1965-86 (World Bank Operations Evaluation Study). The World Bank, Washington, p.27.*
4. *FAO (1990).*
5. *Appreciation is expressed to the FAO Investment Centre for its generous agreement to allow its study, (FAO (1990), to be used as the basis for this paper.*
6. *Typically a project preparation report contains several models to demonstrate the financial impact of the project on the ultimate beneficiaries - usually farmers - and an analysis of the effect of the project on the economy. When these analyses are carried out correctly, and on the basis of well-founded cost and benefit streams, there can be no doubt as to their value as contributions to judgements on the feasibility of projects. In practice, however, established methodologies are frequently applied wrongly, the terms in which the analyses are carried out may be of little relevance (for example, a financial rate of return is probably no guide to the future behaviour of a subsistence farmer), and the cost and benefit streams on which the calculations are based are seldom accurate enough to support detailed quantitative analysis. Even when the methodologies are correctly applied, little weight can be placed on the results of an economic analysis when there is a high probability of significant flaws in the underlying projections of costs,*

implementations schedules, and output, attributable to project interventions.

7. Superficiality in diagnosing areas of institutional weakness which would have a bearing on project implementation is all too common: the mere provision of a modification in organisational structures, the creation of a coordinating committee and the inclusion of an input of expatriate technical assistance, for example - although frequently advocated - is not a sure recipe for overcoming institutional problems.

8. Conventional projects preparation practice involves the construction of a series of crop, livestock or farm models, claimed to be representative of various agro-ecological situations, to illustrate the impact on production and farm incomes of investments and related changes in farming technology. Judgements are made on farmer uptake rates and on this basis the models are aggregated to provide the key inputs into the cost and benefit streams from which the assessments of a project's economic viability are derived. The models are conventionally analyzed to calculate a financial rate of return and a net return per man day of family labour (in case of small farmers), and are used to demonstrate that, if credit is involved, the borrower has the means to repay his debt. Tests of sensitivity to changes in the relative levels of costs and benefits are normally carried out both at the level of the model and on the aggregate totals.

9. A short note on simple methodologies for yield variability predictions and their presentation is given in Annex 2 in FAO (1990).

10. A fuller discussion of systematic but relatively simple approaches to improving the prediction of adoption rates is given in Annex 3, FAO (1990).