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PROJECT FORMULATION AND IMPLEMENTATION-- A FRAMEWORK FOR A RURAL CREDIT PROJECT

By

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I Introduction

This paper outlines a possible framework for credit project formulation and implementation exercise. For this purpose we have abstracted from the present realities and experiences of project approach of rural financing as practiced by many agencies in India, besides heavily relying on the existing conceptual literature on the project appraisal subject. Our suggestions for the adoption of this framework have been seriously influenced by the present experiences and capabilities of the financial agencies in India. In section II we discuss the concept of a credit project. Section III deals with the six aspects namely, technical, managerial, organizational, commercial, financial, and economic of project formulation and implementation. While section IV is devoted to the distinction of financial and economic analysis, section V provides an outline of a credit project proposal which could be considered by a financing agency. Final section summarizes the paper.

II. Concept of A Credit Project

From a rural financing agency's viewpoint a credit project can be defined to mean a proposal to finance capital investment as well as working capital needs. While inclusion of capital investment financing activity in the scope of this term is long recognized (King 1967), the inclusion of financing of working capital needs is not yet well recognized

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at least in India. Despite this, we have defined the term to encompass both the types of credit needs because of two reasons. First, working capital also contributes to developing facilities to provide goods and services which is the ultimate aim of any project. Our second reason stems from the idea of 'fungibility' of credit (Adams 1977, Von Pischke and Adams 1979). Money could be used for purchase of any item such as a consumption good or an intermediate input like fertilizers or a physical asset like a pumpset. It is, therefore, critical for a financing agency to ensure the use of credit for the purpose for which it is given. But this can not be done by policeing the use of credit. Making available credit in kind, routing credit through an input/asset dealer and so on are some of the ways by which this possible outcome can be controlled and the 'acquisition' of assets can be ensured. However, these instruments may also prove ineffective in encouraging the 'use' of assets particularly when working capital is not available in time and adequate amount. Such capital is needed to derive as well as to maintain services from the assets. An optimal combination of capital investment and working capital is necessary for the efficient allocation of resources (Baker 1968, Baker et al 1969, Donald 1976, Singh 1979). It is, therefore, logical to extend credit project activity to financing of working capital needs also.

So far we have not specified whose (farmers, breeders, input and asset manufacturers and distributors, output marketing firms and agencies, output processors and so on) credit needs for capital investment and working capital should a rural credit project meet? One alternative is

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to consider providing credit to each of these parties as a separate 'project'. There may be a merit in accepting this on the ground that it may be administratively more efficient and convenient. It is, however, doubtful whether such a merit can be adequately realized in a country like India where many of these agencies or to use the economics jargon, input and product markets have not yet developed in all regions/states as well as in all locations in a given region/state. This is not to suggest that every project should be defined to include financing of all the earlier mentioned parties. Depending on the local characteristics related to the functions performed by the parties already existing in a given location, the scope of the project activities may be defined. It is in this sense project should be area or better location-specific. This, therefore, further implies that the project scope may vary from area to area even for the same purpose. To illustrate, a scope of the project for minor irrigation loans in Baroda taluka in Gujarat could be different from that in Chhota Udepur taluka. Similar purpose credit project could differ for plains in Dharampur and for hilly areas in this taluka in Gujarat. The former may not require much financing for input and assets manufacturing and distribution, whereas the latter would require such financing.

Yet another illustration could be given from a widely accepted efforts to develop dairying as a supplementary activity in many rural areas. Project scope for this activity in Dhanera taluka in Banaskantha district should preferably include financing of milk collection and chilling centres, cattle feed and veterinary aids, cattle breeding and calf-raising, besides financing purchase and maintenance of milch animals. Against this, project scope for this activity in an area like Palanpur taluka in this

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district may include financing of purchase and maintenance of milch a cattle feed, veterinary aids, and milk-chilling centres only.

The general rationale for determining the scope of a project shou based on the nature of facilities available in the existing input and product markets including non-private agencies. Such a definition of a project is both necessary and desirable to ensure success of financing different purpose. Many a time viability of financing only one purpose purchase of minor irrigation assets, milch animals etc. lead to much low returns than expected, lower loan repayment rates and so on (RBI 1979, Desai 1978). Financing[1] more than one purpose like current and future production by farmers, current and future marketing by farmers, input and asset distribution, output collection and processing and so on under one project in a given compact area would facilitate achieving a multi-functional role of rural credit agencies. Such a role promotes forward and backward linkages so critical to sustain growth at farm-level. It also strengthens rural credit agencies ability to compete with the informal lenders who perform multi-functional role by operating in credit, labour, land, and commodity markets[2] (Desai 1977, Matthai 1977)[2a]. In the above context we would like to emphasize the definition of the term project as "an activity in which resources are committed in expectation of returns, and which logically seems to lend itself to planning, financing, and implementation as a unit" (Little and Mirrlees, 1974).

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1 In doing so appropriate pricing of credit for each of these purposes is also very important.

2 For literature emphasizing the inter-connectedness of these markets in rural India see Raj 1975, Bardhan and Rudra 1978, and Braverman and Srinivasan 1979.

2a For suggestions on organizing multi-functional role of rural credit agencies see Desai 1977, Desai et al 1978, Matthai 1977, and RBI 1979.

III Six Aspects of Project Preparation

The task of project formulation and implementation can be defined as a process of presenting a project idea in a form in which it can be subjected to a comparative appraisal. Such a task involves consideration of six different aspects of a feasibility exercise. These aspects are: (1) Technical, (2) Managerial, (3) Organizational, (4) Commercial, (5) Financial and (6) Economic or social benefit-cost analysis (Gittinger, 1972). Before we discuss these aspects, we may note that in India the feasibility exercise is scarcely done by the rural financing agencies with a view to subjecting the project/s to a comparative appraisal. Most financing agencies do not have adequate formal framework to integrate various projects for determining relative priorities. Indeed, there seems to be an inadequate appreciation of the idea of 'allocation of scarce resources which have alternative uses'. It is, therefore, not uncommon to find a financing agency preparing and even implementing more than one project/scheme like minor irrigation, dairy animals, farm mechanization etc. for a given compact area without considering the idea of alternative uses of its scarce resources of loanable funds (including refinance), trained personnel, transport-vehicles and so on.

While 'managerial', 'organizational' and 'commercial' aspects may have more to do with the project implementation, we would emphasize that all the six aspects must be considered together to prepare a project proposal which is implementable. This is more consistent with the concept of a project defined earlier. It is also because these three aspects have a clear bearing on the realization of returns which are invariably estimated for inclusion in a project proposal. This is particularly the case in India where factor and product markets are fragmented and imperfect.

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In an envrionment where markets are unified, perfectly competitive and well developed, the invisible hand of price mechanism brings about co-ordination and integration among agents operating in various markets and in different wings of government departments providing public goods and services including information on land titles. Not only imperfection in existing markets dictate a serious consideration of these three aspects but even the very absence of markets for, say, female labour, tenants, inferior products and grains in some regions requires such a consideration. Moreover, most financing agencies do not apply social cost-benefit analysis which takes account of some of these characteristics through shadow pricing for project evaluation. Hence, an explicit consideration of 'organizational', 'managerial' and 'commercial' aspects is both necessary and desirable. The extent of details would vary from project to project in a given area as well as from area to area for a given project.

From the preceding it should also be clear that the most rural credit projects would require participation of two broad types of agencies, besides the rural households. One, those that provide public goods and services like making available land records, facilities to register mortgages and hypotheca, extension, electricity (if needed), subsidy (if any) and so on. And two, those that provide regular goods and services such as credit, intermediate inputs like fertilizers, assets like pumpset, milch animal etc., purchase of crop and other outputs, making available no-due certificates by other banking agencies and so on.

While the former group invariably includes different wings of government departments like revenue, sub-registrar, development, electricity boards, etc., the latter group includes organizations which may be public (like nation-

alized banks), cooperative (like cooperative banks, cooperative marketing and processing agencies), private (like input and asset dealers, informal money lenders, traders purchasing output etc.) and at times even government departments (selling inputs like seeds, fertilizers, pesticides etc., purchasing output at support prices and so on). Keeping the basic differences among these various entities in mind we have described the six aspects to include the following:

(1) Technical: Two issues deserve to be covered for technical analysis. One of these refers to assessing the feasibility of alternative technologies related to the assets and/or inputs which project intends to finance. And two, in this exercise region-specific considerations are required to match the project-components with what is technically possible and preferable by the local population.

For most agricultural or rural projects alternative mechanical and bio-chemical (including product-design in the case of rural arts and crafts) technologies must be assessed. Depending on the type of assets and inputs intended to be covered in the project, hydrological, geological, engineering, agronomic etc. analysis would be essential. Based on this, technical criteria need to be evolved. To illustrate, spacing between two wells, depth of a well, horse-power required to lift water from the wells, types of wells (shallow or deep tubewell) etc. are necessary for a minor irrigation financing project. For a project to finance development of dairying, technical criteria related to breed, feeding practices, milk collection, chilling and processing would have to be identified.

(2) Managerial: This aspect is difficult to assess in quantitative terms. But a financing agency would have to assess managerial capabilities required to assist prospective borrowers in the selection of appropriate technology and also in the best use of additional liquidity which credit provides. Both of these would be required by the financing agency, other project entities like input dealers and merchants providing output marketing services, various wings of government departments who may have to play some role, and sometimes even farmers.

For a minor irrigation project technical suggestions about the type and horse-power of lift devices, type of wells, etc. may have to be provided by the bank staff and particularly by the dealers distributing these assets.

Matching of cash flows and loan repayment schedule for the project beneficiaries, source of cash flow (i.e. some proportion of value of output or value of output net of input costs) relevant for term versus working capital loans are some of the issues on which working knowledge would have to be extended to bank staff, other collaborating agencies, and farmer-beneficiaries.

Many a time inadequate and even erroneous notions on these technical and financial issues lead to such problems as delays in project implementation, lower returns, lower loan repayment rates, and so on (RBI 1979, Desai et al 1978, Desai et al 1973, Vyas 1974). In the preparation of managerial aspects related to financial and other issues Reserve Bank guidelines as outlined in "Loan Policy and Procedural Arrangements in Relation to the Institutional Credit System in India" (RBI 1975) and such other publications should also be considered.

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(3) Organizational: As distinct from managerial aspect, this aspect is concerned with interrelationships of various project-entities including sub-centres of decision-making within one single organization. or entity.

Five, among other, issues need to be considered in this regard. First, clear identification of each project-entity which has a critical role to play must be laid out. This may be done by using the earlier discussed distinction of the various agencies.

Second, the organizational aspect of any (credit) project must emphasize 'interdependence and mutuality' rather than mere 'coordination' considerations relevant for interrelationships among various project entities. We have made this distinction between 'interdependence and mutuality' on the one hand and 'coordination' on the other hand because the former provides a better scope to generate a spirit of participation and a sense of belongingness in achieving the common ultimate aim of a project.

Third, identification of specific functions and authorities of each project-entity is critical to organizing their 'interdependence and mutuality'. In doing so mismatch between the functions and authority should be minimized. To illustrate, in a credit project the disbursement of a loan through an agency other than a bank may not match well without simultaneously requiring this agency to recover the loan. While the former is preferred to ensure the end-use of credit, the latter is not preferred because of legal and other complexities about loaning operations. Despite this, instances are found particularly in milch animal financing schemes wherein loan recovery function is

also undertaken by the milk marketing agency. Such instances have shown potential for making the project successful particularly when the marketing agency receives some remuneration for undertaking this function (George and Srivastava, 1975). Illustrations showing mismatch of the functions and authorities are found in case studies carried out by Vyas 1974, Desai et al 1973, RBI 1979.

Fourth, organizational feasibility analysis should also indicate time-bound work-schedule and activity scheduling which is mutually accepted by the project entities. Use of network techniques like PERT (Programme Evaluation and Review Technique) and CPM (Critical Path Method) for activity sequencing and time budgeting may prove beneficial in formalizing this exercise.

Fifth issue may be considered more relevant for commercial aspect, although it has some bearing here also. As noted above, when loan recovery function is undertaken by an agency other than the bank and for which it receives some remuneration, it reveals more than the matching of functions and authority. It also shows the desirability of determining pricing decisions to evolve 'mutuality and interdependence' among project entities. Such pricing decisions are required not only for loan recovery, but also for credit in general, other services and goods associated with the project. In the absence of such decisions different entities will not have sufficient incentives to participate in various project activities. It may also lead to shifting of costs by these agencies, including financing agency to prospective borrowers. These costs take the form of non-interest costs for the borrowers and

they act as a subtle mechanism to ration credit and other project services. Less privileged poor are often the first victim of this mechanism (Adams 1977). Determining appropriate prices for these resources is not inconsistent with the social concerns of project entities including a financing agency.

(4) Commercial: This aspect is concerned with the arrangements for marketing of project inputs, services and outputs. These areangements need to be assessed from the viewpoints of the financing agency, other project-entities, and rural households.

Bank's inputs consist of services of its personnel, vehicles, papers, besides finance that it provides. Its project output can consist of number of loanees financed and rejected, amount of loans given and recovered, extent of linkages achieved with other project-entities and so on. Against this, the inputs of other project-entities can include goods, services, finance, whereas their output could include number of borrowers served, amount of inputs given or sold and amount of output purchased and processed. The outputs and to some extent inputs of service organizations like government departments may be difficult to quantify. However, farmer-borrowers' and other project parties' like dealers, processors, etc. inputs and outputs may not be difficult to assess quantitatively. Three important issues may have to be considered while assessing commercial feasibility of a project.

One, the effective demand for credit as against such demand for assets and inputs must be distinguished. This distinction is importa because purchase of assets and inputs could be financed from past savin instead of borrowings. Additional variables which influence demand for credit to finance assets purchased are interest and non-interest costs of borrowing. The non-interest costs are inversely related to the extent of mutuality and interlinkages organized among various project-entities. To illustrate, non-interest costs of getting documents related to obtaining loans would be much lower when there exists a smooth flow of information and resources from the agencies from whom such documents are required.

Two, characteristics of existing market structures for intermediate inputs, basic factors of production, credit and output have to be kept in view to assess marketing arrangements for project inputs and outputs. Answers to such questions as are these structures monopolistic, u. oligopolistic, duopolist or competitive; what instruments promote such characteristics of these structures; and so on are necessary. This is because they provide more informed judgements for the choice of market prices to be used to value project inputs and outputs and also for estimating their effective demand. Such judgements facilitate identifying 'model situations' representing different levels of effective demand for credit and input-output prices including interest rates for formal and informal loans. In the absence of such considerations consequences such as unrealistic targets for credit dusbursement, mismatch in project components, unrealistic and overoptimistic assumptions related to unit cost of project components, incremental income, time profile and magnitude of cash flows arise, Illustrations

showing some of these are described in studies carried out by Desai et al 1973, Bhaduri 1974, Srinivasan 1979, RBI 1979, and so on.

Three, existing policies for (a) making bank branches eligible to undertake loan operations, (b) determination of interest rate for project credit, and (c) determining eligible loan amount as against the unit costs influence the supply side of loanable funds for the project. These policies need to be assessed to avoid such consequences as a wide gap between physical potential and financial capability of the bank, under or overfinancing for project entities and the associated problems of loan overdues, and inequalities in asset and income distribution, distortions in production techniques arising from concessionary interest rates and so on. Illustrations showing some of these results can also be found in studies carried out by Desai et al 1971, Jodha 1971, Desai 1978 (a) and (b).

Commercial feasibility carried out on the above lines would also prove a useful source-material for estimating shadow prices needed for social cost-benefit analysis.

5. Financial: This aspect deals with the revenue earning consideration of a project. Two critical issues in analysing this aspect refer to expected profitability and adequacy and timeliness of funds available to repay loans.

The expected profitability of a project is defined as incremental net income. Incremental net income is measured as the difference between net income earned 'with' and 'without' project. Such an income

may be termed as "not benefit". Such benefits can arise due to yield increasing and/or cost-reducing impacts of a credit project.

The above mentioned two issues need to be considered not only for t farmers, but also for the supporting agencies (other than the government departments) and even the bank. They determine each entity's prospects f participation in the project. Many a time synchronization of each entity' response to project is hindered because financial viability for different entities is not separately ensured, although the project "as a whole" (that is all entities taken together) may be financially viable. This happens when some of the project entities benefit more at the cost of other project entities. This is well illustrated by a Ratnagiri Fisheries Project wherein the processor's and a project federation's operations are financially viable, while the trawler operator's (i.e. fisherman's) financial viability is not ensured (Mishra and Beyer 1976). The financial analysis as described above can be carried out on the basis of the information generated for the aspects described so far.

(6) Economic: This aspect is same in form to financial analysis in the sense that both assess the profit of an investment. But the concept of financial profitability of a project identifies the money profit accruing to the project entity, whereas social profitability measures the effect of the project on the objectives of the whole economy.

Rural financing agencies in India aim at promoting economic development. Therefore, their lending decisions are guided by such consideration, as increases in production, incomes, employment and income equalities.

However, these agencies do not incorporate these considerations in a formal manner as is implied by the economic analysis referred here. One or more of the following reasons prevents them from undertaking a formal social profitability analysis.

One, trained personnel may not be available with these agencies to undertake such analysis. Two, project may not be large enough to make impact on the country's objectives. Three, estimation of shadow prices for labour, commodities etc. is fraught with conceptual, methodological, and data difficulties. Four, non-availability of information on national parameters like social rate of discount, foreign exchange prices, and weights for the distribution of project income between saving and consumption and between rich and poor.

While these difficulties cannot be easily overcome in the short period, two possibilities can be kept in view for facilitating application of this analysis in future. One of these is that the methods and concepts of operational uses are available in OECD 1969, UNIDO 1972, Little and Mirrless 1974, Deepak dal 1974, and Squire and van der Tak, 1975 publications. Secondly, crude measures like extent of net benefits (valued at market prices) received by poor, amount of employment generated, amount of foreign exchange (valued at market prices) earned and/or saved by the project could be highlighted. This could in fact prove useful data for future estimation of shadow prices and such other difficult issues.

III Distinction between Financial and Economic Analysis

As mentioned earlier financial analysis is concerned with financial profitability to the project, whereas economic analysis is concerned with social profitability to the economy as a whole. These two concepts of profits are reflected in different items considered to be costs and benefits and in their valuation.

> "The projected financial statement of the project entity (as a whole) will often be a good starting place for identifying economic costs and benefits. In general, two types of adjustment must be made to the financial calculation so that it can reflect economic analysis (or social profitability): first, it may be necessary to include (exclude) some costs and benefits which have been excluded from (included in) the financial analysis; and second, some inputs and outputs may have to be revalued, if their shadow and market prices differ" (Squire and van der Tak 1975).

Following important differences between financial and economic analysis can be highlighted.

One, in financial analysis taxes are treated as costs and hence deducted from benefits. This is true of all taxes like corporate tax, sales tax, excise tax etc. But in economic analysis taxes do not constitute a resource cost because they are transfer payments from the tax-payer to the government. Hence they are not deducted from benefits.

Two, similar to the above, subsidies are included as a part of benefit stream when financial analysis is done, since they represent lower input and/or capital costs. Subsidies being transfer payments from government to the project-entity are not included in benefit

stream when economic analysis is applied. If subsidies operate through a lower unit prices for input, then the market input prices must be revised upward to apply economic analysis. Similarly, if they operate through enhanced unit prices for project output, then the market prices for the output must be revised downward to apply this analysis.

Three, the payment of interest by the project entity on the loan is not included as a part of cost when financial analysis is carried out because this is already considered in the discounting procedure for initial investment. Even in the application of social profitability analysis, the interest payments by the project entity are not considered as a part of costs because they represent transfer from project-entity to the lender in which no real resource is used.

Four, loan itself and its repayments are not considered as a part of costs for both financial and economic analysis. This is because they represent more financial transfers. The cost of investment financed from the loan is already reflected when initial investment cost is deducted from the benefit stream. This procedure holds for working capital loans also, since input costs financed from such loans are substracted from the benefit stream.

Five, again, depreciation allowances may not correspond to actual use of resources, and should therefore be excluded from the cost stream, irrespective of the two types of analysis.

These allowances are already taken into account in the initial investment cost less its discounted terminal value.

Six, while the financial profitability analysis requires the items of benefits and costs to be valued at market prices, the economic analysis treats the valuation of these items at shadow prices. Following quotation from Squire and van der Tak best explains the meaning of shadow prices.

> "Shadow prices are determined by the interaction of the fundamental policy objectives and the basic resource availabilities. If a particular resource is very scarce (that is, many alternative uses are competing for that resource), then its shadow prices, or opportunity cost (the foregone benefit in the best available alternative that must be sacrified), will tend to be high. If the supply of this resource were greater, however, the demand arising from the next best uses could be satisfied in decreasing order of importance, and its opportunity cost (or shadow price) would fall. Market prices will often reflect this scarcity correctly, but there is good reason to believe that in less developed countries imperfect markets may cause a divergence between market and shadow prices. Such divergences are thought to be particularly severe in the markets for three important resources: labour, capital, and foreign exchange".

For a country like India it is also true for rental arrangements between landlords and tenants in some regions. In general, market price of capital and foreign exchange may be revised upward to reflect their true scarcity.[3] Against this, the market price of unskilled labour and to an extent even land lease may be revised downward. Whether the net benefits of a project valued at shadow prices would be larger or smaller than those valued at market prices would depend on the relative share of these various resources.

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3. Shadow price of capital is estimated to range from 12 percent to 20 percent, whereas that of foreign exchange is estimated to be 1.3 to 1.8 times the market price (Mishra et al 1976).

Seven, in financial analysis discount rate chosen to make the benefit and cost streams comparable over time is generally the market rate of interest. In case, however, project investment is financed from more than one source of finance then a weighted average of the market interest rates associated with various financial sources is used. Against this, the economic analysis considers shadow price of capital as the discount rate. In other words, the marginal productivity of additional investment in the best alternative uses in the economy is considered the appropriate discount rate. This procedure implies a judgement that the society is neutral to value attached to current consumption and future consumption (present saving and investment). However this need not be the case, particularly when growth rate is considered to be too low because of insufficient savings rather than inefficient resource use. Insufficient savings could be because greater fiscal and monetary efforts are infeasible due to political and administrative constraints (Squire and van der Tak 1975). It is in this context there arises yet another distinction between financial and economic analysis.

Eight, unlike the financial and even conventional economic analysis, the new approach to social profitability emphasizes the distribution of income between present and future consumption and also between the rich and poor. To incorporate this, two important concepts of social rate of discount and social value of investment are introduced. Both of these emphasize the difference between savings and consumption. Savings are at a premium,or equivalently, consumption is at a discount. For this reason, recent project appraisal literature like UNIDO guidelines suggest consumption

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as the common yardstick, that is, as the "numerraire", for measuring consumption and savings. And the appropriate discount rate to make benefits and costs in future years commensurate with those arising now is the "consumption rate of interest" (CRI). This rate measures the discount attached to having additional consumption next year rather than this year. More generally, it is defined as the rate at which the value of the "numerraire" falls over time. The purpose of CRI is to ensure that the government's preferences concerning future consumption (growth) and current consumption are adequately reflected in shadow prices. Countries that are heavily committed to growth should employ a low CRI, which will ensure that the future consumption benefits from today's investment are not heavily discounted. The ultimate effect is to make investment appear more attractive than current consumption.[4]

However, the net effect would depend on the extent of adjustments needed to account for shadow price or social value of investment, Pinv. When the level of investment is not sufficient enough to equate the marginal rate of return on investment in the economy to the social rate of discount, there exists a social value of investment. This arises because the fiscal and other measures of the government are not effective to raise the level of savings and investment in the economy to the desired level.

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4. The Perspective Planning Division of the Planning Commission in India considers 8 to 10 percent as social rate of discount as against 12 to 15 percent as shadow rate of interest or opportunity cost of capital. It is obvious that the use of the former compared to the latter as discount rate would give a larger present value of investment. These rates have been recommended for 10 to 15 years from 1970 (Mishra et al 1976).

The social value of investment of a project can be derived with the help of the marginal social rate of return from investment q, the marginal rate of reinvestment of profit s, and the social rate of discount i, by using the following formula:

$$Pinv = \frac{(1-s)q}{i - sq}$$

Each q, s, and i is a national parameter.[5] If Pinv is more than unity, it implies that the social value of investment exceeds the social value of consumption. Furthermore, we must know the marginal rate of savings of each project entity to determine the extent of benefits saved. The sum total of benefits saved by each entity would have to be weighted by the difference between social value of investment (Pinv) and the social value of consumption which is unity. And the total social value of net benefits is equal to the net social value before correcting for the shadow price of investment (SV) plus a term that multiplies the total marginal savings out of the net consumption benefits of the project by the excess of the social value of investment over the social value of consumption. This can be represented as follows:

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5. Values used for some projects are as follows:

	Projects	i	s	q
1.	Kuttanad Development Project for Augmenting Paddy Production in Kerala (Kannan 1975)	7 to 12%	20%	20%
2.	Ratnagiri Fisheries Project in Maharashtra (Mishra et al 1976)	8 to 10%	20 to 30%	12 to 15%

$$SV^* = SV + (Pinv - 1)\ (s^1 sv^1 + s^2 sv^2 + \text{———} + s^n sv^n)$$

where SV = Social value of net benefits valued at shadow prices but before correcting for shadow price of investment

Pinv = Social value of investment

$s^1, s^2, \text{—} s^n$ = Marginal propensity to save of project-entities 1, 2, ——— n[6]

$sv^1, sv^2, \text{—} sv^h$ = Social value of net benefits received by project entities 1, 2, —— n.

To incorporate the distribution of income between rich and poor the shadow price of factors of production contributed by these two groups need to be adjusted. The shadow price of labour (contributed by the poor) is further reduced to account for the premium assigned to the benefit received by the poor. But inasmuch as employing such factor involves a net social cost of increased (present) consumption and hence lower savings and investment now, its shadow price must be revised upward to reflect this cost to the society. Thus, these two effects which work in opposite directions, would eventually determine the net impact on the project benefits. The extent to which the shadow prices must be revised to take these two effects into account is a difficult and thorny question to answer.

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6. Marginal savings rates used for a project in Kerala range from 10 percent for farmers, to zero percent for labourers, and to 100 percent for government (Kannan 1975). These estimates for farmers and labourers would vary from region to region.

Nine, and lastly the financial analysis completely disregards indirect effects of the project. In other words, the externalities, linkages and multiplier effects of the project are not considered in this analysis. Social profitability analysis attempts to include some of these impacts. Externalities may arise on both the benefits and costs side. Various forms of pollution and congestion, use of water that affects yields of wells elsewhere, and side effects of irrigation canals or fisheries on health are some of the examples of external costs. The project may also lead to higher prices for the inputs that it produces. Moreover, "forward linkage effects" may occur in industries that use or process a project's output. Similarly, "backward linkages" in industries that supply project inputs may also result from the project. The secondary expenditure effects may also arise from the increase in income resulting from the project. Such multiplier effects can be important if the project is massive. Since many of these external, linkage and multiplier effects cannot be easily quantified, it is not uncommon to find them only in qualitative terms in many project reports.

To conclude, from the preceding discussion four different kinds of economic analysis can be visualized. The <u>first evaluation</u> will correspond to the financial appraisal which considers market prices, besides the adjustments for such transfer payments as taxes, subsidies, and interest payments. The benefits and cost streams so derived can then be discounted using market rate of interest. The <u>second evaluation</u> will correspond to the conventional economic analysis which considers

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shadow prices to correct for distortions in factor and product markets but treats all incomes (received now and in future, and received by rich and poor) as equally valuable, in addition to adjustments for transfer payments. Here the discount rate would be the opportunity cost of capital. The third evaluation corresponds to the new approach wherein distributional impact of the project, besides the conventional adjustments for shadow pricing and for transfer payments are considered. Both inter-temporal and inter-class distributional impacts are covered in this analysis. To incorporate these, social rate of discount, shadow price of investment, and shadow price of the income received by the poor need to be applied. The fourth evaluation would quantify indirect effects like externalities, linkages and multipliers, besides what is done under the third type of evaluation just described. The degree and complexity of skills and understanding required for the application of economic analysis increases as one moves from the first to the fourth type of evaluation.

Most rural financing agencies can easily adopt the first type of evaluation. With modest additional resource they can also adopt the second type of evaluation. To apply this, these agencies can use the shadow price of national parameters like foreign exchange, capital and most (internationally) traded commodities, although they would themselves require to estimate the shadow price of unskilled labour, land leased, and untraded commodities since they may vary from region to region in

the country. We also think that these agencies can adopt some variant of the third type of evaluation. This variant can include the social rate of discount and social value of investment for which national estimates are available. Shadow pricing of income received by the poor and rich may not be attempted because of estimational difficulties. However, the share of net benefits received by the less privileged groups vis-a-vis their population covered by the project can be easily estimated, and separately presented in the evaluation report (UNIDO 1972, Kannan 1975). Similarly, the amount of employment generated by the project could also be estimated and separately presented.

We finally suggest that the rural financing agencies should also carry out financial analysis separately for each important entity expected to participate in the project, in addition to applying such analysis to the project as a whole. This analysis should disregard adjustments for transfer payments. The benefits and costs streams should be discounted at the market rate of interest.

IV Credit Project Proposal Outline

This can include the following:

1. Description of a Project Idea
   - 1.1 Area Profile
   - 1.2 Project Components
   - 1.3 Project Entities or Parties
   - 1.4 Project Life

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2. Objectives

2.1 Increase in Output and Incomes

2.2 Distribution of benefits between rich and poor

3. Technical

3.1 Technical criteria

3.2 Project components and unit cost estimate for each component

3.3 Estimate of unit cost by resource categories like unskilled labour, skilled labour, machinaries, foreign exchange, intermediate inputs and materials etc.

3.4 Estimated useful life of each asset and component of a project.

4. Physical Potential Demand

4.1 Estimate of componentwise existing units

4.2 Estimate of componentwise potential demand based on technical criteria.

4.3 Annual phasing of this demand.

5. Operations of the Project Entities

5.1 Financing Agency

5.1.1 Identification of potential borrowers.

5.1.2 Annual phasing of Capital Investment, Down-Payment, Subsidy and Loan by Project Components.

5.1.3 Loan terms and conditions with reference to interest rate, inspection fees, share capital contribution, down-payment, documents required prior to and after loan sanction, collateral, loan disbursement procedures and modes, repayment period, repayment methods, penalty in case of delinquancy and default.

5.1.4 Loaning procedures.

5.1.5 Financial resources of the bank.

5.1.6 Procedures and terms of refinance including eligibility of a branch to get refinance.

5.1.7 Present annual advances, loan recoveries, and outstanding loans at year-end.

5.1.8 Present annual operating costs.

5.1.9 Breakdown of these costs by resource categories.

5.2 Support agencies

5.2.1 Availability of project-components.

5.2.2 Availability of finance.

5.2.3 Present annual turnover.

5.2.4 Present annual operating costs.

5.2.5 Breakdown of operating costs by resource categories.

5.2.6 Retail network and prices for project components.

5.3 Farmers[7]

5.3.1 Land Ownership and its distribution

5.3.2 Crop-pattern

5.3.3 Production-mix and product-prices

5.3.4 Input-mix, input-prices and working capital loan

5.3.5 Breakdown of input costs by resource categories

5.3.6 Custom service sale and associated costs and their breakdown by resource categories.

6. Financial

6.1 Farmers

6.1.1 Cash flow statement for a potential borrower/s including small farmers.

6.1.2 Statement showing schedule of availability of funds, principal loan and interest payments of these borrowers (separately for capital investment and working capital loans).

6.2 Supporting Agencies

6.2.1 Cash flow statement

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7 For estimating changes at this level, methodology of "with" and "without" could be followed. These changes should be separately estimated for different 'model situations' related to market structure features.

6.3 Financial Agency

6.3.1 Cash-flow statement

6.3.2 Statement showing schedule of availability of funds to repay refinance together with interest thereon to the Refinancing Agency.

7. Organization

7.1 Organizational structure of a bank and its branches

7.2 Organizational structure of each Supporting Agency

7.3 Interrelationships of all project entities, functions and authorities of centres of decision-making in each project-entity.

7.4 Prices, if any, mutually agreed upon to provide goods and services.

7.5 Work schedule and time estimation for various activities needed for project implementation.

8. Evaluation

8.1 Identifying project benefits and costs for each project entity including the poor.

8.2 Investment Analysis for each entity at market prices including computation of investment worth criteria.

8.3 Benefit-Cost Analysis for project as a whole at market prices -- Private Profitability.

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8.4 Benefit-Cost Analysis for the Society — Social Profitability.

8.5 Percent share of project benefits received by small farmers vis-a-vis percent share of these farmers in total number of potential borrowers; gini ratio of income could also be computed to compare it with the situation 'without' a project.

8.6 Amount of mandays of employment expected to be generated by the project.

8.7 Amount of foreign exchange expected to be earned and/or saved by the project.

9. Summary.

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V Summary

Main conclusions of the paper can be summarized as follows:

1. The term 'project' may be defined to include financing of both working capital and fixed capital credit needs, although it is conventional to include only the term-loans. Inclusion of both these credit needs is necessary because efficient allocation of resources requires an optimal combination of both fixed and working capital. What is emphasized here is that a rural credit project should have a provision to meet both the credit needs whenever they arise.

2. A rural credit project need not be confined exclusively to farmers or rural households who are only one of the entities in the project. It can also finance the credit needs of other project entities like input/asset dealers, output marketing and processing firms, breeders, and so on. This is desirable to ensure better coordination and viability of the production activities carried out by the rural households. Depending on the extent and nature of development of these other activities, the project may meet the credit needs of these various agencies. Thus, the scope of activities would differ from project to project in a given area as well as from area to area for a given project. This need not compel the financing agency to provide credit to every project entity at the same interest rate. Interest rate and other policies could differ for direct and indirect rural credit and also for commercial credit, despite making available all these credit under one project.

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3. The task of project formulation and implementation is a process of presenting a project idea in a form in which it can be subjected to comparative appraisal. For such an appraisal six different aspects of feasibility exercise should be covered. These six aspects are technical, managerial, organizational, commercial, financial and economic.

4. While 'managerial', 'organizational' and 'commercial' aspects have more to do with the project implementation, it is desirable to consider them along with the technical, financial and economic aspects. This is because the feasibility of most rural credit projects is determined by all the six aspects taken together. This is particularly the case in an environment where factor and product markets are highly fragmented, imperfect and even non-existent for some resources in some areas. Any estimation of benefits and costs to apply financial and economic analysis which is more commonly considered in a feasibility exercise cannot be realistic without the consideration of 'commercial', 'organizational', and 'managerial' aspects. This need not be interpreted to suggest that all projects in a given area and all areas for a given project should have the same extent of details of six aspects in their project formulation.

5. Most rural credit projects require participation of two broad types of agencies, besides the rural households. One, those that provide public goods and services like making available land records, facilities to register mortgages and hypotheca, extension, electricity, subsidy

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(if any), and so on. And two, those that provide regular goods and services such as credit, intermediate inputs, assets, purchase of crop and other outputs, etc. While the former group invariably includes different wings of government departments like revenue, sub-registrar, development etc., the latter group includes organizations which may be public (like nationalized banks), cooperative (like cooperative banks, cooperative credit, marketing and processing societies), private (like input and asset dealers, informal money lenders, traders purchasing output etc.) and at times even government departments (selling inputs like seeds, fertilizers, pesticides etc., purchasing output at support prices and so on). The basic differences among these various entities must be kept in view in identifying details related to the earlier mentioned six aspects.

6. For 'technical' analysis, in addition to assessing alternative technologies based on region-specific consideration of resource availability, criteria need to be evolved. To illustrate, spacing between two wells, types of wells, etc. are necessary for a minor irrigation financing project. Alternative mechanical and bio-chemical technologies (including product-design in the case of rural arts and crafts) must be assessed.

7. 'Managerial' capabilities are needed in respects of, one, elementary technical skills required to assist prospective borrowers in selecting appropriate technology and also in making best use of additional

liquidity which credit provides. Both of these would be required by financing agencies, other project entities and sometimes even farmers.

8. 'Organization' aspect is concerned with interrelationships of various project-entities including sub-centres of decision-making within one single organization. Clear identification of each project-entity which has a critical role to play must be done. In this, the earlier classification of types of agencies may be followed. Secondly, organizational aspect of any credit project must emphasize 'interdependence and mutuality' rather than mere coordination considerations relevant for interrelationships among various project entities. Thirdly, functions and authority of each project-entity must be laid out clearly so that 'interdependence and mutuality' can be achieved. Matching of functions and authorities could be achieved by appropriately determining the pricing of various goods and services provided by different project-entities. In the absence of such pricing the project-entities shift the unanticipated costs to the prospective borrowers. Such costs act as a subtle mechanism to ration credit and other project services. Fourth, time-bound work-schedule and activity scheduling which is mutually accepted by the project entities must be identified. Use of network techniques like PERT and CPM for activity sequencing and time budgeting might prove useful in formalizing this exercise.

9. 'Commercial' aspect deals with the arrangements for marketing of project inputs, services and outputs. These arrangements need to be

assessed from the viewpoints of the financing agency, other project-entities, and farmers. Three important issues need to be considered. One, the effective demand for credit as against such demand for assets and inputs must be distinguished. The former is influenced by both interest and non-interest costs of borrowing. Two, characteristics of existing market structures for intermediate inputs, basic factors of production, credit and output have to be kept in view to identify 'model situations' representing different levels of effective demand for credit and input-output prices including interest rates for formal and informal loans. And three, existing policies for (a) making bank branches eligible to undertake loan operations, (b) determination of interest rate for project credit, and (c) determining eligible loan amount as against the unit costs which influence supply side of loanable funds for the project must be assessed. These issues need to be considered to avoid such consequences as unrealistic targets for credit disbursement, mis-match in project components, unrealistic and overoptimistic assumptions related to unit cost of project components, incremental income, time profile and magnitude of cash flows available for loan repayment, under and over-financing, distortions in production techniques arising from concessionary interest rates and so on. Illustrations showing some of these are found in Desai et al 1971, Desai et al 1973, Bhaduri 1974, Srinivasan 1979, RBI 1979, Vyas 1974, Jodha 1971, Desai 1978 (a) and (b).

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10. Financial analysis should deal with the expected profitability of investment made under the project and also with the adequacy and timeliness of funds to repay project loans. These need to be separately assessed for both the farmer-borrowers and other project-entities, besides for the project as a whole. Project viability cannot sustain for long if some parties benefit more at the cost of other project-entities. Application of financial analysis on the above line would facilitate adoption of a new approach to economic analysis. This approach emphasizes separate evaluation and presentation of benefits received by different groups including the less privileged (UNIDO 1972, Squire and van der Tak 1975, Little and Mirrlees 1974).

11. Economic analysis requires adjustments for transfer payments like taxes, subsidies, etc., and for shadow prices to correct distortions in market prices. Such distortions may be found in unskilled labour, land lease, capital, foreign exchange and commodity markets. They may also exist for the social value of investment and for the value of benefits received by the poor as against the rich.

Rural financing agencies being nationalized and cooperative institutions aim to promote such national objectives as increases in production, incomes, employment, and income equalities. However, they do not incorporate these objectives in a formal manner of the economic analysis referred here. This is because of such difficulties as non-availability of trained personnel, data on national policy parameters, problems in measurement of shadow prices and so on.

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12. We suggest that most rural financing agencies can easily adopt the first type of economic evaluation which includes only the adjustments for transfer payments. To incorporate the objectives of inter-class income distribution, and employment generation, these agencies can easily adopt crude and indirect measures. These include extent of benefits received by the less privileged group and extent of employment generated by the project.

With modest additional resource they can adopt the second type of economic evaluation and also some variant of the new approach to this evaluation. For this purpose, they can rely on national estimates of shadow price of capital, foreign exchange, and investment which are available. Only the shadow prices of unskilled labour, leased land and untraded goods would have to be estimated by them since this can vary from region to region. In addition, they would also require to estimate marginal propensity to save for various project-entities. We contend that this could be done based on their own resources and some published studies. In as much as the rural financing agencies can easily apply the earlier discussed crude measures of income distribution and employment objectives, application of the new economic analysis just described is merely one simple step of extension.

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