9.0 MEASUREMENT OF COSTS IN CONSERVATION

9.1 Financial Cost Compared with Economic Cost{1}

Since financial analysis relates primarily to enterprises operating in the market place, the data of costs and returns are derived from the market prices (current or expected) of the transactions as they are experienced. Thus the cost of land, capital, construction, etc. is the actual recorded price of the accountant. By contrast, in economic analysis (such as cost benefit analysis) the costs and benefits of a project are analysed from the point of view of society and not from the point of view of a single agent's utility of the landowner or developer. They are termed economic. Some effects of the project, though concerning the single agent, do not affect society. Interest on borrowing, taxes, direct or indirect subsidies are transfers that do not deploy real resources and do not therefore constitute an economic cost. The costs and the returns are, in part at least, based on shadow prices, which reflect their "social value". Economic rate of return could therefore differ from the financial costs which are based on the concept of "opportunity cost"; they are measured not in relation to the transaction itself but to the value of the resources which that financial cost could command, just as benefits are valued by the resource costs required to achieve them.

This differentiation leads to the following significant rules in considering costs in cost benefit analysis, as for example:

(a) Interest on money invested

This is a transfer cost between borrower and lender so that the economy as a whole is no different as a result. For this reason it is ignored.

(b) Depreciation

Whereas to the financial investor it is important to accumulate the financial resources needed to replace the asset when it is scrapped, to the economy as a whole what matters is the use of resources when replacing the asset. Thus investment to accumulate financial funds to command those resources at the appropriate time are not relevant in economic analysis.

(c Land

The actual or historical price may bear no relation to the economic value of the land which is used as part of the investment. This derives from the value added to the site through the investment of resources, as described above in relation to the residual method

(6.2). Where this economic value is in excess or below the historical financial cost, then the landowner can be deemed to have made a money profit or loss on his land dealings. This is irrelevant for the economic analysis.

(d) Price changes

The treatment of price increases during the lifetime of the project is different whether financial or economic analysis is carried out and, in the case of financial analysis, it also differs according to the specific purpose of the analysis. If the purpose is an assessment of cash flow needs, both the rate of change in absolute prices (inflation) and changes in relative prices should be considered. If on the other hand, the purpose is to calculate indexes of financial and economic returns, only movements in relative (and not absolute) prices should be considered, since they reflect real changes in terms of opportunity costs of inputs and outputs. The indices are calculated at constant prices.

(e) Shadow price

Economic analysis thus often needs to resort to shadow and not actual prices. Examples are those situations where the inherent price is changed by import or export duties; or unemployed labour is used which by definition does not add to the resource costs involved.

(f) Externalities

Economic theory considers as externalities all those changes in the flow of goods and services from a project that are not exchanged, since the promoter does not have to pay for them or cannot charge for them out of his private investment (examples are pollution, congestion or eroding). In general, a distinction is made between pecuniary externalities, that affect prices and economic agents' incomes and behaviour; and technological externalities that do not affect prices and incomes, though still producing costs and benefits. In general only technological externalities ought to be included in economic analysis. Pecuniary externalities in fact are externalities from the point of view of the project but not from the point of view of the market, and are therefore reflected in movements of relative prices and incomes, which are taken into account in the economic analysis.

It is however difficult to measure and value the economic costs and benefits of externalities. The difficulty stems from two factors. The first is the difficulty in measuring intangibles. The second is that there is not a market for externalities. Thus, even if the first

difficulty is overcome and the externalities are quantified, it is not clear which prices should be used.

In this respect the criterion is the willingness to pay. In other words, assuming that a market for externalities exists and that it is possible to set taxes and subsidies, the analyst should determine the maximum amount that those who would benefit from the externality are willing to pay (WTP), and the minimum amount that those who hear the negative effect are willing to accept as a reward (WTA). The concepts of willingness to pay or accept derives from the concept of individual demand function, where individual preferences can be described by combinations of prices and quantities. Since market guidance does not exist, the contingent valuation (CV) method is used to discover how people would value certain externalities by direct questioning on hypothetical situations to a sample of the population concerned.{2}

In the face of these difficulties of measurement and valuation, the externalities should not be ignored because they cannot be described by a number. They must be recorded in the analysis and be made subject to qualitative analysis.

(g) Opportunity Costs

The cost of a project consists of those benefits that would have resulted from the best alternative to the project under examination, taking into account both technical and institutional constraints, and are thereby foregone.

The first step of the analysis is an assessment of whether the use of a certain factor of production is matched by a correspondingly lower availability of that factor for alternative uses. If this be the case, the cost of that factor is given by the loss of benefits resulting from the lost production of the alternative use, representing the opportunity-cost of the resources employed in the project. If this is not the case, the relevant cost is given by the cost of production of that factor in the project. In turn, this cost is given by the benefits lost by employing resources to produce that factor rather than the best possible alternative.

The evaluation of foregone benefits is difficult in the case of natural resources for which a competitive market does not exist, because there are no equilibrium prices reflecting their marginal benefit.

Sometimes, the availability of resources is not diminished, for instance because the demand for the factor to be utilised in the project is met by an increase in imports or by a decrease in export of that factor. In this case, the cost of the project consists in a

lower availability of foreign exchange. If there are exchange controls, the shadow price of foreign exchange is required.

Sometimes, if for instance there is idle capacity, neither the availability of resources nor of foreign exchange is reduced. In this case, the cost for the use of these factors can be considered as nil, besides some wear and tear. Amortisation and interested on capital, although they have a bearing on the distribution of benefits between consumers and producers, are irrelevant to the determination of the cost of the project.

The same applies to the land factor. If idle land is cultivated, the net economic benefits of increased supply of agricultural produce is not reduced by the payment of charges for the utilisation of that land. Such payment affects the distribution of the net benefit between the owner, the user of the factor, and the consumer of the product but the cost of the factor in terms of lost benefits is still nil.

In the case of labour, before full employment it is not possible to evaluate the factor involuntarily unemployed at the current market price, since this has more the nature of a political price than of a competitive price. This consideration does not imply that, similarly to the case of other unemployed factors, the utilisation of unemployed labour has zero cost and the wage can be considered as a transfer from the employer to the worker. In the case of labour, in fact, there is always an alternative good that has been substituted for: leisure. Since the worker can value leisure or dislike his unemployed status, or prefer one job to another, the opportunity cost of labour varies according to individuals and jobs.

(h) Discounting

Opportunity costs are usually discounted by a factor over the time period that costs and benefits are analysed. In general an opportunity cost rate of discount is selected and applied to each year of project costs. Since no one knows what is an entirely correct discount rate to use, the usual practice is to take a low average of rate of return from a structure of market interest rates and add this to costs each year. Very often, in order to make the allocation of resources comparable for different projects, a uniform rate (e.g. 10%) is used.

9.2 How to Assess the True Cost of Conservation

It is natural to regard the costs of conservation as those extra direct costs falling on the owners/occupiers of the property concerned, or on government from its financial contributions. This is not quite so. The true

costs of the conservation are the **differences** in capital and operating costs to the owner/occupier between the non-conservation/ conservation options against which is offset the **difference** to him in financial benefits. Assuming that both these options derive from an analysis from which they are shown to be the best under the options, the difference measures what we called above private opportunity cost. This could be either positive or negative.

We also showed above that alongside the costs and benefits falling on those directly involved with any particular project there are the indirect costs and benefits falling on the community as a whole. These we called the **social opportunity costs,** which again can be positive or negative.

In essence then the true cost of conservation is the **private and social opportunity cost,** seen from the viewpoint of those who benefit or lose from the conservation. These need to be compared with the benefits of conservation which are the **heritage values which would be lost** if action is taken to erode the heritage.

In detailing some of the social costs of conservation projects there are particular populations who might suffer real costs, which are therefore attributable to the costs of a project. Some examples are: both tenants or owners of occupied residential or commercial property suffer real costs of removal in the costs of seeking another location. These are possible losses on housing finance when interest charges for property owners are higher at a new location than at the old one. There are possible higher prices for property and there may even be higher operating costs at the new property.