

## **CHAPTER THREE**

### **3. Project costs and benefit**

#### **3.1. Intangible costs and benefits**

Almost all projects have costs and benefits that are intangible. These may include creation of job opportunities, better health and reduced infant mortality, better nutrition, reduced incidence of disease, national integration, national security, etc. These benefits do not, however, lend themselves to valuation.

Likewise in the cost side, a project may displace workers, it may increase disease incidences, it may increase regional income inequality, it may destroy or reduce the scenic beauty of an area, etc. All these are intangible costs of the project, which are not captured by or not reflected in the market prices. All these intangible benefits and costs must be carefully identified and where possible, be quantified although valuation is impossible.

These costs and benefits will not usually appear in financial accounts and are excluded from financial analysis. However, they should be included in the economic analysis at least in qualitative terms if they are significant and measurable. Whether or not externalities are quantified, they should at least be discussed in qualitative terms.

In practice, it is not feasible to trace all externalities arising from such market imperfections: the analyst can only hope to capture the grosser distortions on more immediately affected changes in output. Externalities of various kinds are thus clearly troublesome, and there is no altogether satisfactory way in which to deal with them. There is no reason simply to ignore them and if they appear significant, to measure them. In some cases it is helpful to internalize externalities by considering a package of activities as one project.

#### ***International effects***

Some external effects of projects may extend beyond the borders of the country concerned. Effects on world prices of traded goods (favorable or adverse), environmental effects, etc such external effects on other countries are similar in nature to the externalities within the country and raise similar problem. Whether accounts should be taken of these benefits accruing to, or of costs imposed on, other countries depend on value judgment.

#### 4.1 With and without project comparison

Project analysis tries to identify and value the costs and benefits that will arise with the proposed project and compare them with the situation as it would be without project. The difference is the incremental net benefit arising from the project investment. This approach is not the same as comparing the situation **"before" and "after"** the project. The before-and-after comparison fails to account for changes in production that would occur without the project and thus leads to an erroneous statement of the benefit attributable to the project investment.

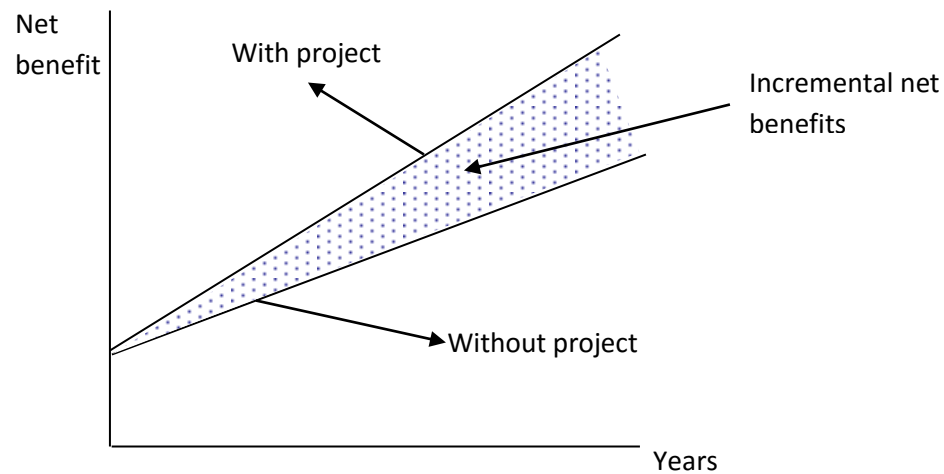


Fig. 1.1 The with/without project comparison

The above figure illustrates a change in output can take place if production is already increasing (decreasing) and would continue to increase (decrease) even without project. Thus, if production without the project were to increase at 3% per year and with the project at 5% per year, the project's contribution would be an increase of 2% per year. A before/after comparison would contribute the entire 5% increase in production, and not just the incremental benefits, to the project. Of course if production were to remain stagnant, the before/after comparison would yield the same result as the with/without comparison.

In some cases, an investment to avoid a loss might also lead to an increase in production, so that the total benefit would arise partly from the loss avoided and partly from increased production. Again a simple before-after comparison would fail to account the benefits realized by avoiding the loss (Fig 1.2. depicts this situation).

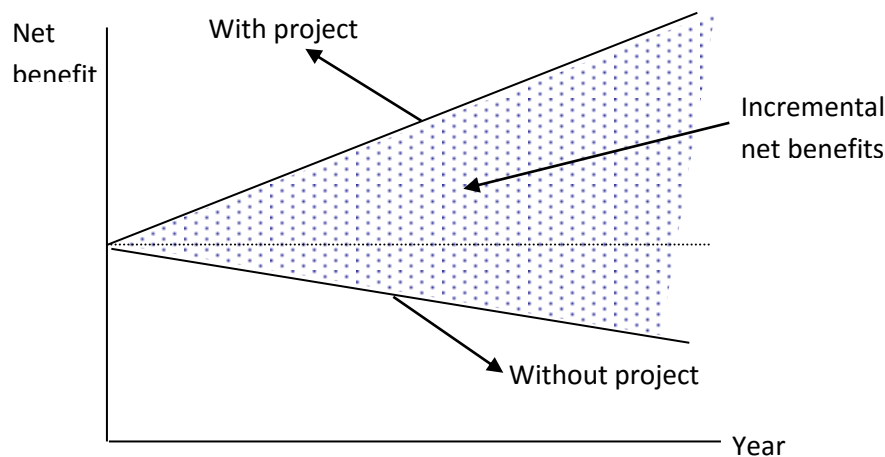


Fig. 1.2 With/without project comparison

## 4.2 Separable Components

Sometimes a project consists of several interrelated subprojects or components. When the components are independent of each other, each component must be treated as if it was a separate project and the analyst must determine whether each component increases or decreases the project's net total present value. Any component that has a negative net present value should be dropped, even if the total net present value of all the components is positive. In other words, each separable component must justify itself as a marginal part of the overall project.

Appraising such a project requires several steps. First, each separable component needs to be appraised independently. Second, each possible combination must be appraised. Finally, the entire project, comprising all of the separable components, must be appraised as a package.

## 3.2. Secondary costs and benefits

Projects can lead to benefits created or costs incurred outside the project itself. Economic analysis must take account of these external, or secondary, costs and benefits so they can be properly attributed to the project investment. It is not necessary to add on the secondary costs and benefits separately; to do so would constitute double counting. Thus, instead of adding on secondary costs and benefits, we have to adjust the market prices into 'economic' prices there by in effect converting them to direct costs and benefits.

Although using efficiency prices based on opportunity cost or willingness to pay greatly reduces the difficulty of dealing with secondary costs and benefits, there still remain many valuation problems related to goods and services not commonly traded in competitive markets.

Price effects caused by a project are also part of externalities. The project may lead to higher prices for inputs it requires and lower price for the outputs it produces. What are known as "forward linkages effects" thus may occur in industries that use or process a project's output, and backward linkages in industries that supply its inputs, in that such industries are encouraged or stimulated by increased demand and higher prices for their output or lower prices for their inputs. Conversely, other producers may loose because they now face increased competition, and other users of inputs required by the project may have to pay higher prices. The project may have wide-ranging repercussions on demands of inputs and outputs and cause gains and losses for producers and consumers and other than those involved in the project itself.

*Examples of such costs and benefits are:*

- Technological spill-over or technological externalities
- Negative or positive ecological effects in construction of dam: - it can increase spread of schistosomiasis and malaria, it can increase/decrease in fish catches, many downstream effects, etc
- Multiplier effects of projects - if there had been excess capacity