



SNS COLLEGE OF TECHNOLOGY
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Unit 2– Topic 4

Describing Project Operations

In order to prepare a project profile, a few key terms used to define the parameters or characteristics of the project must be learnt. The four most important terms are described below:

4.4.1 Project Beneficiaries

Project beneficiaries are those who will derive some benefit from the implementation of the project. Two types of beneficiaries can be defined: direct and indirect.

Direct Beneficiaries: Direct beneficiaries can be defined as those who will participate directly in the project, and thus benefit from its existence. Thus all persons who will be employed by the project, supply it with raw materials or other goods and services, or who will use in some way the output of the project can be categorised as direct beneficiaries. The patients expected to attend a health clinic, or the children expected to attend a local school (and their families) would be classified as direct beneficiaries. So would the nurse or teacher who works in the clinic or school. Direct beneficiaries of an access road might include those expected to pass along the road (drivers and passengers), as well as farmers and other sending goods on trucks along the road.

Indirect Beneficiaries: Indirect beneficiaries are often, but not always, all those living within the zone of influence of the project. Thus, although a health clinic might expect to treat only 1,500 patients, indirect beneficiaries may well include all those within 5km., 8 km. or even 10km. of the clinic (depending on how easy access is to the community where the clinic is situated), as they will benefit not only from the better health of those treated (who will come from their communities), but also might well be patients at some point in the future. The indirect beneficiaries of an access road might include all those in the communities reached by the road, as well as those living within a few kilometres on each side of the road.

It is often only possible to make broad estimates of indirect beneficiaries for two reasons: (a) there is no clear line separating those influenced by a project from those beyond this zone, as the boundary will depend on the person and the degree of need or importance of the project output. One person might be willing to travel 15km. to reach a health clinic, while another may not go beyond 8km; (b) for many categories of project, there may be no clear distinction between a beneficiary and a non-beneficiary. Someone who lives 5km. below a project that is protecting a watershed might be seen as definitely a beneficiary, but someone who lives 50km. downstream may not be. But where is the boundary of influence? 10km.? 20km? If a project protects biological diversity in a natural forest area, who are the indirect beneficiaries? These questions are not always easy to answer, but at least we can be aware that such uncertainty exists.



4.4.2 The Units of Production

The unit of production defines the way in which production costs are expressed. For example, if a person tells you that a rice crop requires 100 kg. of fertilizer, your first question might be: 100 kg. for what area? What you are asking for is the unit of production. For field crops the unit of production is usually the hectare, or whatever other measure of surface area might be used locally. Thus we may be talking of 100 kg. of fertilizer per hectare. **The numbers inserted in the profile for costs therefore depend upon the unit of production chosen.**

While crops are usually straightforward in their units of production, other activities may not be so simple. For example, a project to produce poultry might measure costs per bird, per 100 birds, or per poultry shed (containing, perhaps, several thousand birds). A transport project might define costs per truck, or per ton kilometre. When we talk about units of production in a processing plant or workshop, the unit of production could be the entire plant or workshop, but this can have disadvantages. If later on you wish to expand (or decrease) the size of operations, you must recalculate all over again. A better way is often to define the unit of production as being the same as the sales unit (e.g. a kilo of cheese, or a shirt).

The important thing to remember is that once defined, the unit of production should be used as the basis for all cost calculations.

4.4.3 The Production Cycle

While the unit of production defines how we measure costs and income, the production cycle defines the period over which we measure them. For many crops this is not difficult - it is **the period from preparing the soil for planting until the final harvest**. For maize, for example, there might be one production cycle per year lasting four months. For tomato, there might be two production cycles per year, each lasting 3 months. **This means that the fertilizer used as an example above is applied to rice per hectare and per production cycle.** If rice is grown twice a year, then the 100 kg./ha would be applied to each crop.

No production cycle in RuralInvest can be more than 12 months. For permanent crops, therefore, such as fruit trees, palms and coffee, which produce over a period of many years, as well as for livestock such as dairy cattle, the production cycle is usually best defined as 12 months, **as costs are incurred continuously**. With a twelve month production cycle, there can only be **a single cycle per year**. However, some continual production activities (for example a metal fabricator, or a clothing workshop) are best suited to the use of shorter production cycles, as their costs and income are most commonly expressed on a weekly or monthly basis (staff salaries, electricity, payment to suppliers, etc.). Thus you might have 12 cycles of one month each, or 52 cycles of one week.



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For a hotel, the production cycle may be as short as one day, with up to 365 cycles per year (less if the hotel is shut down for a period every year). For a poultry operation, there may be 4 cycles of 12 weeks, with a four week break every year to permit an annual cleanup and disinfection.^[3]

As for units of production, there is no absolute correct answer to how to define the production cycle; often several choices are possible. However it is best to choose the easiest alternative, and you must remember that the **duration of the cycle times the number of cycles** must add up to the total production period per year: an agroindustrial plant may have 7 one month cycles per year, for the remaining 5 months it is not in operation.

4.4.4 Sales Units

Sales units are simply the unit used in pricing the output. Thus they can be in kilos, passenger seats, hotel rooms (or beds), pairs of shoes, or cases of 12 jars. What is critical is that they relate to the unit of production defined earlier. Thus for rice, the sales unit may be tons, but they must be **tons per hectare**, if that is the production unit defined. A dairy herd might have litres of milk as its sales units, but these would be **litres of milk per production unit** (often per cow). Sometimes the two units will be the same - a juice plant may define both the production and sales unit as a 20 kg. drum of juice. Thus costs and income must both estimated for each 20 kg. drum.

4.5 Categorizing Costs

There are three principal types of costs to be considered in preparing a project profile:

- Investment costs
- Production or Operating costs
- General costs or Overheads

Although detailed investigation of costs is not required - or even recommended - at the profile stage, it is important that an effort be made to assign all known costs as accurately as possible to each of these above categories. Where this is not done, the profile may not properly reflect the cost structure of the proposal, causing errors that may result in an apparently viable project being rejected, or a poor project being approved for further detailed analysis.

4.5.1 Investment Costs

The investment constitutes the heart of any project. An investment is a cost which once paid, will last for a number of years. Some investments will last many years - for example a well - while others, such as a computer, may be only good for 4 or 5 years. But all investments must last more than one year. **By**



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definition, a cost that recurs every year is not an investment, it is an operating cost (like purchasing fertiliser).

Land is a special type of investment. Unlike other types of investments, land usually does not lose value over time, and is considered to last indefinitely. As a result, while the average annual cost of a truck may be the cost of the truck divided by the number of years it runs, for land the average annual cost is usually assumed as zero; it can be used for many years and still has the same value. Buildings made of stone or other solid materials may also last a long time, but they must usually be maintained, and so will have an annual cost associated with them.

Not all investment is in the form of physical goods (buildings, machinery etc.), although these are typically the most frequent. One can also invest in less tangible items, such as training, design of packaging, or in accounting systems - but the same rule applies: each of these investments is a one-off expense that produces over a number of years.

Despite the above rule, it is not always easy to decide whether an item should be treated as an investment. The most common example is the cost of establishing or purchasing permanent crops or large livestock. While the establishment of each hectare of coffee, or purchase of each breeding cow, is clearly an investment, if it is intended to establish/purchase frequently during the project period (e.g. rehabilitation of 20 ha of citrus undertaken on the basis of 4ha per year over 5 years), it may well be easier to treat them as an operating expense.

4.5.2 Production or Operating Costs

Investment costs are not the only type of costs facing a project. Once the investment is completed, the vast majority of projects (and all income generating activities) will have costs of operation or production. In the case of a local road, these may be no more than annual repair and maintenance, but for a dairy processing plant, these operating costs will include raw materials (milk), labour, other additives, packaging and electricity, to name only a few. Production or operating costs have the characteristic that they are recurring; that is they are incurred regularly, on a periodic basis that can be daily, monthly or at some other interval, but will be at least annually.

A second key characteristic of production or operating costs is that they arise directly from the use or functioning of the investment. They are directly affected by the scale of these activities (for this reason they are also sometimes referred to as direct costs). Thus, if the project operates at only one half of the level that it did in the previous year, the operating costs will also decline.

Labour is considered a production or operating cost if it is paid in relation to the scale of activity. Workers paid only when there are tasks to be done (e.g. harvesting, working on the production line in a plant) would



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therefore clearly be production costs. However, the salaries of any staff paid whether the project is running at full capacity, or nearly stopped (for example, the manager, or the mechanic in charge of the machines), would not be classified as a production cost, but rather as a general or overhead cost (see below).

It is not always easy to make the distinction between these two categories. For example, a vet who comes every month to examine the cattle in a dairy operation: is his or her payment classified as a production cost? The answer is that it depends on how the vet is paid. If it is per animal inspected, it is clearly a production cost. If, however, a vet is paid per visit (no matter how many animals there are), it would be a general or overhead cost (see below). A useful rule of thumb is that any cost that varies when the scale of operation changes by 20%, is a production cost.

4.5.3 General and Maintenance Costs

General and maintenance (or overhead) costs comprise the third category of costs faced by a project. These are costs that occur because the project exists, but which do not depend on the scale of operations. These might include office expenses, routine maintenance, local taxes, accounting services, or the cost of keeping a truck that performs a variety of jobs. Although they have to be paid on a regular basis (unlike investment costs) these costs often stay the same year after year, especially if inflation is not taken into account.