2.3 Problem analysis

Before we can start to design the project, we need to analyse the problem identified during project identification.

Problem analysis helps primary stakeholders to identify the causes and effects of the problems they face. It involves drawing a problem tree, from which project objectives can be identified. Use the stakeholder analysis to identify those who should help to construct the problem tree, making sure there is a mix of people from the community with local knowledge, technical knowledge and so on.

Problem analysis can be carried out with different stakeholder groups in order to see how their perspectives vary.

To help stakeholders think through all the causes and effects, check that they have considered social, environmental, political, economic and technical factors. The problem tree should help to reinforce our findings during the research phase of the planning. It might also raise new issues that we had not previously considered.

Problem trees

Problem trees enable stakeholders to get to the root of their priority need and to investigate the effects of the problem.

METHOD OF CONSTRUCTING A PROBLEM TREE

STEP 1 Agree on the main problem, usually the one identified during project identification. Write it on a post-it note or piece of card and place it in the middle of the wall or floor. There might be other problems identified by the community that could be explored. Draw separate problem trees for these and compare them later when starting to think about exactly what the project will address.
STEP 2 Identify the causes of the main problem by asking ‘But why?’ until we can go no further. Write each cause on a separate post-it note or piece of card. Some problems might have more than one cause. For example:

Developing a problem tree (CAUSES)

STEP 3 Identify the effects of the main problem by asking ‘So what?’ until we can go no further. Write each effect on a separate post-it note or piece of card. Some problems might have more than one effect. For example:

Developing a problem tree (EFFECTS)

Encourage discussion and ensure that participants feel able to move the post-it notes or cards around.

Check through the problem tree to make sure that each problem logically leads to the next.
STEP 4 Copy the problem tree onto a sheet of paper. Draw in vertical links to show the relationship between the causes or effects. Draw horizontal lines to show where there are joint causes and combined effects.

**EXAMPLE** of a simple problem tree

<table>
<thead>
<tr>
<th>Causes</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Water-intensive farming methods</td>
<td>- Increased cost of water collection</td>
</tr>
<tr>
<td>- Population pressure</td>
<td>- Less money for school fees</td>
</tr>
<tr>
<td>- Water table lowered</td>
<td>- Increased mortality</td>
</tr>
<tr>
<td>- Increased demand for farm use</td>
<td>- Reduced incomes</td>
</tr>
<tr>
<td>- Increased demand for household use</td>
<td>- Poorer nutrition</td>
</tr>
<tr>
<td>- Not enough wells</td>
<td>- Less time for farm work</td>
</tr>
<tr>
<td>- Open wells dried up</td>
<td>- Buy water</td>
</tr>
<tr>
<td>- Borehole hand-pumps broken</td>
<td>- Increased disease</td>
</tr>
</tbody>
</table>

**Objectives tree**

An objectives tree is similar to a problem tree, except that it looks at objectives rather than problems. An objectives tree can be developed without first identifying problems, but the easiest way to develop an objectives tree is to convert a problem tree.

To do this, turn each of the causes in the problem tree into positive statements. For example, ‘poor yields’ would become ‘yields increased’. This will result in an objectives tree. Check the logic. Will one layer of objectives achieve the next? Add, delete or change objectives if necessary.

There might be some causes near the bottom of the tree that are very general. They cannot be turned into objectives that could easily be addressed in a project. Instead they act as constraints on the project that need to be considered during risk assessment. We might later decide to focus a project or programme on that issue by developing a problem tree with the issue as the main problem.
If we try to address all of the objectives we have identified, we will find we have a very expensive and lengthy project. It is therefore necessary to focus on one or a few areas of the objectives tree. If more than one objectives tree has been drawn, we will need to decide which of these to focus on for the project.

Ask the following questions:

- Which objectives should we address?
- Which combination of objectives are most likely to bring about the most positive change?

Issues to consider are:

- cost
- benefits to primary stakeholders
- likelihood of achieving the objectives
- risks (see page 45)
- whether other organisations are already addressing the problem
- sustainability
- environmental impact.

Look at the objectives tree and identify the branches that the project could address. For example, for the objectives tree above, it might be decided to address the right-hand branch (circled).

It is a good idea to come back to the objectives tree later when starting to think of project assumptions. All the objectives that are left in the objectives tree can be viewed as constraints which could affect project success.