

5

Environmentally sustainable projects

All development work and activities have environmental impacts. We need to develop our understanding of how to reduce any damaging environmental impacts so that our work reflects our care and stewardship of creation. This section looks at how to make all of our projects environmentally sustainable.

Readers may want to carry out specific projects in response to environmental degradation and climate change. We will not look in detail at specific environmental projects in this book, though we do provide information and case studies that will help organisations to understand the issues better and identify appropriate responses. Environmental projects are often quite technical, so organisations should seek the advice of both technical experts and the community before carrying out such work. The box below provides information about two tools developed by Tearfund that could be useful for organisations that wish to carry out specific work in response to environmental issues. Organisations wishing to engage in advocacy work in this area should refer to Section 6 of this book.

Tools developed
by Tearfund

CLIMATE CHANGE AND ENVIRONMENTAL DEGRADATION RISK AND ADAPTATION ASSESSMENT (CEDRA)

helps development organisations access and understand the science of climate change and environmental degradation. They are then helped to combine this knowledge with local community experience of environmental change. Agencies can then prioritise which environmental hazards may pose a risk to their existing projects and project locations. This enables them to make decisions to adapt or stop projects, or start new ones.

Adaptation options are discussed and design-making tools are provided to help in planning responses to the identified hazards. It provides options for taking practical action. It can be used to consider consequences within one or several climatic zones which have similar physical geographical characteristics.

Strategic decisions that can be made in response to CEDRA are:

- to make changes to current development projects or programmes
- to stop some current projects or programmes of work
- to start new projects or programmes of work
- to focus on more vulnerable geographical areas or people.

PARTICIPATORY ASSESSMENT OF DISASTER RISK (PADR) enables communities that experience or anticipate disasters to identify and analyse their vulnerabilities and capacities, and to develop and implement an action plan to respond to those disasters. These disasters may not be linked to the environment, but many disasters are caused or made worse by environmental factors. PADR is described in full in *ROOTS 9: Reducing the risk of disaster in our communities*.

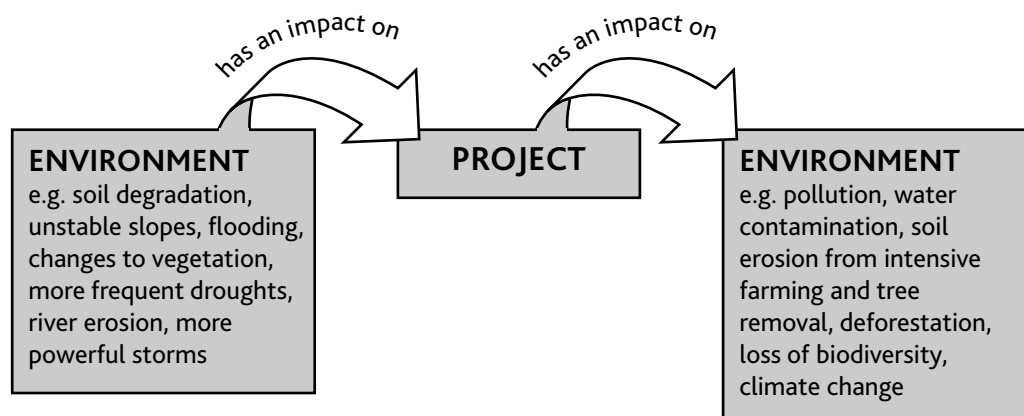
Both these tools, and many others are available on Tearfund's international website: www.tearfund.org/tilz

Even if we do not carry out specific environmental projects, as stewards of God’s creation, it is crucial that the work we do is environmentally sustainable. This involves recognising that all of our projects will have an environmental footprint whatever the development issue our work addresses. In this section we look first at why it is important to make our projects environmentally sustainable. We then introduce a tool called ‘environmental assessment’ that we can use during project planning.

5.1 The benefits of environmentally sustainable projects

As the diagram below shows:

- Degradation of the environment together with recent and future changes in the earth’s climate are likely to impact our projects.
- At the same time, all types of projects are likely have some kind of impact on the environment, whether positive, neutral or negative. For example, a small clothing co-operative may use electricity for lighting and power to run machines, causing carbon dioxide emissions (negative). However, if they can use solar voltaic power they will no longer produce carbon emissions for power (neutral). In addition, by planting trees around the factory and workers’ homes, they are restoring the environment.
- Many people believe that because their work is urban or has no agricultural focus, they do not need to consider environmental issues. However, consider a project that provides micro-credit and support for people living with HIV in an urban area. The provision of medication, the use of a venue for micro-credit meetings and staff transport to a project site, all impact on the environment. For example, the production of medical drugs will involve the use of electricity, plastics for packaging and the use of fuel in transporting them. Storage of some drugs requires refrigeration, consuming electricity. Electricity is also likely to be used to run lighting or fans in an office building. Staff transport is likely to use petrol or diesel to run motorbikes, vehicles or public transport. All of these activities will result in carbon emissions.



It is essential that during the project planning process, the potential impact on the environment is considered. The following table outlines some of the consequences of not considering environmental sustainability in our work.

Consequence if environmental sustainability is not considered for projects	Examples
Projects may harm natural environmental resources, which could in turn harm local people	<ul style="list-style-type: none"> ■ A carpentry training project could encourage local deforestation which could affect soil quality and contribute to local crop failure ■ A sanitation project could pollute drinking water which could increase ill health
Projects may increase the exposure of local people to natural hazards	<ul style="list-style-type: none"> ■ Clearing large areas of vegetation for farming can increase soil erosion, interrupt the water cycle, and increase the likelihood of drought ■ Clearing mangroves to provide access for fishing could expose a community to flooding and coastal storms
Project activities could be inappropriate and ineffective if environmental problems affecting local people are not also addressed	<ul style="list-style-type: none"> ■ In an education project, children may stop attending school during a drought because they have to walk further to collect water ■ An HIV project may find the people it works with are affected by malnutrition due to local land degradation and poor harvests
Projects may not be completed or fail to bring sustainable change because activities are affected by environmental problems	<ul style="list-style-type: none"> ■ Flooding or mudslides could destroy buildings constructed as part of a project ■ New wells may be polluted by chemical fertilisers and pesticides contaminating the ground water
Project costs may increase if the initial project design does not consider environmental issues because new activities may need to be brought in to keep the work on track	<ul style="list-style-type: none"> ■ An HIV project may find that the people it works with require nutritional support during high rainfall when their vegetable gardens are flooded
Projects may lose the support of local or neighbouring communities if they cause harm to the environment	<ul style="list-style-type: none"> ■ A project that pollutes a river and contaminates drinking water can affect people's health and fish stocks downstream. This could lead to conflict
Projects could miss opportunities to improve the local environment and community life	<ul style="list-style-type: none"> ■ Rather than providing fans or air-conditioning in a new school, buildings could be designed to encourage natural cooling and trees could be planted outside to give shade to the classrooms

An environmentally sustainable project:

- takes account of current and future environmental issues that may affect the project
- avoids harming the environment
- benefits the environment wherever possible
- practises sustainable resource management – ensuring that environmental resources are used in a way that does not compromise their future availability and are being replaced over the same period.

5.2 How to carry out a basic environmental assessment

Once you have read this section, the basic environmental assessment can be carried out using the information in Parts 1 to 5.

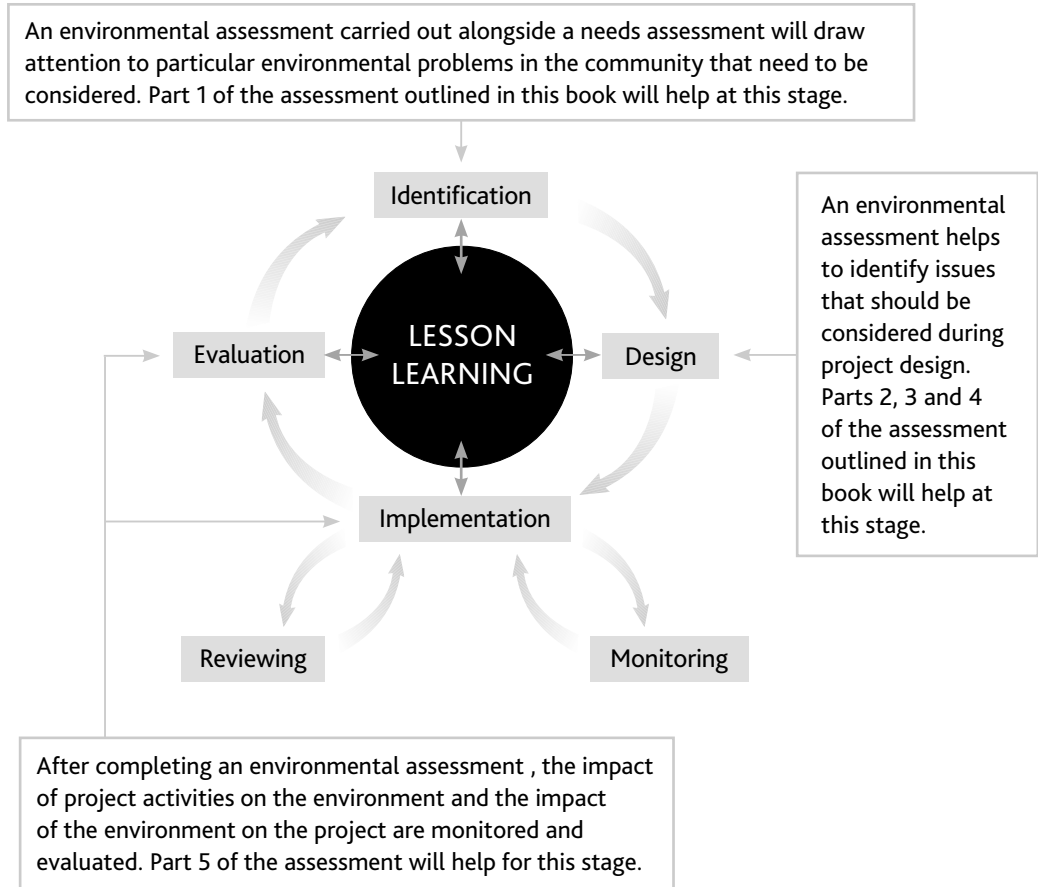
An 'environmental assessment' is a tool that can help us during the planning process to make our projects environmentally sustainable. Confusingly, the term 'environmental assessment' is used in many contexts and means different things to different people. Other related terms are environmental impact assessment, rapid environmental assessment, strategic environmental assessment and environmental analysis. These usually relate to different user needs and to different sizes of project, but are often used interchangeably which is confusing.

In this book we explain how to carry out a basic environmental assessment. It is intended for projects that do not appear to have a direct link with the natural environment. These include interventions in education, advocacy, health, gender, child development and support for people living with HIV. Projects that have a more obvious direct link with the environment may require a more detailed and thorough environmental assessment, which is usually carried out by a technical specialist. Examples include agriculture, water and sanitation, manufacturing projects that produce solid or liquid waste and those that involve the construction of buildings, roads, dams, etc.

This basic environmental assessment is designed to be completed as part of the project cycle. For more detail about the project cycle, see *ROOTS 5: Project cycle management*. The following diagram shows the links between the basic environmental assessment and the project cycle.

It is important to undertake an environmental assessment with the community so they contribute and are involved in decisions taken that affect the project design. The purpose and outcome of the environmental assessment should be explained. This is their community and they must own the knowledge that they share as part of the assessment. The original copy of the environmental assessment should remain in the ownership of the local community and copies should only be made with their permission. They will find the assessment useful to refer back to when undertaking other projects in the area.

How environmental assessment fits within the project cycle



After considering the impact of the environment on the project and the impact of the project on the environment, we may decide that we need to:

- adapt our project activities
- change the project location
- stop some project activities
- start new project activities.

Basic environmental assessment

The basic environmental assessment is carried out in five parts:

Part 1 Assess the current condition of the local natural environment

Part 2 Assess the impact of the environment on the project

Part 3 Assess the impact of the project on the environment

Part 4 Identify appropriate action

Part 5 Develop a monitoring and evaluation plan

PART 1 Assess the current condition of the local natural environment



Action

Read the Background section below, then complete Assessment part 1 on page 54.

Background

The project design should take into account the condition of natural environmental resources, and current and predicted pressures on the resources as a result of environmental degradation and climate change. The table opposite shows the most important natural resources that are needed for the wellbeing of community members.

Community discussion on environmental change

'The soil was more fertile 30–40 years ago.'

'It does not rain like it used to. Rains used to be a yearly average of 1000mm over six months but are now 600–700mm a year and over only three months. This means more intense rain runs off the land too quickly, washing away the fertile soil. Crops also fail as they need six months of rain to grow.'

'There is much less vegetation than there used to be and many plant and animal species have disappeared.'

'A cereal bank was set up 17 years ago. It was originally stocked by growing crops in a communal field, but now all the young men have moved to the city in search of work and the old men cannot keep up the work. ODE loaned them 300 sacks of grain to restart the cereal bank.'

'Rice prices have nearly doubled (from CFA12,000 to CFA20,000) over the last year.'

Comments gathered during an environmental assessment in Song-Naaba, Burkina Faso



Caroline Kassel Tearfund

Natural resources needed for community wellbeing

Natural resource	Main community use of the resource
<p>Water</p> <p>Consider groundwater, rivers, lakes, sea, ponds</p> <p>Consider use of water for drinking and irrigation</p> <p>Consider water availability, quality and pollution</p>	<p>Drinking: for health and life</p> <p>Cooking: for health and life</p> <p>Washing and sanitation: for health and hygiene</p> <p>Irrigation: for food security</p>
<p>Land and soil</p> <p>Consider use of land: crop yields, livestock and waste disposal</p> <p>Consider soil cover and quality</p> <p>Consider soil erosion and contamination from fertilisers, industry or sewage</p>	<p>Growing crops to eat and for income</p> <p>Grazing livestock to eat and for income</p> <p>Land that is free from waste and contamination helps to retain health, creates a sense of wellbeing (no smells or bad views), enhances livelihoods (e.g. attracts people to visit shops) and protects biodiversity</p>
<p>Air</p> <p>Consider pollution from smoke, gas, chemicals or sewage; smog</p>	<p>Breathing clean and fresh-smelling air: for health and sense of wellbeing</p>
<p>Flora (vegetation) e.g. forest, shrubs, grass, agricultural crops</p> <p>Consider coverage of vegetation</p> <p>Consider use of vegetation, such as crops to eat and trees for timber</p> <p>Consider clearance of vegetation for grazing or building</p> <p>Consider the effects of deforestation and removal of mangroves or other natural resources</p>	<p>Shade: for preserving crops and preventing heat-related illnesses</p> <p>Preserving the natural water cycle</p> <p>Benefiting from nutrient-rich soil that flora coverage ensures: for growing crops to eat and for income</p> <p>Materials for building shelters and homes</p> <p>Wood for heating and cooking</p> <p>Personal safety as vegetation cover can prevent flooding and landslides</p>
<p>Fauna (animals, birds, fish, insects)</p> <p>Consider migration and depletion</p> <p>Consider pests and invasive species</p>	<p>Raising of livestock for food and income</p> <p>Fertilisation of crops and other plants</p>

In some areas, certain natural resources have always been vulnerable, and local people will have developed ways of coping. For example, in a desert where water has always been in short supply, people may have nomadic lifestyles so they can move to wherever water is available at different times of the year. However, in many places, natural resources are experiencing new pressures as a result of human activity and climate change.

IMPACTS OF HUMAN ACTIVITY ON THE LOCAL ENVIRONMENT

It is normal for the environment to change gradually over time. However, human activity can bring rapid changes to the environment. Often these changes are negative. Environmental degradation is usually the consequence of past and present generations of people using up more natural resources than can be replaced during their generation. This could be driven by poverty, greed or ignorance about the damage being done. The table below lists the most common types of environmental degradation and the impacts they may have on other environmental resources and people's lives.

Degradation and its impact

Nature of environmental degradation	Impact
<p>Land degradation Possible human causes: deforestation, fires, mineral abstraction, over-intensive farming and grazing, overuse of chemical fertilisers and growth or movement of populations.</p>	<p>Choking water run-off channels and flooding; destruction of natural vegetation and biodiversity; soil loss; declining crop yields; desertification; population displacement; increased health risks e.g. malaria; increased carbon emissions when fires are used to clear land.</p>
<p>Reduction in water availability Possible human causes: building dams, diversion of rivers, over-abstraction of water, inefficient irrigation.</p>	<p>Sedimentation and flooding; destruction of plants, trees, animals and fish; damage to livelihoods; conflicts about water use; increased risk of drought; reduced crop yields; increased workloads, especially for women; poor drainage and run-off of water; population displacement.</p>
<p>Reduction in water quality Possible human causes: chemical or sewage contamination and other pollution, poor community and local government management of water resources, destruction of natural coastal defences such as mangroves.</p>	<p>Decreased water quality; increased disease vectors; increased ill health; increased mortality; destruction of plants, trees, animals and fish; salinisation of soil and aquifers.</p>
<p>Deforestation Possible human causes: logging – to sell wood; land clearance – including through burning forest and shrubs.</p>	<p>Less availability of water (interrupted water cycle); soil erosion; flooding due to silting of rivers and water channels; landslides; destruction of plants, trees, animals and fish; destruction/ depletion of natural resources such as food, fuel, shelter and medicines; impact on livelihoods; increase in global carbon emissions due to removal of 'carbon sinks' (forests) or through burning forests (which emits carbon).</p>
<p>Desertification Possible human causes: overgrazing, land clearance, over-intensive farming and extensive logging.</p>	<p>Increased water scarcity; food insecurity; increased conflict; reduced water quality; displacement / disease; reduced biodiversity.</p>
<p>Loss of biodiversity Possible human causes: deforestation, over-abstraction of water, the destruction of natural resources due to conflict or building new roads, planting large areas of single crops, clearing the land surface of plant or crop waste.</p>	<p>Natural water barriers and soil retention harmed; rapid water run-off; soil degradation due to altered nutritional quality of soil; loss of agricultural livelihoods and other livelihoods dependent on natural resources; poverty; ill health; loss of breeding or migration routes for flora and fauna; conflict between communities.</p>
<p>Pollution Including pollution to land, air and water from industry, sewage, solid waste and farming chemicals.</p>	<p>Decreased water quality; contamination of water resources, increased vulnerability in a drought; decreased crop yields; increased ill health – respiratory diseases; increased mortality; acid rain; smog; destruction of plants, trees, animals and fish.</p>

IMPACTS OF CLIMATE CHANGE ON THE LOCAL ENVIRONMENT

Climate change threatens every aspect of development. It will cause ongoing stresses such as rising temperatures and extreme weather. The impact of these stresses on the local environment will make existing problems worse, such as food insecurity or lack of access to safe water. Climate change will also increase the frequency of hazards such as floods, landslides and droughts, and the severity of cyclones (hurricanes/typhoons).

Sometimes, impacts of climate change may be beneficial. For example, temperature rises may lead to better crop conditions in cooler mountainous areas. However, these benefits may only be temporary and such areas are likely to also experience negative impacts of climate change. The table below lists the likely impacts of climate change. Only some of these will be experienced in any one particular location.

Likely impacts of climate change

Nature of climate change	Likely impact
Increased temperatures	Reduced agricultural yields in some warmer regions; new crop possibilities; increased number of crop pests; increased risk of wild fires; increased water demands; increased yields in some crops; loss of biodiversity; water quality problems; increased mortality due to heat and disease including malaria; more flash floods due to melting glaciers.
Increased rainfall with changes in distribution and intensity	More floods, or floods at different times of year; damage to crops; soil erosion; inability to cultivate land due to water logging of soils; adverse effects on quality of surface or groundwater; contamination of water supply; increased risk of deaths, injuries, infections, respiratory and skin diseases; disruption of settlements, commerce, transport and societies due to flooding; pressure on urban and rural infrastructure; loss of property.
Increased droughts	Increased risk of food or water shortage; increased risk of malnutrition and famine; increased risk of diseases / deaths; more widespread stress on water quality, supply and availability; lower water table causing wells to dry up; desertification; soil degradation and lower crop yields / crop damage or failure; increased livestock deaths; increased risk of wild fire which could cause destruction of infrastructure, homes and livelihoods and would lead to increased carbon emissions; conflicts about water or other natural resources; increased displacement of people; reduction in tourism; reduced fish stocks or fishing areas.
Increased severity of cyclone and storm surges	Increased risk of deaths and injuries; damage to infrastructure, assets and livelihoods; damage to water and sanitation systems; pollution of water sources; increased disease; loss of livestock; damage to crops and trees; destructive mudslides; disruption of settlements, commerce, transport and societies; increased displacement of people; tourism disrupted.
Sea level rise and more frequent and severe floods	Increased risk of deaths and injuries; increased coastal erosion and land loss; potential for displacement of populations and infrastructure; salinisation of soils, irrigation water, estuaries and fresh water systems and decreased freshwater availability; increased displacement-related health effects; greater vulnerability to storms, hurricanes and tidal surges leading to loss of assets, infrastructure and livelihoods.

The aim of this part of the assessment is to understand the environmental issues in the community where the project will be implemented. This can be carried out alongside or as part of a needs assessment ('identification phase' of the project cycle) or as part of the research carried out after a project has been identified ('design phase' of the project cycle). The information produced will be useful during parts 2 and 3 of the assessment when the project itself is the focus.



Action

- Copy the table below, or photocopy the template on page 91. For office based projects, consider the immediate surroundings. For community based projects in rural areas, walk around the project site with community representatives.
- Note the positive and negative conditions of each type of natural resource. The table on page 51 provides many useful ideas of what to assess.
- To identify stresses on each resource, it can be helpful to ask the following questions:
 - Is the resource being used in a non-renewable way?
 - Is the resource being affected by environmental degradation and changes in the climate, and are the impacts likely to get worse?
 - Is the community highly dependent on the resource? Why?
 - What is the probability that increased stress on the resource will occur?
 - Is the stress likely to last a long time?

Assessment part 1

Natural resource	Notes on condition of the resource
Water	
Land and soil	
Air	
Flora	
Fauna	
Other, such as clay, coal, minerals	

EXAMPLE of part 1 in use

The table below shows some examples of the notes that could be written. In a real assessment, it is likely that there will be more notes for each resource.

Natural resource	Notes on condition of the resource
Water	<ul style="list-style-type: none"> ■ The local well has dried up on several occasions due to low rainfall. The nearest alternative drinking water supply for the community is three miles away.
Land and soil	<ul style="list-style-type: none"> ■ Soil in the region is less fertile because livestock numbers have fallen due to lack of rain. There is therefore less manure to use as fertiliser. ■ Higher temperatures and less rain mean increased crop failures and higher food prices.
Air	<ul style="list-style-type: none"> ■ Smoke from a factory nearby sometimes pollutes the air, causing coughing and sore eyes.
Flora	<ul style="list-style-type: none"> ■ There is a well managed forest nearby, providing good supplies of firewood. ■ Household plots are growing well, despite heat and lack of rain. ■ Grazing land is over-grazed leading to soil erosion. ■ Five species have been identified as having completely disappeared from the area during the last seven years.
Fauna	<ul style="list-style-type: none"> ■ Health of livestock is deteriorating because there is not enough water for them to drink. ■ Meat supplies are more expensive and often unavailable. ■ With increased population density, the hunting of wild animals for meat has greatly reduced stocks, and is impacting on biodiversity. ■ Three species of bird are no longer seen in the area.

If time allows:

- Conduct interviews or participatory discussions with people living on or near the project site, including those whom the project serves. Ask open questions such as ‘What is the quality of water like at the moment? How has it changed over the last ten years / since you were a child?’ Ask the same questions with different people to build up a fuller picture of changes.
- In order to ensure that what we observe and are told is valid, we can consult scientific records about the condition of the resources in the local area and the impact of climate change and environmental degradation. These can be found in some local government offices, university libraries and obtained from other development organisations.

The Tearfund tool CEDRA provides more details on carrying out scientific research (see www.tearfund.org/tilz).

PART 2 Assess the impact of the environment on the project



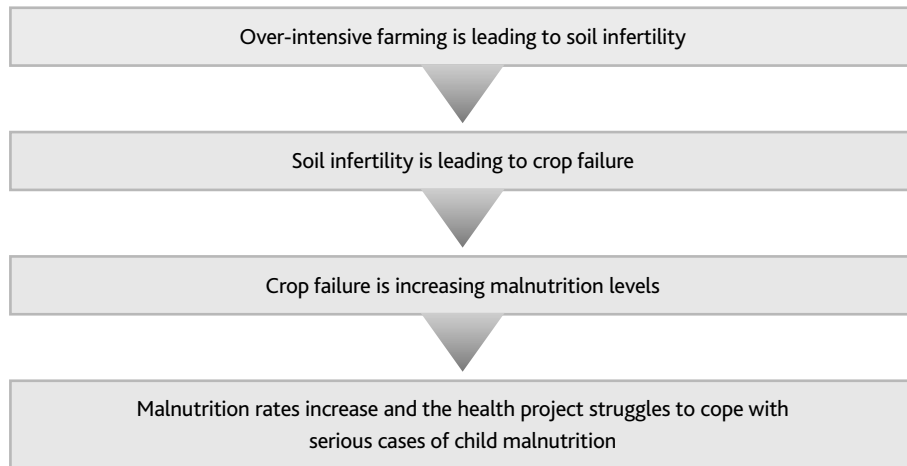
Action

Read the Background section below, then complete Assessment part 2 on page 58.

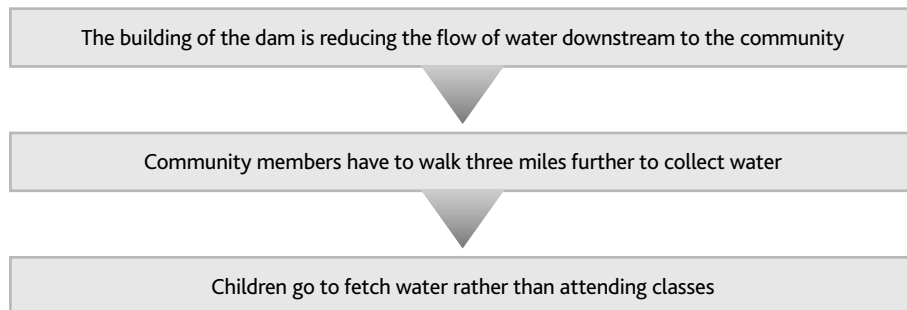
Background

The aim of this part of the assessment is to consider the impact that the environment may have on the project. This requires thought and discussion because sometimes the link is not immediately obvious. Here are some examples.

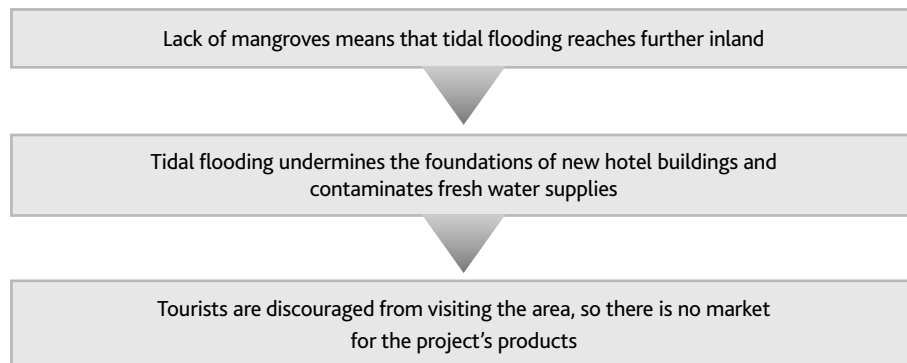
EXAMPLE 1 A health project may be put under pressure as a result of over-intensive farming. This is because:



EXAMPLE 2 An education project could become less effective due to the development of a dam up-stream. This is because:



EXAMPLE 3 An enterprise development project could fail due to the cutting down of coastal mangroves. This is because:



This part and the next part of the assessment are useful when a logical framework or action plan are being developed during the design phase of a project.

- The logical framework lists key activities that will lead to achieving project outputs that will in turn achieve the project's purpose. The issues identified in this part of the assessment could be inserted into the 'assumptions' column of the logical framework.
- The action plan lists more detailed activities that will need to be included as part of the key activities in the logical framework. For more information about these, see *ROOTS 5: Project cycle management*.

This part and the next part of the environmental assessment should consider activities listed in both the logical framework and the action plan.



Action

- Copy Assessment part 2 on page 58, or photocopy the template on page 92.
- Refer to the project's logical framework or action plan and transfer all the activities into the left-hand column of the table.
- Refer to the information collected in part 1 of the assessment. For each activity, consider the environmental impact that could affect the activity. The impact could be positive or negative and they could be current or predicted for the future. Provide details of the impact in the right-hand column. It is possible that some activities will not be impacted by the environment.

Assessment part 2

Project activities	Impact of environment on activities

EXAMPLE of part 2 in use

This example relates to a project that provides support for children and young people affected by HIV. It will consist of a safe area for young children to play. There will be opportunities for children to play and learn about hygiene and nutrition after school. There will also be a workshop where school-leavers can learn carpentry skills.

Project activities	Impact of environment on activity
Manage community centre	The community centre is located near some diseased trees which could fall on the building
Put up new walls in the community centre to provide a play room, a workshop, toilet facilities and a project office	The smaller rooms may become too hot and will get even hotter if temperatures continue to increase Reduced water supplies may impact on hygiene at the centre
Decorate the new rooms	None identified
Employ staff to run the centre	Increased flooding may make it difficult for staff to reach the centre
Buy equipment for the office and the play room	None identified
Clear a small area of land outside the community centre for growing vegetables	There is a plot of land that could be used, but it has not been farmed for some time due to lack of fertility Rainfall may be too low and unreliable for growing vegetables
Buy wood materials for the workshop	The well-managed forest nearby provides a sustainable source of timber
Train ten young people in carpentry	Since farming has become harder over the last few years, many young people are leaving the community as soon as they leave school hence reducing the potential number of students

PART 3 Assess the impact of the project on the environment



Action

Read the Background section below, then complete Assessment part 3 on page 60.

Background

The table on page 51 shows the main natural resources upon which communities rely. If our projects harm these resources, use them in a non-renewable way or put extra pressure upon the resources, then our intervention could fail and the people we are seeking to serve could suffer.

Natural environmental resources are either renewable or non-renewable:

- Renewable resources can replenish themselves. Some are living (such as fish, animals, plants and trees). Soil and water are also renewable. These resources, if used within reasonable limits, are replaced. However, if renewable resources are consumed at a faster rate than they can replace themselves, they will disappear, unless we intervene. Some renewable resources are not affected by human activity and cannot be exhausted, such as the sun, tides, wind and the heat inside the earth.
- Non-renewable resources such as rock, oil or gold, exist in fixed amounts and cannot be regenerated. The main example is fossil fuels (coal, oil and natural gas), which form under the ground.

Recent rapid increases in global warming are primarily caused by the use of fossil fuels and deforestation. For more information, see Section 1. We should be aware of our greenhouse gas emissions and try to reduce them wherever possible.

SUSTAINABLE RESOURCE MANAGEMENT (SRM) is one approach that can help us to make sure our projects do not harm the environment or climate, and even do some good. SRM prevents or at least reduces environmental degradation. SRM means ensuring that environmental resources are used in a way that does not compromise their future availability, and ensuring that what is used is within the amount that is being replenished over the same period. For example, sustainable fishing of a lake would involve catching fish without damaging the capacity of breeding fish stocks to replace the fish that are caught.

Efforts to manage resources sustainably have developed over generations and have often become traditional practices that are part of everyday life in many communities. We should be aware of the impact of our projects on local sustainable resource management and wherever possible protect and support those practices.

Here are some examples of how some local natural resources can be impacted by project activities. Activities can be unsustainable, or can be made sustainable or positively beneficial. Notice how little may need to be done to make an activity sustainable or beneficial in its impact.

Activity	Unsustainable impact	Sustainable impact	Positive impact
Clear site area	Removal of trees	Replace each tree elsewhere in local area	Plant more trees than are removed
Develop household gardens	Use of chemical fertilisers to help vegetables to grow, which has long-term effect on soil and ground water quality	Use organic compost to help vegetables to grow	Grow legumes to improve soil quality Rotate crops Plant trees or shrubs to protect vegetables and soil – this will also benefit other environmental resources
Buy wood	Timber comes from unmanaged forests	Ensure timber is sourced from sustainable sources or replant adjacent to project site	Use timber from sustainably managed forests and plant additional trees
Transport of staff and materials to project site	Release of greenhouse gases from transport	Source building materials as locally as possible Encourage staff to use bicycles, public transport or share transport, and limit the number of visits to project site if possible	Project is expanded to form a sustainable closed loop agriculture project where crop is used locally for food and animal feed. Waste parts of the crop are converted to biodiesel to run the new community bus



Action

The aim of this part of the assessment is to consider the impact that project activities may have on the environment.

- Copy Assessment part 3 below, or photocopy the template on page 93, and transfer all the activities in the logical framework and activity plan to the left-hand column. Alternatively, add a column entitled 'impact of activity on environment' to the right of Assessment part 2.
- Refer to the information collected in part 1 of the assessment. For each activity, write down the impact that it could have on the environment. These impacts could be positive or negative.
- In addition, consider transport usage (fuel consumption) and levels of waste. In some projects these will be the areas where the project has the most impact on the environment.

Assessment part 3

Project activities	Impact of activity on environment

EXAMPLE
of part 3 in use

This example follows on from the example used in part 2.

Project activities	Impact of activity on environment
Manage community centre	
Put up new walls in the community centre to provide a play room, a workshop, toilet facilities and a project office	The walls use wood, depleting local forests Toilet facilities could impact local land and water quality This work could produce a lot of waste
Decorate the new rooms	Left-over paint could pollute land and water quality Flooring materials will be needed
Employ staff to run the centre	Environmental impact through travelling to work
Buy equipment for the office and the play room	Cheaper play equipment is plastic and imported, creating greenhouse gas emissions during manufacture and transport Broken computers and similar equipment will be difficult to recycle Offices could use a lot of paper and energy
Clear a small area of land outside the community centre for growing vegetables	Shrubs and grass may need to be removed Vegetables need a lot of water that will impact on supplies that are already limited The land could become more fertile if vegetable crops are rotated
Buy wood materials for the workshop	Use of wood could lead to local forest depletion if not sustainably managed
Train ten young people in carpentry	The presence of trained carpenters could encourage local people to buy more wood products. This demand for wood could negatively affect local forest resources or it could raise the value of forests meaning they become better sustained

PART 4 Identify appropriate action



Action

Read the Background section below, then complete Assessment part 4 on page 63.

Background

Parts 2 and 3 of the assessment helped us to identify the main ways in which our project is affected by the environment and the way it impacts on the environment. In part 4 of the assessment we consider ways that we can make the project more environmentally sustainable.

Often the changes we can make will be obvious as soon as we have identified the environmental impacts. Sometimes research or discussion with the community or a technical specialist may be needed to identify appropriate ways to change activities. For example:

- In a livelihoods project we may realise that the enterprise is dependent on a particular natural resource which is under threat. We could discuss with community members what other types of enterprise might be more appropriate and consider whether we can take action to protect the natural resources.
- In a food storage project we may decide to build the grain store on stilts to protect it from flooding.
- In an education and literacy project, we could choose to have classes that look at environmental issues in order to enable our project to have a positive environmental impact.

We may need to bring in new activities to deal with impacts that threaten the project. These can be added to the logical framework as a risk management plan. For example:

- In areas prone to storms and flooding, we may want to consider the location, design and orientation of the buildings.
- In a health project, we could train health workers in diseases and health issues which are likely to increase as a result of climate change.
- In areas prone to drought, we may want to consider rainwater harvesting for a community centre or tree planting to improve the local micro-climate.

It will not always be possible to address all of the issues identified in parts 2 and 3 of the assessment. It is best to identify those that will have a major impact on the success of the project. Time and costs also need to be taken into consideration.



Action

- Examine the table or tables completed in parts 2 and 3 of the assessment. For each activity, ask the following questions:
 - Should we proceed with the activity? If not, will this affect the entire project? Could we move the project to another location?
 - Do we need to alter the activity so that negative impacts from the environment are avoided or reduced? If so, how would we do that?
 - Do we need to alter the activity so that the impact on the environment is positive? If so, how would we do that?
- Consider whether any new activities could be introduced to address some of the impact.
- Discuss potential actions with community members and, if possible, with professional experts such as government technical advisers or other development workers.
- Choose which actions to take, based on criteria that are important to the local community and the organisation.
- Incorporate actions into existing action plans or by revising the logical framework. Alternatively, create an action plan which outlines what needs to be done, who will do it, and a completion date.

Assessment part 4

Project activities	Impact of environment on activity (part 2)	Impact of activity on environment (part 3)	Appropriate actions (part 4)

EXAMPLE of part 4 in use In the example below, most of the actions could realistically be carried out. Some of these involve doing things differently, such as sourcing materials locally. Others involve new activities such as harvesting rainwater.

Project activities	Impact of environment on activity (part 2)	Impact of activity on environment (part 3)	Appropriate actions (part 4)
Manage community centre	The community centre is located near some diseased trees which could fall on the building		Cut back branches, or cut down trees and plant new ones
Put up new walls in the community centre to provide a play room, a workshop, toilet facilities and a project office		The walls use wood, depleting local forests	Source wall materials sustainably
		This work could produce a lot of waste	Ensure that building waste is disposed of responsibly
	The smaller rooms may become too hot and will get even hotter if temperatures continue to increase		Plant trees around the building to provide shade
	Reduced water supplies may impact on hygiene at the centre	Toilet facilities could impact local land and water quality	Choose an appropriate location and technology for toilets Harvest rainwater
Decorate the new rooms	None identified	Left-over paint could pollute land and water quality	Ensure that paint is disposed of responsibly
		Flooring materials will be needed	Find local and sustainable sources of flooring materials
Employ staff to run the centre	Increased flooding may make it difficult for staff to reach the centre	Environmental impact through travelling to work	Try to recruit local staff

table continues

Part 4 continued

Project activities	Impact of environment on activity (part 2)	Impact of activity on environment (part 3)	Appropriate actions (part 4)
Buy equipment for the office and the play room	None identified	Cheaper play equipment is plastic and imported, creating greenhouse gas emissions during manufacture and transport	Try to find play equipment that is durable, made from natural materials and sourced locally
		Broken computers and similar equipment will be difficult to recycle	
		Offices could use a lot of paper and energy	Raise awareness among staff of the need to conserve resources
Clear a small area of land outside the community centre for growing vegetables	There is a plot of land that could be used, but it has not been farmed for some time due to lack of fertility Rainfall may be too low and unreliable for growing vegetables	Shrubs and grass may need to be removed	
		Vegetables need a lot of water that will impact on supplies that are already limited	Consider the use of wastewater for watering vegetables
		The land could become more fertile if vegetable crops are rotated	Consider the use of vegetables that need less water and rotate with other crops to maintain soil fertility
Buy wood materials for the workshop	The well managed forest nearby provides a sustainable supply of timber	Use of wood could lead to local forest depletion if not sustainably managed	Ensure that wood comes from local sustainable forests
Train ten young people in carpentry	Since farming has become harder over the last few years, many young people are leaving the community as soon as they leave school hence reducing the potential number of students	The presence of trained carpenters could encourage local people to buy more wood products. This demand for wood could negatively affect local forest resources or it could raise the value of forests meaning they become better sustained	Advertise the training as soon as possible, before more young people move away
			Consider training young people in a different kind of skill

PART 5 Monitoring and evaluation

Monitoring and evaluation help us to measure the effectiveness of our work. Based on the project's logical framework, monitoring and evaluation assess to what extent the goal, purpose and the various outputs, have been met.

MONITORING is carried out while the activities are being implemented. It enables us to ensure the activities are being carried out appropriately and are yielding the intended results. It also enables us to measure the environmental changes that are taking place. It is important to take these changes into account, because they may threaten the project. Monitoring can involve:

- informal observation of environmental conditions by community members, such as decreasing depth of water in wells, amount of sediment in streams, frequency of heavy rain storms
- structured monitoring such as field surveys or collecting and testing samples to identify changes in environmental conditions and the presence of pollutants.

As a result of the findings we may need to improve activities, stop activities or introduce new activities.

EVALUATION is carried out when the implementation phase of a project or activity has ended. It finds out whether the intended benefits have been achieved, whether there were any negative outcomes and what lessons can be learnt.



Action

Monitoring and evaluation of the environmental issues related to projects should be integrated with monitoring and evaluation of the project as a whole. For more information about monitoring and evaluation of projects, see *ROOTS 5: Project cycle management*. Here we outline how the environmental assessment can be used.

- Use the information collected in Parts 1, 2 and 3 of the environmental assessment as a baseline. This means that progress can be measured against what the situation was at the beginning of the project.
- Consider how, when and by whom the following will be monitored and evaluated:
 - the impact of the project on the environment (positive, neutral and negative). Individual activities that aimed to reduce the impact should be considered.
 - the impact of the environment on the project (positive and negative). Individual activities that aimed to reduce the impact should be considered. Note that it is difficult to measure activities related to possible future environmental impacts if the hazard has not yet occurred. In this case, we should not think our activity was not needed. Instead, we should consider whether the hazard is still likely.
- If any negative impacts are found after monitoring, consider whether the activity needs to be adjusted or stopped, or whether a new activity should be introduced.
- Use the findings of the final evaluation to learn for next time. Consider what did and did not work. Consider whether the problems were due to the location or whether they should be considered in all other projects that the organisation carries out.

