

Soil erosion solutions

Helping North Coast landholders reduce soil erosion

Fact sheet 7: Planning your erosion project

Once you know you have soil erosion on your land, how do you go about fixing it? This leaflet outlines the planning stages for any erosion work.

1. Understand the problem

Identify whether the erosion is caused by water, wind or mass movement (see *Fact sheet 1: Types of soil erosion*). If the erosion is caused by water it is vital to find out where water flows over your land. The next time it rains go out in a heavy fall so you can see where runoff flows from and where it concentrates. Most water erosion occurs long before runoff reaches a stream. Contour maps and aerial photographs can help you map the major drainage lines on your property. If the erosion is caused by mass movement, look for earthworks, stock movement or water sources that may have contributed to the problem. If the erosion is caused by wind, check your groundcover levels.



Aerial photographs and topographic maps will help you determine the extent of the catchment for an erosion issue and aid in planning remediation steps. Remediation of large entrenched gully systems such as those shown above could include land forming, restricting stock access and revegetation.

2. Set priorities

If you have more than one area of erosion on your property, and you don't have the resources to work on them all at once, list them in order of priority according to:

- the amount of soil being displaced
- impact on your production
- off-site effects. If soil is leaving your property in large amounts, you may be responsible for detrimental effects on other properties.

This will help you work out which problem needs to be tackled first. For example, while a small section of eroded track is an obvious erosion problem, the soil loss from a paddock with sparse groundcover is probably much greater, and needs tackling first. Erosion from pasture or cropping land reduces the land's fertility and productivity.

3. Decide what you want to achieve

Decide what you want to achieve with your erosion project. Your major goal could be stabilisation of a gully, repair of a road, rehabilitation of a slumped area, or revegetated bare areas. Within that goal will be a number of sub-goals such as:

- protect the soil from raindrop impact
- slow down the movement of surface water
- spread out concentrated flows of water
- control the rapid descent of water
- trap suspended soil

Each of these goals may require quite different remediation techniques.

4. Consider possible solutions

When you break up your major goal into a number of sub-goals you are then able to consider all the different actions required. Below are some of the possible actions for the sub-goals listed above.

- Protect the soil from raindrop impact
 - **increase groundcover by reducing stock access or tillage and planting appropriate vegetation**
- slow down the movement of surface water
 - **increase groundcover**
 - spread out concentrated flows of water

- **build diversion banks, contour banks and ditches**
- control the rapid descent of water
- **install drop structures**
- **divert upslope run off**
- trap suspended soil
- **install sediment traps, settling ponds**
- **plant on the contour.**

Consider the costs of each action, including your time, so that you can decide how effectively each action could help you reach your major goal.

4. Decide what you want to measure

To know whether you have achieved your erosion goal you need to know whether soil is still eroding. This means you need to measure erosion before and after the project to see whether your work has made a difference. Measurements can include water turbidity, area of bare soil, percentage groundcover, or soil piling up against fences or timber. For more details on erosion monitoring see *Fact sheet 3: Monitoring erosion*.

5. Seek advice

Take time to research your particular erosion problem before you take any action. Find out what others have done in your area, and learn from their experiences. Visit sites where erosion works have been done. Seek advice from your local Landcare Community Support Officer (CSO) and research the internet if you have access. If your project is likely to involve earthworks or water diversion, especially on steep slopes, make sure you get expert technical advice.

6. Make a plan

Once you have done your research and investigations and decided on a way forward, write a plan for your project. A well written detailed plan provides clear guidance, and is also useful should there be funding available for erosion works. The more detail you include in your plan the better it will be for you, and the more likely your project will achieve what you want. In your plan include:

- a description of the site, including a good quality map, its problems and your goals
- all the tasks required (including on ground works, project management, post-project monitoring and evaluation)
- the order of the tasks
- people responsible for doing each task

- resources needed to do each task (type and quantity of materials, tools, equipment, and expertise)
- the time for each task (use a calendar and consider your total workload and other commitments).

7. Work to the plan

Use your plan as a working guide. Check jobs off as they are completed, and prepare for what comes next. If things don't go to schedule, or there is new information, record what has happened and update your plan.

8. Keep good records

Keeping good records of your project research, contacts and activities will make future project development faster and easier because you won't be starting from scratch.

More information

NSW DPI's website has information on soil erosion at:

<http://www.dpi.nsw.gov.au/agriculture/resources/oils/erosion>

To discuss your specific soil erosion issues, contact NSW DPI soils advisory officer Abigail Jenkins, Wollongbar, on 6626 1357 or abigail.jenkins@dpi.nsw.gov.au.



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