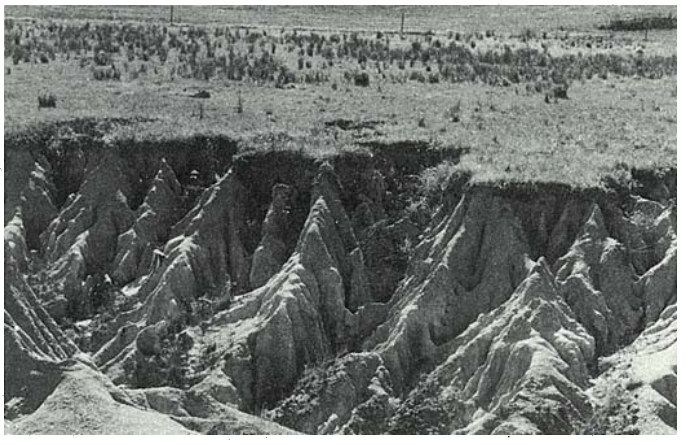


Soil erosion: ugly, yet beautiful.

Conserving our soils for the future

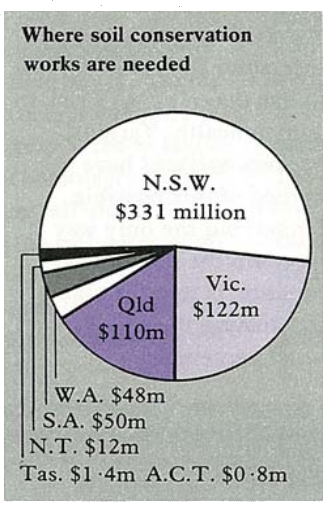
Soil conservation is, like motherhood, regarded by everybody as a good thing. However, while many of us pay lip service to the idea of conserving our soils for future generations, a recent government report calculates that we need to pay $675 million over the next 30 years to repair the damage done to our valuable capital resource.

Traditionally, primary producers have used and managed their land in whatever manner they chose. Often the long-term and off-site effects of their activities (such as siltation of dams and waterways, damage to road works, and the creation of dust problems) have been ignored or overlooked.

According to the report, 'A Basis for Soil Conservation Policy in Australia', the concept of soil resources as communal property, to be managed wisely and held in trust in perpetuity, has not been developed or accepted in Australia. But society has to preserve its options for the future and retain the versatility of its land resources, the report affirms.

To protect society's future interests, the government must intervene. State soil conservation authorities already assist in this regard, but to avoid irreversible damage within the next decade, only massive funds from government will suffice. Even though the land-user has a basic responsibility for conserving his land, in the face of the user's lack of knowledge or money for soil conservation works, governments need to accept an overriding responsibility. The soil is too valuable a resource to delay action while scapegoats, real or imagined, are found.

The report, published as number 1 of a series, resulted from a national study of land degradation carried out collaboratively by the Commonwealth and the States and Territories. The purpose was to provide information that would allow wise conservation programs to be formulated.



The report advises that a total of $610 million should be spent on soil conservation works in the non-arid zones.

A study team emanating from the one-time Department of Environment, Housing and Community Development, closely working with soil conservation authorities and specialist consultants such as CSIRO, began work in early 1975. Its plan of attack was to develop a long-term approach to national needs in land resource evaluation and conservation. One of its major tasks was to draw up a coordinated research program aimed at meeting the most urgent problems.

Water and wind are the major agents of erosion. They were constantly at work before European settlement of Australia, but only since that time has their action been enormously accelerated.

The reason, of course, relates to the use to which the land is now put and the way it is managed. Agricultural and pastoral activities create the greatest impact.

The manner and degree to which these activities degrade the land varies from State to State. However, it is clear that the arid zone has suffered signficant degradation, particularly those areas with the longest history of settlement. The fundamental damage is done by modifying or destroying vegetation, and, once damaged, plant cover can take many years to be restored.

The major cause of vegetation damage is grazing by sheep and cattle. Almost two-thirds of the arid zone currently supports grazing and it carries some 20–25% of both the sheep and cattle in this country. These

animals prune and defoliate edible plant species, in the process trampling the ground cover. Well-managed pastures can sustain this insult, but those that are overgrazed steadily degenerate.

The report warns of taking advantage of exceptionally favourable conditions. The danger in allowing stock numbers to increase in really good years is that, when that time has passed, disposing of excess stock is difficult. If the market is depressed, de-stocking is often delayed, to the detriment of vegetation and soil.

Even when land use and land management appear sound, risk of erosion damage still lurks. A margin of safety needs to be employed to accommodate such things as freak storms, wildfires, and cyclones.

Once damage has occurred, in whatever circumstances, its correction is difficult. Special rehabilitation and protection measures may be needed, as well as necessary changes in land use. Measures include de-stocking — temporarily or permanently, partially or completely; fencing and locating watering points to direct and spread stock; and digging shallow pits or furrows to catch water and seeds.

Yet the study team assigned a lower priority to the fragile arid zone than to the more productive regions because of their economic potential. Expenditure on soil conservation is here expected to be repaid much more quickly. This 'divergence' between economic considerations and theoretical priorities is particularly serious in northern areas that are also subject to heavy erosive rainfall, the report notes.

As a possible reconciliation, the report goes on to suggest that research may help develop more cost-effective soil conservation methods. Without progress here, heavy government expenditure, with little visible return (in the short term), is the only hope.

Mallee roots exposed by wind.

The study team recommends that a coordinated research program be developed which would include the Commonwealth Departments with an interest in soil conservation (Primary Industry, National Development, and Science and the Environment), CSIRO, and the Bureau of Agricultural Economics.

Nevertheless, when the figures were in and the sums were done, the outstanding result was that 51% of the five million square kilometres of Australia used for agricultural or pastoral purposes requires treatment for land degradation.

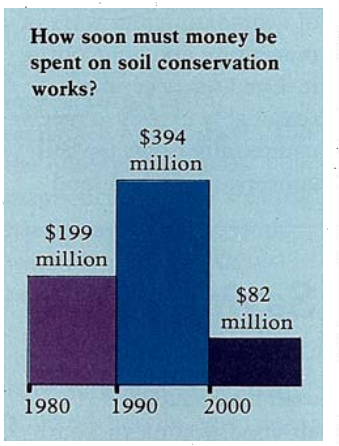
Some 44% of the area needing treatment can be rejuvenated by using suitable farm practices. Contour cultivation, stubble mulching, temporary de-stocking and crop–pasture rotation come into this category. Some farmers in this area already use one or more of these practices, but the soil is still losing: the study team's view is that many farmers must try harder.

The remaining 56% requires measures that involve the construction of works such as gully control dams, drainage works, and contour banks, as well as good husbanding practices. These necessary works were estimated to cost $675 million (at 1975 prices), all but $65 million of it to be expended in the non-arid zone.

Only a minute fraction of this 56% (about one-fiftieth) has been treated so far: the remaining area still remains damaged and requiring treatment to prevent further loss.

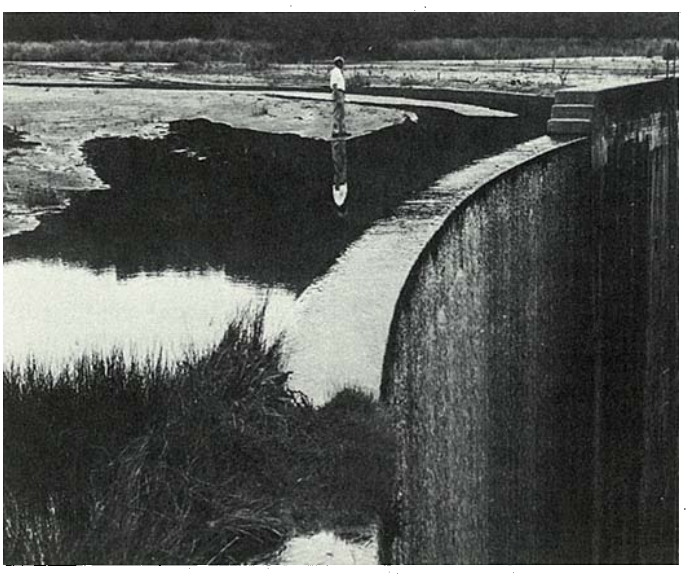
These estimated costs for construction of works do not include annual maintenance costs, estimated to be $50 million a year. Since, in general, the government will be providing a major share of the capital cost (it is proposed), then it would seem fair for the landholder to foot this bill.

Channels were ripped in this land to improve water infiltration.



According to the study, $593 million must be spent during the next 20 years to save our soils.

Nor does the cost include that expenditure needed to remedy land degradation brought about by activities other than rural farming. Mining, forestry, coastal recreation, and urban development contribute significantly to erosion as well, but on a less extensive scale. The damage they inflict on the land was therefore not estimated in the study, but the report strongly suggests that repair costs should be met by the land-users involved.



Silt almost completely fills this town water supply dam at Werris Creek, N.S.W.

Despite any amount of government assistance, it is necessary for the landholder to know his land and its susceptibility to erosion. It is in his own interest to make himself aware of the causes of degradation and ways of preventing and controlling it. Land-users cannot reasonably expect to receive community funds for soil conservation when land degradation is carelessly self-inflicted.

'A Basis for Soil Conservation Policy in Australia: Commonwealth and State Government Collaborative Soil Conservation Study 1975–1977, Report No. 1.' (Australian Government Publishing Service: Canberra 1978.)