By the middle of the last century, soil erosion in the cropping lands of Queensland had reached unacceptable proportions. The government established a soil conservation service to achieve adoption of soil conservation. At its peak, the Queensland soil conservation service had a presence in over 30 centres. This program provided a local service by staff that had been trained and mentored by experienced colleagues. The service promoted the concept of using land within its capability and assisted with management of soil erosion and other land degradation problems. Field officers worked with individual landholders and with groups in catchments in preparing soil conservation plans, as well as surveying contour banks and waterways. Landholders undertook construction and maintenance of their runoff-control works at their own expense. Many Officers also worked on addressing Grazing land Management issues. Since extension officers were not selling any physical product, they were considered to provide impartial advice. Great emphasis was placed on the development of effective relationships.

More recently, State agencies have curtailed their soil conservation extension services. Soil erosion control has been incorporated into the addressing of broader environmental issues such as salinity, biodiversity, water quality management and new vegetation management practices. The thinking behind this policy of dumping soil conservation services seems to be that these services would be taken up by private providers. However this has shown a complete lack of understanding of the nature of the problems being addressed and the fact that no private business has the resources, ability or legal power to plan and implement the catchment wide initiatives which are required to effectively deal with these problems. In Public Service jargon this is an example of "market failure" where there is little or no incentive for private business to invest in providing a service and Government resourcing is the only feasible alternative.

The roles and responsibilities for soil conservation are no longer limited to State government and farmers. The challenge is to ensure that the other stakeholders including local governments, regional bodies, primary industry organisations and community groups can access adequate technical and planning resources to assist in adopting soil conservation measures.

Soil erosion remains an insidious threat to the continued productivity of cropping. The area used for cropping in Queensland is 3.2 million ha. The predominantly summer rain is exceptionally variable. Erosion of topsoil reduces crop productivity, while advanced erosion leads to rills and gullies that make paddocks unworkable. Turbid runoff is likely to contain nutrients, fertilisers or pesticides causing adverse downstream effects and impacting on coastal assets like the Great Barrier Reef.

Former State Government Soil Conservation Officer, Peter Spies said the following "*The red basalts of the Atherton Tablelands are principally a maize, peanut, potato and grass seed/hay producing area. The rainfall is monsoonal with little effective winter rain, which almost precludes winter crop rotations without irrigation. This makes it more difficult to ensure that good ground cover exists throughout the year. This intense summer rainfall, combined with long, sometimes steep slopes presents a serious erosion risk. The red friable clay soils are highly erodible. Many areas still don't have contour banks and designed waterways and where they exist are often not maintained to handle runoff of a 1 in 10 event. Soil losses as high as 54t/ha have been measured from fallow contoured paddocks. Additional soil conservation practices, like reduced and zero tillage are required*".

"*Even with Land subdivision, which is often based on a geometric, rectangular systems, there is little consideration of natural drainage systems, topography, soil types and changed hydrological conditions caused by Roofs, roads and gutters*".

Rill erosion within a crop of maize on Atherton Tablelands.

Management systems to protect the soil resource against rainfall and overland flow can be classified into three broad categories: 1. land capability approaches; 2. surface cover management; and 3. runoff management. Because of the loss of Development and extension staff from State Government, many Officers don't have a good understanding of Land capability and an inadequate knowledge of the constraints and limitations of the soils being developed for agriculture.

As governments and community groups have become more focussed on externalities (especially off-farm environmental issues like salinity, biodiversity and water quality) soil erosion has become less featured. Thus fewer public sector resources are now directly devoted to soil conservation. While private agronomists now assist and advise farmers on growing crops, including zero tillage and controlled traffic, there are few consultants who assist farmers with the time consuming process of planning and implementing a soil conservation layout. Such planning often includes runoff coordination and negotiations with neighbouring properties within the catchment, and discussions with authorities responsible for roads, railway lines, electricity, communications, pipes and cable services. Coordination issues can be quite complex where overland flow passes through many properties before meeting a well-defined watercourse. Addressing runoff coordination is a casualty of the demise of soil conservation staff.

Current institutional reforms include the formation of Regional Natural Resource Management (NRM) Bodies, which have the responsibility of integrated planning, use and management of natural resources and biodiversity in their regions and catchments. Current priorities for these NRM Bodies include preventing salinity, improving water quality and the more sustainable use of natural resources including protecting biodiversity assets.

Regional NRM Bodies could provide an extension type service to assist farmers with the adoption of sustainable land management practices. But this will not happen unless staff are appropriately skilled with necessary technical backup. They will also require the equipment and resources to maintain a permanent record of the planning that is carried out. Applying 'user pays' and 'beneficiary pays' concepts will be the key to such services being successfully implemented.