

How gullies and streambanks erode and some control mechanisms



Gully erosion

need to understand the problem to fix it



Gully formation

Runoff concentration

Nick point to develop waterfall



Tunnel collapse



Gully growth mechanism

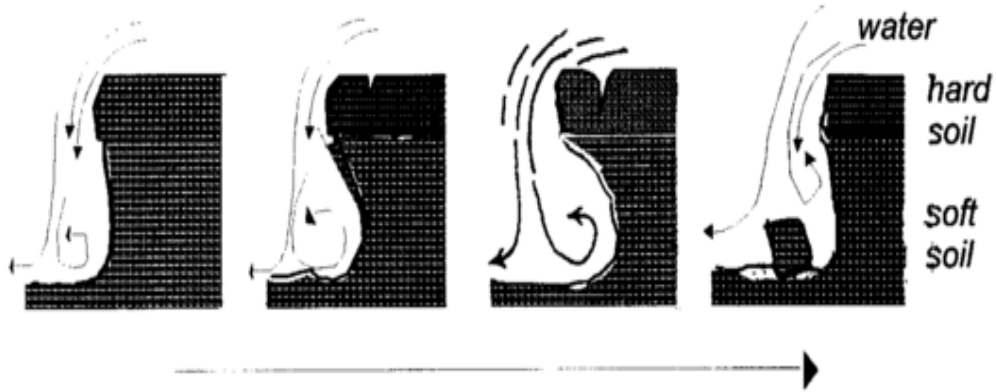


Figure 33: An example of undercutting > process over a period of time



Gully head migration

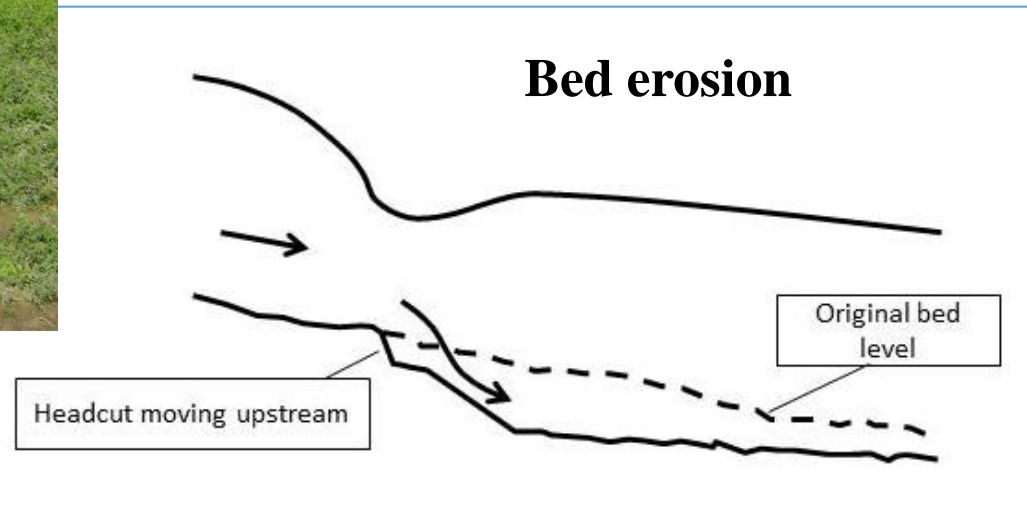
Lateral gullies



Side wall slumping

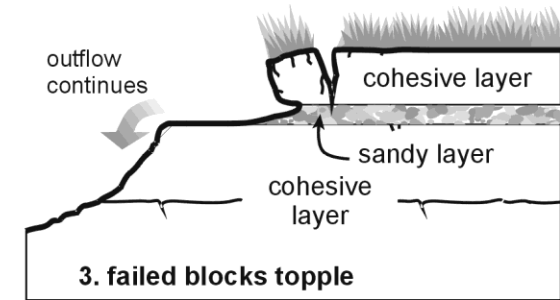
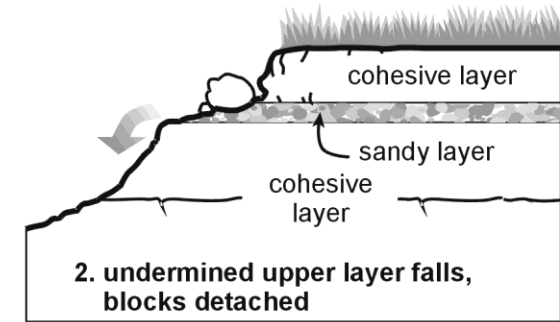
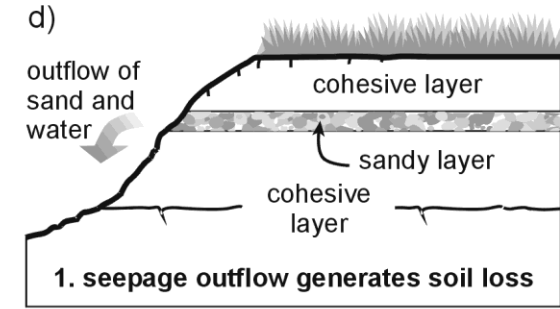
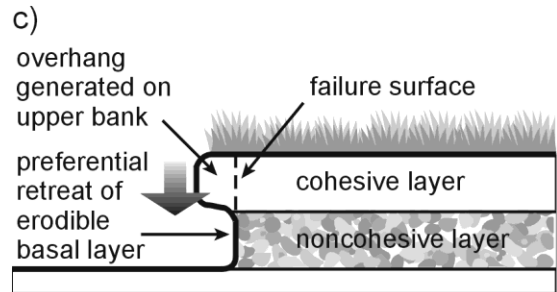
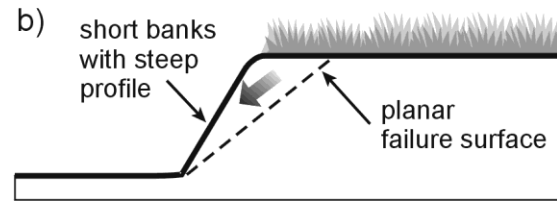
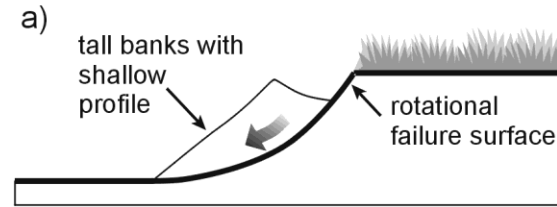
Erosion processes in streams

- overbank erosion
- bed erosion
- bank scouring
- bank collapse/slumping (mass-failure)
- channel avulsion (the development of a new or additional course).





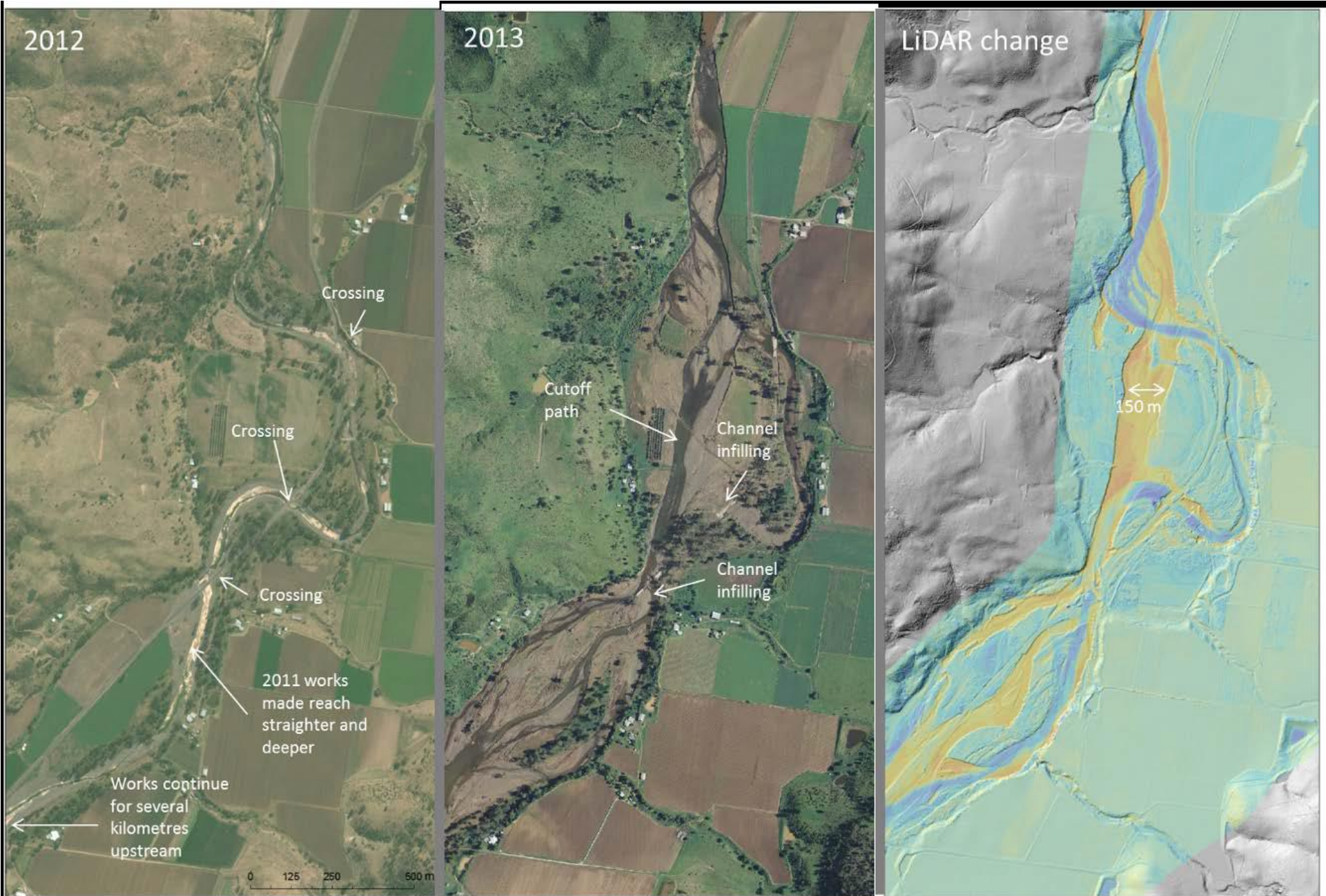
Bank scouring and slumping



Avulsion is the movement of the stream channel from one position to another.



Channel avulsion, Blackfellow Creek

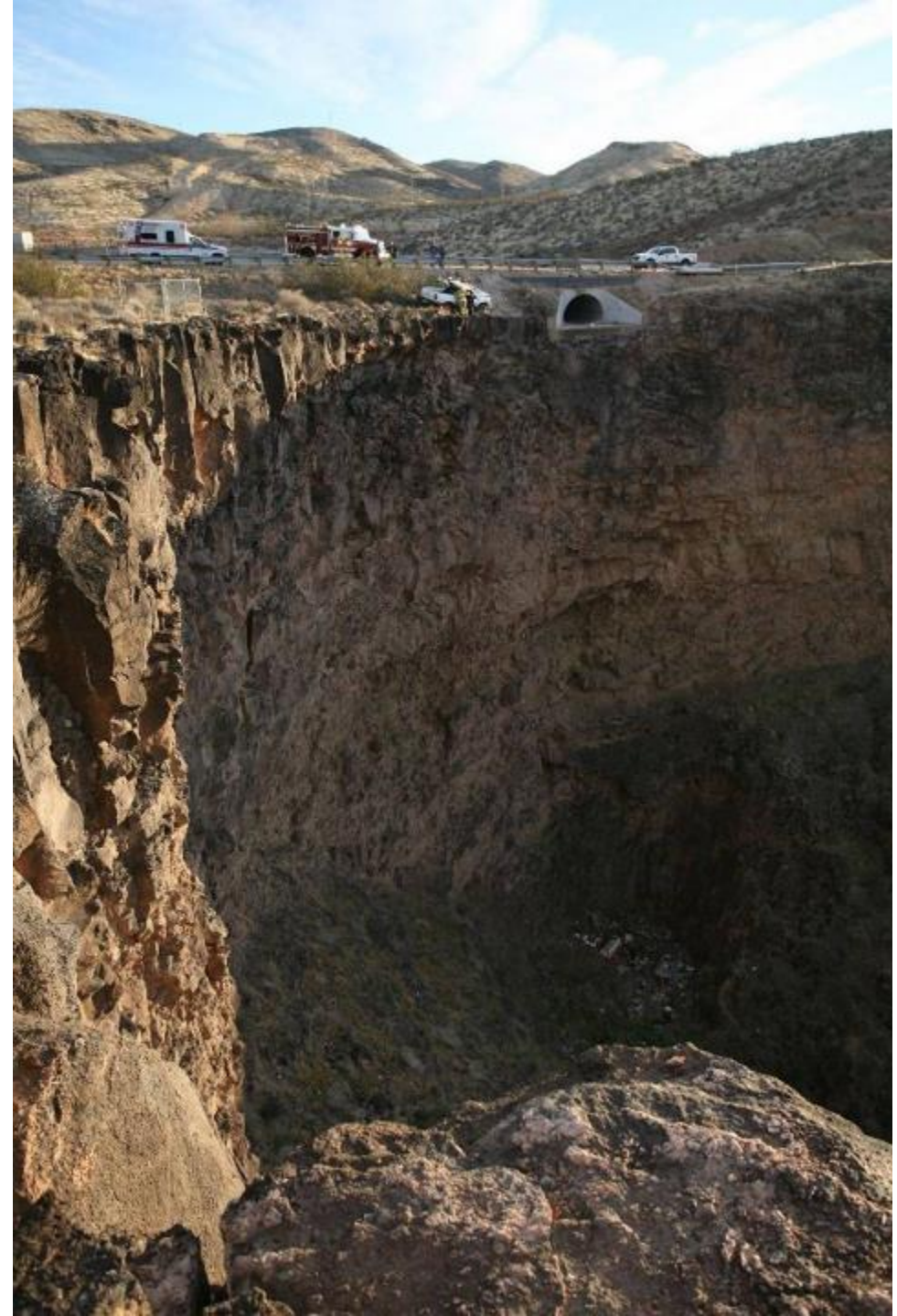


What to do about it?



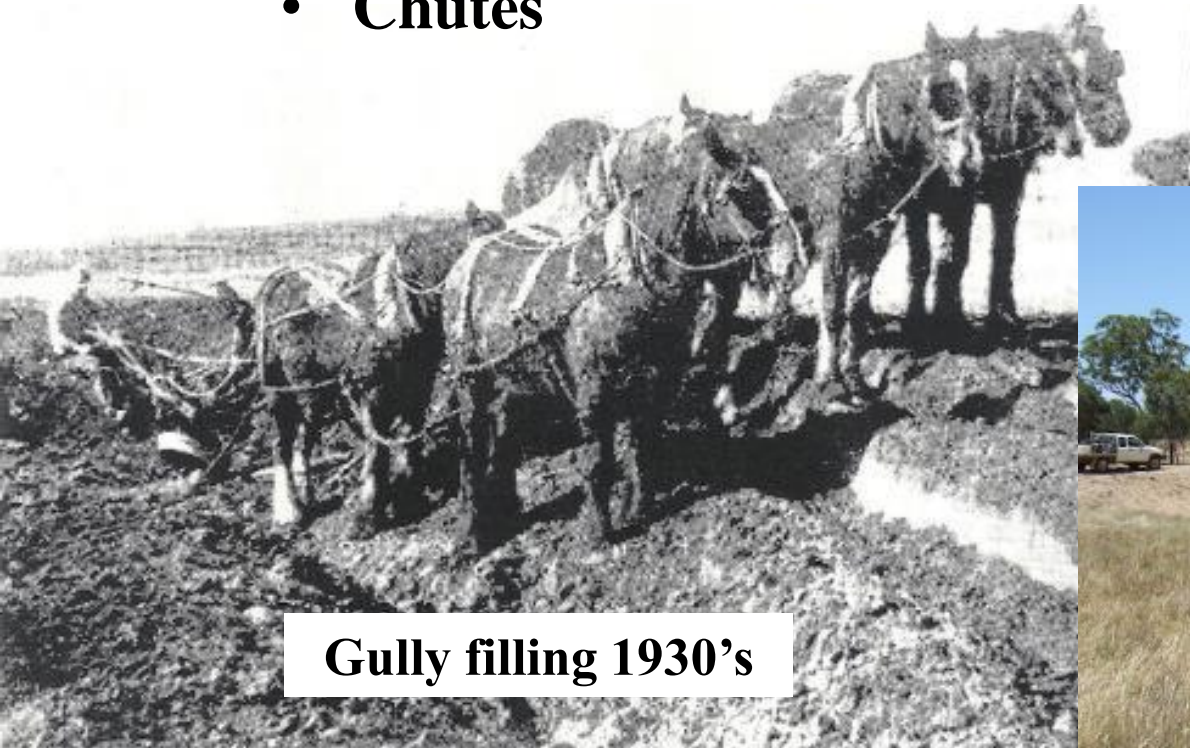
Action has to be cost effective
Depends on where in stream geometry - bed, bank, bend

Over to John



Gully stabilisation techniques

- **Filling**
- **Diversion**
- **Drowning**
- **Leaky weirs**
- **Drop Structures**
- **Chutes**



Gully filling 1930's



Diversion

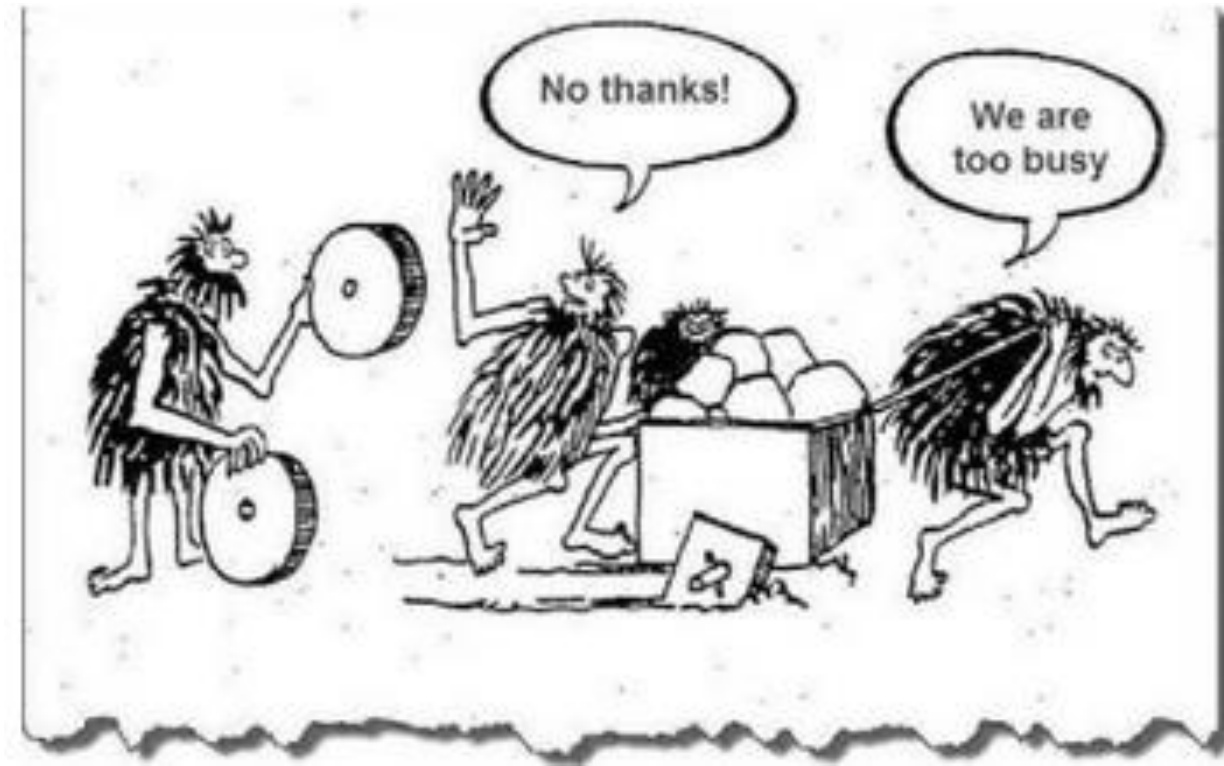


Drown out



An ounce of prevention is worth a pound of cure

- **Use land according to its capability.**
- **Locate roads/tracks (on ridges, on the contour, whoaboys, flat bottom table drains, low level inverts across floodplains, angle down creek banks).**
- **Establish and maintain vigorous deep rooted perennial pastures.**
- **Watch stock tracks (water points, gates, yards).**
- **Manage grazing so no bare areas.**



Vetiver grass chute



Gully erosion



Vetiver stabilisation & protection 2 months