

## Gully Reclamation

A gully is defined as a channel or small valley, especially one carved out by persistent heavy rainfall. It is also defined as a small valley originally worn away by running water and serving as a drainage way after prolonged heavy rains.

Gully reclamation is the process of reinstating and improving land that has been disturbed by excess runoff back to its original condition and preventing further damage to it. Gully filling and or planting vegetation to stabilize the banks are some of the projects one can undertake to prevent erosion in gullies. This can include the use of small dams of manure and straw, earth, stone, or concrete to collect silt, thus gradually filling in channels of eroded soil.

### **RECLAMATION TIPS**

#### ***Grass Controls Erosion***

- Exposed soil near a gully will be whittled away by both wind and water, planting grass provides immediate relief. Grass seedlings can also be planted, provided they are protected by mulch or straw until they sprout. Otherwise, they run the risk of being blown or washed away before they take root.

#### ***Waterway Debris Removal***

- Gullies and ditches that are choked with overgrown grass or other plants will create a bottleneck effect during heavy rainfall, causing the water level to increase behind the blockage. Debris floating downstream will also accumulate, and may create a sort of "debris dam" which will further aggravate flooding. All vegetation should be cleared from a gully and shorelines. Grass should be left intact along the bank to provide erosion control. Man-made objects such as trash, tires or old appliances must be removed as they will also provide a trapping point for debris.

#### ***Diversion Barriers***

- Low spots may allow water to flow into areas not designed to channel it, and increase erosion. For example, water may flow across a ball field instead of into a storm drain or nearby gully, washing away topsoil and damaging the field over time. A diversion barrier to channel runoff in the desired direction can be as simple as a line of hay bales. The bales allow ponding of water on the upstream side of the barrier, further slowing flow and reducing erosion potential. New-home or other building construction sites should set up erosion controls soon after the land portion of the work is completed. Diversion barriers can also be built of sandbags or berms of soil.

#### ***Stone Lined Drainage***

- Grass planting may be impractical or ineffective for steep gullies or those which experience high water flow during storms. Rip rapping is a more viable solution in

these cases. Rip rapping means placing rocks along and in the stream bed and partially burying them so they don't wash away. Sometimes a metal screen is placed over the rocks to further stabilize their positions. The rock surfaces break up and slow the runoff flow, preventing it from eroding underlying soil. Another version of the rock-placing technique is to position rocks at the end of a storm drain or gully where two runoff sources join. The rock slows the water speed, reducing erosion at the junction point while still allowing flow.

### ***Retention Ponds***

- Heavy runoff from non-absorbent surfaces such as parking lots may require retention ponds. These depressions are dug into the earth and lined with clay or stones. Runoff is channelled into the retention pond by concrete gullies, and it flows over a spillway on one end at a much reduced rate of flow. Retention ponds may be wet or dry, where dry ones do not retain water between precipitation events. Wet retention ponds are better for removing sediment and particles of pollution from water, but they may also become a breeding ground for mosquitoes.

### ***Contour Farming***

Rows of crops should be planted parallel to the contours of the slope (across the slope). This way of farming increases the roughness of the soil surface, which in turn disrupts and reduces the surface flow of runoff water, increase infiltration of water into ground, and restricts the centres for rill development.

### ***Strip Cropping***

Strip cropping involves the creation of alternating strips of crops and grass across the slope. The grass helps to trap sediments carried from crop strips by filtering the runoff water. Further, it reduces the runoff velocity, increases infiltration of runoff water into the ground, and protects the soil from raindrop impact.

### ***Terracing***

Terracing is the creation of flat embankment parallel to the contours. The embankment can be ridges or terraces which helps to reduce slope gradient, break the original slope into shorter units, and slow down the runoff . Safe water ways (drains) should be constructed to remove runoff water from the terraces.

### ***Effects Of Erosion***

Many citizens do not know the causes of and damages done by erosion because they are not farmers or perhaps they have not been displaced from their homes or suffered any visible or recognizable loss from erosion. Those who live in urban areas are rarely aware of the situation unless they come across roads damaged by erosion.

## **GULLIES CAN AFFECT YOU**

Allowing gullies to form and grow can lead to poverty because:

- The soil loses its natural fertility;
- Expensive chemical fertilizers wash away;
- They lead to reduction in cropping land;
- They result in less land for grazing;
- Soil washed into rivers and dams reduces their carrying capacity and water quality.
- Fish in rivers, streams and dams will die;
- People's homes, clinics and schools may be destroyed by gullies;
- The natural environment i.e. animals, trees and other plants are destroyed and
- Wetlands are lost

## **HOW DO YOU PREVENT GULLIES FROM FORMING?**

Preventing gullies is always cheaper than trying to control them after they have already formed. To prevent gullies, it is important that you first manage the natural resources – trees, vegetation and soil – that you already have. This can be done by:

- Constructing conservation works such as contours and planting vertiver grass;
- Preventing veld fires and not randomly cutting down trees;
- Protecting wetlands from cultivation and exploitation;
- Keeping the soil fertile with manure and fertilizer. By doing so, it will be better able to support vegetation and be more resistant to erosion;
- Practising zero tillage which conserves the soil;
- Allowing the soil to rest between plantings and by practicing crop rotation;
- Controlling and carefully planning grazing by practicing rotational grazing
- If these resources are well looked after and not overused, gullies are less likely to form. It is also important that you know whether your part of the country is prone to gullies, if so, you need to know the measures you should take.

Soil erosion is approximated to have occurred on 1.1 billion hectares of land globally.

In Zimbabwe alone an estimated 1 million hectares of land are affected by severe gully erosion with the figures rising to 29 million hectares of land in Africa. Gully erosion is a permanent form of erosion which is difficult and expensive to control resulting in a depreciation of land value due to a lowered water table and depleted water reserves.