

# [Three major causes of soil erosion](https://assignbuster.com/three-major-causes-of-soil-erosion/)

The Causes of Soil Erosion and Solutions Soil erosion is a process in which soil or sediment is transported from its original or natural environmentto another. This process though, whether prompted by natural or human activities, largely caused by gravitational force, such as when soil on elevated areas is taken down to the lowlands due to water or wind. While it used to be a long natural process, growing number of soil erosion cases now have been due to the certain practices conducted by humans. Aside from the accelerated soil erosion though, which is caused by human activities, the three main physical causes are sheet erosion, gully erosion, and wind erosion. Sheet erosion is caused by the effect of rainfall on the surface soil. The force of water running downhill caused by adequate rainfall could remove the soil particles on the surface and carry it towards the lower areas. The heavier the rainfall is or the longer the rain occurs, the more soil particles are taken from its original position. Sheet erosion is definitely a natural phenomenon. However, the degree of erosion can be determined also by natural and artificial factors. The most effective natural means of preventing sheet erosion is vegetation. This is because “ sheet erosion mainly occurs under conditions where the soil surface is insufficiently protected by vegetation cover” (Govers, 2004, p. 947). The roots of plants and trees on slopes contribute in reducing the effects of erosion by holding on to the surface soil. Aside from this, the roots also tend to siphon certain amount of the rainwater that seeps into the soil. The foliage also prevents portions of the total rainfall from hitting ground. Human intervention may be necessary in order to prevent soil erosion. Such interventions would include actual planting of trees on slopes that are most vulnerable to erosion due to rainfall. Although trees are the most effective solutions, other forms of natural and artificial soil surface covers may also be applied just to introduce short-term and immediate remedies. Gully erosion occurs when water, usually caused by heavy rainfall, gather and creates a channel, which then erodes the surface and the lower soil particles. In some cases, the gullies created can be deep enough to create drastic landscape changes. Not all terrains and kinds of soil are vulnerable to gully erosion though. This is bound to happen in “ drylands and in disturbed humid areas where soil compaction and vegetation removal have resulted in surface runoff” (Brooks et al, 2003, p. 190). Just like sheet erosion, the best prevention for gully erosion is ensuring that vulnerable areas, especially slopes, should be vegetated. Aside from this, artificial control measures may also have to be employed. These include the construction of catchment systems. These would direct water into stable drainage lines instead of freely flowing into areas where the soil can be easily eroded resulting into the formation of ditches or gullies. Effective land management, especially in agricultural areas should also be considered. Wind erosion takes a far longer process before a significant change in landscape can be observed. This is due to the fact that only the finer surface soil particles are gradually blown by the wind. Apparently, this kind of erosion occurs usually in dry and sandy lands, such as deserts and steppes. In lesser degrees, it can also happen in much used grazing lands. Although its effects take a much longer time to be noticed, this “ damages the soil by reducing soil depth and by selectively removing clay and silt particles while leaving sand particles” (Toy et al, 2002, p. 227). One effective way of preventing wind erosion is by planting shelterbelts. These are rows of trees that are placed around open areas meant to lessen the force of the wind on the surface soil. Strip cropping may also be done. The plants used for this purpose may be small but these have roots, which are effective in preventing the wind from blowing away much of the surface soil. In agricultural areas, dead and uprooted plant stubs or straws should be left on the ground after harvesting. These would also reduce the effect of the wind on the soil. List of References Brooks, K., Ffolliott, P., Gregersen, H. & DeBano, L. (2003). Hydrology and the Management of Watersheds. Ames, IA: Iowa State Press. Govers, G. (2004). Sheet Erosion, Sheet Flow, Sheet Wash. In A. Gouldie (Ed.), Encyclopedoa of Geomorphology, Volume 2 (pp. 947-949). New York, NY: Routledge. Toy, T., Foster, G., & Renard, K. (2002). Soil Erosion: Processes, Prediction, Measurement, and Control. New York, NY: Wiley, 2002.