

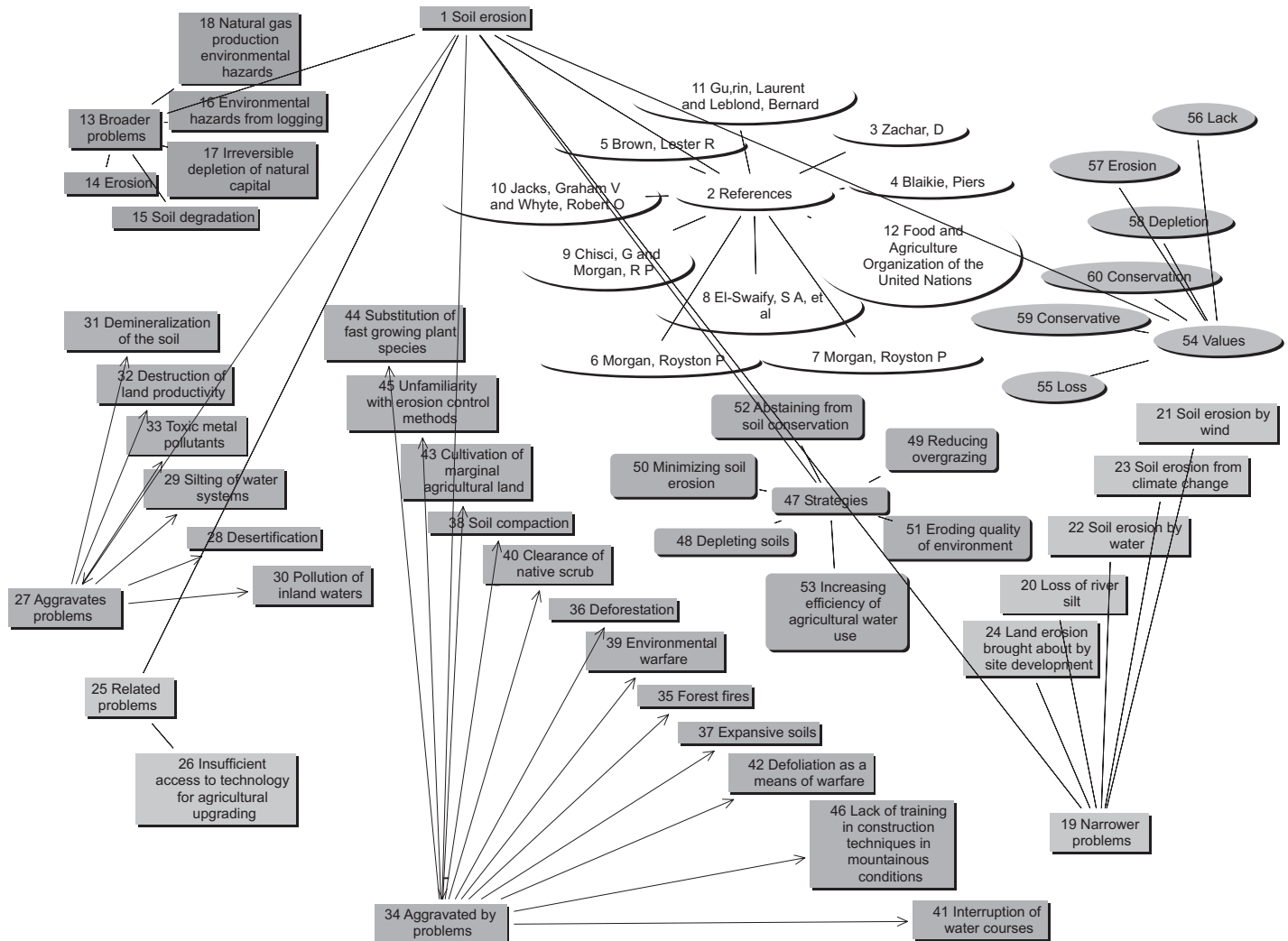
Figure 10.2.2.6. Soil erosion

Database: World Problems and Issues

Link type: broader, narrower, aggravates, aggravated by, related, references, strategies, values

Network nodes: 60

UIA database: <http://db.uia.org/scripts/sweb.dll/uiaf?DD=PR&DR=D0949> used in *Decision Explorer* (<http://www.banxia.com/>)



Soil erosion is the deterioration of soil by the physical movement of soil particles from a given site. Wind, water, glacial ice, animals and humans and their tools may be agents of erosion. It is vegetation that keeps soil (in its natural state) from eroding. Undisturbed soil is usually covered by a canopy of shrubs and trees, by dead and decaying leaves, or by a mat of grass, herbs, mosses or lichen. Whatever the plant cover, it protects the soil when the rain falls or the wind blows. Root systems hold the soil together. The roots of native grasses extend several metres into the ground and tie down the soil even in a drought. The two most important agents of soil erosion are wind and water; but in most instances these are important only after man, animals, insects, diseases or fire have removed or depleted the natural vegetation. Wind erosion is most commonly a problem in (seasonally) dry, windy regions, with a smooth, flat terrain, whereas water erosion is more common in (seasonally) wet regions with a sloping or hilly or mountainous terrain. Both result in a loss of topsoil, rich in humus, and lead to a decline in long-term productivity. With the destruction of soil structure, eroded land is even more susceptible to erosion. With its covering of vegetation stripped away, soil is vulnerable to damage. Whether the plant cover is disturbed by cultivation, grazing, deforestation, burning, or bulldozing, once the soil is laid bare to the erosive action of wind and water, the slow rate of natural erosion is greatly accelerated. Losses of soil take place much faster than new soil can be created, and a kind of deficit spending of topsoil begins. Accelerated erosion describes the speeding up of erosive processes. Accelerated erosion is directly or indirectly caused by human activity. It may be associated with very rapid environmental change, such as clearfelling, or chronic and long-term land misuse, such as overgrazing. It is the most serious form of soil degradation because the rate of soil loss is so rapid that surface soil may be blown or washed away right down to bedrock. Urbanization also causes accelerated erosion because concrete and tarmac are impermeable to water and the surface runoff is magnified in adjacent areas, such as roadside verges and steep gullies. Man-induced soil erosion existed even before the development of agriculture, when man employed fire to clear forests. Land which long ago was very fertile, supporting ancient civilizations, is now barren desert, barely supporting a few nomadic tribes. The desert of North Africa was once 'the granary of Europe'. Accelerated soil erosion has been known throughout history wherever men have tilled or grazed slopes or semi-arid soils. There are many evidences of the physical effects of accelerated erosion in the eastern and central parts of the Mediterranean basin, in Mesopotamia, in China, and elsewhere. The hill sections of Palestine, Syria, southern Italy, and Greece experienced serious soil losses from grazing and other land use mismanagement many centuries ago. Accelerated water erosion on the hills of southern China and wind erosion in northwestern China also date far back into history.