

Ancestral soil conservation practices

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Abstract

Ecuador is characterized by a great variety and richness of its natural resources, the presence of volcanic soils with high agricultural potential, and a wide range of climates over short distances. These characteristics have been used mainly in agriculture, however, little by little erosion has been affecting agricultural soils. The morphodynamic balance of the country, fragile under natural conditions due to the aggressive climate (extreme droughts, torrential rains, frosts and strong winds) and the general rugged relief, has been and continues to be more and more continuously broken by the agricultural impact of man. As in other parts of the world in our country, there are ancestral soil conservation practices that have been developed and used by indigenous and peasant communities for generations. These practices are usually adapted to the specific conditions of the natural environment and are essential to maintain soil fertility and prevent soil erosion. One of the ancestral technologies of the Andean world are agricultural terraces, known as production structures, built on hillsides, composed of a retaining wall made of stone, soil or vegetation, along with a crop platform. They create specific microclimates that protect crops against frost and hail. In addition to their effectiveness in preventing erosion on steep terrain, they also ensure soil conservation. Also included are reduced or zero tillage and permanent soil cover (species that are planted alongside the main crop to provide soil cover). The biomass produced by the system remains on the soil surface and serves as physical protection of the soil and as a substrate for soil fauna. Crop rotation systems not only help maintain soil fertility, but some plants can fix nitrogen or extract specific nutrients from the soil, they also reduce the spread of diseases and pests, while promoting agricultural biodiversity. The use of organic fertilizers, such as compost and animal manure, is another important strategy. These fertilizers enrich the soil with nutrients and improve its physical structure, increasing its capacity to retain water and nutrients, and reducing dependence on chemical fertilizers. Farmers still adjust their agricultural work according to the lunar phases; they avoid working in the fields during the tender moon and the full moon. However, when the moon is in its first quarter phase, considered as «the moon is high», they take advantage of these days to sow and weed. These strategies not only improve agricultural productivity, but also contribute to soil and water conserva-

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tion, thereby reducing the environmental impact of agriculture.

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