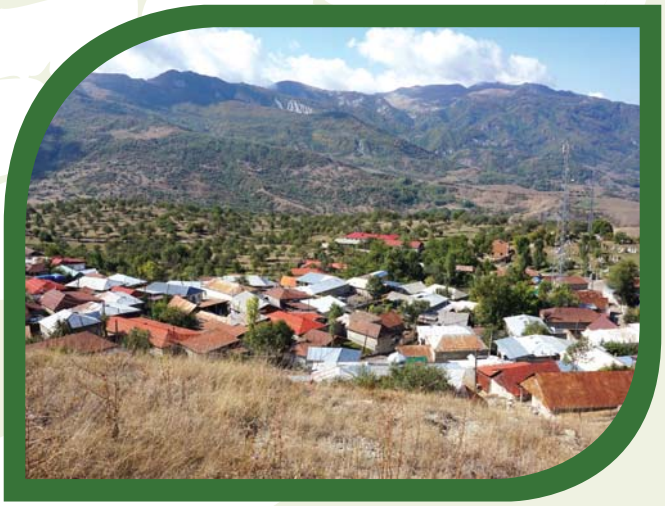
Integrated Biodiversity Management, South Caucasus (IBiS)

BioFacts

Slope Stabilization

Ehen, Ismayilli, Azerbaijan

In cooperation with the Ministry of Ecology and Natural Resources and the Ismayilli District Administration, the "Integrated Biodiversity Management, South Caucasus" programme, implemented by Gesellschaft für Internationale Zusammenarbeit (GIZ), introduced sustainable land use management in Ehen, Ismayilli. The objective of the interventions is to prevent erosion processes and to protect biodiversity (animals and plants).



Soil erosion

Soil erosion is a process driven by water runoff and wind. During heavy rainfalls or wind the upper layer of the soil is removed and transported to a new location. The result is a loss of fertile soils which reduces e.g. agricultural production. Soil erosion can be triggered by natural and/or human-induced factors such as, deforestation, overgrazing, off road driving or other activities which destroy the protective vegetation cover.

Erosion on steep slopes

The steep slope above Ehen village in Ismayilli was overgrazed. The consequence was a low vegetation cover which exposed the thin soil layer to water erosion. The instability of the slope is exposing the villagers to rock-fall, landslides and floods during heavy rain fall.

Objectives of intervention on the slope

To further prevent the erosion of the slope and to restore the vegetation cover, certain measures were implemented. The villagers agreed to stop using the site as pasture and the whole slope has been fenced to prevent livestock from entering. Hay residuals were distributed on the eroded parts to support vegetation growth. Pile walls further supported the stabilization of the steep parts and prevented rock falls.

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Implemented by:
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Ministry of Ecology and Natural Resources of the Republic of Azerbaijan

Ismayilli District Administration

Measure 1: Building of Pile Walls

Pile walls are an effective measure to reduce erosion on steep slopes and stop stones and other materials from rolling down the slope. The pile walls can also be used as terraces and are accompanied by shrubs to optimize the protective function and further stabilize the site. In Ehen 670 meters of pile walls have been constructed to stabilize the slope above the village.

Construction Steps:

- Choose appropriate position and length
- Fixing logs with iron poles: 2 iron poles at both sides of the log (30 cm off the end) are fixed in the ground. The logs are put behind the 2 poles.
- Terracing: Use large stones to close holes below the log, preventing water from running under the logs. To form small terraces, fill the space behind the log with soil and plant material.
- Planting tree cuttings: Place tree cuttings with a slight upwards position on/into the soil of the terrace. Distance between cuttings should be 10-20 cm. Cover the cuttings with soil, so that only 10cm can be seen above the ground.

Measure 2: Fencing

Iron mesh wires were used to fence the site and prevent animals from entering.

- Three gates enable people to enter the site.
- Mesh fence has a high durability and it is effective against small and big animals.
- Horizontal wires are used at the top and bottom of the fence to improve the stability.
- Iron posts with a length of 2 m and a diameter of 5-7 cm are used every 2 to 3 m distance to support the iron mesh (put 0.5 m in the ground).
- One worker can construct 20 meters of fence a day.

Measure 3: Application of Hay Residuals

The hay residuals were collected by local farmers and applied to the bare soil at the fenced area. The residuals support humus development and accelerate regrowth of grass on the eroded areas. The applied layer of hay residuals should not exceed 3-5 cm of thickness to prevent suffocating of vegetation below. The residuals should be gathered in jute bags (or in other breathable material) and stored in dry cool places until application in late autumn.

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