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CASE STUDY

Turkey Resilient Landscape Integration Project (TULIP)



Project full title: Enhancing Technical and Vocational Skills for Implementing Nature-Based Solutions (NbS) to Combat Land Degradation

Project acronym: NbS4LD

Project number: 2025-1-TR01-KA220-VET-000357096

Project activity: WP2 Developing Educational Resources on NbS for Combating Land Degradation

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1. INTRODUCTION

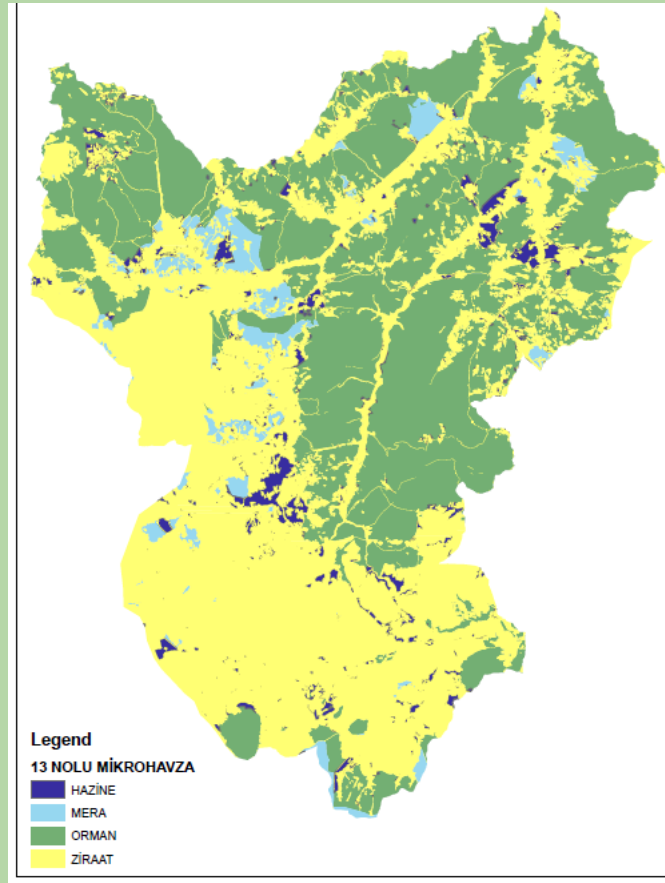
This case study has been analysed by [Kastamonu University \(KU\)](#), a partner organisation of the NbS4LD project. KU, founded in 2006, is a rapidly developing Turkish university located on a 237-hectare campus in Kuzeykent. It offers a wide range of academic programs through 15 faculties, 3 institutes, 2 higher education schools, and 13 vocational schools. KU is the only university in Türkiye specializing in forestry and nature tourism, contributing significantly to sustainability and regional development. With 120 international agreements, it promotes student and staff mobility through exchange programs such as Erasmus and Mevlana. The university is recognized globally for academic quality and sustainability, ranking in THE Asia University Rankings, QS Europe Rankings, and UI GreenMetric.

The Çekerek River Basin Rehabilitation Project, located in Yozgat Province, Central Anatolia, Türkiye, aims to address land degradation, soil erosion, desertification, and climate change impacts across agricultural lands, forests, and rangelands. Implemented between May and December 2024 under the Türkiye Resilient Landscape Integration Project (TULIP), it is coordinated by the General Directorate of Forestry (OGM) with the involvement of DSİ and TRGM, and funded with over €54.5 million. Key interventions include afforestation, rangeland restoration, erosion control measures, and integrated watershed management. The project has restored thousands of hectares of degraded land, reduced erosion, improved vegetation cover, biodiversity, and water regulation. It also supported 186 rural households through income-generating activities and capacity-building programs, strengthening local livelihoods and resilience. Strong institutional cooperation and participatory planning have enhanced long-term sustainability and provide a model that can be replicated in other watershed.

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[Figure 4. Land use status of Çekerek Basin, Saraykent Sub-Basin - Source: Kastamonu University]

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[Afforestation efforts were carried out by the Yozgat Central, Çayıralan, and Akdağmadeni Forest Management Directorates - Source: OGM Kayseri Regional Directorate of Forestry (2025)]



[Pasture improvement works carried out by the Yozgat Central, Çayıralan, and Akdağmadeni Forest Management Directorates - Source: OGM Kayseri Regional Directorate of Forestry (2025)]

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[Wire mesh barriers have been constructed by the Yozgat Central, Çayıralan, and Akdağmadeni Forest Management Directorates to prevent erosion and sedimentation - Source: OGM Kayseri Regional Directorate of Forestry (2025)]



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[Wire mesh barriers have been constructed by the Yozgat Central, Çayıralan, and Akdağmadeni Forest Management Directorates to prevent erosion and sedimentation - Source: OGM Kayseri Regional Directorate of Forestry (2025)]



[Livestock support activities carried out by the Yozgat Central, Çayıralan, and Akdağmadeni Forest Management Directorates - Source: OGM Kayseri Regional Directorate of Forestry (2025)]

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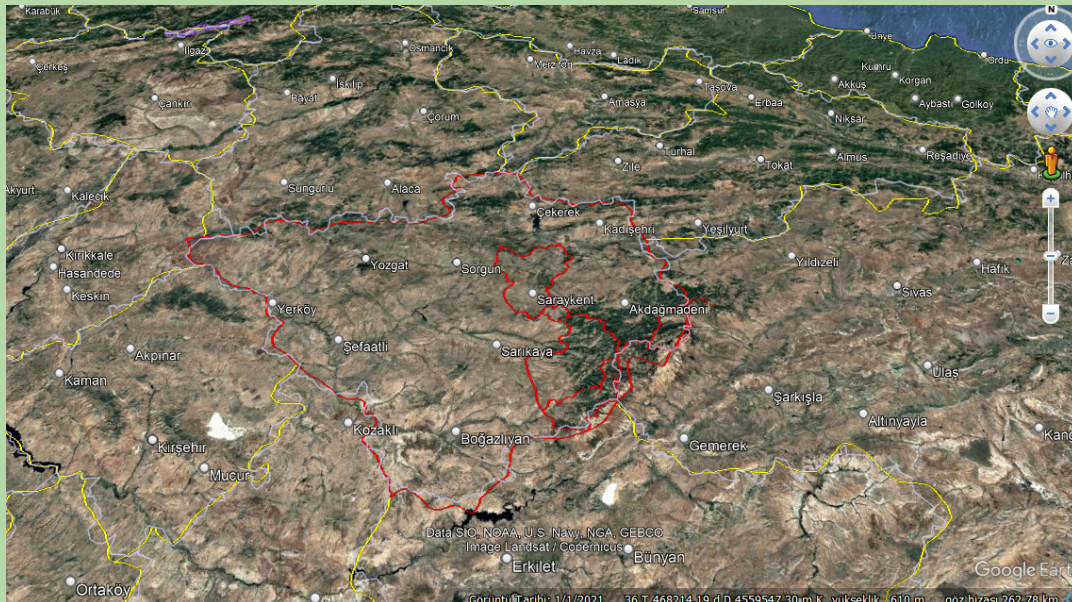


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2. CONTEXT

2.1 LOCATION

Country: Türkiye. Region: Central Anatolia Region. Province: Yozgat. Site: Çekerek Watershed.
Approximate GPS coordinates: Latitude 40.073° N - Longitude 35.494° E.



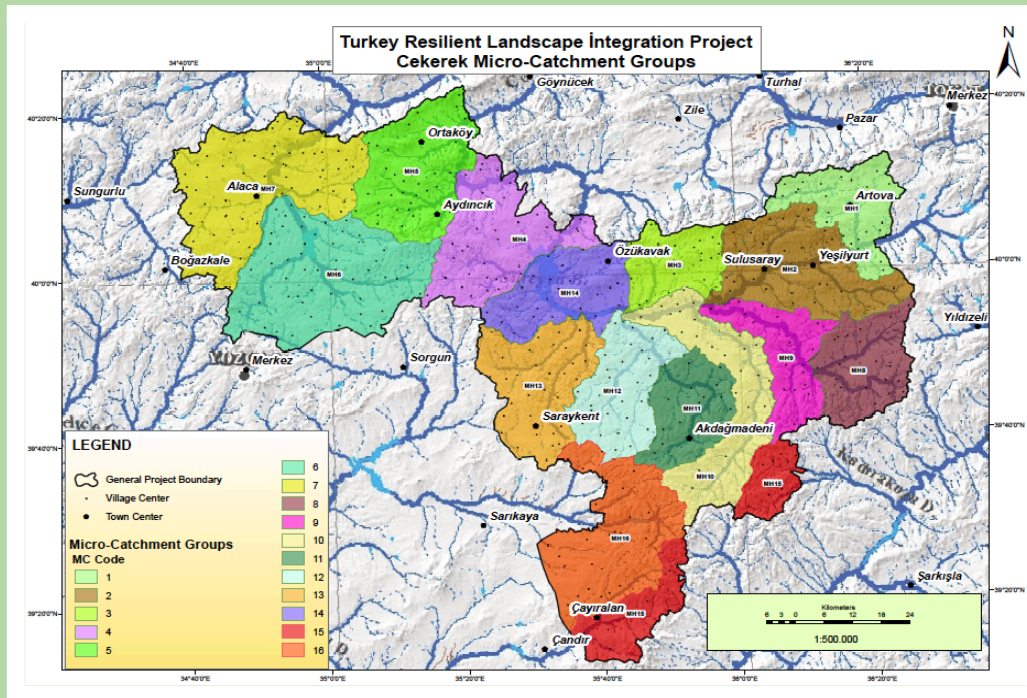
[Locations of Yozgat province and the Çekerek Basin, Saraykent, Çayıralan, and Akdağmadeni]

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sub-basins]



[Turkey Resilient Landscape Integration Project, Çekerek Micro-Catchment Groups]

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Environmental context	• Climate: continental climate with increasing variability in precipitation patterns; climate change impacts observed in both temporal and spatial distribution of rainfall. • Hydrology: reduced water availability and increasing water stress; irregular precipitation contributing to both drought and flood risks. • Biodiversity: habitat degradation, fragmentation, and biodiversity loss driven by land use change, pollution, and climate change. • Ecological pressures: desertification risk, erosion, climate variability, invasive species, and land degradation.
Socioeconomic context	• Population density: low to moderate, with dispersed rural settlements and forest villages. • Livelihoods: primarily based on agriculture and livestock production, with limited diversification of income sources. • Land management: Predominantly smallholder-based and fragmented land ownership, with widespread use of traditional and unsustainable agricultural practices. • Resource dependency: High dependence on soil, water, forests, and pasture resources for subsistence and income generation.
Policy and governance	• Institutional framework: before the intervention, land, water, forestry, and agricultural management activities in the Çekerek River Basin were implemented in a fragmented, sector-based manner with limited institutional coordination. Although national policies on erosion control and sustainable land management existed, their implementation at the local level remained insufficient, reducing the effectiveness of resource management.

3. INTERVENTION

3.1 TIMEFRAME

Implementation: May 2024 - December 2024.

3.2 TYPE OF INTERVENTION

Afforestation, reforestation, erosion control measures (terracing, check dams), rangeland rehabilitation, and integrated watershed management practices.

3.3 IMPEMETING ORGANISATIONS

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The project is implemented under the coordination of the General Directorate of Forestry (OGM), with the involvement of multiple national institutions. Key implementing agencies include the General Directorate of Forestry (OGM), the General Directorate of Land Registry and Cadastre (TRGM), and the State Hydraulic Works (DSİ), each responsible for different components of the project.

A multidisciplinary micro-watershed planning team was established, consisting of experts in forestry, agriculture, livestock, irrigation, and socio-economic analysis. Local communities were engaged through stakeholder participation meetings and village-level consultations (Ask–Assess–Solve approach) during the planning and implementation processes (World Bank, 2021).

3.4 FUNDING SOURCES

The total loan amount allocated for the Çekerek River Basin Rehabilitation Project is €54,596,077 (TL 2,211,916,584.40), excluding public and beneficiary contributions.

The project budget is structured under two main components:

- **Component 1: Investments for Resilient Landscape Integration in Targeted Areas** (€51,389,077), including:
Sub-component 1.1: Green infrastructure and sustainable livelihoods (OGM and TRGM): €31,635,259;
Sub-component 1.2: Resilient grey infrastructure (DSİ): €19,753,818
- **Component 2: Institutional Framework, Project Management and Sustainability** (€3,207,000), implemented under the coordination of OGM.

Budget allocation among institutions is as follows:

- OGM: €23,628,307
- TRGM: €11,213,954
- DSİ: €19,753,818

For income-generating and livelihood-supporting activities implemented by OGM and TRGM, 70% of the costs are covered by the project budget, while 30% is contributed by beneficiaries. (World Bank, 2021).

3.5 IMPLEMENTATION ACTIONS AND MEASURES

The work plan is structured around two main components and their sub-components:

- **Component 1: Investments in Resilient Landscape Integration in Targeted Areas**
Sub-component 1.1: Green infrastructure and sustainable livelihoods;
Sub-component 1.2: Resilient grey infrastructure

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- **Component 2: Institutional Framework, Project Management and Sustainability**
Sub-component 2.1: Implementation framework for integrated landscape management;
Sub-component 2.2: Project management and sustainability.

Implementation activities included:

- Collection of baseline data on micro-watershed characteristics
- Organization of stakeholder participation and project information meetings
- Conducting village-level Ask–Assess–Solve (SOR-SAP-ÇÖZ) meetings
- Preparation of micro-watershed plans and submission to relevant authorities
- Field investigations and identification of potential intervention sites
- Implementation of key activities such as afforestation, rehabilitation, erosion control, flood control, and pasture improvement

Land use analysis indicated that the basin consists of 44.95% forest areas, 47.31% agricultural lands, and the remaining areas are pasture and state-owned lands (OGM, 2025).

4. IMPACT

4.1 ENVIRONMENTAL IMPACT

☑ Improved soil health or reduced soil erosion. ☑ Increased vegetation cover or habitat restoration. ☑ Improved biodiversity (species richness, abundance, habitat quality). ☑ Improved water quality or water availability. ☑ Reduced land degradation. ☑ Improved ecosystem services.

The intervention contributed to reducing severe soil erosion in the Çekerek River Basin through afforestation, rehabilitation, and erosion control measures. Vegetation cover increased, particularly in degraded forest and open areas, enhancing soil conservation functions. These improvements reduced pressure on natural resources and supported habitat recovery. Structural measures and watershed interventions contributed to improved water regulation and reduced risks associated with floods and sedimentation. Overall, the project supported the recovery of ecosystem functions and reduced land degradation at the basin scale (OGM, 2025).

Within the scope of the Çekerek River Basin Rehabilitation Project (TULIP) 2025 programs:

- Afforestation work has been carried out on a total of 165 hectares in the villages of Gümüşdiğın, Söbeçimen, and İnönü.
- Rehabilitation work has been carried out on a total of 982 hectares in the villages of Güngören, Günyazı, Tipideresi, Keser, Beşkavak, Söğütlü, and Turluhan.

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- In the villages of Kırım, Kışla, Deremahal, Çandır, Dikmesöğüt, Yelten, Yangı, Olucak, Çiçeklihöyüğü, Yukarıyahyasaray, and İnönü, a total of 2,010 hectares of soil conservation and erosion control work has been carried out.
- In the villages of Çamsaray, Dikmesöğüt, Gümüşdiğin, Karakışla, and İnönü, a total of 500 hectares of pasture improvement work (3 shade structures, 9 scratching posts, 4 watering troughs, and fertilization) has been completed.
- In Çandır village, work has been carried out on a total of 4,257 hectares, including 600 hectares of soil conservation and erosion control maintenance, and seedling planting and seed sowing are ongoing (OGM, 2025).

4.2 COMMUNITY IMPACT

☑ Increased household income. ☑ Job creation or new livelihood opportunities. ☑ Improved food security. ☑ Strengthened community resilience. ☑ Increased local capacity or skills.

The project supported income-generating activities in agriculture and livestock, including fruit and vegetable cultivation, mushroom production, and animal husbandry. These interventions improved household income and diversified livelihood opportunities in rural communities. Financial support and targeted investments enhanced local economic conditions and reduced dependency on natural resource exploitation. Community-based activities and training contributed to strengthening local capacity and resilience.

Within the scope of the Çekerek River Basin Rehabilitation Project (TULIP) 2025 programs:

- The Yozgat, Çayıralan, and Akdağmadeni Forestry Directorates have implemented the following projects: Dairy Cattle Farming, Dairy Sheep Farming, Beekeeping, Solar Energy, Exterior Wall Insulation, and Solid Fuel Heating Systems for a total of 186 families, with a total grant support of 41,502,000 TL. (World Bank, 2021; OGM, 2025).

4.3 INSTITUTIONAL IMPACT

☑ Strengthened institutional coordination. ☑ Increased community participation in decision-making. ☑ Establishment of new management structures or partnerships. ☑ Capacity building for institutions or communities.

The project strengthened coordination among key institutions, including OGM, DSI, and TRGM, under a World Bank-supported framework. Local participation was enhanced through stakeholder engagement processes, including meetings in 54 villages. These participatory approaches improved decision-making processes and contributed to more effective and integrated watershed management practices (World Bank, 2021).

4.4 SUSTAINABILITY OF THE RESULTS

☑ Long-term funding mechanisms. ☑ Integration into policies or development plans. ☑ Strong local community ownership. ☑ Institutional support or partnerships. ☑ Local technical capacity for maintenance. ☑ Monitoring and adaptive management systems.

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The project ensures long-term sustainability through institutional support and continued coordination among implementing agencies. Forest rehabilitation and erosion control measures are expected to provide long-term environmental benefits, including reduced soil loss and improved ecosystem stability. Structural interventions such as sediment control and stream rehabilitation aim to protect agricultural and residential areas over time. Additionally, support for agriculture and livestock activities contributes to sustained improvements in local livelihoods, reducing pressure on natural resources and supporting long-term resilience (World Bank, 2021).

5. CONCLUSION

- **Community relevance:** mostly.
The intervention addressed key rural challenges by supporting fruit cultivation, mushroom production, beekeeping, and livestock farming, creating income opportunities and improving local livelihoods.
- **Technical effectiveness:** mostly.
The intervention reduced flood and erosion risks and restored degraded forest ecosystems through afforestation, terracing, erosion control measures, and land rehabilitation activities.
- **Economic efficiency:** mostly.
The project contributed to rural economic development by supporting agriculture, livestock farming, and non-timber forest product activities across 54 villages, generating additional income opportunities.
- **Institutional support:** fully.
Strong collaboration among multiple institutions, including OGM, DSİ, TRGM, and KGM, ensured effective implementation, coordination, and governance at the watershed scale.
- **Innovation:** mostly.
The intervention applied integrated watershed management approaches combining nature-based solutions, ecological restoration, erosion control, and livelihood support to enhance ecosystem resilience.
- **Replication & Scaling Potential:** fully.
The approach has strong replication potential, as demonstrated by its application in the Bolaman Basin, and can be adapted to other watersheds using similar integrated nature-based solutions.

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