GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

UNDP
Empowered lives.
Resilient nations.

Data Driven Integrated Forest Management

Establishing a new system to identify multiple forest ecosystem services in Turkey

PROJECT FULL NAME	COUNTRY & REGION	IMPLEMENTING AGENCY	EXECUTING AGENCIES
Integrated approach to management of forests in Turkey, with demonstration in high conservation value forests in the Mediterranean region	Turkey, Europe 	UNDP	General Directorate of Forestry, Government of Turkey

GEF PROJECT ID: **4469**

PROJECT TYPE: **FSP**

GEF PERIOD: **GEF-5**

FOCAL AREAS

- Biodiversity
- Climate Change Mitigation
- Sustainable Forest

05/26/2011 Project Approval
12/28/2012 CEO Endorsement
02/28/2018 Mid-Term Review
01/22/2020 Project Closure

GEF Project Grant **$7,120,000**

Co-financing Total **$21,430,000**

Summary

The project promoted integrated forest management in Turkey, demonstrating multiple environmental benefits in high conservation value forests in the Mediterranean forest region.

The project delivered 638,923 ha (142% of end of project target) of forest area with integrated management plans identifying multiple environmental benefits at landscape level, and provided training to strengthen implementation capacity. Twenty-eight forest management plans (FMPs) for the target forest units in five pilot sites included biodiversity zoning, forest fire planning, pest management, carbon focused reforestation, non-timber forest products and eco-tourism plans, and protected forest areas management. Beyond five district level, the project also established and operationalized a forest fire early warning system at national scale. Furthermore, the project created and operationalized the first ever open access computer platform to project, quantify and optimize forest ecosystem services at landscape level, called "Forest and Ecosystem Management Systems." This computer platform enables reporting on Sustainable Development Goals from the benefits of integrated forest management.

Global Environmental Benefits

The project delivered 638,923 ha (142% of end of project target) of forest area with integrated management plans with multiple environmental benefits at landscape level, and provided training to strengthen implementation capacity. Twenty-eight forest management plans (FMPs) for the target forest units in five pilot Forest Enterprise Directorates (FEDs) (Köyceğiz, Gazipasa, Gülnar, Pos and Andırın) now include biodiversity zoning, ecosystem services maps, forest fire planning, pest management, carbon focused silviculture and reforestation, non-timber forest products and eco-tourism plans and protected area management, which will be replicable at national level through Forest and Ecosystem Management Systems (FEMS).

Policy and institutional Framework for integrated forest management

- Created and operationalized the first ever open access computer platform to project, quantify and optimize forest ecosystems at landscape level for forest planners called 'Forest and Ecosystem Management Systems', and trained the General Directorate of Forestry (GDF) staff on how to use the decision support system, collect and input data that is compatible with the system.
- Established a Sustainability Working Group (SWG) composed of seven different departments of GDF to integrate not only protected area management, but also forest fire planning, pest control, carbon focused reforestation, and non-timber forest products and eco-tourism plans into existing legal framework.

Implementation of forest-based GHG mitigation and carbon sequestration

- Established and operationalized forest fire early warning software at national scale based on temperature, humidity and wind values, and established 120 forest fire observation towers with 240 cameras throughout the country. With the new software system, fire fighters are able to reach fire locations in only 14 minutes instead of 40.

Integrated forest management in Mediterranean Forest, Turkey © UNDP Turkey / Esat Sungur

- 9,339 ha of forest covered by carbon-focused reforestation activities, such as regeneration thinning, industrial plantation and rehabilitation, to generate carbon benefits as of June 2019 (the end of project target of 9,200 ha), which are expected to mitigate 11,572 tCO_2eq/y.
- 1,301 micro-credits (the end of project target of 1,100) were disbursed to villagers for solar-heating in five pilot sites. Carbon benefits generated by the micro-credit program will be calculated during the project's final evaluation and are expected to mitigate in the range of 13,200 tCO_2eq/y.

Strengthen protection of high conservation Mediterranean forests

- 130,346 ha (or 163% of end of project target) of forest for nature conservation were identified, zoned and integrated into forest management plans of five pilot sites
- 207,315 tCO2 equivalent are estimated as cumulative net carbon benefit associated with the conservation areas in five pilot sites.
- Management Effectiveness Tracking Tool for protected areas (METT) scores have improved from baselines measures

Environmental Challenge

Turkey's Mediterranean forests cover an area of approximately 7 million hectares in total. The Mediterranean forests are moderately fragmented due to past logging activities, yet in some parts (especially in the southernmost regions) relatively large continuous forest tracts remain. Mediterranean forests are listed as a WWF Global 200 Ecoregion due to their exceptional biodiversity richness. These forests constitute the largest forest carbon repository in West Asia and the second largest in Southern Europe: the total carbon pool in Turkey's Mediterranean forests is currently assessed to be over 2 billion tCO_2. Despite their global environmental importance, the Mediterranean forests presently face several threats from anthropogenic wildfires, pest and land use change due to development projects such as mining and large hydropower projects. These threaten biodiversity, at the same time, contribute to the release of carbon into atmosphere, thus also contributing to climate change. The project tackled these direct drivers of Mediterranean forest destruction.

Integrated Approach and Key Features

Turkey's Mediterranean forests provide multiple environmental and socio-economic benefits at the local, country and global levels. The project adopted integrated forest use, planning and management systems to generate multiple benefits including biodiversity conservation, carbon sequestration, timbers, non-timber forest products, eco-tourism and others. This forest use, planning and management system required strict protection of

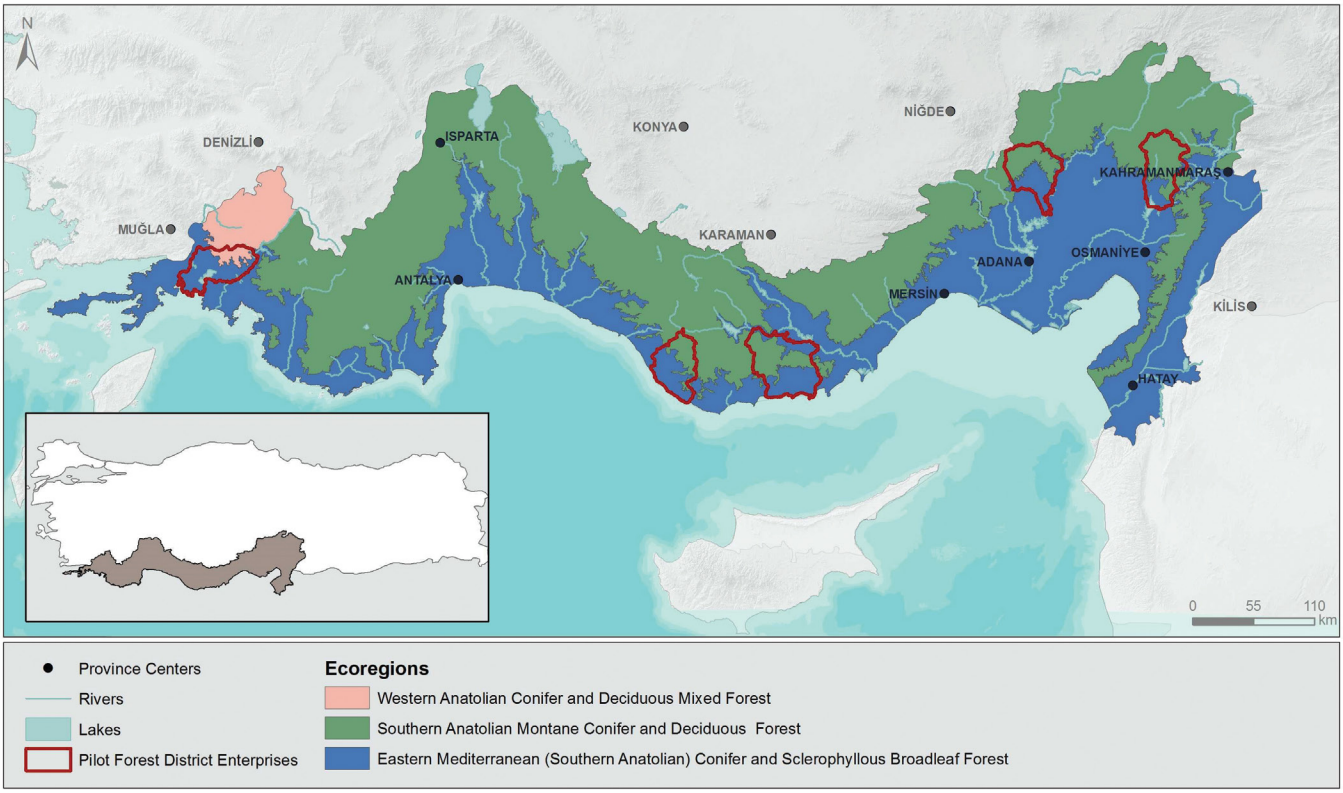

Figure 1: Map of the project and pilot sites (from west to east Köyceğiz, Gazipasa, Gulnar, Pos and Andırın) @ UNDP Turkey

biodiversity in significant and ecological important areas, while permitting sustainable use elsewhere consistent with sound carbon stock management.

Innovative online decision support system through multi-stakeholder engagement

One of the significant outputs of the project is the development and operationalization of an innovative open access computer platform for forest planners and decision makers, called "Forest and Ecosystem Management Systems (FEMS)". FEMS helps to project, quantify and optimize forest ecosystem services, including biodiversity, carbon sequestration, timber, non-timber forest products and eco-tourism at landscape level. Building on the existing forest management database, the new online software allows different key actors to understand consequences of different needs of forests, and to choose the best options to visualize these needs in the system. Key actors of the forest include the GDF for forest use planning, protected area management, forest fire control, pest management, carbon sequestration, non-timber forest products and eco-tourism plans, and timber companies. This comprehensive decision-support system has been established and operationalized through strong collaboration with different units within the GDF and across different stakeholders including Yale University, UNDP and University of Washington, and tested in forests in Turkey and the USA.

Establishment of Institutional and Policy framework

To strengthen implementation of twenty-eight integrated forest management plans and their dissemination at national level, the project updated sustainable forest criteria and indicators in Turkey and linked them with Sustainable Development Goals through discussion with the private sector, NGOs, academia and other governmental organizations. For forest fire fighters, a training at the national level was conducted to build capacity in the utilization of the new online platform and early warning system. This training is integrated into the existing training program for GDF staff at national scale.

Through a Sustainability Working Group (SWG) composed from 7 different departments of GDF, the project ensured that the policy framework at the national level integrates multiple functions of forests into existing legal frameworks covering not only protected areas, but also forest fire planning, pest control, carbon focused reforestation, and non-timber forest products and eco-tourism plans. SWG works in collaboration with NGOs and other key stakeholders.

Lessons Learned

Scaling up through collaboration with wide-range of organizations

Collaboration with a wide-range of organizations both nationally and internationally (i.e., Nature Conservation

Center, Gold Standard, Silvia Terra, University of Washington, Silva Mediterranean of FAO, and Yale University) has increased the innovative and scaling-up potential of the project. An innovative online, data driven, decision support system for the forestry sector, "Forest and Ecosystem Management Systems (FEMS)", is applicable not only in the pilot areas, but also at the national scale and globally to other countries. Particularly, the fire management components have been already upscaled at the national level and can serve as regional and global model. Staff rotation between departments of the GDF headquarters and Forest Enterprise Directorates (FEDs) remains a major challenge for transferring the knowledge and institutional memory required for integrated forest management applying FEMS. Thus, continuous training for local and national staff is critical, and the promotion of strong project results could potentially attract additional investment to scale up the initiative in the future.

Introducing concept of an integrated approach to forest management

By introducing the concept of an integrated approach to forest management, the project has provided strong value-added in Turkey to improve forest management. The project also highlighted the importance of creating a synergy between and among three components: biodiversity, climate and sustainable forest management. In addition, a major contribution of the GEF support was to help build an interdisciplinary collaboration platform among the different sub-units of the GDF, breaking silo thinking and hierarchy between central headquarters and regional implementation units.

Adaptive management to further integration

Due to Turkey's status under the UNFCCC, the project needed to adjust activities and shifted its focus from developing action plans and a calculation system on forest based GHG mitigation and carbon sequestration to a more comprehensive integrated forest management system including biodiversity, forest fire planning, pest management, carbon focused reforestation, non-timber forest products, eco-tourism, and protected forest areas. This adjustment caused the existing forest database to become a more comprehensive and open computer system introducing new methods of inventory using remote sensing. The system also allows the assessment of the overall impact of forestry sector on Sustainable Development Goals (SDGs), which were not originally envisaged in the project. This adaptive approach improved the outcomes of the project. With continuous discussions/communication among different stakeholders including government officials, scientists, NGOs and local communities, and strong trust building and ownership between project management unit and government, flexible management of the project became possible.

References and Multimedia

- UNDP, "Mid-term evaluation of UNDP-supported GEF Financed Project: Integrated Forest Management, February 2018", Available at https://undpgefpims.org/attachments/4434/213302/1715560/1720468/Final%20Report-MTE-Turkey-Forestry.pdf
- UNDP, "Working for the Common Good: Integrated Forest Management", Available at https://undpturkiye.exposure.co/working-for-the-common-good
- Forest Ecosystem Management System, available at https://fems.nrsig.org <Sign up required>

Contact

- Ulrich Apel, GEF, Sr. Environmental Specialist uapel@thegef.org
- Bahtiyar Kurt, UNDP, Project Manager bahtiyar.kurt@undp.org
- Nuri Ozbagdatli, UNDP, Country Office Focal Point, nuri.ozbagdatli@undp.org

Available at:
http://www.thegef.org/topics/knowledge-learning

The Global Environment Facility (GEF) was established on the eve of the 1992 Rio Earth Summit to help tackle our planet's most pressing environmental problems. Since then, the GEF has provided close to **$20 billion** in grants and mobilized an additional **$107 billion** in co-financing for more than **4,700 projects** in **170 countries**. Through its Small Grants Programme, the GEF has provided support to nearly 24,000 civil society and community initiatives in 128 countries.

GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Empowered lives.
Resilient nations.

FEB 2020
978-1-948690-72-0

www.thegef.org