

Estimating costs of environmental degradation in the mountains of Tajikistan

With only 7 percent of agricultural land, Tajikistan is a mountainous country located at the heart of Central Asian region, prone to desertification, salinization, soil erosion and forest loss.



According to the available data, out of the total 14.12 million ha of Tajikistan's land area, 11.6 million ha (82.3%), including 4.8 million ha of agricultural land (97.9%), are affected by some level of erosion. Of that, 88.7 percent is affected by high and medium levels of erosion. Moreover, poor farm irrigation practices have caused salinization in nearly all of the country's farmlands.

Considering that the agriculture sector contributes 18 percent to the GDP, land degradation can adversely affect the country's economy, threatening the livelihoods of about two thirds of the population living in rural areas.

Along with waterlogging and salinization, overgrazing and deforestation are identified as the major contributors to land degradation in Tajikistan. Planting trees can be a key to prevent and stop it, especially in the mountainous areas.

The resulting environmental degradation has significant toll on economic and sustainable development of the country, calling for integration of these issues

in policy deliberations. Despite the significant importance of the topic for Tajikistan's current and future economic growth, the negative effects from environmental degradation are missing from the country's economic analysis and government priorities and are not considered in the medium-term macro projections.

In order to identify the total economic cost of environmental degradation in Tajikistan, the International Center for Agricultural Research in the Dry Areas (ICARDA) conducted a comprehensive study in Tajikistan.

The study, which took place in 2019, had three specific objectives:

- To provide more complete and updated estimates of the total economic costs of environmental degradation arising from different sources in Tajikistan with the most recent data available for major domains;
- To provide a theoretically sound and consistent methodological approach (and templates) that can be readily used by experts in national organizations



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directly involved and responsible for natural resources management;

- To provide basis for decision makers in national organizations (ministries, agencies, institutes) to incorporate results of this and future such studies in policy making.

Supported by the World Bank, the study covered major sources of land degradation-induced economic losses such as loss in crop lands, forests, and pastures as well as damages to infrastructure and natural disasters.

Wheat, a staple crop, cultivated in more than 40 percent of agricultural land in Tajikistan, was selected as a particular crop under consideration. Primary survey data from 690 farm households, representing the high, medium and low wheat production potential areas, as well as official statistics and expert estimates were used during the study to generate new and credible estimates of yield losses in wheat fields.

According to the results of the study, the minimum total economic cost of land degradation in Tajikistan in 2019 was between USD \$538,674,221 and USD

\$772,465,936 which are equivalent to 7.59 percent and 10.88 percent of GDP, respectively. While these estimates are conservative, the actual cost of land degradation in Tajikistan could be much higher.

The major economic cost is related to crop and crop residue loss in crop lands including those abandoned or fallowed to regenerate (7.45% of GDP) followed by biomass loss in natural pastures (1.73% of GDP). Costs related to land degradation-induced damages on infrastructure, loss of woody biomass, and natural disasters constitute 0.82%, 0.55% and 0.35% of GDP respectively.

The magnitude of land degradation in the country is expected to increase, especially with climate change where extreme weather events are expected with which the cost will also increase. Therefore, the government of Tajikistan, its national and international development partners, civic societies and all citizens should join forces in raising awareness on the gravity of the problem and exert concerted efforts to prevent further degradation and also in taking mitigative measures to improve the situation.



Project:

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Partners

Committee for Environmental Protection under the Government of the Republic of Tajikistan

Tajik Academy of Agricultural Sciences

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