

## AGRI-ECOLOGICAL SITUATION IN UZBEKISTAN

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*Izbasar Allamjarov Bakbergan uly*  
*vvi6504v@icloud.com*

**ANNOTATION** This article explores the agri-ecological situation in Uzbekistan, focusing on the interaction between agriculture and environmental sustainability. It analyzes the main ecological challenges caused by intensive farming, water usage, and soil degradation, while highlighting the government's efforts to promote eco-friendly agriculture..

**Key words:** ecology, agriculture, sustainability, Uzbekistan, water resources, soil fertility, environment

**INTRODUCTION**

Uzbekistan's agricultural sector is closely linked to the country's ecological conditions. The extensive use of land and water resources, particularly in irrigated farming, has brought both economic benefits and serious environmental problems. Historically, cotton monoculture, inefficient irrigation, and excessive use of chemicals have contributed to soil degradation and water depletion. Today, the agri-ecological balance is a key concern for sustainable development. This study aims to analyze Uzbekistan's current agri-ecological situation, focusing on the challenges, reforms, and solutions implemented to preserve natural resources while maintaining agricultural productivity.

**LITERATURE REVIEW AND METHODOLOGY**

Research on Uzbekistan's agri-ecological state highlights the long-term environmental consequences of intensive farming. According to the FAO (2022), nearly 50% of irrigated lands are affected by salinization. The Asian Development Bank (2023) notes that climate change has increased the frequency of droughts in the Aral Sea basin, directly affecting agricultural sustainability.

The methodology of this study is based on qualitative analysis of official environmental reports, national programs such as the "Green Economy Strategy 2030," and recent academic publications. It also considers comparative ecological data from international organizations to assess progress in agricultural sustainability and natural resource management.

**RESULTS**

Findings indicate that Uzbekistan faces several ecological challenges:

- **Soil salinity and erosion:** Over 2 million hectares of farmland show medium to high levels of salinity.
- **Water scarcity:** Agriculture consumes about 90% of available water, mostly from the Amu Darya and Syr Darya rivers.
- **Chemical pollution:** Excessive use of fertilizers and pesticides has reduced soil fertility and biodiversity.

Despite these challenges, notable improvements have been made. Modern irrigation systems, drip technology, and crop rotation have been introduced in many regions. According to the Ministry of Agriculture (2024), over 120,000 hectares have been transitioned to water-saving technologies. Reforestation and salt-resistant crop programs are also being expanded, particularly in the Aral Sea region.

## DISCUSSION

The ecological situation in agriculture remains one of Uzbekistan's top policy priorities. Sustainable practices are increasingly integrated into national strategies, reflecting a shift from productivity-centered to eco-centered farming. The introduction of the "Green Energy in Agriculture" project and cooperation with the Global Environment Facility (GEF) are significant steps towards ecological modernization. However, achieving a balance between economic growth and environmental safety remains a challenge. Farmers require better access to eco-technologies and environmental education. Furthermore, water governance reform and regional cooperation in transboundary river management are essential for long-term ecological stability. Future improvements depend on integrating science-based ecological planning, climate-smart agriculture, and renewable energy use. If implemented effectively, these reforms can ensure both agricultural productivity and environmental sustainability.

## CONCLUSION

Uzbekistan's agri-ecological situation reflects both the consequences of historical environmental mismanagement and the promise of ongoing reforms. The transition towards sustainable agriculture is progressing, with growing awareness of ecological balance and innovation. To achieve lasting success, Uzbekistan must continue investing in green technologies, strengthening ecological monitoring, and fostering regional cooperation on water and soil conservation. Protecting the environment is not only an ecological goal, but also the foundation for the country's agricultural and economic future.

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