

POSITION PAPER

Investing in the future of the oases of Laghouat (Algeria)

Local infrastructure to secure water, restore soil and strengthen agricultural sectors

Objectives :

This position paper relays the concerns and proposals of a consortium of agricultural actors mobilized in the municipalities of Laghouat and El Assafia (Algeria) as part of the NATAE project^[1]. **It calls for support for targeted investments in local agricultural infrastructure to improve water management, strengthen soil fertility and structure agricultural sectors.**

Key messages

- Oasis agriculture in the communes of Laghouat and El Assafia is weakened by the overexploitation of water resources, soil degradation and the lack of processing and storage infrastructure
- Targeted investments in local infrastructure would preserve natural resources, some of which are currently wasted, and reduce agricultural losses
- Supporting this infrastructure is a strategic lever for strengthening the region's resilience to climate change, improving agricultural incomes and creating rural employment



^[1]NATAE Project - Agroecological Transition in North Africa. Funded by the European Union, Horizon Europe Programme 2022-2026

An overexploited water resource

The combined effects of declining rainfall, population growth, development of water-consuming crops and insufficiently controlled irrigation^[2] are leading to increasing pressure on groundwater. Farmers have to resort to deeper and deeper boreholes to maintain crop irrigation.

→ Improving water management is a central issue for the sustainability of oasis agriculture and the adaptation of the territory to climate change

Fragile soils and dependence on inputs

Agricultural soils in the region have limited natural fertility (BNEDER, 2006; INSID, 2005). This situation is currently compensated for by large inputs of manure and chemical fertilizers.

However, rising input prices^[3], manure supply difficulties and the risk of soil pollution are increasing constraints for producers.

→ The availability of local fertilization alternatives represents a major challenge for the sustainability of agricultural systems

Agricultural potential hampered by lack of infrastructure

◆ An expanding but still fragile olive sector

Supported by public policies^[4], olive growing has been developing very rapidly in the wilaya of Laghouat since the 2000s. The olive growing area of the wilaya increased from 20 to 2,327 hectares between 2000 and 2023 (DSA Laghouat, 2023; MADR, 2021). The inauguration in 2020 of a pressing unit in Laghouat have complemented the traditional oil mill located in Djelfa (100 km from Laghouat).

However, the olive sector remains confronted with several constraints:

- Insufficient processing capacity^[5], leading to extended time between harvest and pressing and deterioration in oil quality
- A lack of labour and mechanisation during harvesting, generating losses estimated at between 10 and 30% (Jalkh *et al.*, 2025)
- Insufficient maintenance of olive trees, linked to a lack of technical training for farmers, resulting in low and irregular yields from one season to the next

^[2]Many farmers use water-saving systems (sprinklers, drip irrigators), subsidized by the State, but, poorly managed, they still lead to water waste (Amichi *et al.*, 2020; Côte, 2020; Daoudi, 2020; Daoudi and Lejars, 2016).

^[3]Inputs, although subsidized by the state, saw their prices rise sharply in 2022.

^[4]National Olive Plan, set up in 2000. The objectives of this plan were to (i) extend the national olive-growing area to 500,000 hectares by 2010, (ii) encourage olive growing as an economic activity that creates jobs, and (iii) generalize an intensive and modern mode of production throughout the national territory.

^[5]Production in the wilaya is about 98,000 quintals of olives per season (DSA Laghouat, 2023) while the pressing unit has a capacity of 2 quintals per hour (DSA Laghouat, 2022)

◆ Significant losses in the vegetable farming and arboricultural sectors

The arboriculture and vegetable farming sectors occupy an important place in the communes of Laghouat and El Assafia^[6], with vegetable production exceeding 266,000 quintals per season. However, due to the lack of adequate storage infrastructure, producers in these two sectors are suffering significant losses and high price instability. The existing cold rooms in the wilaya are mainly dedicated to the potato and onion sectors; while perishable fruits and vegetables have little access to the preservation device. The cost of use is an additional obstacle for small producers, forcing them to sell at harvest time, often at unfavorable prices.

→ **Increasing processing and storage infrastructure is essential for the development and sustainability of the olive, arboriculture, and vegetable farming sectors**

Key infrastructure for a sustainable oasis agriculture

Reusing treated wastewater for agricultural irrigation

The treated water from the Laghouat wastewater treatment plant is now discharged into the natural environment, even though it could be a precious resource for agriculture.

The reuse of treated water^[7] to irrigate cereal and tree crops would make it possible to :

- Reduce pressure on groundwater
- Secure agricultural irrigation
- Allow the use of nutrients present in these waters as fertilizers

The reuse of treated wastewater should be part of a more global strategy to improve water management, including scientific monitoring of water resources, dissemination of economical irrigation techniques and the training of farmers.

Following in the footsteps of other Algerian territories^[8], the municipality of Laghouat could thus overcome two major local constraints, related to irrigation and soil fertility.

Developing a composting platform

Green waste and agricultural residues are currently little recycled, even though they represent a major source of fertilization.

A composting platform would make it possible to:

- Produce locally an organic soil amendment and improve soil fertility

^[6]The arboriculture sector represents 21.8% of the UAA in Laghouat and 11.6% of the UAA in El Assafia (compared to 4.2% of the UAA at the wilaya level). The market gardening sector represents 7.9% of the UAA in Laghouat and 25.8% of the UAA in El Assafia, compared to 15.2% at the wilaya level (DSA Laghouat, 2022).

^[7]The use of treated wastewater for the irrigation of cereal and tree crops is governed by several decrees and orders (in particular [Executive Decree No. 07-149 of 20 May 2007](#) and [Interministerial Order of 2 January 2012](#)). It should also be accompanied by scientific monitoring to observe health and environmental risks (soil salinity, pathogens, emerging pollutants, etc.).

^[8]M'zab, Tlemcen, Boumerdes, Mostaganem...

- Reduce reliance on chemical fertilizers and imported cattle manure
- Reduce soil pollution
- Reduce production costs and provide additional income to farmers through the sale of their green waste
- Create local jobs

Developing local processing and storage capacities

The strengthening of agricultural infrastructure is an essential lever for improving the value of production.

- Increasing olive processing capacity would reduce post-harvest losses, improve olive oil quality and add value to the by-products of crushing.
- In addition, the development of cold storage infrastructure and the extension of market regulation mechanisms for fruit and vegetables would help reduce post-harvest losses and stabilize producers' incomes.

Strategic orientations to support agricultural investments in Laghouat

The development of these infrastructures requires the coordinated mobilization of several public and private actors.

Recommendations for local agricultural institutions and investors

Directorate of Agricultural Services (DSA), Chamber of Agriculture (CAW), Directorate of Hydraulic Services of the wilaya (DHW), Investment promotion agencies, and local, regional and national investors

- Include in local development plans the reuse of treated wastewater for agricultural irrigation
- Support the creation of an inter-municipal composting platform
- Strengthen olive processing capacities and agricultural storage infrastructure

Existing financing mechanisms—including the Algerian Agency for the Promotion of Investment (AAPI), BADR Bank, BNA Bank, the National Agency for Entrepreneurship Support and Development (NESDA), and the Algerian Startup Fund—could be mobilized to support these projects. They should be better known to producers and investors and adapted to the realities on the ground.

Recommendations for ministries and public training and supervisory institutes

Ministry of Agriculture and Rural Development, National Institute of Agricultural Extension (INVA), Technical Institute of Fruit Arboriculture and Vine (ITAFV)

- Support the expansion of olive growing in the wilaya, whose areas have been multiplied by more than 100 since 2000, through a program to strengthen processing capacities

- Strengthen training programs for producers in olive grove management and sustainable agricultural practices. This technical support is the condition for the investments made over the past two decades to produce their full economic effect

Recommendations for international donors

- Support the financing of local agricultural infrastructure with a low ecological footprint contributing to climate resilience and food security. The Laghouat territory, committed to a documented agroecological transition supported by active farmers' organizations and research, offers a framework conducive to reproducible pilot investments at the scale of the arid zones of the Maghreb.

Conclusion

Laghouat's oasis agriculture has real assets: developing sectors, ancient agricultural know-how and local actors committed to the agroecological transition. However, without structuring investments in water management, soil fertility and processing and storage infrastructure, this potential is under-exploited.

Investing in local agricultural equipment is now a strategic lever for strengthening the region's resilience to climate change, making the most of existing resources (green waste and water), improving agricultural incomes, securing food supplies and creating rural employment.

The mobilization of public actors, investors and international partners is essential to support collective infrastructures capable of sustainably supporting the development of oasis agriculture in Laghouat.

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Funded by
the European Union

Funded by the European Union under grant agreement no. 101084647. However, the views and opinions expressed are those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for this. For the partner associated with the NATAE project, this work received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI).



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