

Financing the agroecological transition a profitable, strategic, and essential investment

Transforming food systems: a necessity and a return on investment

Current food systems mobilize considerable resources without achieving their fundamental objectives: they do not guarantee food security or sustainability.

- Between 2020 and 2022, agricultural subsidies reached \$851 billion in the 54 countries reporting to the Organisation for Economic Cooperation and Development (OECD) [1]
- One in 10 people suffer from undernourishment [2]
- Global food systems generate between \$10 trillion and \$12 trillion in hidden costs per year – nearly 10% of global GDP – linked in particular to greenhouse gas emissions, the use of blue water, land degradation, and the health impacts of malnutrition [3]

The transformation of food systems is necessary. This transformation has a cost, estimated at between \$200 billion and \$500 billion per year, but it could generate \$5,000 billion in annual benefits, through improved public health, ecosystem restoration and climate change adaptation [1]. **The return on investment is tenfold.**

The problem is not the lack of money in the food system, but the misallocation of financial flows. Spending priorities must be redefined.

Agroecology: a sustainable and profitable food model in the medium and long term

Agroecology is an agricultural approach based on respect for natural cycles, optimal use of resources, and adherence to social and political values, as summarized in the «10 Elements of Agroecology» [4]. This model helps reduce dependence on chemical inputs, improves soil fertility, strengthens resilience to climate change, and improves public health. **Agroecology is a strategic response to increase global economic and food resilience.**

In the short term, the costs of the agroecological transition (AET) are real and can represent a major economic challenge for farmers and territories. **Financing and securing the transition phase is an essential condition for farmers' commitment.**

In the medium and long term, however, the savings generated are significant: **the cost of the AET is much lower than the cost of non-adaptation.**

Investing in agroecology means investing in a sustainable agricultural model that is more profitable in the long term.

Challenges and costs of AET

In the short term

- Initial material investments (equipment, infrastructure)
- Economic risk during the transition phase (labor costs, potential decline in yields for 2 to 5 years)
- Training and support needs
- Uncertainties about markets and prices

Advantages of AET

In the short term

- Reduction of production costs (inputs, irrigation, energy, etc.)
- Job creation

In the medium and long term

- Improved resilience to droughts [5] and crisis contexts [6]
- Sustainable improvement of soil fertility [7]
- Reduction of public costs related to pollution (water, soil, air) and agricultural crises

What funding should be prioritized?

The success of the AET is based on targeted investments that secure the transition phase and promote the scaling up of practices.

Financing farm-level investments

This initial equipment promotes farmers' involvement in the AET.

Examples:

Planting windbreaks; installation of water-saving systems, etc

Case study: Implementation of optimized irrigation techniques in Algeria

Installation of drip irrigation systems in date palm groves as part of the COSTEA project [8]: installation cost of 1,560 euros/hectare (ha) and maintenance cost estimated at 585 euros/ha every 2 years

Installation of control systems in date palm groves combined with soil moisture sensors (delivering the right amount of water at the right time) as part of the NATAE project [9]: installation cost of 8,500 euros /ha

Benefits : A study in France [10] estimates that modernizing irrigation systems generates water savings of up to 70% depending on the cropping system, as well as labor and energy savings. The implementation of control systems is particularly effective.

Financing collective infrastructure and tools

These investments help scale up the agroecological transition at the regional level.

Examples:

Composting platform; reuse of treated wastewater; support for agricultural processing and storage units; support for agricultural cooperatives; creation of local seed banks and support for the preservation of local seeds, etc

Case study: Support for the management of local seeds adapted to climate change in Algeria

Establishment of experimental plots, creation of seed bank, training and support for local consultation as part of the PAOMA project [11]: cost of 150,000 euros.

Benefits : Improved biodiversity; reduced production costs; increased yields; increased climate resilience among 1,000 agricultural stakeholders, including 200 farmers.

Securing the transition phase

This lever helps provide farmers with security when taking risks and dealing with potential yield declines during the initial years of transition. This is an essential condition for removing barriers to involvement in the AET.

Examples:

Insurance tools to reduce the risks associated with a transition period; income stabilization mechanisms, etc

Case studies: Green insurance to secure winegrowers in France

Implementation of a «green insurance» encouraging French winegrowers to adopt more sustainable practices, by covering potential production losses [12].

Benefits : Reduction in fungicide use by 30% to 50% [12]

Strengthening training and support for farmers

This lever, which is still under-invested, is crucial to the success of AET: it enables technical support for farmers, peer-to-peer learning, and the adoption of best practices.

Examples:

establishment of agroecology training centres; strengthening of advisory and extension services; training of trainers and farmer leaders; support for field schools; strengthening of the agroecology education curriculum, etc

Case Study: Practical field school in Kebili, Tunisia

Organisation of a field school in Kebili (Tunisia) as part of NATAE [9] : 20,000 euros

Benefits: 18 North African students received a week-long training on oasis agroecological practices.

Aligning value chains and markets

Uncertainty regarding market outlets is a major obstacle to the agroecological transition: it is essential to secure supply chains.

Examples:

Structuring supply chains, promotion and certification of agroecological production, commitment of manufacturers and distributors, risk sharing, etc

Case Studies: Implementation of Participatory Guarantee Systems (PGS) in Vietnam

Supporting farmers in implementing PGS [13]

Benefits: PGS improve farm profitability (+117%), agroecological performance (+40%), and offer farmers a wider choice of marketing channels (+23%) [13]

Key recommendations

Risk-sharing and a systemic approach to financing

The agroecological transition requires a coordinated mobilization of all stakeholders in the food system and a **sharing of efforts, costs and risks** between public and private actors.

PUBLIC SECTOR STAKEHOLDERS

- Investment grants
- Support for training and mentoring
- Income stabilization mechanisms

INVESTORS AND DONORS

- Funding for regional projects
- Support for innovation and action research

BANKS AND INSURANCE

- Loans at preferential interest rates contingent upon the adoption of sustainable practices
- Facilitating access to credit and microcredit
- Insurance tools designed to mitigate risks associated with a transition period

PRIVATE COMPANIES IN VALUE CHAINS

- Investments in value chains
- Risk-sharing by reducing profits along the value chains

NEW MECHANISMS

- Crowdfunding and citizen engagement
- Market-based instruments: carbon credits, payments for ecosystem services...

Key considerations

Several key considerations must be taken into account to maximize the impact of funding and optimize the AET.

- **Ensuring equitable access** to financing across regions, territories and producers
- **Ensuring access to financing at the local level:** International funding must be able to reach the local levels directly, without being withheld by national governments.

Examples : The African Development Bank has developed two complementary types of financing: statutory funding, which flows through governments, and fiduciary financing, which provides direct access to NGOs, local communities and municipalities

- **Long-term financing :** Agroecological projects require at least 5 years to observe changes, while many funding remains limited to 2 or 3 years

Conclusion

Financing the agroecological transition is not an additional expense: it is a strategic reallocation of funds towards a more sustainable, more resilient and less costly model.

Financial resources are available. The challenge is now political and all stakeholders to pool their resources.

Bibliography

- [1] Rockström, J., Thilsted, S., Willett, W. et al. (2025). The EAT–Lancet Commission on Healthy, Sustainable, and Just Food Systems. The Lancet, 406, 1625–1700. [https://doi.org/10.1016/S0140-6736\(25\)01201-2](https://doi.org/10.1016/S0140-6736(25)01201-2)
- [2] FAO, IFAD, UNICEF, WFP & WHO. (2025). The State of Food Security and Nutrition in the World 2025. Rome. <https://doi.org/10.4060/cd6008en>
- [3] FAO. (2023). The State of Food and Agriculture 2023. Rome. <https://doi.org/10.4060/cc7724en>
- [4] FAO. (2018). The 10 Elements of Agroecology: Guiding the Transition Towards Sustainable Food Systems.
- [5] Altieri, M.A., Nicholls, C.I., Montalba, R., Vieli, L. & Vazquez, L.L. (2025). Agroecology and the Limits to Resilience. Frontiers in Agronomy, 7. <https://doi.org/10.3389/fagro.2025.1534370>
- [6] Hauser, M. (2023). Outlook on Agriculture, 52(3), 339–348. <https://doi.org/10.1177/00307270231197700>
- [7] Boutagayout, A., Hamdani, A., Kouighat, M., Zayani, I. & Adiba, A. (2025). Agroecological Soil Management in North Africa. Frontiers in Sustainable Food Systems, 9. <https://doi.org/10.3389/fsufs.2025.1662153>
- [8] COSTEA – Scientific and Technical Committee on Agricultural Water. (s.d.). Inventaire des pratiques agroécologiques en Algérie. https://www.comite-costea.fr/wp-content/uploads/11a_Inventaire_PratiquesAE_NTissa_ALGERIE-vf.pdf
- [9] NATAE – Agroecological Transition in North Africa. (2022–2026). Horizon Europe program.
- [10] Évaluation des économies d'eau potentiellement réalisables par modernisation du système d'irrigation. Bonnes pratiques pour l'eau du Grand Sud-Ouest. <https://wiki.tripleperformance.fr/>
- [11] PAOMA – Program for the Conservation and Economic Development of Oasis Agrobiodiversity in the M'Zi Valley in Algeria. (2022–2027).
- [12] Aubert, C., Raineau, Y. & Raynal, M. (2025). Learning About Best Management Practices: Theory and Experimentation Under the Umbrella of Crop Insurance. European Review of Agricultural Economics, 53(1), 341–373. <https://doi.org/10.1093/erae/jbaf065>
- [13] Grovermann, C., Pham Van Hoi, Nguyen Thi Bich Yen, Schreinemachers, P., Minh Ngo Hai & Ferrand, P. (2024). Impact of Participatory Guarantee Systems on Sustainability Outcomes: The Case of Vegetable Farming in Vietnam. International Journal of Agricultural Sustainability, 22(1). <https://doi.org/10.1080/14735903.2024.2338028>



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).

