

# Transitioning to **AGROECOLOGY**

NUTRITION & HEALTH  
ECONOMY

**ENVIRONMENT**

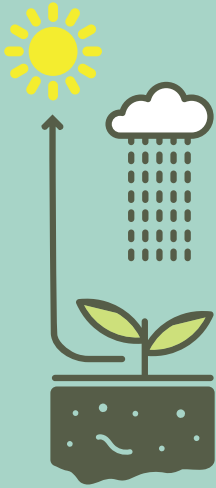
SOCIETY  
CULTURE

**Agroecology**  
is both a science  
and a movement.



As a **science**, agroecology entails the application of ecological concepts and principles to the design and management of agricultural systems. Based on the interactions between plants, animals, soils and climate, agroecology seeks to optimize the productivity, sustainability and resilience of agroecosystems; promote positive ecological interactions; minimize or eliminate the use of external inputs; conserve natural resources through efficient usage and recycling; and enhance the functional biodiversity of farming systems.

As a **movement**, agroecology has expanded from being solely a set of agricultural practices, to being a principles-based approach to agricultural development, one grounded on equitable and just food systems, that valorize traditional, local knowledge and culture, and preserve the natural environment.



**Mada** is committed to supporting smallholder farmers in Akkar transition to agroecology. Through material and technical support, **Mada** focuses on minimizing risks for the farmer, maximizing yield, and showcasing the various benefits of agroecology: nutritional, economic, environmental, social and cultural. This factsheet is the third in a series to be developed under the project *Wielding Agroecology to Transition Agriculture for Development (WATAD)*—under the Shabake II project supported by the Agence Française de Développement – AFD and the Centre de Crise et De Soutien and implemented by the French Public Agency for International Technical Cooperation - Expertise France. Under this project, **Mada** is building the individual and collective capacities of smallholder farmers in Akkar to transition to agroecology, and fostering the enabling environment for agroecology to prosper.

## Agroecology & the Environment

As opposed to conventional agriculture, agroecology works for and with the natural environment, preserving biodiversity, safeguarding and restoring ecosystem services, conserving natural resources, and contributing to climate change mitigation. Particularly in countries such as Lebanon, suffering from the consequences of decades of uncontrolled conventional agriculture, agroecology offers a path toward sustainable food systems and environmental stewardship. The environmental benefits of agroecology are countless and multi-faceted, and can be summarized as follows:

### 1 Preservation of Biodiversity

(a) intricate agroecosystems that replicate natural landscapes, provide sanctuaries for wildlife, including insects and birds, and incorporate native vegetation, hedgerows, and assorted crops; (b) diverse crop integration and thoughtful landscape planning, fostering a harmonious interplay between agriculture and nature; (c) optimization of species diversity and genetic resources, by incorporating and organizing crops, trees, and livestock of different heights and shapes both horizontally and vertically.

### 3 Conservation of Natural Resources

(a) consciously reducing synthetic inputs that have detrimental impacts on soil and water quality; (b) employing water-efficient irrigation methods - such as drip irrigation and rainwater harvesting, and optimizing water use - a key priority in Lebanon given the chronic mismanagement of this precious resource; (c) applying no-tillage practices that minimize soil disturbance and preserve soil structure and organic matter; (d) promoting recycling and adopting sustainable waste management practices, including composting.

### 2 Safeguarding of Ecosystem Services

by mimicking nature and taking into account how surrounding ecosystems work, agroecology eliminates the use of synthetic inputs and applies biological control strategies, uses natural predators, and nurtures pollinators. It sustains soil health and prevents erosion, and integrates elements such as cover cropping to ensure vital ecosystem services prosper, including nutrient cycling and weed control.

### 4 Climate Change Mitigation

Existing data on agroecology's direct contribution and significance in mitigating and reversing climate change is significantly lacking, however, there is growing evidence that it plays a key role in carbon sequestration in soil and biomass. Indirectly, as agroecology is more than just a set of farming principles, the benefits also include (a) shortening the production and consumption cycle, and therefore reducing the footprints of packaging, storage and transportation; and (b) promoting a closer relationship between producers, consumers and the natural environment, indirectly (and hopefully) leading to more conscientious lifestyles and greater harmony with nature – both key to climate change mitigation.