



# Brief note on natural resource conservation and agroecology

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## DESCRIPTION

Agroecology is a holistic and integrated approach to the design and management of sustainable agriculture and food systems that incorporates ecological and social concepts and principles. Agroecology is a holistic method for producing food that uses ecological principles such as improving soil health, increasing biodiversity, and creating synergies between different parts of the food system. Agroecological principles also include co-creating agricultural knowledge with food producers, reconnecting producers and consumers, and ensuring culturally appropriate and equitable food systems (Majd, 1989). It prioritizes short value chains and focuses on changing social relations; empowering farmers; adding value locally; and empowering farmers. It enables farmers to adapt to climate change, use natural resources sustainably, and conserve biodiversity. This is accomplished by incorporating biodiversity and ecological processes into food production as well as reducing external inputs by introducing natural or renewable alternatives.

Agroecology is an all-encompassing systems framework for guiding public policies toward sustainable agriculture and food systems. It improves public efficiency by encouraging integrated and inter-ministerial policy design and implementation, bringing together agricultural and food sectors that are frequently fragmented. It actively engages various stakeholders through inter-disciplinary mechanisms that promote responsible and transparent resource governance (Thorsoe, 2022). There were multiple pathways through which such improvement occurred; it is possible that diets were directly improved through the consumption of a more diverse range of crops and animals (Altieri, 2002). It is also possible that people sold a broader range of farm products and used the proceeds for household consumption. Improving soil health or incorporating trees into the farm landscape can boost farm output while also ensuring greater yield stability and livestock health during droughts or other

extreme events. Agroecological management practices, in particular, can improve crop nutrient uptake in ecologically degraded systems by enhancing biotic interactions. Cover crops in the legume family, among other things, supply nitrogen (N) and carbon (C) to soils *via* biological nitrogen fixation and photosynthesis (Gianinazzi, 2010). Because cover crops are generally not harvested but rather incorporated into the soil at the end of the season as "green manures," these N and C inputs contribute to pools of bioavailable soil nutrients. As a result, this agroecological practice has been shown to increase internal nutrient cycling and nutrient availability to primary crops, potentially increasing productivity over time (Wezel, 2016).

## CONCLUSION

Agriculture accounts for roughly 20% of global greenhouse gas emissions. If we are to meet our climate goals, we must find new ways to produce food. Other nutritional functions of agroecosystems include crop quantity, diversity, and nutritional quality, as well as the preservation of genetic resources to improve individual crop traits and diet diversity. Favoring productivity over critical ecological and nutritional functions in agroecosystems can falsely place household food security and rural livelihoods at odds. The principles of agroecology underpin the transition to ecologically based management. These principles can first be applied in the process of changing the way food is grown. Farmers involved in the transition process understand what is unsustainable and what is, at the very least, more sustainable through intuition, experience, and knowledge. These challenges are of various types, including environmental (increased pressure and competition for natural resources; climate change; biodiversity loss, land degradation, and water scarcity); and socio-political (increased pressure and competition for natural resources, climate change, biodiversity loss, land degradation, and water scarcity) (power imbalances, lack

of transparency, accountability, and democracy in governance).

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