

Agroecology: a holistic path towards sustainable food systems

ENVIRONMENT, CLIMATE CHANGE AND SOCIAL INCLUSION



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This Lessons Learned note describes the main results emerged from the application of the Tool for Agroecology Performance Evaluation (TAPE) developed by FAO on the IFAD-funded Regeneration of Landscapes and Livelihoods (ROLL) project in Lesotho. This product is part of a broader joint IFAD-FAO collaboration, financed by the second phase of IFAD's Adaptation for Smallholder Agriculture Programme (ASAP2).

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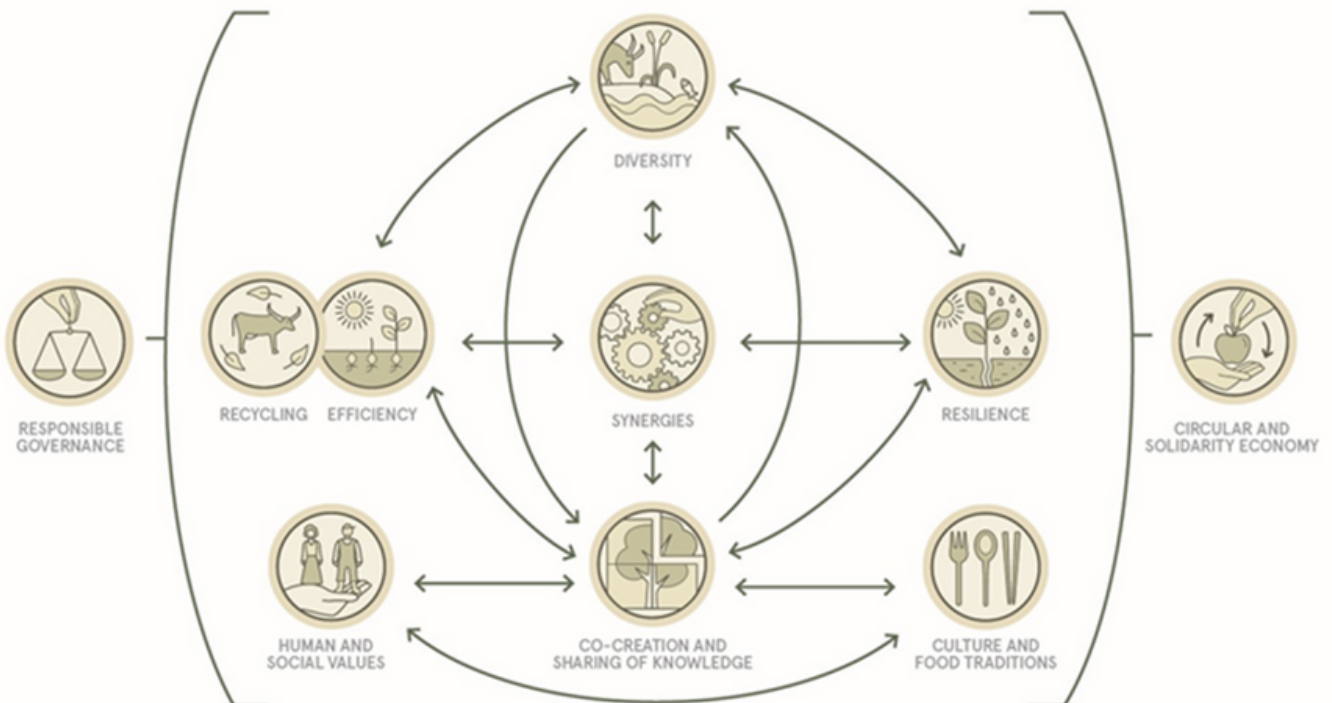
OVERVIEW

As stated in the 2019 High Level Panel of Experts on Food Security and Nutrition (HLPE), agroecology has been recognized as the most promising approach to transform food systems by applying ecological principles to agriculture and ensuring a regenerative use of natural resources and ecosystem services, while also addressing the need for socially equitable food systems in which people can exercise choice over what they eat and how and where it is produced.

Within the scope of a two-year collaboration between IFAD and FAO, TAPE, the Tool for Agroecology Performance Evaluation developed by FAO, has been applied to inform the IFAD-funded Regeneration of Landscapes and Livelihoods (ROLL) project about the development of agroecology in Lesotho and to define a baseline for analysing and comparing the performance of different types of agricultural systems across the multiple dimensions of sustainability. ROLL focuses on climate-smart landscape restoration and on the promotion of livelihood strategies that foster resilience. The landscape graduation model, around which the project revolves, combines an integrated biophysical, socio-economic and institutional assessment of landscape and community status, with a progressive intervention strategy to help communities and landscapes graduate from highly degraded and impoverished to more sustainable levels.

By operationalizing FAO's 10 Elements of Agroecology, TAPE characterises the level of agroecological transition of evaluated farms and production systems in agriculture.

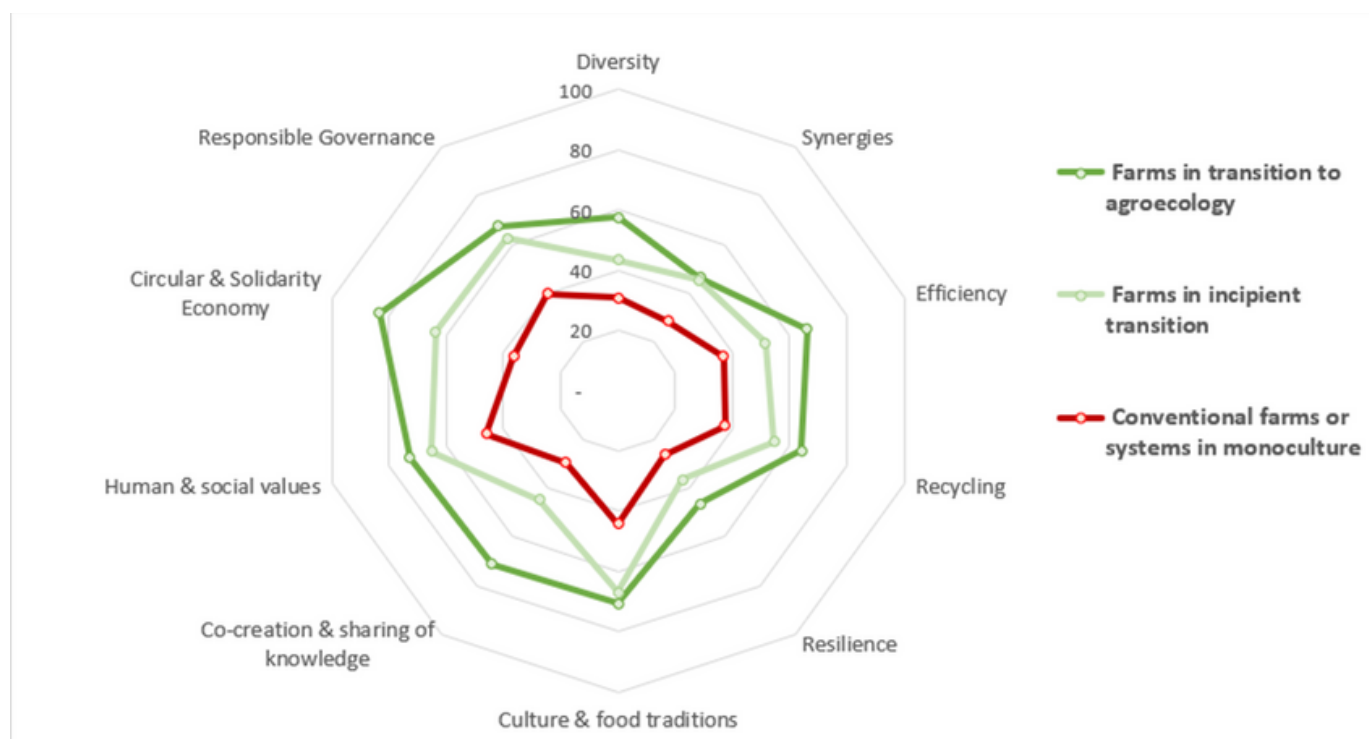
Figure 1 10 Elements of Agroecology



Agroecological standing of Lesotho

The use of TAPE in Lesotho reveals that the great majority of the systems in the sample (84%) can be considered non-agroecological, 11% of the sample consist of farms at an incipient level of agroecological transition, and just a little minority (5%) can be defined as in transition to agroecology. When looking at the types of agricultural systems in place, the farms in monoculture are the least advanced in agroecological terms, far less than the diversified farms (mixed livestock, crops and horticulture), which are more advanced in agroecological terms.

Figure 2 Farms per category of agroecological transition



The poor results across the 10 Elements of Agroecology reveal that average farms in Lesotho are not well diversified in terms of crops, livestock and natural vegetation, as well as in terms of income-generating activities. Furthermore, farmers do not take advantage of the functional diversity of the agroecosystem for the generation of positive ecosystem services. For instance, practices such as intercropping or crop rotation are limited and the agroecosystems are not highly diversified. Although most inputs are self-produced and reliance on chemical fertilisers and pesticides is low, overall productivity is low.

Lack of stability in income and agricultural production, limited marketing opportunities, lack of savings and insurance schemes, and limited support in the form of government subsidies and services, make farmers less resilient to the adverse impact of natural and economic shocks and stresses. Working conditions in agriculture are harsh, due to low levels of productivity and persisting social inequalities between rural and urban areas. This pushes many rural dwellers, especially youth, to emigrate to the capital city Maseru or to South Africa in search for better living conditions. Furthermore, women are less involved in income-generating activities and have limited access to land, natural resources and services.

Finally, except for the wool and mohair production, which makes an important contribution to the country's GDP, the government has no system in place to empower producers to access local markets and involve them in the governance of natural resources. This is further aggravated by the lack of horizontal networks for the transfer of knowledge on agroecological practices and principles.

The low levels of uptake of agroecological practices in the target areas in Lesotho are mainly due to the fact that Basotho farmers have been producing in a conventional way or practicing traditional monocropping for decades, while also experiencing the degradation of their soils and the reduction of their yields. The low scores across the 10 Elements of Agroecology and, in particular, in the element of Co-Creation and Sharing of Knowledge, indicate that farmers do not know how to implement more sustainable agroecological practices, as they have hardly ever seen them applied by neighbouring producers or advocated through extension services. Most of the producers in the sample are not aware that there exist other ways to produce more and more sustainably, and, because of the widespread poverty, have limited learning opportunities. Lesotho's agroecological movement remains a niche and the few successful experiences have not been scaled up across the impoverished rural areas of the country. In light of this, it becomes crucial to support context-specific innovative solutions based on the 10 Elements of Agroecology to underpin the spread of agroecological practices and principles and enhance the overall sustainability of local production systems in Lesotho.

Transitioning towards agroecology: achieving food security while nourishing the agro-ecosystem

Supporting the process of transition towards more agroecological systems of production within the target territories could be the key to achieve the main objectives of ROLL, namely the change in resource use practices, the reduction of environmental degradation, and the improvement of livelihoods. The use of TAPE in Lesotho has indicated that the few farms that are in the process of transitioning to more agroecological production are more productive, more rentable and more resilient. In terms of food security, these farms are more aware of appropriate nutrition practices and rely more on local varieties and breeds, by preserving Basotho's tradition for food preparation. Nonetheless, further support is needed for advancing and improving their environmental and social performance. Specifically, the project is well-placed to enhance the livelihoods of the communities through improved and more sustainable use of local resources, enhanced income from on-farm activities, increased food availability and diversity, as well as better equipped local organisations.

Box 1 10 Elements of Agroecology

1. Diversity
2. Synergies
3. Efficiency
4. Resilience
5. Recycling
6. Co-creation and sharing of knowledge
7. Human and social values
8. Culture and food traditions
9. Responsible governance
10. Circular and solidarity economy

The focus should be on increasing **diversity**, by supporting monoculture farms to transition to more diversified systems of production. This can be done by promoting native and stress-resistant crops, by supporting sustainable horticulture and raising local breeds, with a special focus on sheep and goats for the sustainable production of wool and mohair. The animals can be fed on crop stovers, thus leaving the soil covered, and the manure derived can be used in the field to fertilise the soil at planting, thus enhancing the overall productivity of the farm in an efficient way. Crop diversification should emphasise the role of legumes, which can have positive spillovers on the overall productivity of cereals, soil fertility, and human nutrition.

This paves the way to the generation of positive ecosystem services through **synergistic interactions** between crops, animals, soil, trees, shrubs, pollinators and natural vegetation. In turn, this can incentivize the self-production and **recycling** of inputs, the generation of organic fertilisers and pesticides through manure, the reliance on biogas and other renewable energy sources as well as ecological pest management.

An opportunity exists to fight soil erosion and enhance soil health, while simultaneously promoting biodiversity and increasing land productivity, through landscape approaches that combine soil conservation techniques (e.g. mulching, green manure, etc.) with biomass production (e.g. plantation of well adapted species and varieties of fodder and legumes like pigeon peas on anti-erosion structures). In this context, agroforestry represents a framework to blend reforestation and afforestation strategies with sustainable crop and livestock production both in the case of intensive and extensive systems on rangelands (e.g. rotational grazing systems).



Finally, the social dimension represents a crucial aspect of agroecology. For the food system to flourish and for traditional values to be reflected in dietary choices, producers need to be empowered, especially women and youth, in terms of dignity of work, decision-making, political representation and governance.

For such an agroecological mind-set to thrive, innovations and technologies should be easily replicable with the use of local materials and should be transferred horizontally from farmers to farmers. Farmer field schools, for instance, represent a bottom-up approach for the **co-creation and sharing of knowledge** and can achieve even better results if sustained by well-rooted grassroots farmer organisations that can embody the ideal of **responsible governance** at the community level. Such networks can further support the creation of facilities and infrastructures for local and territorial markets, within the broader concept of **circular and solidarity economy**, where producers can easily sell their produce at fair prices, hence improving the competitiveness of Lesotho's mountain food systems as well as of the red meat and milk value chains.

Lesotho, as a country particularly subject to frequent droughts, heavy rains and crop diseases, which often escalate in recurring food crises, is in need of a holistic approach that nourishes the **resilience** of local communities to environmental shocks and market failures.

For all these reasons and more, agroecology stands out as the most straightforward solution to achieve sustainability in all the above-mentioned dimensions. Tools like TAPE can make the difference in corroborating evidence on the ground and in feeding into lessons learned.

Box 2 **Available sources**



Find [here](#) the FAO's report with the complete analysis.

Click [here](#) for more information on the joint IFAD-FAO collaboration that made this work possible.

Read more about IFAD's work in [Lesotho](#).

Discover further details on [TAPE](#) and [ROLL](#).



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