



CASE STUDIES OF AGROECOLOGICAL SUCCESS IN NIGERIA AND AFRICA

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Agroecology, which integrates ecological principles into agricultural systems, is gaining prominence in Africa as a pathway to sustainable and resilient food systems. In Nigeria and across Africa, several successful case studies demonstrate agroecology's potential to enhance food security, restore ecosystems, empower communities, and build resilience against climate change. This document presents selected agroecological case studies with references to scholarly and development sources.

1. Agroecological Practices in Nigeria

1.1. The Songhai Centre Model (Benin-Nigeria Connection)

Though headquartered in Porto-Novo, Benin, the Songhai Centre has had significant agroecological influence in Nigeria through training programs and replication in states like Rivers and Imo. The Centre integrates crop-livestock systems, renewable energy, organic fertilizers, and agro-processing into a circular economy model. Nigerian youth trained at Songhai have replicated agroecological models emphasizing sustainability and resource efficiency (Eyinla et al., 2021).

1.2. Home Gardens and Agroforestry in the Middle Belt, Nigeria

In parts of the Middle Belt of Nigeria (such as Nasarawa and Benue States), smallholder farmers adopt agroforestry and mixed cropping systems using indigenous species like *Parkia biglobosa* and *Vitellaria paradoxa*. These practices conserve biodiversity, enhance soil fertility, and improve household nutrition. Women's groups have played a key role in managing these systems for food and medicinal plant production (Ajayi et al., 2020).

1.3. The Use of Bio-Pesticides and Indigenous Knowledge in Northern Nigeria

Farmers in Kano and Katsina States have adopted pesticidal plants such as *Azadirachta indica* (neem), *Tephrosia vogelii*, and *Ocimum gratissimum* to manage pests in an environmentally friendly way. This approach reduces chemical pesticide dependence, promotes local knowledge systems, and aligns with agroecological principles (Oni & Alao, 2022).

2. African Case Studies of Agroecological Transformation

2.1. Ecological Organic Agriculture (EOA) in Kenya and Uganda

The **EOA Initiative**, supported by Biovision Africa Trust, has fostered agroecological transition across East Africa. In Kenya and Uganda, thousands of farmers have adopted composting, organic pest control, soil conservation, and mixed cropping systems. These practices have resulted in improved yields, restored soil health, and better climate resilience (FAO, 2021; Kansiime et al., 2021).

2.2. Farmer-Managed Natural Regeneration (FMNR) in Niger

Farmer-Managed Natural Regeneration FMNR, led by World Vision, has transformed over 5 million hectares of degraded land in Niger. Farmers



protect and prune native tree species, regenerating vegetation and improving microclimates. This low-cost agroecological method has improved crop yields and food security, especially in Maradi and Zinder regions (Reij et al., 2009).

2.3. Push–Pull Technology in East Africa

Developed by the International Centre of Insect Physiology and Ecology (ICIPE), push–pull agroecological systems involve intercropping maize with Desmodium (push) and surrounding fields with Napier grass (pull) to manage stem borers and striga weeds. This has led to higher maize yields and livestock fodder production in Kenya, Tanzania, and Ethiopia (Khan et al., 2014).

2.4. Zaï Pits and Half-Moons in Burkina Faso

In the Sahelian regions of Burkina Faso, farmers revived traditional soil and water conservation techniques Zaï pits and demi-lunes to combat desertification. These methods capture rainwater, enrich soil with compost, and rehabilitate barren lands, increasing millet and sorghum yields even under drought conditions (Barro et al., 2020).

Conclusion

Agroecological approaches in Nigeria and Africa showcase a diversity of indigenous and innovative practices that promote ecological balance, enhance food sovereignty, and improve rural livelihoods. These case studies underscore the importance of policy support, farmer training, and investment in agroecological research to scale these successes across the continent.





REFERENCES

- Ajayi, O. C., Akinnifesi, F. K., Sileshi, G., & Chakeredza, S. (2020). Indigenous agroforestry practices and the conservation of biodiversity in Nigeria. *Agroforestry Systems*, **94**(3), 613–628.
- Barro, A., Zougmore, R., & Kaboré, D. (2020). Enhancing resilience in the Sahel through traditional water harvesting techniques: Lessons from Burkina Faso. *International Journal of Climate Change Strategies and Management*, **12**(2), 141–157.
- Eyinla, B. M., Ojo, T. O., & Adebayo, K. (2021). Sustainability dimensions of the Songhai agricultural model in West Africa. *Journal of Sustainable Development in Africa*, **23**(4), 67–84.
- FAO. (2021). *Agroecology and climate change: A synergistic approach to sustainable development in Africa*. Rome: Food and Agriculture Organization.
- Kansiime, M. K., van Asten, P., & Bashaasha, B. (2021). Ecological organic agriculture practices and their contribution to smallholder farmer resilience in Uganda. *Renewable Agriculture and Food Systems*, **36**(2), 146–155.
- Khan, Z. R., Midega, C. A. O., Pittchar, J. O., & Pickett, J. A. (2014). Push-pull farming system controls maize stemborers and striga weed in Sub-Saharan Africa. *International Journal of Pest Management*, **60**(2), 113–121.
- Oni, O. A., & Alao, O. O. (2022). The role of indigenous knowledge in pest control in northern Nigeria: Implications for agroecological transition. *African Journal of Agricultural Research*, **17**(3), 77–85.
- Reij, C., Tappan, G., & Smale, M. (2009). *Agroenvironmental transformation in the Sahel: Another kind of “Green Revolution”*. IFPRI Discussion Paper 00914. International Food Policy Research Institute.