Policy Brief: Rebuilding Soil Health and Food Security in Burkina Faso through Agroecology: A Path to Climate Resilience

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Executive Summary

Burkina Faso faces challenges in maintaining soil fertility and achieving food security due to over-reliance on chemical inputs, monocropping, and unsustainable agricultural practices. As the country battles with significant soild degradation, agricultural productivity and resilience to climate change are under threat. Agroecological practices offer a viable solution to restore soil health, improve crop yields, and enhance climate resilience. Despite recognition of agroecology's benefits, there is limited adoption due to inadequate policy support, insufficient access to organic inputs, and market barriers.

This brief outlines key policy recommendations to promote agroecology in Burkina Faso by enhancing farmer training, redirecting subsidies towards organic inputs, and developing market structures for agroecological products. These recommendations aim to support the transition towards sustainable agroegological practices that are both environmentally friendly and economically viable for farmers. Policymakers can thereofre ensure that farmers have the knowledge and skills necessary to effectivley implement agroecological practices.

Key Recommended Actions:
- Redirect subsidies away from from chemical inputs towards organic inputs
- Increase funding for agroecological research and extension services.
- Develop market structures for agroecological products
- Promote market access for organic and agroecological products.

Introduction

Burkina Faso's agricultural sector, which forms the backbone of its economy and provides livelihoods for the majority of the population, is facing a critical juncture. Frequent droughts due to rising temperatures and reduced rainfall have worsened soil degradation, leading to serious declines in soil fertility. When rains do arrive, they are often intense and short-lived, causing flash floods that wash away the topsoil, further reducing soil fertility. These changes have contributed to ongoing desertification, making soil less productive and degradation prone (Crawford et al. 2016). This has left smallholder farmers, who make up the majority of the agricultural workforce, increasingly vulnerable to crop failures and income loss. As a result, food security is at risk, with rising concerns about the ability to sustainably meet the nutritional needs of the population.

Agroecology offers a viable solution to these challenges. It integrates traditional knowledge with modern science to promote sustainable farming methods that restore soil health, improve water retention, enhance biodiversity, and build resilience to climate variability (Zenda & Rudolph, 2024). Agroecological practices have already shown great potential in parts of Burkina Faso by rehabilitating degraded soils, boosting crop yields, and helping farmers adapt to climate change (Ministry of Environment and Fishery Resources, 2015). Yet despite these successes, the widespread adoption of agroecology in the country remains limited.

Given the urgency of addressing soil degradation and improving food security, there is a clear need for targeted policies that promote agroecological practices. This policy brief aims to highlight the critical role that agroecology can play in addressing these issues and provides actionable recommendations for policymakers to support the transition toward more sustainable agricultural practices.

<u>Improvement in Soil Health, Climate Resilience and Increased Agricultural Productivity</u>

Since the early 1980s, an innovative soil and water conservation (SWC) initiative in Burkina Faso's Central Plateau has transformed a once-degraded landscape into a model of sustainable agriculture. Through the implementation of techniques such as contour stone bunds, improved traditional planting pits (zai), and rock dams, local farmers have dramatically improved soil fertility and water management. The results have been remarkable: average yields of millet and sorghum have more than doubled,

groundwater tables have risen by five meters or more in most villages, and rural poverty has been reduced by up to 50% in participating communities. This farmer-led initiative, supported by NGOs and donor agencies, has not only reversed declining agricultural yields but also enhanced biodiversity, increased vegetation cover, and spurred a 25% population growth in the region between 1985 and 1996. The success of this project demonstrates the transformative power of community-driven, agroecological approaches in combating environmental degradation and improving livelihoods in challenging agricultural environments.

Key Policy Messages

- Soil degradation is a critical threat to food security in Burkina Faso.
- Agroecological practices, including composting, agroforestry, and crop diversification, can restore soil fertility and improve climate resilience.
- Policy gaps and limited market access for organic products hinder the widespread adoption of agroecology.
- Investing in agroecological financing, market development, and farmer training is essential for achieving sustainable agricultural growth.

Gaps and Barriers

There are several barriers to the widespread adoption of agroecological practices in Burkina Faso.

- Policy Gaps

Existing agricultural policies in Burkina Faso still favor conventional inputs, with minimal focus on organic alternatives. This leads to the limited availability of organic inputs due to underdeveloped supply chains and high production costs.

- Market Access

The lack of formal certification for organic products restricts market opportunities. As a resut, farmers struggle to sell their products at higher prices, which reduces the economic incentives for adopting agroecological practices.

- Capacity Building

Many farmers lack access to training on agroecological techniques. This gap in technical assistance has hindered scaling, particularly in remote and rural areas.

Policy Options and Recommendations

Redirect Subsidies from Chemical Inputs to Organic Alternatives

Burkina Faso's agricultural subsidies are currently skewed toward conventional inputs such as chemical fertilizers and pesticides, which contribute to soil degradation and harm long-term agricultural sustainability. These subsidies create a financial incentive for farmers to continue using environmentally harmful practices instead of adopting more sustainable alternatives.

Recommended Actions

- Redirect government subsidies for chemical inputs towards organic inputs. This will lower the costs of adopting agroecological practices for farmers.
- Provide financial incentives and subsidies specifically for farmers who adopt sustainable soil management practices.

- Develop and support local production of organic inputs to ensure that they are more widely available and affordable for farmers.
- Establish a progressive phase-out plan for synthetic inputs, accompanied by training programs that prepare farmers for a smooth transition to agroecological alternatives.

Example:
The government of Burkina Faso introduces a subsidy reallocation plan over five years, gradually shifting financial support away from chemical fertilizers and pesticides towards organic alternatives. Farmers in key agricultural regions like the Central Plateau receive discounted compost, bio-fertilizers, and organic pest management solutions through a newly established distribution network. Extension officers are trained to assist farmers in making this transition by offering hands-on workshops on the benefits of organic inputs and sustainable soil management techniques. At the same time, training programs prepare farmers for the gradual phase-out of synthetic inputs, with support for the development of local composting businesses to ensure the availability of organic inputs.

Key Implementers:
- *National Government (Ministry of Agriculture and Rural Development): Reallocate subsidies from chemical fertilizers and pesticides towards organic alternatives such as biofertilizers and compost. Develop and implement a phaseout plan for synthetic inputs, providing financial incentives to farmers who adopt sustainable practices.*

- *Local Governments (Regional Agricultural Offices): Ensure the distribution of organic inputs in local markets and provide farmers with information on accessing subsidies. Oversee the development of local composting facilities and biofertilizer production centers.*

- *Farmer Cooperatives and Associations: Collaborate with local governments to produce and distribute organic inputs to smallholder farmers. Assist farmers in accessing the new subsidy schemes for organic inputs.*

- *Non-Governmental Organizations (NGOs): Offer training and support to farmers transitioning away from chemical inputs, focusing on sustainable soil management practices. Support the development of community composting programs to ensure the availability of organic inputs.*

Develop Market Access for Agroecological Products

A key barrier to the adoption of agroecological practices is the underdevelopment of markets for agroecological products. Farmers practicing agroecology often struggle to sell their products at a premium price due to a lack of formal certification.

<u>Recommended Actions</u>
- stablish certification systems for agroecological products to help farmers access higher-value markets. (e.g. a Participatory Guarantee System (PGS): a low-cost certification process that is accessible to smallholder farmers).
- Encourage public procurement programs (PPPs) that prioritize the purchase of agroecological products for government institutions such as schools, hospitals, and military bases. This would create a stable demand for sustainable produce and provide a guaranteed market for farmers adopting agroecological practices.
- Promote cooperative models for smallholder farmers engaged in agroecology, enabling them to pool resources, access collective bargaining power, and reduce costs associated with processing and marketing their produce.
- Invest in market infrastructure such as organic marketplaces, storage facilities, and transportation networks to improve the accessibility and profitability of agroecological products.
- Raise consumer awareness about the benefits of agroecological products through public campaigns and labeling initiatives.

Example:
The Ministry of Trade and Agriculture partners with NGOs and farmer cooperatives to establish a Participatory Guarantee System (PGS) for smallholder farmers practicing agroecology. The PGS certification process allows farmers to access premium markets for agroecological products in urban centers like Ouagadougou and Bobo-Dioulasso. In addition, the government creates a public procurement program that mandates at least 20% of

food sourced for schools and hospitals to come from certified agroecological farms. To support the supply chain, new organic marketplaces and cold storage facilities are developed in key regions, and consumer awareness campaigns are launched to highlight the environmental and health benefits of agroecological produce.

Key Implementers:

- *National Government (Ministry of Trade and Ministry of Agriculture): Establish a Participatory Guarantee System (PGS) for the certification of agroecological products. Develop public procurement programs that prioritize agroecological products for government institutions such as schools, hospitals, and military bases.*

- *Local Governments (Regional Market Authorities): Invest in and manage the development of organic marketplaces, cold storage facilities, and transportation infrastructure to support agroecological farmers. Facilitate the creation of local farmer cooperatives to strengthen market access and bargaining power.*

- *Farmer Cooperatives and Associations: Assist farmers in obtaining PGS certification for their agroecological products. Negotiate collective contracts for supplying agroecological products to public institutions through procurement programs.*

- *Non-GovernmentalOrganizations (NGOs): Provide training to farmers on how to meet certification standards and navigate new market opportunities. Partner with the government to run public awareness campaigns promoting agroecological products.*

Promote Capacity Building and Farmer Education on Agroecological Practices

Many farmers lack the knowledge and technical skills required to effectively adopt agroecological practices. Agroecological methods often require more specialized knowledge than conventional farming, and without adequate training, farmers are less likely to switch to these practices.

Recommended Actions

- Develop national training programs on agroecological practices, targeting smallholder farmers, cooperatives, and women's groups. These programs should focus on practical, hands-on training in techniques such as composting, agroforestry, and water conservation.
- Establish demonstration farms and farmer field schools where farmers can learn by doing, observing the benefits of agroecology firsthand.
- Provide ongoing support through extension services and farmer-to-farmer learning networks to ensure that farmers receive the technical support needed to transition to agroecological methods.
- Tailor education programs to the specific needs of different groups, such as women farmers, youth, and rural communities, ensuring inclusivity and addressing unique challenges.

Example:
The government of Burkina Faso, in collaboration with international donors, establishes a network of farmer field schools and demonstration farms across different agro-ecological zones. These field schools focus on practical training in composting, agroforestry, and water conservation, targeting smallholder farmers, women's groups, and cooperatives. A focus is placed on including marginalized groups like women and youth by tailoring the training to their specific needs. To ensure continued support, the Ministry of Agriculture strengthens its extension services, providing regular follow-up visits and creating farmer-to-farmer learning networks that allow experienced agroecological farmers to share their knowledge with others in their community.

Key Implementers:

- *National Government (Ministry of Agriculture): Develop and fund national training programs on agroecological practices, targeting smallholder farmers, cooperatives, and marginalized groups like women and youth. Establish a network of demonstration farms and farmer field schools to showcase agroecological practices.*

- *Local Governments (Regional Agricultural Extension Services): Provide ongoing technical support through extension services and ensure that farmer field schools are accessible to rural communities.*
- *Support farmer-to-farmer learning networks to enhance the spread of agroecological knowledge.*

- *Non-Governmental Organizations (NGOs): Partner with the government to develop inclusive education programs, ensuring they are tailored to the needs of women farmers and youth.*
- *Facilitate the creation of participatory learning platforms where farmers can share experiences and learn new practices.*

- *Farmer Cooperatives and Associations: Organize peer-to-peer knowledge-sharing sessions and field days to reinforce the adoption of agroecological methods. Help members access government-sponsored training programs and resources.*

Support Climate Adaptation Through Agroecological Practices

Burkina Faso is highly vulnerable to the impacts of climate change, and agroecological practices are particularly well-suited to address these challenges. Integrating agroecology into the country's climate adaptation strategies will help build long-term resilience against climate shocks.

Recommended Actions
- Integrate agroecology as a core component national climate adaptation strategies, highlighting its role in improving soil health and water retention.
- Invest in water conservation infrastructure (e.g. zai pits, rainwater harvesting systems, and contour farming), that improve water management in agroecological systems.
- Promote agroforestry and intercropping, which have been shown to improve biodiversity, reduce erosion, and create more resilient ecosystems.
- Encourage use of drought-tolerant and indigenous crop varieties, which are better suited to changing climate and can reduce the risk of crop failure during periods of drought.

Example:
The government integrates agroecology into its national climate adaptation strategy by promoting sustainable farming techniques that increase resilience to climate shocks. In regions particularly vulnerable to drought, such as the Sahelian zone, the government funds the construction of zai pits, rainwater harvesting systems, and contour farming to improve water retention and reduce soil erosion. Agroforestry projects are launched to encourage the planting of drought-tolerant indigenous tree species alongside staple crops. Extension officers provide technical support to farmers on intercropping and agroforestry techniques, while drought-resistant seed varieties are distributed through local cooperatives to reduce the risk of crop failure during dry seasons.
Key Implementers:

- *National Government (Ministry of Environment, Green Economy, and Climate Change): Integrate agroecological practices into national climate adaptation policies, emphasizing their role in improving soil health and water retention. Fund water conservation infrastructure projects such as zai pits and rainwater harvesting systems to complement agroecological practices.*

- *Local Governments (Regional Climate Adaptation Authorities): Implement agroecology-focused climate adaptation programs at the regional level, particularly in drought-prone areas. Distribute drought-resistant seed varieties and provide technical assistance on sustainable water management techniques.*

- *Non-Governmental Organizations (NGOs): Support smallholder farmers in adopting agroforestry, intercropping, and other climate-resilient practices. Collaborate with government agencies to run climate adaptation workshops, focusing on agroecological solutions tailored to the local context.*

- *Research Institutions (e.g., National Institute for Environment and Agricultural Research): Conduct research on droughttolerant and indigenous crop varieties, ensuring they are made accessible to smallholder farmers through local cooperatives. Develop climate-smart agroecological techniques that can be widely adopted in vulnerable regions.*

Conclusion

If these policy recommendations are adopted, Burkina Faso can expect to see improved soil health, increased agricultural productivity, and enhanced climate resilience. This will benefit farmers and their families by increasing their food security and income, as well as contribute to overall economic growth and development in the country. If not, continued soil degradation will lead to reduced agricultural productivity, threatening food security and increasing the country's vulnerability to climate change. Failure to address soil degradation now will only worsen the challenges faced by future generations.

With increasing soil degradation and the impacts of climate change, it is essential to adopt sustainable agroecological practices that restore soil health and enhance food security. Agroecology offers a proven solution, but its widespread adoption requires targeted policy changes, increased investment in organic inputs, and better market access for agroecological products. The time to act is now, and by prioritizing agroecology, Burkina Faso can secure a sustainable future for its agricultural sector.

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Footnotes

1. The Oakland Institute, Alliance for Food Sovereignty in Africa (AFSA). Soil and Water Conservation Techniques in Burkina Faso. https://afsafrica.org/wp-content/uploads/2019/04/soil_water_conservation_burkina_faso.pdf