



About Burkina Faso

Located in the Sahel, the vast semi-arid region separating the Sahara Desert from the tropical savannas to the south, Burkina Faso is one of the world's poorer countries, currently ranked 184 out of 191 on the United Nations Human Development Index.

The Sahelian state faces myriad obstacles to achieving the United Nations Sustainable Development Goals (SDGs), including SDG 13 targeting urgent action to combat climate change and its impacts.

Rainfall in Burkina Faso is increasingly variable. Its tropical air temperatures continue to soar. And the country's economy suffers from high unemployment: 57 percent of the population aged over 15 is out of work, according to the African Development Bank.

"Sensitivity to climate change arises from dependence on natural resources and a lack of economic alternatives," says Jules Bayala, CIFOR-ICRAF country director in Burkina Faso.

He cites poor governance as well as insecurity and discontent arising from limited economic prospects as factors exacerbating social vulnerability to climate change.

The landlocked nation of almost 24 million people also faces fast-growing internal displacement, with hundreds of schools and health centres having closed.

"Rural youth struggle to make a living, leading some to migrate or join armed groups. Meanwhile, farmers and pastoralists clash," he says. "Policies have neglected the links between climate change, land degradation, and conflict."

But that is only part of the story. Burkina Faso has vast agroforestry parklands, where scattered multipurpose trees – such as baobab (*Adansonia digitata*), locust bean or *nééré* (*Parkia biglobosa*), shea or *karité* (*Vitellaria paradoxa*), and the leguminous woody species *Faidherbia albida* – occur due to farmer selection and protection, growing in synergy with nitrogen-fixing legumes and staples such as millet and sorghum.



With their edible leaves prized as vegetables, these Baobab trees have been heavily pruned. *Adansonia digitata* trees can also be pruned when their pods, with their nutritious pulp, cannot be reached with village tools. Baobab grows well with food crops. Photo by Ollivier Girard/CIFOR-ICRAF

Broader causes for optimism include Burkina Faso's abundant solar energy; vast stretches of soil that has yet to attain its maximum possible yield; large areas of land that is ripe for restoration; immense groundwater reservoirs, from which less than 1% has been extracted; and a young population that constitutes a genuine asset if given the opportunity.

CIFOR-ICRAF's programmes in Burkina Faso are scoring successes. For example, field genebanks make it possible to conserve important tree species, making them available to present-day and future generations.

“CIFOR-ICRAF is proud to be building the prosperity and resilience of this country, the name of which means 'land of upright people'.”

– Éliane Ubalijoro
CEO CIFOR-ICRAF

CIFOR-ICRAF in Burkina Faso

CIFOR-ICRAF Sahel – led from Burkina Faso's capital city, Ouagadougou – is a new geography arising from the merger of the former CIFOR Burkina Faso and ICRAF Mali. But CIFOR-ICRAF Burkina Faso has its own storied history.

ICRAF opened its doors in Burkina Faso in 1989, CIFOR in 2003. The focus has been on forest management, community forests, agroforestry parkland typology, forest and tree-based small enterprises, domestication of tree species, as well as soil and land health. Teams also scrutinized links between food trees, forests and smallholder diets, migration and forests, and the impacts of trade and investment on shea parklands and local actors.

With a total of 54 years, therefore, CIFOR-ICRAF is well established in Burkina Faso. It has contributed to the national system by developing capacity among local partners through projects and joint research. Its training of trainers has benefited extensionists.

But now is a time of change.

“Originally, Burkina Faso’s forests were managed according to the scientific forestry that was exported to the tropics, and agroforestry was at plot level with descriptive stock taking and a focus on non-timber forest products (NTFPs), live fences, and fodder and food banks,” explains Bayala.

“Important though these remain, our thinking has evolved beyond these beginnings to include climate change, landscape planning, and approaches that can restore degraded lands, such as Farmer-Managed Natural Regeneration,” adds the country director, who is also a principal scientist and the CIFOR-ICRAF regional convenor for the Sahel.

Among other undertakings, CIFOR-ICRAF is supporting Burkina Faso’s engagement in the Great Green Wall Initiative. The largest restoration project in the world, 8000 km long across 22 African nations, the GGWI aims to restore land, capture carbon and create many millions of jobs.

“ In addressing Burkina Faso’s future, few organizations are as relevant as CIFOR-ICRAF. Our ultimate goal is to achieve healthier and more resilient land and landscapes that contribute to better livelihoods. ”

– Jules Bayala

principal scientist as well as CIFOR-ICRAF regional convenor for the Sahel

Results on the ground

- Seedbanks supported
- More than 10 PhDs and 25 MSc degrees defended in past decade
- 12 nurseries established
- 500,000 ha of land received intervention
- 1 million-plus people reached
- More than 1.5 million trees planted, directly seeded, or regenerated

Major achievements

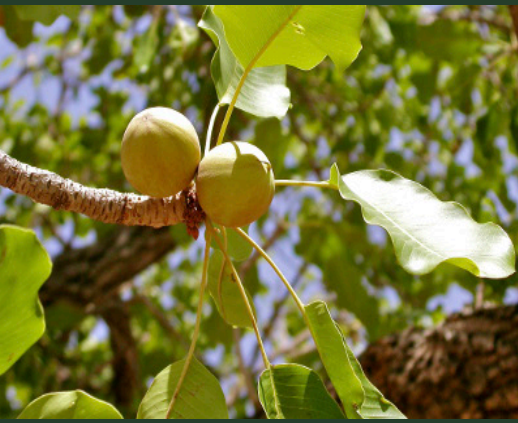
- Documented the high monetary contribution of dry forest NTFPs. Gum producers trained by CIFOR-ICRAF demarcated *Acacia senegal* stands, improved quantity and quality of gum collected, and heightened collective bargaining. Contributed to repositioning NTFPs and dry forests and made recommendations for Burkina Faso’s national strategy on NTFPs.
- Gained insights into gender, e.g. while often presented as homogeneous, women are socially differentiated. Women’s rights to the pods of *Parkia biglobosa* (nééré), which produce prized condiment *soumbala*, vary by residence, ethnicity, and seniority. <https://www.cifor-icraf.org/knowledge/publication/7661/>
- Addressed the common fear that trees reduce water availability, by showing that intermediate densities of 10–15 trees/ha in Burkina Faso maximize groundwater recharge: Rainwater falling near any tree is more likely to percolate to the subsoil than rain falling further away. Trees improve soil infiltration through

roots and litter input, promoting the activity of soil fauna. <https://drive.google.com/file/d/1jnjC6q2WHkCEABNaA9nVgV7PugsK4uN4/view>

- Showed that tree roots extend well beyond the edge of tree canopies, and that trees increase macroporosity of the soil through root and faunal channels. Without macropores, a large portion of rainwater, especially in extreme rainfall events, likely will not infiltrate soil but will rather flood or return to the atmosphere as evaporation. <https://doi.org/10.1002/ldr.3430>
- Demonstrated that the shea tree (*Vitellaria paradoxa*) is not homogeneous. In work among the Bobo, Sambla, Mosse and FulBe, participants identified 25 shea ethno-varieties with 11 primary fruit and nut variants. This highlighted the value of gender-sensitive participatory research for understanding local botanical knowledge and preferences. <https://www.tandfonline.com/doi/full/10.1080/14728028.2016.1236708>
- Co-hosted a National Shea Forum with the Ministry of Environment, Green Economy and Climate Change in 2021. Attended by over 175 people, it resulted in a 10-point action plan prioritizing the restoration of shea parklands, shea tree domestication and genetic development, and introduction of certification. It was followed by multiple restoration initiatives across the region by the GGW project, Global Shea Alliance, Tree Aid, EcoRestore and others.

L-R: Rural people gather under a *Parkia biglobosa*. Also called *Néré* or the African locust bean tree, it produces large quantities of pods with sweet pulp and protein-rich seeds. The latter are ground and fermented into a flavouring. Its leaves serve as fodder. Photos by Ollivier Girard/CIFOR-ICRAF





L-R: Shea butter or beurre de karité is made from the kernel of the fruit of *Vitellaria paradoxa*. The tree can be seen here growing in a parkland system in Burkina Faso. Women dominate the long chain of collecting and depulping the fruit, then processing the kernel to extract and render the oil into butter. Photos by Ollivier Girard/CIFOR-ICRAF

Quick guide

- Six staff, five with PhDs, the sixth with three master's degrees
- Over 40 key partners, including two national research institutes, three national universities, four Scandinavian universities, over a dozen NGOs, and 20 donors

Select projects

Funded by the French Facility for Global Environment, **Adaptation to Climate Change and Forests in West Africa (ACFAO)** (2011–2017) supported ecosystem-based adaptation so that groups might improve their livelihoods thanks to ecosystem goods and services from forests. The project examined the small (3 ha) fenced homestead forests created by farmers under a model led by Burkinabe NGO Tiipaalg. The trees that grow up within the enclosure were found to buffer families from the erratic and changing climate. One was found to hold 68 adult shea (*Vitellaria paradoxa*) trees as well as African locust bean (*Parkia biglobosa*), tamarind (*Tamarindus indica*), jujube (*Ziziphus mauritiana*), wild raisin (*Lannea microcarpa*), wild bauhinia (*Piliostigma thonningii*), *Acacia macrostachya* and vine *Saba senegalensis*.

“ Fencing was not the only thing. The fact that people who had experienced forest loss were pro-actively engaging in restoration was incredibly important. ”

– Houria Djoudi
Senior scientist CIFOR-ICRAF

Funded by the Finnish government, **Building Biocarbon and Rural Development in West Africa** (2012–2017)

demonstrated the multiple developmental and environmental wins of a high-value biocarbon approach to climate change and variability. In Burkina Faso, it benefitted 100,000 ha of land; 730 individuals were trained; and 300,000 seedlings were planted in addition to direct seeding. Farmers expressed their willingness to pay for tree seeds and seedlings, but more is needed for widespread adoption of agroforestry, such as larger markets for its products.

Funded by the Netherlands Ministry of Foreign Affairs, **the Drylands Development (DryDev) Programme** (2015–2019) envisioned households transitioning from subsistence farming and emergency aid to sustainable rural development. Improved agricultural practices were implemented on 87,257 ha of land, and 45,841 farmers (including 24,560 women) were trained on climate-smart farming. Many households moved from two to three meals a day.

Funded by IFAD, **the West Africa Forest-Farm Interface Project (WAFFI): Enhancing smallholder food security, incomes and gender equity within West Africa's forest-farm interface project** (2016–2019) found that “the forest-farm interface is not a discrete line separating farms and forests but a shifting geographic and temporal mosaic.” Achievements included the systematic co-production of scientific and local knowledge.

Funded by Global Affairs Canada (GAC), **Résilience des Écosystèmes et Leadership des Femmes au Sahel (RÉELS)** (2023–2028) is led by Canadian NGO CECI and based on the hypothesis that, by strengthening women's power to act and lead, solutions to the climate crisis are more likely to be taken up. The project

fosters greater social cohesion around the sustainable and equitable use of ecosystem services and aims to increase adaptation to climate change by communities.

Funded by SIDA through the Swedish Embassy in Burkina Faso, **Realization of the reference situation and identification of biodiversity actions in the area of intervention of ProValAB 2 (EBioDIV)** (2023–2024) is a proof-of-concept study around two dams in Burkina Faso's central plateau. It is exploring herbaceous and woody vegetation and, with national research institutes, establishing baselines for insect, mammalian, avian, reptilian, and fish biodiversity by using classic qualitative and quantitative inventory methods.

Funded by IDRC and CGIAR Research Programme FTA, **Globalizations in a nutshell – Opportunities and risks for women shea producers in West African shea parklands** (2019–2021) researched drivers of change in the shea parklands as well as changes in the governance of shea supply chains in West Africa over centuries and in Burkina Faso 1894–2021. It also examined opportunities for rural women shea producers within the value chain. The project provided science-based evidence for government agencies, shea producer associations and transnational corporations to support policy and governance reforms. Leading threats to shea trees were found to be felling, fires set by hunters, deflowering by wind, pests and diseases, early collection of fruit, grazing animals, and herbicide use. Solutions included sensitization of hunters and children, wind breaks, and protection of wildlings. https://www.cifor-icraf.org/publications/pdf_files/Reports/8209-Sapouy-Report.pdf



L-R: Researchers with *Ximeni americana*, a highly nutritious indigenous non-timber forest product in a community-managed forest; a member of a women's group waters seedlings at a Rural Resource Center supported by CIFOR-ICRAF; and a *Faidherbia albida* parkland. Photos by Susan Onyango, Ibrahim Toure and Ollivier Girard/CIFOR-ICRAF

Resources

Trees as brokers in social networks: Cascades of rights and benefits from a Cultural Keystone Species ascertained that tree tenure is as diversified, fine-tuned and multi-actor as land tenure and suggested the need for better social disaggregation beyond simplified generalizations of "local community," "farmer/herder," or "women/men." https://www.cifor-icraf.org/publications/pdf_files/articles/ADJoudi2201.pdf

Landscape diversity and associated coping strategies during food shortage periods: Evidence from the Sudano-Sahelian region of Burkina Faso demonstrated that, faced with climate change, households depend on the resources in their landscape. For those in a savanna area, fuelwood is traded for cereals. For those in parkland, shea nuts are the safety net. Policies that reinforce the rights of the most vulnerable to such resources,

and programmes that assure their sustainable use, will bolster food security and adaptive capacity. https://www.cifor-icraf.org/publications/pdf_files/articles/ADJoudi1701.pdf

Land tenure, asset heterogeneity and deforestation in Southern Burkina Faso showed that low farm productivity and uncertain land tenure were the most significant drivers of forest loss. Migrants contributed more to deforestation than Indigenous groups. <https://www.sciencedirect.com/science/article/abs/pii/S1389934115300368?via%3Dihub>

Regenerated trees in farmers' fields increase soil carbon across the Sahel, a study of 300 fields in Burkina Faso and three other West African states, found that soil fertility, as indicated by soil total carbon, is higher under trees. Farmers were found to maintain low tree densities

where soils are comparatively fertile and allow regeneration in less fertile soils. <https://www.cifor-icraf.org/knowledge/publication/16765/>

Shea (Vitellaria paradoxa C.F. Gaertn.) – the emergence of global production networks in Burkina Faso, 1960–2021 explains that Shea is a food tree for African consumers but has been promoted as an abundant wild tree which gives African women cash and empowerment. It observes that the growth of global trade in shea kernels and butter has been accompanied by changes to land cover and use that have led to loss of trees, biodiversity, and ecosystem services such as pollination and carbon sequestration, presenting new socio-economic challenges, such as threats to local food and nutrition security, tenure rights and the livelihoods of local communities. <https://www.cifor-icraf.org/knowledge/publication/8403/>

Ambition Of CIFOR-ICRAF in Burkina Faso

In Burkina Faso, CIFOR-ICRAF's ambition is to move from planting trees to growing and managing trees according to best practices, while ensuring genetic quality by enabling actors to produce quality seeds and planting materials. It also aims to shift the restoration agenda to take account of the complexity and value of indigenous species, and to be even more participatory than it currently is.

In parkland systems, CIFOR-ICRAF believes the most effective approach

is farmer-led preservation and restoration, complemented by enrichment tree planting on small fields that can be nurtured, leveraged, and further scaled up.

CIFOR-ICRAF's immediate goal is to expand its team and revenue so it can generate knowledge of global importance and local relevance; strengthen national strategies; partner with the national research system; and engage in country initiatives and international commitments such as the NDCs and AFR100.

It looks forward to playing its role in making the Sahel-

“ a region of peace, with strong institutions based on worthy cultural values, a sustainable environment, and managed population dynamics that generate transformed economies for Sahelian prosperity. ”

– UN Economic Commission for Africa, 2019

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CIFOR-ICRAF

The Center for International Forestry Research and World Agroforestry (CIFOR-ICRAF) harnesses the power of trees, forests and agroforestry landscapes to address the most pressing global challenges of our time – biodiversity loss, climate change, food security, livelihoods and inequity. CIFOR and ICRAF are CGIAR Research Centers.

Center for International Forestry Research (CIFOR)

Jalan CIFOR, Situ Gede, Bogor Barat
Bogor, 16115, Indonesia
Email: cifor@cifor-icraf.org

World Agroforestry (ICRAF)

United Nations Avenue, Gigiri
PO Box 30677, Nairobi, 00100, Kenya
Email: worldagroforestry@cifor-icraf.org

CIFOR-ICRAF Burkina Faso and Sahel office

06 BP 9478 Ouagadougou 06, Burkina Faso
Tel +226 25 33 33 10
Mobile + 226 67 86 70 64

