

CIFOR-ICRAF COUNTRY PROFILE

Benin

2025

About Benin

Located on the Gulf of Guinea, the Republic of Benin is a long and narrow rectangular country with a land area of 114,763 km². Other important facts about the West African state include its population of 14,736,946 (growing at 3.5% a year); its labour force, 85% of which is engaged in the informal economy (World Bank 2025); and its exposure to violence by non-state armed groups from the Central Sahel in its northernmost departments. (FAO/GIEWS 2025)

But Benin is far from a country of deficits. One of Africa's most stable nations, it has not experienced war since independence from France in 1960. Its biggest city and economic capital, Cotonou, hosts a large port and is a lifeline for goods travelling to and from landlocked Niger, Burkina Faso, Mali and Chad. Its north and centre have a low population density of 12–33 inhabitants per km², providing ample arable land.

Known until 1975 as Dahomey, after the kingdom, Benin is also Africa's largest exporter of cotton. And, as if that were not enough, it has begun processing cotton to export apparel to Europe, Asia, Africa and the United States. "We have decided that we are no longer going to sell this cotton raw. We are going to transform (it)," the managing

director of the Glo-Djigbe industrial zone, about 45 km from Cotonou, told Reuters in 2022.

“The country is really making progress. It deserves support. Agroforestry has a great future there.”

*- Peter Minang,
Africa Director, CIFOR-ICRAF*

However, Benin's plans need careful stewardship. Its agriculture relies heavily on natural capital and employs unsustainable practices. Shifting cultivation and the excessive use of chemical inputs contribute to soil and land degradation. And climate change is bearing down.

Despite contributing only 0.05% of global emissions, "Benin is one of the most vulnerable countries to climate change," the World Bank says. "By 2070, under a 2.7°C global warming scenario, 98% of Benin's territory is expected to be exposed to extreme temperatures."

Drought, floods, late rains, wind and rising sea levels are already manifesting. "The past three decades have seen a fall in agricultural yields, disruption of agricultural calendars, and falling water levels in dams for drinking water supply", says Climate Watch (2025).

CIFOR-ICRAF in Benin

CIFOR-ICRAF is concerned but undaunted about the tasks ahead on Benin's road to sustainable development. The challenges are precisely why CIFOR-ICRAF signed a Host Country Agreement with the West African state in 2017.

In Benin, CIFOR-ICRAF feels at home. Its raison d'être is working with smallholders (the average farm size in Benin is 2 ha) and with trees, tree crops and forests, all of which figure strongly in Benin's savanna systems and southern, transitional, and northern climatic zones.

Benin is Africa's third-largest exporter of cashews and sixth-largest exporter of shea nuts. Additionally, it exports palm oil regionally and coconuts to France.

Benin has "fairly meagre forest resources that are subject to strong human pressures, intensive logging and the growing urbanization of coastal areas," say Beninese scholars Aikpon et al. (2024). But it also exports wood products, including timber and charcoal, according to the United Nations Comtrade database. Global Forest Watch states that from 2001 to 2023, Benin lost 28% of its tree cover.



An agroforestry system in Benin showing the association of trees and crops in Benin's Atakora region. Left: A map of Benin's ecological regions (Zinsou et al.).

CIFOR-ICRAF country representative Djala Arinloye says: “Agricultural calendars are increasingly disrupted due to climate variability. The degradation of species-rich agricultural and forest landscapes needs to be halted, and deforestation rates need to drop.” Big transformations are needed.

Arinloye has a doctorate in management studies and business administration from the Netherlands’ Wageningen University and “is very passionate about transformative change among communities in Africa,” states the CIFOR-ICRAF website.

The Benin country representative says: “The rainy season now begins either too early or too late, dry spells occur even during the rainy season, temperatures have risen significantly, rainfall is poorly distributed, and extreme weather events are causing serious damage to cereal crops.”

“In light of the impact of these changes on production, reduced purchasing power for rural households, and erosion of livelihoods, agroforestry is crucial.”

- Djala Arinloye, country representative, CIFOR-ICRAF Benin

Agroforestry builds on local knowledge and traditional practices, enhances soil cover and fertility, boosts crops, mitigates impacts of extreme biophysical phenomena, can provide sustainable non-timber forest products, and helps harness livestock systems to support agriculture.

In Benin, around one fifth of farmers follow practices such as parkland agroforestry; traditional oil palm systems; fallows with species such as *Parkia biglobosa*, *Vitellaria paradoxa* and *Daniellia oliveri*; and home gardens with trees such as mango.

Results on the ground

- Generated a baseline for soil and land health in Djidja in south-western Benin and Gogounou in the north, producing moderate- to high-resolution maps of soil organic carbon, soil erosion prevalence, and soil pH that were shared with stakeholders.
- Trained 15 national stakeholders in soil management using the Land Degradation Surveillance Framework (LDSF), disseminated LDSF widely, and applied mid-infrared spectroscopy to soil samples.
- Surveyed 255 agricultural households from five villages in Djidja, finding agricultural production disrupted by climate change and low soil fertility, and an average dietary diversity score of 6.
- Filled identified gaps by building a weather forecast platform and training farmers on meteorology, including the use of rain gauges and decision making based on the seasonal calendar.
- Established a Rural Resource Centre to provide agroforestry training and disseminate best practices.
- Examined the contribution of baobab and moringa-based food systems to dietary diversity and household nutrition security.
- Researched the extent to which forestry and agroforestry are integrated in the

National Adaptation Plan and provided best practices and improvement options.

- Trained 24 staff from Météo Benin, the country’s meteorological service, on working with farmers.

“Trainees noted that farmers have their own indigenous parameters for predicting climate and weather and often express the belief that they can provoke or prevent rain.”

- Project Report

Major achievements

- Collaborated fruitfully with Benin’s national agricultural research system, and with the National University of Agriculture, international organizations, and local and international NGOs.
- Restored more than 1,300 ha of land for forestry and agricultural use and implemented climate-smart agriculture on more than 4,000 ha, leading to a 22% increase in soybean yields for 22,000 households.
- Ascertained the capacity of seven community forest management committees; generated seven forest management plans integrating Ecosystem-based Adaptation (EbA); developed adaptation protocols for sustainable forest management; and trained 40 local nursery operators and forest co-managers.

L to R: Cattle seeking tree shade; deforestation in the Atakora mountains; with trees including baobab adjacent, a traditional Otamari dwelling in Atakora, Benin’s northwesternmost department; women sell milk, an important source of nutrition and livelihood; a dust cloud emanating from land losing its tree cover.





L to R: *Nuclea latifolia*, a termite-resistant medicinal deciduous savanna shrub/small tree with red sweet fruit; training in the Landscape Degradation Surveillance Framework and certificates awarded; a patch of forest retained by the community for its medicinal and cultural value; a nursery of shea seedlings that have been grafted to shorten the time to fruiting.

Select projects

Funded by the German development agency GIZ, Germany's Federal Ministry for Economic Cooperation and Development (BMZ) and the European Union, the *ProSoil* (2015–2025) and *ProSilience* (2021–2024) projects have focused on stakeholder empowerment as well as sustainable and climate-resilient agricultural practices. In 2024, CIFOR-ICRAF assessed *ProSoil/ProSilience's* role in farmers' agroecological transitions by applying FAO's Tool for Agroecology Performance Evaluation. In Za-Kpota, Bantè, Sinendé and Kandi municipalities, CIFOR-ICRAF compared 120 households that had actively participated with 120 that had not, and found that "*ProSoil* had made a holistic contribution." *ProSoil* households had a higher score for all 10 elements of agroecology than the comparison households. The most pronounced difference was for "co-creation" and "sharing of knowledge." https://www.cifor-icraf.org/publications/pdf_files/WPapers/TPP-WP-10.pdf

Funded by the Green Climate Fund, the *Ecosystem-based Adaptation (EbA) Project in Benin (PABE)* (2022–2025) is improving climate resilience of rural communities in the communes of Dassa, Tchaourou, Djougou, Ouaké, Coby, Boukoubé and Banikoara. CIFOR-ICRAF's roles include training communities, managing findings, and infusing EbA through project activities. The project has significantly contributed to strengthening the technical and institutional capacities of the government and communities. <https://www.greenclimate.fund/project/sap005>

Funded by UNOPS' Readiness and Preparatory Support Programme, *Strengthening access to climate finance and integration of climate change into local development planning in Benin* (2025–2026) supports Benin to deepen its partnership with the Green Climate Fund. To this end, CIFOR-ICRAF is developing a digital climate information system, building capacity of local government to plan for climate change, and assisting mayors to domesticate Benin's Nationally Determined Contributions. Weak engagement of the private sector has been identified as a gap. <https://shorturl.at/A6cST>

Funded by the Science for Africa Foundation, *Innovative climate-smart agricultural practices and knowledge scaling-up in vulnerable regions of Benin (INNOCSAB)* (2024–2026) deploys CIFOR-ICRAF's most tested methodologies – LDSF and SHARED (Stakeholder Approach to Risk-informed and Evidence-based Decision-making) – in Zou administrative division in central Benin. It is also building smallholder capacity in climate-smart farming, boosting household nutrition and incomes with crop-tree-livestock systems, and assessing the extent to which forestry and agroforestry figure in Benin's National Adaptation Plan. "INNOCSAB has begun well," says Arinloye. <https://www.cifor-icraf.org/project/093fd5fd09c64b3185bb08dc1d9d586d/>

Funded by the Royal Embassy of the Netherlands and implemented by the Netherlands development organization SNV, *Youth employment for the improvement of food security in northern Benin (EJASA)* (2023–2025) aims to

improve social stability by providing meaningful employment for about 12,000 young people. Tasked with studying options to engage youth, CIFOR-ICRAF concluded that while prospects in northern Benin are limited, the right support can help its youth to transform agriculture. It warned, however, that a perceived lack of prospects can lead to an exodus from rural areas and create fertile ground for extremism. It proposed that EJASA tackle underlying issues with additional stakeholders.

<https://www.cifor-icraf.org/project/ea86585ccaa64548446008db55d52801/>

Funded by the EU, *Knowledge for Great Green Wall action (K4GGWA)* (2023–2027) is led by CIFOR-ICRAF and seeks to enable sustainable land management and livelihoods in support of the Great Green Wall. Focused on the 11 countries of the Pan-African Agency of the GGW, it supports Benin where possible.

<https://www.cifor-icraf.org/project/4681850e934c4ee0228408dbbd772bde/>

Funded by the EU, the *West Africa Centre of Excellence for Biodiversity and Ecosystems (CEBio-Eco/AO)* (2024–2028) is located at the University Félix Houphouët-Boigny in Côte d'Ivoire. The Convention on Biological Diversity website notes that Benin adopted its first National Biodiversity Strategy and Action Plan (NBSAP) in 2002 with the aim of modernizing agriculture in an ecologically sustainable manner while valuing biodiversity and genetic resources, with consideration given to the fair and equitable sharing of benefits. <https://www.cbd.int/countries/profile?country=bj>



L to R: The mound of a termite, a much reviled insect in many countries but one that makes soil richer in carbon, more porous and better able to hold water; soil erosion and gully creation; a stonewall bund to hold soil back; training in pruning of young trees and capacity building in nursery techniques and management.

Resources

Moving towards a comprehensive evaluation of ecosystem-based disaster risk reduction: The example of agroforestry for flood risk reduction (2024). Uptake of agroforestry in the basin of the Ouémé, a major river in Benin, has the potential to reduce floods in its lower ranges, where they devastate lives, homes, cropland, livestock, schools, roads, health centres, and powerlines.
<https://doi.org/10.1016/j.nbsj.2023.100104>

Enhanced climate resilience of rural communities in central and northern Benin through the implementation of ecosystem-based adaptation (EbA) (2023) gives insights into issues ranging from access to credit to tree planting. It found that at least 57% of respondents had planted at least one tree in the past year, and 6.7% had planted more than 100.
<https://www.cifor-icraf.org/knowledge/publication/34457/>

Improving the Nationally Determined Contribution (NDC) of the Republic of Benin: Challenges, needs for support, and opportunities for future engagements (2023). CIFOR-ICRAF notes that 58.09% of Benin's greenhouse gas emissions in 2018 were from energy, 28.51% from agriculture, 5.38% from waste, and 1.22% from industry. It advises that Benin "integrate soil organic carbon into its NDCs for multiple positive impacts". <https://www.cifor-icraf.org/publications/downloads/Publications/PDFS/PB23011.pdf>

Wood anatomy and vessel characteristics of spiny monkey orange in Benin (2022). A drought-resistant wild edible fruit tree in Africa's savanna forests, open woodland and riverine fringes, the wood of *Strychnos spinosa* is used for cooking, charcoal, carving, furniture, tool handles, fighting sticks, and hut poles. Needed for rural daily life, it is a good candidate for agroforestry. This study evaluated its adaptability to

changing climatic conditions and potential for domestication.

<https://doi.org/10.1016/j.dendro.2022.125941>

*Morphotype classification criteria and influence of sociocultural factors on perceived shea tree (*Vitellaria paradoxa* C.F. Gaertn) natural variation across parklands in Benin* (2021). Wild fruit trees are key sources of income and nutrition. Despite this, in Benin, shea densities are declining, and populations are ageing, due to forest clearing; loss of fallowing required for natural regeneration; agricultural expansion; mechanization for commercial crops; tree removal; firewood collection; and charcoal production. In a step towards improvement for higher fruit and butter production, this study surveyed 405 farmers, finding five criteria that they use to distinguish shea trees: fruit size (55.5%), tree fertility (15.40%), bark colour (10.51%), timing of production (5.38%), and pulp taste (3.42%).

<https://doi.org/10.3390/plants11030299>

Ambition of CIFOR-ICRAF in Benin

CIFOR-ICRAF Benin aims to address the deteriorating climatic and socioeconomic context through evidence-based solutions promoting new business models for forest and tree-crop value chains that benefit rural livelihoods while minimizing environmental impacts.

It also seeks to be a strategic partner for the Government in climate change adaptation, reducing social vulnerability and helping Benin fulfil its climate commitments.

“The adoption of sustainable practices has become imperative.”

- Djatal Arinloye,
country representative, Benin

Soil is the basis of agriculture and a key determinant of ecosystem productivity: Our ambition is to contribute to a more detailed characterization of soils and to collaborate on soil health.

Finally, our ambition is to promote climate-smart agriculture and agroforestry by establishing demonstration centres for communities and enhancing the value of non-timber forest products.

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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 inequality. CIFOR and ICRAF are CGIAR Research Centers.

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