



Participatory Conservation and Peacebuilding in Dry Forest as Production Landscape

Nature-based Solutions for Local and Global Benefits in Colombia

PROJECT FULL NAME	COUNTRY & REGION	IMPLEMENTING AGENCY	EXECUTING AGENCIES
Conservation and sustainable use of biodiversity in dry ecosystems to guarantee the flow of ecosystem services and to mitigate the processes of deforestation and desertification	Colombia 	United Nations Development Programme (UNDP)	Ministry of Environment and Sustainable Development (MADS); Autonomous Regional Corporation of the Upper Magdalena (CAM); Regional Autonomous Corporation of the Canal del Dique (CARDIQUE); Regional Autonomous Corporation of Cesar (CORPOCESAR); Regional Autonomous Corporation of La Guajira (CORPOGUAJIRA), Regional Autonomous Corporation of Tolima (CORTOLIMA); and Regional Autonomous Corporation of the Valle del Cauca (CVC)
	FOCAL AREAS	IMPACT AREAS	
	▪ Multi Focal Area	<ul style="list-style-type: none"> ▪ Land degradation ▪ Biodiversity ▪ Sustainable Forest Management 	
	GEF Project Financing \$ 8,787,819	Co-financing Total \$ 26,934,999	
GEF PROJECT ID: 4772			
PROJECT TYPE: FSP			
GEF PERIOD: GEF-5			

Summary

The dry forest ecosystem is a high conservation priority in Colombia. This project seeks to promote the sustainable use and conservation of biodiversity in dry forests to ensure the flow of ecosystem services and to mitigate deforestation and desertification in the Caribbean region and the Inter-Andean Valley of the Magdalena River (VIRM) in Colombia. The project contributed to the flow of multiple global and local ecosystem services, including carbon storage, food production, water supply, fodder supply, and biodiversity habitat. The project also established protected areas, implemented Reduced Emissions from Deforestation and Forest Degradation (REDD+) pilot projects, and promoted sustainable land management. At the same time, the project built trust with local communities, promoted participatory conservation in the tropical dry forest as a production landscape and ensured benefits for local communities from dry forest

ecosystem services, including reviving traditional agricultural products.

As a result, the project fostered strong ownership by local communities and contributed to peacebuilding in the post-conflict areas, since maintaining the good environmental condition of the dry forest and its ecosystem services provide for local livelihoods and food security, which were the basis for agreement between the government and local communities. Based on institutional capacity building of local governments and other organizations, the project contributed to develop a nationwide project to conserve dry forest in Colombia. Key lessons learned from this project are: importance of good marketing strategy to link small producers to entrepreneurs for valuing biodiversity, adaptive management to incorporate peacebuilding and socio-economic intervention, and participatory biodiversity monitoring that turned local communities into strategic partners.

Results, Global Environmental Benefits and Other Benefits

The project's key results are:

- 15 protected areas with conservation agreements have been signed (exceeded the target indicator of 12 agreements): Dry Forest Conservation (1); Complementary Strategies for Dry Forest Conservation (2); dry forest conservation through Natural Reserves of the Civil Society (12), such as conservation corridors, regional protected areas, and buffer areas. 31,973 hectares of the dry forest and other dry ecosystems (exceeded the target indicator of 18,000 hectares) have been identified, delimited, and characterized as conservation areas.
- 3,176.6 hectares (exceeded the target indicator of 1,000 hectares) of dry forests are in restoration processes: 1,547.6 hectares were restored and maintained using landscape management tools; 1,629 hectares owned by families interested in increasing conservation areas are under restoration.
- 4,247,588 tCO₂ (exceeded the target indicator of 2,838,588 tCO₂) were not released as a global benefit at the end of the project due to the regeneration of 4,229 hectares of dry forest.
- 703 professionals and specialists of the national environmental institutions were trained in biodiversity conservation, sustainable forest management, and sustainable soil management. Of those, 170 officials received training to strengthen their capacities on environmental land use planning, integrated water resource management, comprehensive risk management, and adaptation to climate change.
- Capacity of 495 families (exceeded target indicator of 400 families) for sustainable use

Figure 1. Plant nursery practices led by women for the restoration of the dry forest. @ PNUD Colombia



and conservation of dry forest have been strengthened. 205 families in the Caribbean region and 290 families in the Andean region established fruit gardens, organic cocoa productions, and home gardens to recover native seeds, contributing to food security; installed eco-efficient stoves to reduce wood consumption; were trained to prevent forest fires; and are now developing further actions for the sustainable use and conservation of dry forests.

- Ten biodiversity value chains and environmentally sustainable production initiatives (exceeded target indicator of eight) have been strengthened; seven of them are in the Caribbean region (Bolívar and La Guajira) and the other three are in the Andean region (Huila and Tolima), including nature tourism and production of native beans, yams, and vegetables.

Environmental Challenge

Dry forests, currently one of the most threatened ecosystems in the Neotropics, have long been centers of human population and are subject to intense transformation due to their fertile soils. Tropical dry forests show high levels of deforestation, with direct consequences of habitat loss and degradation, illegal logging of native species with a high market value, unplanned burns, and forest fires. These highly sensitive ecosystems are also affected by climate change. The main cause of these threats is the expansion of agriculture and extensive livestock farming, and industrial and urban areas. Moreover, dry forest areas are in demand for oil exploration, mining, and building infrastructure, including roads and dams.

Deforestation has multiple social and economic impacts. However, the impact is more immediate at a local level, particularly in communities that depend on the dry forest for their subsistence and economic activities. Deforestation leads to the loss of food options (hunting, fruit gathering), energy sources, building materials, and fodder for domestic animals, and alters ecosystem services such as water storage and regulation, erosion prevention, soil fertility maintenance, climate regulation (including shade and

humidity for people and animals), and rainy season flood and landslide control, among others. According to the Red Papers of Colombia (2002), 16 percent of the country's threatened species are found in the tropical dry forest, which plays an important role as a wildlife corridor and place for feeding and rest, because most wildlife migrates to wetlands or riparian forests in times of drought.

Integrated Approach and Key Features

Dry forest restoration through landscape management is aimed at recovering the forest and its adjacent areas, as well as promoting the involvement of the community to improve the sustainability of the conservation actions. At the same time, conservation of production landscapes also supports the conservation of biodiversity and secures socio-economic benefits from the dry forests through an agroforestry system approach that promotes connectivity of agroforestry products and conservation/restoration of these ecosystems.

Building trust for participatory conservation in dry forest as production landscapes

Strong community engagement is one of the most important features of this tropical dry forest conservation project. The project showed high levels of sensitivity to connect with beneficiaries, generate trusting relationships and support capacity building and empowerment of local communities. With participation of 495 families living nearby and benefiting from ecosystem services provided by the critical dry forest, the project promoted conservation of dry forest to maintain the flow of global and local dry forest ecosystem services of such as carbon storage, food production, water supply, supply of fodder for livestock, provision of biodiversity habitat and ecotourism. Exploring sustainable livelihoods in the dry forests, local communities are actively engaged in conservation of tropical dry forest as production landscapes. For example, community members work as forest rangers (and children participate as little forest rangers), serve as community guardians for forest fire prevention, and promote nature tourism, hiking,

handicrafts, environmentally sustainable production, and home gardens.

For local livelihoods, out of 495 families that participated in capacity building for dry forest conservation, 60 established fruit gardens, 30 established native cocoa processing and production arrangements, and 150 families established home gardens to recover native seeds as a contribution to food security. In addition, 35 families led by women formed an association to develop community tourism (bird tourism, hiking, environmental interpretation, nursery practices, and traditional cuisine). Women-led groups also organized a group of craftswomen, produced and sold organic products and seeds from the dry forest, and strengthened the organic community garden. In order to reduce wood consumption, 110 families in the Caribbean region and 50 families in the Andean region installed eco-efficient stoves as well. In the Andean region, 230 individuals are guardians of the dry forest and 150 children served as little forest rangers. At the same time, 14 community brigades were trained to reduce the incidence of forest fires in the areas of the project. As a result, there was an 84 percent reduction of forest fires in the Garupal Basin, where forest fires have historically occurred; 950 hectares burned in 2015 and the figure decreased to 160 hectares in 2018.



Figure 2: Asomudepas, the San Jacinto farmers' association, is implementing novel in-vitro plant tissue culture techniques to ensure the reproduction of native species not only for the forest's survival but also for food security by ensuring a constant supply of heirloom varieties of beans, yuca, and yam. @PNUD Colombia

Ensuring livelihood and peacebuilding in post-conflict areas through nature-based solutions

In the post-conflict areas in Colombia, peacebuilding was vital for sustainable development and effective conservation in tropical dry forests. After the Peace Agreement of Colombia, local peoples came back to their land and needed to re-establish their livelihoods. Thus, nature-based solutions, sustainable provision of ecosystem services flows from dry forests, including agroforest products, was more important than ever for local communities. The Peace Products of the Dry Forest campaign and the Responsible and Sustainable Supply Chain Program were designed and developed to promote forest products and establish connections between farmers and the private sector as a part of strategy to promote and consolidate value chains. With the campaign and program, local peoples were able to ensure their livelihoods and actively engage in dry forest conservation activities.

Under the initiative called *La paz se cocina en las ciudades y se cosecha en el bosque seco* (Peace is Cooked in the Cities and Harvested in the Dry Forest), gourmet restaurants in Cartagena are offering agrobiodiversity products in their menus, including 17 species of native beans, yams, and vegetables. Organic cocoa is being exported, honey from the dry forest is traded locally and regionally, and birdwatching has become a central component of nature tourism in Aipe and Dibulla. All these activities have contributed to livelihood diversification for local communities and the preservation of the dry forests. In collaboration with the Ministry of Environment and Sustainable Development (MADS), the post-conflict environmental zoning of 202 municipalities was carried out, of which 55 have dry forest in their jurisdiction. This task was carried out as a contribution to article 1.1.10 of the Final Peace Agreement of Colombia with the FARC guerrilla group on closing the agricultural frontier and protecting areas of special environmental importance.

From regional capacity building to nationwide project protecting dry forest

Capacity building of local environmental organizations and municipalities protecting the dry forest and its ecosystem services continues to deliver positive

results. These efforts helped develop a nationwide project to conserve dry forest in Colombia that will ensure long-term governmental investments in this ecosystem after project closure. The project has already trained 703 professionals and specialists from the Regional Autonomous Corporations, MADS, Institute of Hydrology, Meteorology, and Environmental Studies of Colombia, and land-use agencies to increase their capacities on sustainable land management, REDD+, and biodiversity conservation strategies. To date, 533 staff from these organizations have been trained in geographic information systems (GIS) and planning for conservation of biodiversity, sustainable forest management, and sustainable soil management. The organization and standardization of geographic information, Arc-GIS licenses, and installation have proved to be key in the local level planning processes at the six municipalities participating in the project and are relevant to be considered in the other municipalities.

Furthermore, the land-use planning methodology used to identify priority conservation and restoration areas of the dry forest allowed the project to enter into agreements with MADS to establish the technical basis of environmental zoning. This methodology applied for the post-conflict environmental zoning of 202 municipalities, and is currently implemented in 89 municipalities of the “Macizo Colombiano,” a group of mountains within the Andes of south-central Colombia, known as the “Star of Rivers,” because important rivers of Colombia originate in this region. In addition, collaborating between the MADS and Humboldt Institute, the results of the project were incorporated into national platforms such as the Environmental Information System for Colombia and the Colombian Biodiversity Information System to make data available to different users. This “National Program for Comprehensive Management of Dry Forests and their Ecosystem Services,” which developed as a result of the project, will contribute to the sustainability of the project and will help disseminate the lessons learned.

Lessons Learned

Good marketing strategy to link small producers to entrepreneurs for valuing biodiversity

To achieve sustainable management of dry forest in Colombia, it was critical to develop a strong marketing strategy to strengthen biodiversity value chains and environmentally-sustainable production initiatives collaborating with the private sector, particularly the connection with the markets. A strategy, which was developed under a value chain approach, was aimed at linking small producers who live in the dry forest to entrepreneurs who value biodiversity, agrobiodiversity, and the cultural heritage of communities affected by the armed conflict. The strategy was tailored to support the region’s capacity, the local community’s interests, and the characteristic of local ecosystems. The consulting company developed not only a marketing strategy and slogan of agroforestry products, but also the package design and connections with high-end restaurants to facilitate peacebuilding with the conservation of dry forest.

Based on this strategy, ten value chains of biodiversity products, and initiatives of agrobiodiversity and environmentally-sustainable production were strengthened through a network of actions between producers, regional markets, and large retailers. For instance, these products and initiatives included native beans, native yams, and vegetables in San Juan Nepomuceno and San Jacinto (Bolívar), and nature tourism, native cocoa, panela (unrefined sugarcane) and vegetables (tomato) in Dibulla (Guajira), the Caribbean Region; and apiculture and nature tourism in Aipe (Huila), and calabash-made packaging (Crescentia Cujete) in Natagaima (Tolima), the Andean Region. At the national level, negotiations are in place with the Éxito Department Stores to purchase products, and with 27 restaurants of the Takami group. One of the value chains strengthened in the project was the value chain of local beans in Montes de María, Caribbean region, and this project was implemented with strong collaboration with the GEF’s Small Grants Program.



Figure 3 Seventeen native varieties of beans, yams, colored corn, and vegetables comprise some of the seeds that have passed from generation to generation in the Montes de María @PNUD Colombia

Adaptive management to incorporate peacebuilding and socio-economic intervention

The project's high capacity for adaptive management, flexibility to meet emerging demands and adapt the intervention to opportunities and challenges in the territory, was supported by the commitment, willingness, and ability to generate trust in partners and beneficiaries. During the project design stage, there was no clear socio-economic intervention linking the local communities to the objectives of the project. Adjustments were made along the way allowing local communities to be involved in dry forest conservation at the same time securing their livelihoods through management of production landscapes. Although the design of the project did not propose a raise of socio-economic baseline of communities, the socio-economic baselines were developed in 61 properties with Landscape Management Tools during the execution in order to identify the clear actions to be developed. Likewise,

the Peace Agreement could not be identified during the project design; however, its link to the project became a central element of the intervention through the post-conflict environmental zoning and production landscape management in the dry forests.

The project also had a good capacity to leverage support from other institutions and add other parties to the intervention in the territory, which in the future ensure continuity and sustainability of the project after its completion. These institutions include the World Food Programme, National Training Service (SENA), Chamber of Commerce, Sustainable Biocommerce, MADS Green Business Programme, Colombian Handicrafts, etc.

Participatory biodiversity monitoring turned local communities into strategic partners

As a part of participatory monitoring, local people assisted the systematic and periodic recording of biodiversity information in the dry forest. To support

strengthening community's territorial governance and monitoring species of local community interest, the project monitoring has shifted the roles of rural communities from being mere logistical support to being strategic partners in species-monitoring. Based on the 52 platforms to monitor six basins and the results of laboratory analysis, 617 species of plants, 39 species of mammals, 443 species of birds, and 278 species of ants were identified and registered through the Biodiversity Information System. The most common species of the four biological groups were prioritized in the six basins and these species in the dry forest were included in the Guide for Dry Forest Species, which will help spread information about the biodiversity in this ecosystem.

Furthermore, the project has facilitated community involvement in monitoring through the participatory monitoring program, "State of Biodiversity." Three basins of the project located in dry forest fragments were selected for further engagement with local communities in the monitoring of the biological species: Aipe River (Huila), Cañas-Ancho River (Guajira), and Arroyo Grande (Bolívar). Fifty families became involved in the participatory monitoring, including children and youngsters, and 65 human-made trails to monitor mammals and birds were developed. Research and restoration activities as well as actions for the sustainable use of biodiversity and agrobiodiversity of the dry forest have been carried out in these three basins. Many peasant communities whose livelihoods depend on the forest have shown special interest in further understanding and studying their forests in a participatory manner. As a result of this activity, a participatory monitoring guide for each basin was published for communities from three basins, and the species of interest for the communities are being monitored to generate state-response indicators for the different drivers of transformation in the dry forest.



Asomudepás, the San Jacinto farmers' association, is fostering innovation, gender equality, and income generation through the conservation of the dry forest. @PNUD Colombia

References and multimedia

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