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Tackling climate change while achieving sustainable development goals: arganiculture in Morocco

SECTORS INVOLVED



Background

In recent decades, Morocco has experienced substantial economic and social development. Such exposure is generating a particular pressure on natural resources, and is expected to accelerate the loss of yields in fragile areas, notably oasis ecosystems and argan tree forests. These ecosystems are vital to subsistence for economically vulnerable populations, and are essential allies in the protection of natural resources and the fight against desertification. Furthermore, Morocco is the universal depository of the argan tree, and the United Nations Educational, Scientific and Cultural Organization (UNESCO) labeled the argan tree's geographic range as the Argan Biosphere Reserve (RBA) in 1998. The density of argan trees has decreased significantly in the last century, and the intensifying pressure on the natural argan forest may further threaten the broader biodiversity of the Acacia-Argania eco-region, in which argan tree is the predominant species.

With the increasing international demand for argan oil products, the Government of Morocco identified an opportunity to both tackle the adverse effects of climate change and achieve sustainable development goals by promoting the conservation and enhancement of argan ecosystems.

This case study investigates Morocco's approach to preserve fragile argan ecosystems affected by climate change, while promoting economic growth. The study brings practical examples of this strategy from the

NDC COMMITMENT/GOAL

Arganiculture in Morocco's Nationally Determined Contribution (NDC)

Argan Tree Planting Program 2020-2030: Morocco aims to plant argan trees over 38 000 hectares to enhance vulnerable communities' resilience to climate change, increase carbon storage in biomass and soils, and indirectly reduce the industrial and anthropogenic pressure on natural argan tree forests.

Arganiculture in Morocco's Nationally Appropriate Mitigation Action (NAMA)

The objective is to develop the culture of argan plants through the association of the *Argania spinosa* (L) Skeels plants with fodder crops (cereals, legumes) over an area of 43 000 hectares. It also seeks to increase carbon storage in biomass and soils and decrease the industrial and anthropic pressure on wild argan forests. The NAMA entails:

- ▶ New plantations of argan trees over 28 000 hectares before 2030, in association with 2 000 hectares of fodder plants per year with a density of 182 trees per hectare.
- ▶ Fodder plants over 28 000 hectares of new plantations and over the 15 000 hectares expected as part of the Green Morocco Plan.

project "Development of Argan orchards in Degraded Environment (DARED)", financed by the Green Climate Fund (GCF) through the GCF accredited entity Agency for Agricultural Development (ADA).

Linking with the overall NDC implementation

Arganiculture will directly contribute to the achievement of the country's commitments expressed in the NDC, both in terms of mitigation and adaptation. In particular, protection and development of argan forests is expected to increase the carbon storage in biomass and soils, halt soil erosion and desertification, mitigate the industrial and anthropogenic pressure on natural argan forests and help to sustain the overall agroforestry system.

In this view, the DARED project in particular is expected to:

- ▶ allow carbon sequestration of -604 223.30 tonnes of carbon dioxide equivalents toward 2030 as compared to a 'without project' scenario of -80 234.65 tonnes of carbon dioxide equivalents;
- ▶ contribute to mitigate climate change effects while improving natural resource preservation of the RBA and its sustainability;
- ▶ promote arganiculture as a solution to mitigate the adverse impacts of climate change and as a productive industry; and
- ▶ improve the organization of the upstream and downstream sectors through the adoption of a value chain approach of the argan tree.

Process

Morocco participated in the Low Emission Capacity Building (LECB), a programme financed by the European Union, Germany, and AusAID. Among other activities, the programme also had the goal of formulating Nationally Appropriate Mitigation Actions (NAMAs). The implementation of this programme in Morocco led to the identification of possible activities that have a demonstrated capacity of greenhouse gas (GHG) sequestration, along with synergies with adaptation, sustainable development, food security and poverty alleviation. As part of the implementation of the programme, the Moroccan Ministry of Environment, in consultation with the Ministry of Agriculture and

with the support of the United Nations Development Programme (UNDP), carried out a study on the promotion of argan culture under the *Plan Maroc Vert* (PMV), the country's national agriculture strategy. The results of this study identified the potential mitigation actions of arganiculture, which then became the primary focus and objective of a NAMA. Specifically, the goal of the NAMA in arganiculture is to eliminate all regulatory, economic and technical barriers to the development of argan culture. The conceptualization of the DARED project is related to the identification of arganiculture as NAMA, and it will contribute to its implementation.

Key stakeholders

- ▶ **National Agency for the Development of the Oases and Argan Zones (ANDZOA):** Within the oasis and argan ecosystem, the agency is responsible, in coordination with other government authorities, for developing a comprehensive development program and ensuring its implementation, monitoring and evaluation. It is the executing entity of the project.
- ▶ **The High Commissariat for Water and Forests and the Fight against Desertification (HCEFLCD):** The High Commissariat is responsible for the development and implementation of government policies regarding the conservation and sustainable use of forest resources, hunting, inland fishing, natural parks and reserves and the fight against desertification.
- ▶ **Agency for the Agricultural Development of Morocco (ADA):** It is the accredited entity to the GCF, and is a fundamental stakeholder within the project. Its mandate is to contribute to social and economic development through more resilient and productive agriculture.
- ▶ Other governmental agencies and national institutions, such as non-governmental organizations and networks of associations, federations of argan producers, consumers and cooperatives, are responsible for research, development and training.

Outcome

The strategy behind arganiculture development has the goal to create a territory that is attractive for the population, economically competitive and able to preserve its natural resources. This strategy directly supports Morocco's NDC, with actions aimed at increasing carbon storage in biomass and soils, and at reducing the industrial and anthropogenic pressure on natural argan tree forests.



Components of the project

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| Component 1: implementation of arganiculture on 10 000 ha | 1.1. Arganiculture on 10 000 ha |
| | 1.2. Medicinal and aromatic plants intercropped with argan on 2 000 ha |
| | 1.3. Water harvesting and water and soil conservation |
| | 1.4. Technical assistance and works supervision |
| Component 2: organization of the upstream components of the argan value-chain | 2.1. Professional organizations on the upstream of argan sector structured and “economic interest groups” (GIE) |
| | 2.2. Argan products are valued |
| Component 3: capacity building, knowledge management, co-management of natural argan forest and scientific research promotion | 3.1. Climate change management capacities of institutional actors, elected representatives and professional organizations are reinforced and developed and RBA co-management are implanted |
| | 3.2. Argan research is consolidated and encouraged |

The attractiveness of the territory will be fostered by improving the living conditions of all citizens, through the strengthening of basic services (water, electricity, roads), the development of care and educational services accessible to all, as well as the establishment of cultural and sports infrastructure.

The economic competitiveness of the territory will be promoted by the development of its natural and cultural resources for the benefit of local population. Stakeholders will be supported in the design and development of income-generating activities based on the valorization of local resources.

The ability of the territory to preserve its resources will be encouraged through an improved management of the water resource (construction of dams, mobilization of unconventional waters, micro-irrigation, etc.), through soil conservation activities (management of soils and vegetation cover, reconstitution and protection of forest areas, etc.) as well as through biodiversity preservation (protection of biosphere reserves, supervision of urbanization of oases, etc.).

In this context, the DARED project aims to strengthen the resilience of rural communities and the RBA. This will be achieved through different activities, such as planting argan tree orchards, promoting soil conservation and rain water harvesting capabilities and supporting argan fruit producers’ professional organizations and market access. A particular attention will be dedicated to promoting beneficiaries’ capacity building, knowledge sharing and natural forest co-management.

Implementation and long-term sustainability strategy

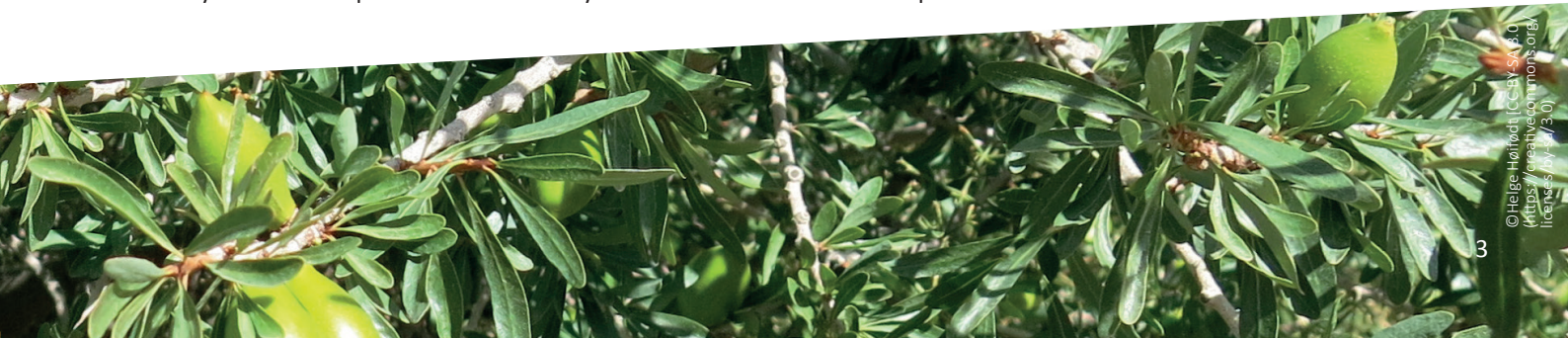
As part of the implementation of the strategy, it is essential to develop, validate and monitor the implementation of contractual frameworks established with departmental heads, local communities and other implementing partners; to elaborate the strategy relating to the development of the oasis zones and geographical areas of the argan tree; to promote blended financing where national organizations like ANDZOA can participate in the financing of certain projects.

With regards to the project, its sustainability will be based on the recourse to existing institutions for implementation, which guarantees the continuity after the end of the project; the empowerment of all the local actors by means of a capacity building program, adapted to their specific needs; the implementation of an effective system of management and sharing of knowledge to capitalize the experiences effectively, and integrate them into national policies.

Next steps

In order to stimulate the development of disadvantaged areas showing high potential for socio-economic development, the ANDZOA proposed to create a territorial status which these fragile areas can enjoy in a privileged way, the status of Rural Dynamisation Zone. This status would thus be attributed to a limited number of localities composed of groups of municipalities. The creation of such status aims to catalyze the development of the territory.

With regards to NDC implementation, the country is considering the possibility to revise Morocco’s NDC in view of the upcoming NDC submission of 2020. Such revision would bring more clarity on the implementation of projects in agriculture-related sectors, in particular in terms of their sustainability. In order to proceed with the revision, the Government has to validate the elements and contours of a national governance framework that will be responsible of it.



Success factors and lessons learned

Why is this activity good practice?

- ▶ Arganiculture provides evident beneficial actions in terms of mitigation and adaptation to climate change. Argan woodlands have demonstrated effects on carbon sequestration as well as a high level of adaptability to arid climates and droughts. At the same time, arganiculture can improve livelihoods of local communities, by establishing tree production at a sustainable level.
- ▶ The project will allow the plantation of new argan trees, which is the main focus of the NDC and the NAMA in arganiculture. Furthermore, the project will feature new production techniques that will blend new methodologies alongside ancestral native knowledge from indigenous communities. The argan tree domestication and orchards planting will be accompanied by the structuration of a strong argan value chain that will include the set up of professional organizations of farmers and their training, support and mentoring.

Success factors

- ▶ Arganiculture development will allow local population to benefit from a better expression of the argan sector potential, empowering domestic producers that now capture only a small part of the value added; this will reduce the industrial and anthropogenic pressure on natural argan tree forests, with a direct impact on NDC implementation.

- ▶ Within the project, great importance is given to the strengthening of institutional capacity to manage and research on natural argan forests: the project aims at consolidating RBA co-management and at supporting the establishment of the national center of excellence of the argan tree, called Argan National Center (CNA), which will channel the efforts of all scientific and professional actors, as well as promoting argan's cultural heritage and support for research excellence.

Lessons learned

- ▶ A great attention should be given to ensure participatory approach and coordination among various actors and stakeholders involved in every process. At the same time, the coordination of policies and sectoral measures is essential to ensure that all activities promoted are aligned with the ongoing country strategy and national priorities.
- ▶ The DARED project perfectly aligns with the *Plan Maroc Vert*. One of the most evident benefits of this alignment is the possibility to rely on well-established national capacities and on continuous availability of domestic funding. Furthermore, the approach adopted for the management of this project is now being replicated for the elaboration of new projects, especially for the aspects related to climate finance preparedness.

KEY RESOURCES

- ▶ Development of Argan orchards in Degraded Environment - DARED project
www.greenclimate.fund/documents/20182/574760/Funding_proposal_-_FP022_-_ADA_-_Morocco.pdf/19dae5bc-ba3f-4f21-a479-45cec4129d38
- ▶ Morocco NAMA in the Argan sector
www.nama-database.org/index.php/Morocco
- ▶ Green Morocco Plan
www.agriculture.gov.ma/en/pages/strategy
- ▶ ANDZOA development strategy
andzoa.ma/fr/

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