

# AFRICA'S PROTECTED NATURAL ASSETS

The importance of  
conservation areas for  
prosperous and resilient  
societies in Africa

Case study 6

**ARGANERAIE  
BIOSPHERE RESERVE,  
MOROCCO**



## GREEN VALUE

NATURAL CAPITAL IN AFRICA



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The Green Value Initiative is the umbrella program of the German Federal Ministry for Economic Cooperation and Development (BMZ) on the value of nature in Africa. In providing multiple benefits such as clean air and water, productive soils, extreme weather and erosion protection, health benefits, and solutions to climate change, Africa's natural wealth is an important asset that contributes significantly to the continent's welfare and achievement of societal development goals. The Green Value Initiative supports its African partner countries and development institutions to integrate the value of these assets in decision-making. Its objective is to mainstream natural capital into policies and planning, financial markets and development finance, as well as measures of economic progress and national accounts (natural capital accounting). With that, the Green Value Initiative contributes to one of the key building blocks for transformative change towards nature-positive economies and development in Africa.

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## ARGANERAIE BIOSPHERE RESERVE, MOROCCO

### CASE STUDY

#### Land use and water scarcity connect people and ecosystems from the mountains to the coastline



**STATUS:** Biosphere Reserve

**SIZE:** 2,568,780 ha

**ECOSYSTEMS:** Semi-arid and arid mountains and coastal plains, endemic Argan forests

**KEY ECOSYSTEM SERVICES:** Erosion prevention, water provision, provision of natural resources

**NEARBY POPULATION AND INFRASTRUCTURE:** The region's population is 3.5 million, 60 % of which is rural population living across the reserve

**LAND-USE:** Traditional terrace-based agriculture and livestock in mountain areas, irrigation-based agriculture and horticulture in coastal plains.

**CHALLENGES:** Infrastructure development in vulnerable areas, water overuse, abandonment of traditional land-use practices

The Argan fruit and its oil have multiple uses in cooking, medicines and cosmetics.

The Argan Biosphere Reserve (recognized by UNESCO in 1998) stretches across several provinces in South-Western Morocco, with a total extension of 2.5 million ha. It comprises 18 core zones and buffer and transition zones which extend from the remote Atlas mountains to the intensively used and inhabited coastal plain. Having at one time been well established and equipped with a governance structure, its de facto role in drawing together diverse actors in implementing sustainable land use currently needs to be strengthened. Water scarcity, agriculture and coastal tourism are closely intertwined in the region.

#### PURPOSE AND APPROACH OF THE ASSESSMENT

Arguments and evidence relating to natural capital are sought in order to raise awareness among private sector and public administration actors for the causal connections between land use, ecosystem degradation and wider socio-economic impacts. It should be possible, on this basis to mobilize better coordinated efforts in the landscape surrounding the reserve. The main component of the assessment is a literature-based overview of the various benefit flows from the biosphere reserve's ecosystems.



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**SOME KEY FINDINGS**

- ◆ Intensive agriculture in the coastal plain, namely citrus and almond production for export, causes water abstraction to significantly exceed sustainable water supply levels. Agriculture requires more than 80% of total water consumption in the region, even though one third of national tourism is concentrated in the area. Deep water aquifers are tapped into while significant volumes of additional water from desalination plants, which could fill the gap, are not expected to be available until 2030.
- ◆ Linked to water scarcity is the pre-eminent importance of terrace-based traditional agriculture in up-stream areas: these terraces, combined with intact vegetation cover, control the level of soil erosion and resulting sediment loads in the region's dams and reservoirs.
- ◆ The (upstream) Argan forest areas inside the biosphere reserve provide a number of benefits which sustain at least 20,000 households. Argan nut, fodder for livestock, and fuelwood constitute the main sources of livelihood. They are roughly of equal importance to the local economy. However, they are also a cause of conflict among competing users. The high export value of Argan oil is generated only further down in the value chain, and the benefits do not flow back to the region. The traditionally extensive use of the Argan forest is losing ground for economic and socio-cultural reasons.

These findings are being further examined in ongoing analyses. Notably, the connections between terrace-based traditional agriculture, erosion control and water supply (as well as avoided flood damage) are to be further specified. This may serve to inform more integrated land-use planning across the provinces of the biosphere reserve. It may also provide an incentive to downstream water beneficiaries to co-finance the maintenance of upstream traditional land-use systems.



The Arganeraie Biosphere Reserve conserves Argan forests (left) which constitute the main source of local livelihood.

Source: Authors' analysis