SAHARA
AND SAHEL
OBSERVATORY

For Sustainable Oases in the Circum-Sahara Region

CONTEXT

Africa's Circum-Sahara region is characterized by a multitude of diverse yet fragile landscapes, including in particular oasis ecosystems predominating its arid and dry areas. A real lever for the socio-economic development of the region, oases have long survived extreme natural events thanks to the efficient adaptive practices and know-how developed by the indigenous communities.

Given the new global economic trend, modernization and change of lifestyle noticed over the past few decades, the oasis farmers felt more compelled to double their effort to face new emerging challenges. Despite the crucial importance and particular interest placed by the three Rio Conventions on the oasis issue, these new challenges are hindering the sustainability and leading to the degradation of the oasis ecosystems services which are very essential to food security and populations' livelihoods.

Urgent actions for oases restoration, protection and rehabilitation need to be undertaken by concerned actors and governments. Development strategies and programs in the Circum-Sahara region should also integrate the « Sustainable Oasis » vision in order to ensure healthy, prosperous, and sustainable ecosystems for current and future generations.

In the perspective promoting sustainable natural resources management in the oases, the Sahara and Sahel Observatory (OSS), in the framework of the Desert Ecosystems and Livelihoods Knowledge Sharing and Coordination Project (MENA-DELP), launched an online questionnaire on 11th May 2017 aimed at scientists, policy-makers , managers, researchers, representatives of the civil society.

In addition to general questions on the state-of-the-art of knowledge about oases, the questionnaire included other questions related to the following themes:

- ***Threats to the oases***
- ***Oases restoration measures***
- ***« Sustainable Oasis » regional programme***

The analysis of the questionnaire results provided key information on natural resources management (threats and prospects), economic activities needed and prospects for the development of a regional investment initiative dedicated to the oasis issue in the Circum-Sahara region.

Important to mention that the answers obtained only reflect the vision of scientists, technicians, and managers, from the OSS zone of action and do not in any way pretend to be representative of any other country/State's vision.

Note to the Reader:
The following paragraphs present the main results of the questionnaire by theme and the major ideas expressed by the questionnaire contributors.

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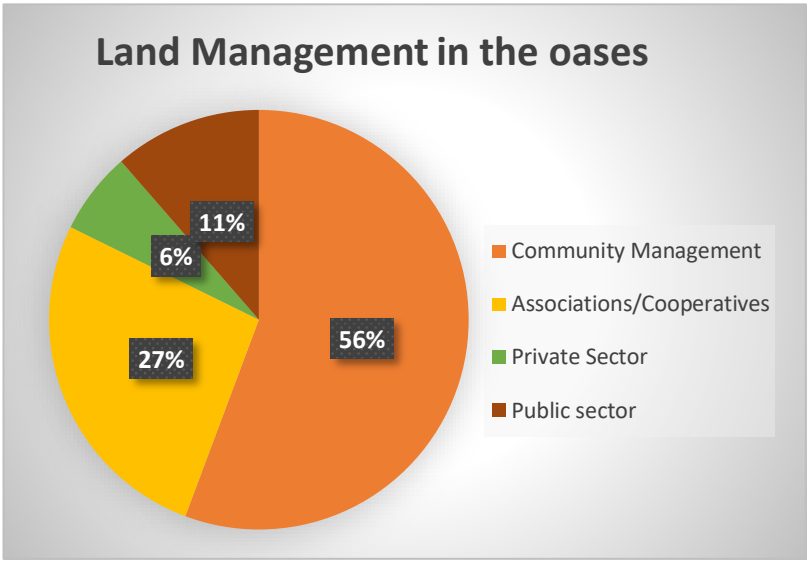
STATE-OF-THE-ART

The notion of the oasis has always been controversial and its definition changes depending on the angle adopted.



While the oasis has no universal definition, certain criteria are indispensable to reach a consensus on its notion. An arid or hyper-arid climate, surface and groundwater resources and a vegetation core (often palm trees) are the basic ingredients for the oasis definition. Given the fact that some oases exist naturally (do not require human intervention), human presence is not indispensable for the oasis existence. Depending on the water and land management modes and agricultural techniques used and the age of the oasis, the latter could be classified into two categories: traditional oasis and artificial oasis.

One of the major and most adapted modes used in oases management is the **community-based management** which ensures responsibilities and benefits sharing.

This management method allowed to develop considerable traditional know-how and techniques related to agriculture, **the main economic activity** practiced in the oases, notably: soil enrichment to reduce salinization and multi-level cultivation.

Given their significant cultural and historical value, **the oases are considered as a heritage** that must be conserved.

Oasis Definition

According to *Le Réseau Associatif de Développement Durable des Oasis* (RADDO) *« Oases are unique ecosystems that have been built and maintained for generations by humans based on a rigorous management of natural resources. These agro-systems are characterized by an environment of low precipitations (sometimes less than 50 mm per year in hyper-arid areas), high daily temperature ranging between 30 ° C to 60 ° C and low night temperature that may reach 0 °C depending on the season".*

THREATS TO THE OASES

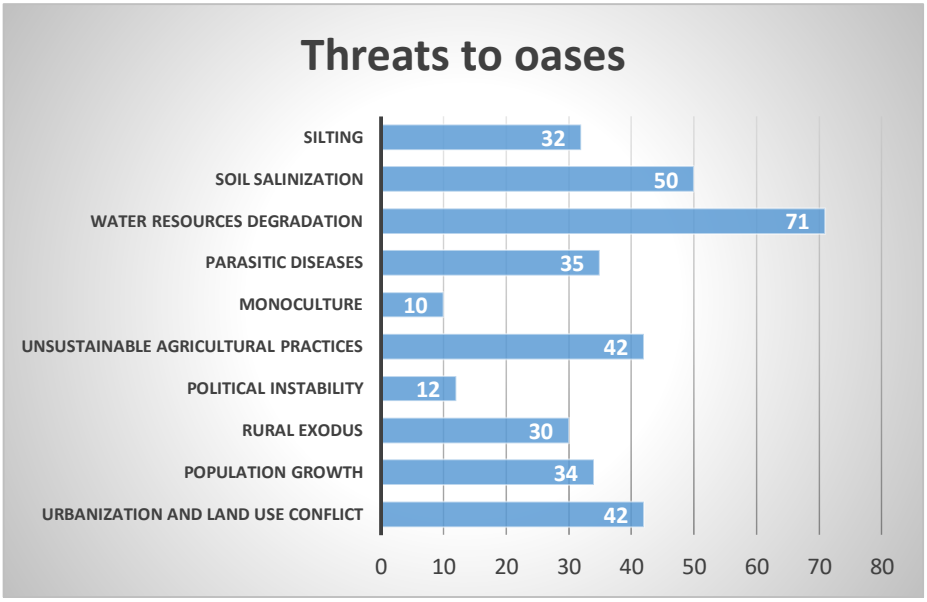
The oases in the Circum-Sahara region face several natural as well as anthropogenic problems. Water, as the most important source and component of the oasis existence, is the factor that causes the most concern for States and oases users. An **increased use of water resources and pumping techniques** has been observed for the last few decades. This intensified use of water through high-flow pumping means has resulted in **the decrease of aquifers levels and pollution**.

Global changes observed have also had their effects on the social and economic life in oases leading to deep changes and shift to **more modern and mono-crop systems**. Products destined to industrial transformation and exportation

have become more expensive, in addition to gradual abandonment of multi-level oasis where a multitude of crops are produced (dates, fruit trees and vegetable crops).

Furthermore, population growth and land tenure pressure have led to **lands fragmentation**.

This situation, combined with a rigid land tenure system and increased standard of living, are at the origin of **migration and the gradual abandonment of agricultural lands by the new generation**. In fact, youth migration compromises the sustainability of the oasis ecosystems, notably due to the **loss of traditional know-how.**



Natural resources degradation in the oases is not only caused by inappropriate management modes, but also related to inadequate **governance** at the local level due to the absence or failure of institutional and legal frameworks specific to the oasis context. The absence of oasis–focused development strategies, the lack of coordination, the limited involvement of farmers, local management organizations, and decision-makers are the main factors that hinder the efficient management of natural resources and hence the economic viability of oases.

Illegal development of artificial oases constitutes another major threat and obstacle which has significant negative effects on the oases, namely:

- Aquifers pollution
- Water resources overexploitation
- Exploitation of non-adapted lands
- Competition with authorized oases
- Health risks

OASIS ECOSYSTEMS RESTORATION MEASURES

The oasis ecosystems are subject today to multiple threats of change and degradation which have negative repercussions on biological diversity and populations' livelihoods.

Further effort need to be undertaken at the environmental level in order to ensure an effective management of natural resources, such as environment protection, creation of natural reserves, enactment of natural resources protection laws and decrees, and promotion of renewable energy and wastes management.

At the socio-economic level, actions and initiatives should focus on combatting poverty, food insecurity, and marginalization in favour of the oasis populations through the diversification of income-generating activities, for women and youths in particular. The improvement of the **main economic activities** practiced in the oases (**agriculture and tourism**) will have a positive impact on local populations' livelihoods and will favour the restoration of oasis ecosystems. This may include:

- The creation of channels, sectors and labels for agricultural products
- The development of gardens, as it was the case for the Aïr region in Niger
- The development of ecotourism

Important

Awareness-raising and environmental education actions should also be undertaken by the local populations, youths in particular, with the support of associations and local development actors.

The improvement of agriculture and tourism is most often confronted with a lack of interest on the part of youths and the absence of incentive measures to promote local traditional products.

Adequate measures are thus necessary to improve agriculture and tourism and hence strengthen oasis ecosystems resilience to the adverse impacts of climate change. These measures may include:

- Technical assistance and capacity building
- Implementation of activities for biological diversity preservation
- Institutional and financial support.

Sustainable natural resources management activities should be accompanied with **research-development** actions, new **water resources and oasis ecosystems management** means, and improved tools for more agricultural productivity and for fighting devastating pests and diseases.

SUSTAINABLE OASIS

Several projects funded by different stakeholders (Global Environment Facility, World Bank, UNDP, FFEM and GIZ) are implemented in Africa's Circum-Sahara region and offer a wide range of activities and products related to different themes and contributing to sustainable natural resources management. However, only one regional program, entitled *le Plan d'Actions Concertées des Oasis (PACO)* and coordinated by *Le Centre d'Actions et de Réalisations Internationales* (CARI), focusing on the oasis ecosystems is implemented in the Maghreb region (Algeria, Mauritania, Morocco and Tunisia) and the sub-Sahara region (Niger and Chad).

This lack of regional actions reveals a need to develop regional programs focused on oasis ecosystems in the Circum-Sahara region with the aim of conserving, valorizing and promoting this heritage for current and future generations.

This regional investment program will mainly focus on the following aspects:

- Water resources management
- Sector-based approach
- Knowledge and good practices sharing
- Training and capacity building in natural resources management
- Development of a monitoring and evaluation system and early warning system

CONCLUSION

The questionnaire results allowed to collect the views of various partners and actors involved in different development sectors in the Circum-Sahara region. Owing to the questionnaire, the implementation of a regional investment program dedicated to the oasis theme is needed. The lack of knowledge and information in the fields of natural resources management and the fight against land degradation is the major concern that needs to be addressed.

Contributed to the questionnaire

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