

MARCHICA

THE GOLD STANDARD FOR SUSTAINABLE DEVELOPMENT
IN THE MEDITERRANEAN



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MarchicaMed Agency

Environment and Sustainable Development

THE MARCHICA AGENCY is committed to promote a sustainable development model, respectful of the lagoon's ecosystems and environment



A photograph of a heron standing on the bow of a blue boat. The boat is on a body of water, and the heron is looking towards the right. The background is a clear blue sky and water.

| Foreword

In accordance with the Royal directives for the protection and development of the Marchica site, a project for the implementation of a tourist resort on the banks of the lagoon has been created. This project, which covers an area close to 2000 ha divided amongst 7 distinct cities, was assigned to the Marchica Med Agency in 2008. In July 2009, his Majesty King Mohammed VI launched the first phase of the project regarding the development of Atalayoun City.

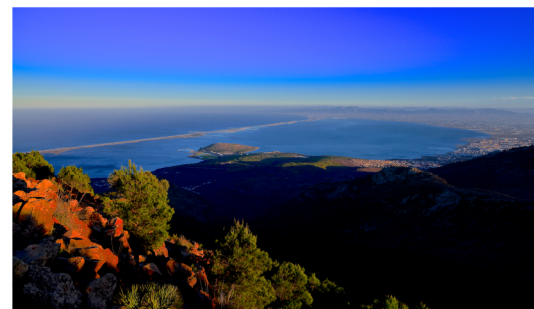
In August 2010, the establishment of the agency for the development of the Marchica Lagoon site played a great role in the conceptual and institutional evolution of the project. The Agency was entrusted with new missions including land consolidation, the implementation of infrastructure, estate development, and social project contracting.

Due to the characteristics of the area targeted by the Special Development Plan, the repositioning and programming of the project became a necessity. Therefore, supplementary studies are currently being conducted. The findings of those studies should then help implement the Special Development Plan.

THE SITUATION OF THE LAGOON



NADOR THE MARCHICA LAGOON



THE MARCHICA LAGOON

Recognized as a Biological and Ecological Site (SIBE) as well as RAMSAR (wetland convention) since 2005, the Marchica Lagoon is one of the major lagoons in the Mediterranean region. Located at the heart of the Nador Province, in the North-East of Morocco, the Marchica Lagoon covers a surface area of 115 km², separated from the Mediterranean sea by 25 km long coastal cordon.

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The Lagoon, heart of the project

I. THE AGENCY'S MISSION AND ITS GUIDING PRINCIPLES

The Agency's mission and its guiding principles

UNDER THE TERMS OF THE 25-10 LAW IN REGARDS TO THE CREATION OF THE MARCHICA AGENCY, THE MISSIONS ENTRUSTED TO THIS PUBLIC INSTITUTION ARE AS FOLLOWS:

1. The implementation of the development program in keeping with the sustainable development principles throughout the project's phases
2. The promotion and search for the necessary funds to complete the urbanization program and the development of the Marchica lagoon site
3. The spearheading and monitoring of the implementation of the development program for the site in line with the urbanism and environment laws and regulations.

The Agency aims to establish the Marchica Lagoon site as a model of sustainable development. Thus, the development plans should be drafted by taking into consideration the Lagoon's various ecosystems.

The project should also foster and enhance the region's economic appeal, with an emphasis on the touristic aspect in order to support the productive sectors in the area (agriculture, fishing, craft industry, etc.).

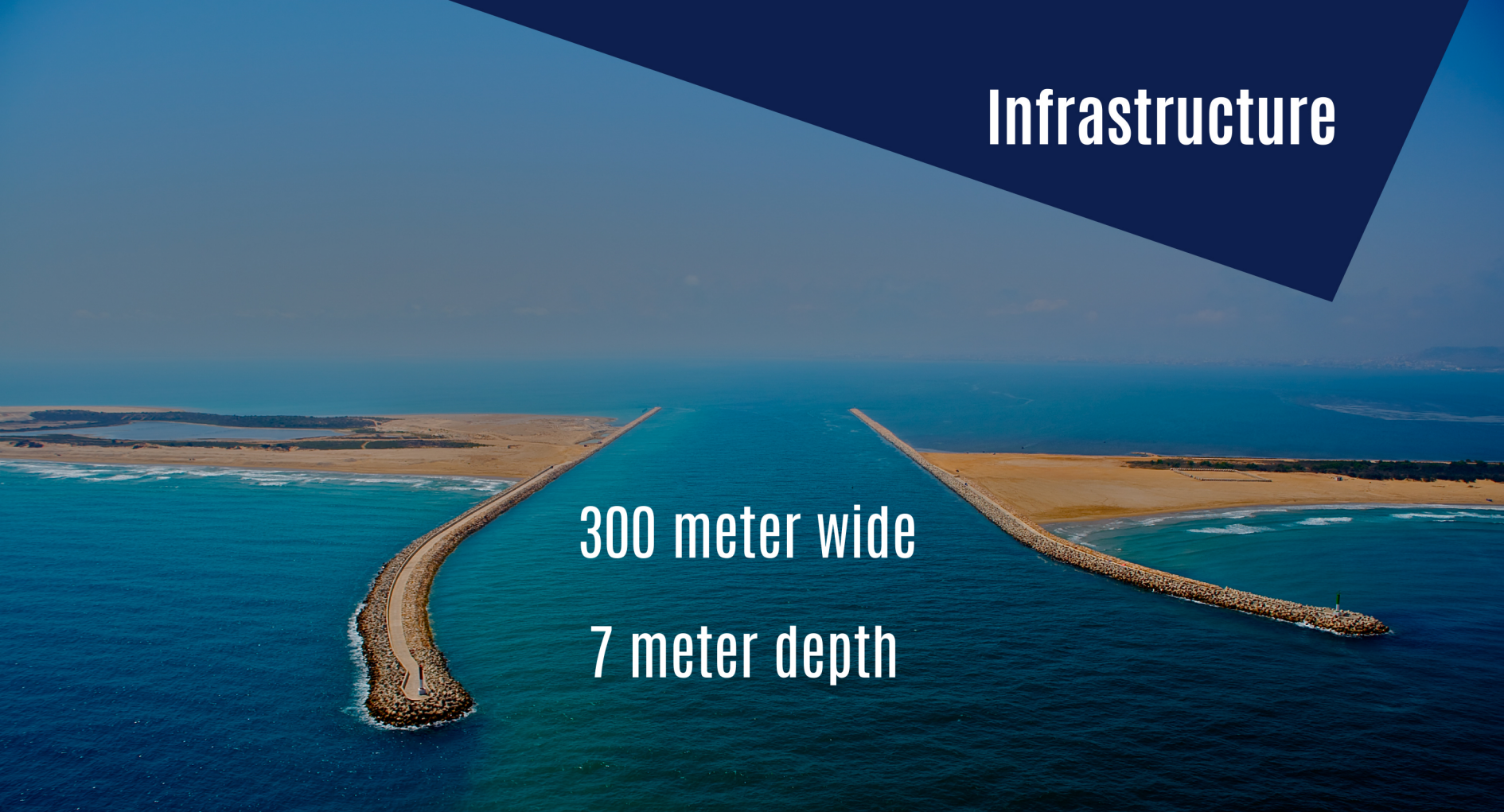
Moreover, the sites accessibility will improve with the development of meshed transport network.

The site's development should be achieved in pursuance of a model in favor of the creation of long-lasting jobs. The job opportunities are expected to be around 80 000 positions, including 65 000 during the exploitation phase.



II. SITE DECONTAMINATION

INFRASTRUCTURE
CLEANING AND RECYCLING



300 meter wide
7 meter depth

OPENING OF A NEW CHANNEL IN THE LAGOON

Overall investment of 360M MAD in partnership with the Ministry of Equipment, Transport and Logistics allocated to:

- Improving marine accessibility
- Improving the Lagoon's water renewal
- Resolving the eutrophication issue in the lagoonal environment

Wastewater Treatment Plant

Overall investment of 950M MAD. The National Office of Drinking Water implemented a new wastewater treatment plant in the Great Nador region. The project was carried out along with a program to connect households to the Great Nador sewer network.

Objectives

- Achieve complete control over liquid wastes
- Tertiary treatment of wastewater to allow its reuse for watering purposes



Landfills

As part of the National Solid Waste Program (NSWP), and in conjunction with the delegate ministry in charge of the Environment, the city of Nador has a landfill that can process a level of 150 000 ton of waste, with a budget of 24,05M MAD. The purpose of the landfill is to resolve major sanitary and environmental issues in the region.

Cleaning and Recycling

The Marchica project ensured the cleaning up of the lagoon site through :

- The purging of the lagoon banks with long-handled shovels
- The decontamination of water bodies using Pelican type cleanup boats
- Beaches cleanups by way of adequate mechanical equipment (tractors fitted with targeters)
- The cleanup of the Marchica shores via manual collection, accomplished through the removal and sorting of waste for recovery.

Numbers



75 overall budget of **M MAD**



7200 tons
of collected and sorted waste



240.000 day/man
an average of a 100 agents per day





III. SPECIAL DEVELOPMENT PLAN DESIGNED FOR THE SITE'S SUSTAINABLE DEVELOPMENT



SPECIAL DEVELOPMENT PLAN

The Special Development Plan is a regulatory instrument vital to the completion of the missions bestowed upon the Agency in regards to the development of the Marchica Lagoon site.

1 To protect and enhance the lagoon and its wetlands:

Recalibrate the water bodies and ensure their natural flow towards the lagoon in order to control flood risks;
Decontaminate the lagoon and its surroundings;
Protect the lagoonal environment from wastewater discharges;
Preserve the wetlands surrounding the lagoon in a sustainable way;
Guard the lagoon's surroundings against uncontrolled and substandard urbanization;
Provide sustained protection for the lagoon cordon;
Protect and promote the floral and wildlife heritage in the lagoon

2 Preserve the natural, agricultural and landscape heritage of the lagoon:

Preserve the irrigated perimeter and develop it towards environment-friendly agricultural practices;
Enhance the natural environment by protecting and replenishing the landscape through volunteering actions;
Put in place a strategic landscape plan involving the area's keyplayers (residents, fishermen, farmers, etc.)

OBJECTIVES

3 Promote a sustainable urbanism respectful of the citizen and its environment:

Put the human development front and center of the development projects;
Shield the citizen against natural risks;
Consider environmental issues, notably those related to the constructions energy performances.

IV. INTERVENTION PRINCIPLES



Intervention Principles



Reuse of materials

The materials salvaged during the clearance and dredging works are systematically reused during the high added value projects on site, **such as:**

1.8 million m³ stemming from the creation of a new estuary were utilized in the development of the Two Seas City platforms and the construction of artificial beaches;

The City of Atalayoun leftover materials from the leveling works for roads and various networks went toward the construction of the Golf Resort Academy platform



Reuse of wastewater recycling

The Great Nador wastewater treatment plant allows the reuse of the treated water for watering green areas and the different landscape developments around the lagoon. The plant also regulates brackish waters in the ornithological park's basins in order to attract even more bird and fish species, and improve the site's biodiversity.

Furthermore, the Marchica agency insisted on created a second wastewater treatment plant in the cities of Ben Ansar and Farkhana. This plant's purpose is two folds: minimize the wastewater flow and environmental impact of those cities, and to fulfill the watering needs for the golf resort academy and the 18-hole golf course for Atalayoun City.





AFFORESTATION AND TRANSPLANTATION

In keeping with the development project for the City of Ataloun, over 45.000 trees were planted during the afforestation process, in partnership with the High Commission for Water, Forestry and Desertification Control. Other transplantation actions regarding 40+ years Aleppo Pine also served to alleviate the burden of the golf course.



45.000
trees were planted

ALEPPO PINE
40+ years



THREE KEY PROJECTS COMPLETED IN COMPLIANCE WITH THESE OPTIMIZATION PRINCIPLES ...



Ornithological Park



Golf Academy

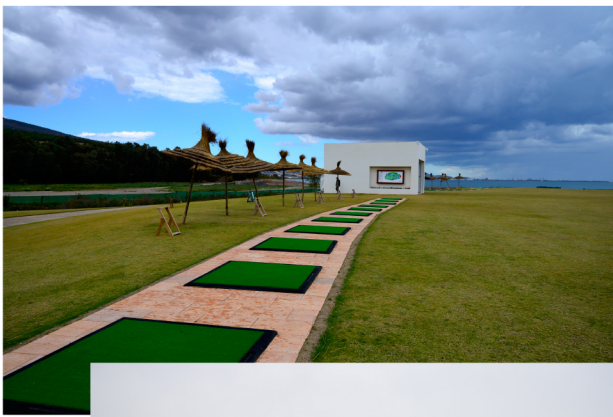


Nador Beach



Ornithological Park

The project aims to recreate natural habitats for migratory birds whose route takes them over the Marchica Lagoon site and one of Nador's former lagoon cells. This park will include hosting infrastructure for scientific and pedagogic purposes, with the hope of becoming a reference all around the Mediterranean region.



Golf Academy

The Atalayoun City Golf Academy was created with materials from iron ore washing on the land reclaimed from the lagoon, in the turn of the century.

In the project's second phase, the land received backfill materials to minimize the infusion of materials.

The Golf Academy, with its 12 ha surface area, offers learning and development equipment for the sport's aficionados.



largest
golf academy
in Morocco

12^{HA}
Surface area

NADOR BEACH



The coastal area extending from Chaala neighborhood to Oued Bousserdoun has always been a hindrance to the residents, because of algae and sludge due to poor sanitation, dumping of raw sewage, and the former wastewater treatment plant located there.

In order to sanitize the sullied area, the Marchica Agency used 150 000m³ of sand, garnered from previously dredged areas, as a filter element to stop the upwelling of sludge. Consequently, a far-reaching artificial beach was created to counter the environmental issues and damages that plagued the area, and to generate a unique leisure zone.

V. PROTECTION AND SUPPORT MEASURES

PARTNERSHIP

The Mohammed VI Foundation for Environmental Protection



As part of a partnership agreement between the Marchica project and the Mohammed VI Foundation for Environmental Protection, that aims to preserve the natural resources of the Marchica Lagoon, the safeguarding of its bio-ecological values and the rehabilitation of its sullied habitat, various pilot projects and actions were completed or launched. Among those:

- 1 - [Development of an Ecological engineering](#) : setting up of 50 bio-huts in the Atalayoun marina: this project, first ever of its kind to be implemented outside of France, helps strengthen the Marchica lagoon's role as a reformer of the ecosystem service.
- 2 - [Use of new technologies to monitor the lagoon's water quality](#) (passive samplers and captors) that documents the pollution impacts on the lagoon.
- 3 - [A project to implement artificial reefs](#) to ensure the ecologic restoration of the site by the Harbor master's office.
- 4 - [The mapping and classification of the lagoon floor](#) to provide the lagoon with geo-referenced maps for the surveyed area's bathymetric, the nature of the substrate surface layer, and the vegetative cover lining the lagoons floor, as well as identifying some perturbations resulting from human activities that impacts it.



PARTNERSHIP



the National Agency
for the Development
of Aquaculture (ANDA)

Aware of the Marchica Lagoon ecological and economical potential, the Agency for the development of the lagoon entered into partnership with the National Agency for the Development of Aquaculture (ANDA) with the purpose of instigating a viable and effective aquaculture, in consonance with the Marchica Lagoon's distinctive environmental, economic and social requirements. Both institutions will bear the financial costs of the study of the project (2 million MAD).

Objectives of the Partnership :

- I -

To develop an integrated management scheme of the water body in the Marchica Lagoon in the interest of identifying the areas that could host the type of sustainable aquaculture suitable with the rest of economic activities, while ensuring the preservation of the lagoon's ecosystem.

- II -

To ensure that the region benefits from the socio-economic momentum generated by the implemented activities

VI. MOROCCAN-IVORIAN COOPERATION FOR THE DECONTAMINATION OF EBRIÉ LAGOON



MOROCCAN-IVORIAN COOPERATION FOR THE DECONTAMINATION OF EBRIÉ LAGOON



His Majesty King Mohammed VI and the Ivorian President, Alassane Ouattara, during the ceremony for presentation of the Cocody Bay safeguarding and development project

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Morocco does not view Africa as a market for the sale and promotion of Moroccan products, or as a continent for making quick profit. We see Africa as a forum for joint action, for promoting development in the region, and for serving African citizens.

In this respect, Morocco contributes, along with other African countries, to the implementation of human development projects and the provision of social services which have a direct bearing on the lives of people in the region [...]. A clear example is the project for the protection and development of Cocody Bay, in Abidjan, within the framework of a unique model of cooperation between the relevant public institutions in Morocco and Côte d'Ivoire, with the effective involvement of private sector operators from both countries.

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His Majesty King Mohammed VI, May God assist him, in a royal address to the nation given to mark the occasion of the 63rd anniversary of the Revolution of the King and the People, August 20th 2016.

THE PROJECT

The Ebrié Lagoon enhancement project revolves around five thematic plans relating to: the hydraulic and hydro-sedimentary aspects, liquid and solid sanitation requirements, the restoration of the site's landscape, and the improvement of transport and urban mobility. A fifth plan focuses on priority actions.

DECONTAMINATION OF THE EBRIÉ LAGOON

The fragility of the Ebrié lagoon and the lack of water renewal required special attention.

The potential solution to improve water exchange between the lagoon and the sea were identified and subjected to an in-depth study relying on numerical modeling.

This modeling highlighted the conditions for the sustainable improvement of the water quality in the Abidjan area. It also tested the effectiveness of the possible solutions and examined their induced effects and estimated their costs.

The impact-assessment regarding the water quality improvement in the Cocody Bay through the implementation of new channels or the enlargement of the Vridi Canal will be examined within this framework.



Vridi Canal



Former, closed estuary of petit Bassam



Closed estuary of Comoé

OPENING OF NEW ESTUARIES



THE COCODY BAY SAFEGUARDING AND DEVELOPMENT PROJECT

At the center of Abidjan, in the heart of the country, the symbol of a dynamic, radiant Africa that looks towards the future.

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Driven by His Majesty King Mohammed VI and His Excellency the President Alassane Ouattara desire to strengthen the relationship between both Nations, the project intends to provide a sustainable solution to the problem of bay pollution and its watershed.

The project is part of an innovative structure in which Marchica Med will be assisting the Ivorian Government.

The Cocody Bay, a highly symbolic place of Abidjan, will benefit from the construction of bridges and road infrastructure, the development of a marina, port works and an urban park.

The project also includes measure to protect the area against flood risks through the restoration of the existing infrastructure and the construction of dams.





MarchicaMed Agency



Agence MarchicaMed
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AGENCE POUR L'AMENAGEMENT DU SITE DE LA LAGUNE DE MARCHICA

وكالة تهيئة موقع بحيرة مارشيك

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