

## LEVERS FOR SUCCESS

### ATECHNICAL ASPECTS AND PROJECT DESIGN

- **Plan replanting campaigns:** On the collective farm, the recovery rates of the planted trees vary from 53% to 97% depending on the plots, in particular because of an excess of rainwater at the time of planting and the strong competition with weeds. It is important to monitor the adaptation of the chosen varieties. Annual monitoring enables us to identify those adapting the best within a plot and to plan replanting accordingly.
- **Anticipate maintenance investment:** Essential to the survival of the trees, the maintenance and care of the plantations are very demanding and time-consuming in the first years and entail additional costs

### COMMITMENT OF STAKEHOLDERS

- **Adapt to local context:** The plantations have partly transformed the landscape of the island. In order not to obscure the sea view for local residents, low hedges have been planted in some locations.
  - **Gain political and civic support:** The consultation of multiple stakeholders early on and throughout the project has enabled its implementation in conformity with the expectations of all parties.
- The insufficient tree cover and the lack of species diversity on the island were issues brought up by all, the City Council, the Regional Park office and the farmers. In 2018 and 2019, several consultations were launched by these stakeholders as well as local residents to define the agroforestry project together.

### FOR FURTHER INFORMATION

- Technical resources recommended by Agroforesterie & Conseil: <https://www.agroforesterie-conseil.com/infos/>
- Nature 2050 programme webpage: <https://www.cdc-biodiversite.fr/realisations/gaec-de-lile-darz/>

### PROJECT LEADERS

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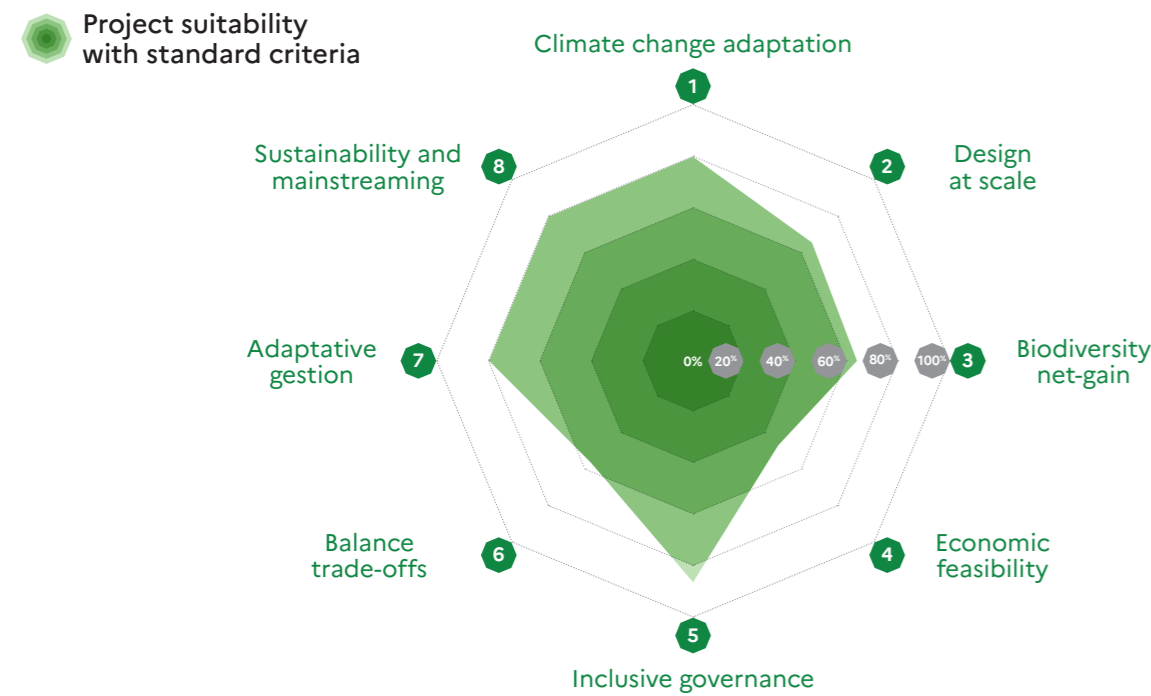
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## ASSESSMENT ACCORDING TO THE IUCN GLOBAL STANDARD FOR NATURE BASED SOLUTIONS



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## ÎLE D'ARZ AGROFORESTRY COLLECTIVE FARM 2019 - 2050



### IDENTITY CARD

#### GEOGRAPHICAL LOCATION

Morbihan (56)

#### TARGETED ADAPTATION ISSUE(S)

Erosion of coastline, storms, droughts

#### ENVIRONMENT CONCERNED

Island

#### TYPE(S) OF NBAS

Restoring ecosystems: Agroforestry in a unique island and ecological context

#### PROJECT LEADER(S) AND ASSOCIATED PARTNER(S)

- l'île d'Arz collective farm
- Municipality of Ile d'Arz
- National Regional Park of the Gulf of Morbihan
- Agriculteurs d'avenir competition – Accor, PUR Projet
- Nature 2050 programme – CDC Biodiversité

#### FUNDERS AND BUDGET

- CDC Biodiversité Nature 2050 Programme
  - Crowd funding, owner equity
- Budget: **39 941 €**

In addition, the cost of the continuation and monitoring of the project until 2050, paid for by the Île d'Arz collective farm and CDC Biodiversité.





## PROJECT OBJECTIVES

- **For climate change adaptation**  
Assist the reforestation of the island to combat soil erosion and the receding coastline; create a microclimate reducing temperatures and the drying effect of wind.
- **For biodiversity**  
Create hedges favourable for harbouring species; restore the local fauna in the face of the proliferation of Coypu; conserve the hardy local Bretonne Pie Noir cattle breed and improve the well-being of the herd
- **For the local community**  
Enhance the fodder autonomy of the farm; and its integration into the island's landscapes.



Planting project with the Lycée agricole, 2019  
© CDC Biodiversité

## CONTEXT AND CHALLENGES

Off the coast of Brittany, integrated into a Natura 2000 zone, as well as in the Natural Regional Park (NRP) of the Gulf of Morbihan, the Island of Arz is an ecologically fragile territory. Due to strong tides and violent winds, it faces a significant risk of marine submersion and erosion. The coastline is lined with pine trees which, by falling due to this erosion, open breaches weakening the coast and accelerating the retreat of the coastline. Each year, the island experiences a period of drought becoming increasingly intense between the months of June and October. The collective farm is the only farm on the island, it has been raising hardy Breton black Magpie cows since 2011. The partners of the collective farm produce and sell artisanal products on the island. The agroforestry project was presented and discussed with the island's city hall and local residents since back in 2018. The following year, the project was awarded by the Concours Agriculteurs d'Avenir and integrated into CDC Biodiversité's Nature 2050 program. It aims to plant close to 4,000 trees on the farm in order to increase the resilience of scarcely wooded farmland and coastal areas vulnerable to climate hazards.

### REGULATORY FRAMEWORK OF THE PROJECT

- Gulf of Morbihan Territorial Climate-Air-Energy Plan PCAET - The Greater Vannes Area (updated in 2020)
- Marine Valorisation Plan (SMVM) of the Gulf of Morbihan (updated in 2020)
- Gulf of Morbihan National Regional Park Parc Naturel Régional du Golfe du Morbihan
- Gulf of Morbihan Natura 2000 Sites

## ACTIONS IMPLEMENTED

In order to prepare the soil to facilitate planting and to encourage recovery, a one-prong soil decompactor was used at a depth of around 50 cm into the ground. This operation was completed by using a one-metre-wide rotating prong tool. A selection of hedge species adapted to coastal areas was planted in 2019 with the mobilisation of several volunteer residents of the island, partners and a class from the horticultural high school of Saint-Jean-Brévelay

In addition to the plantings on the coast, an orchard and fodder-tree grove adaptations were also made inland. These trees are only over 2.5 m tall during their growth phase, and are then pruned back 60 cm to 1 m from the ground. In addition to tall trees and fruit trees (apple and pear), the groves are made up of the following species: service-tree, alder, hornbeam, oak, chestnut, dogwood, ash, broom and hazel.

## SCHEDULE

### PROJECT LIFESPAN

<b>2011</b>	Municipality of Ile d'Arz call for proposals for a farm facility covering 30 hectares
<b>2019</b>	Winner of the Concours Agriculteurs d'Avenir Integration in the Nature 2050 programme 1 <sup>st</sup> planting phase. Definition of monitoring indicators
<b>2020</b>	2 <sup>nd</sup> planting phase Start of monitoring
<b>2021</b>	Apple orchard planted Analysis of recovery rate by volunteering inhabitants
<b>Until 2050</b>	Planting of 2000 additional trees Continue monitoring

## GOVERNANCE ADOPTED

The project is the fruit of a collaboration between the Ile d'Arz collective farm with the Ile d'Arz municipal authority, the Regional Natural Park and the island's residents. In the long term, the management, maintenance and monitoring of the plantations are undertaken by the owners. The Estate is supported by CDC Biodiversité via the Nature 2050 programme and its scientific partners for the definition and monitoring of indicators until 2050, in addition to the co-financing of the action. The Agroforesterie et Conseil consultancy is assisting with the design, work and annual monitoring of the plantations. Pur Projet will carry out the monitoring for the winners of the Arbres d'Avenir 2019 competition- organised by Accor – over the first three years.



Planting project with the Lycée agricole, 2019  
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## BENEFITS AND CONTRIBUTIONS OF THE PROJECT



### BENEFITS REGARDING TARGET ADAPTATION ISSUES

- **Drought and temperature regulation:**  
By providing shade in the paddocks, the intra-parcel alignments optimise water resources, maintain humidity and limit drought, thus preserving the herbaceous layer; which is a fodder source for livestock. The arrangement of windbreak hedges around the plot reduces the drying effect of the wind on the meadows.
- **Receding coastline:** The hedge planted along the coastline aims to limit erosion and replace the soil fixation function of formerly planted pine hedges which were washed away by the sea.



### BENEFITS FOR BIODIVERSITY

- **Soil enrichment:** Through their root system, planted fodder plants improve the microbial activity of grasslands and increase their productivity by providing the mineral elements necessary for soil enrichment
- **Creation of habitats:** The planted hedges boost bird, pollinator, arthropod, reptile and bat populations.



### OTHER BENEFITS

- **Maintenance and development of small-scale agriculture** on the island to ensure food autonomy for the islanders
- **Economic benefits:** The fruit from the planted orchard completes the income of the collective farm. Savings on veterinary expenses thanks to the richness of the minerals contained in the main feed of the cows. Some of them naturally deworm the animals. The production of hay and straw from the fodder trees limits imports from the mainland.
- **Well-being of the herd** provided by the shade and the fodder complements from the hedges

## MONITORING INDICATORS

### Climate change adaptation

- **Evolution / maturity of ecosystem:** Measurement of organic carbon stock in soil and natural abundance rate of Nitrogen 15 in the leaves
- **Observation of the resilience** of agricultural plots to hydrological events
- **Observation of the receding** of the coastline with respect to the hedge planted along the shoreline and the fall of formerly planted trees

### Biodiversity

- **Monitoring plants**
- **Monitoring of flora, birds, pollinators, arthropods, reptiles and bats:** mapping of habitats and surveys of heritage species (Gulf of Morbihan Regional Natural Park)

### Others

- **Volume of ramial chipped wood (RCW) produced**
- **Volume of fruit processed**
- **Supplementary volume of fodder produced**