

IRENE

REVERSIBLE

HYDROELECTRIC

POWER PLANT

IN NAVARRA

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With a track record of more than 25 years, Navarra and ACCIONA Energía are European benchmarks for best practices in the renewable energy sector, leading to outstanding technological and industrial development in the region.

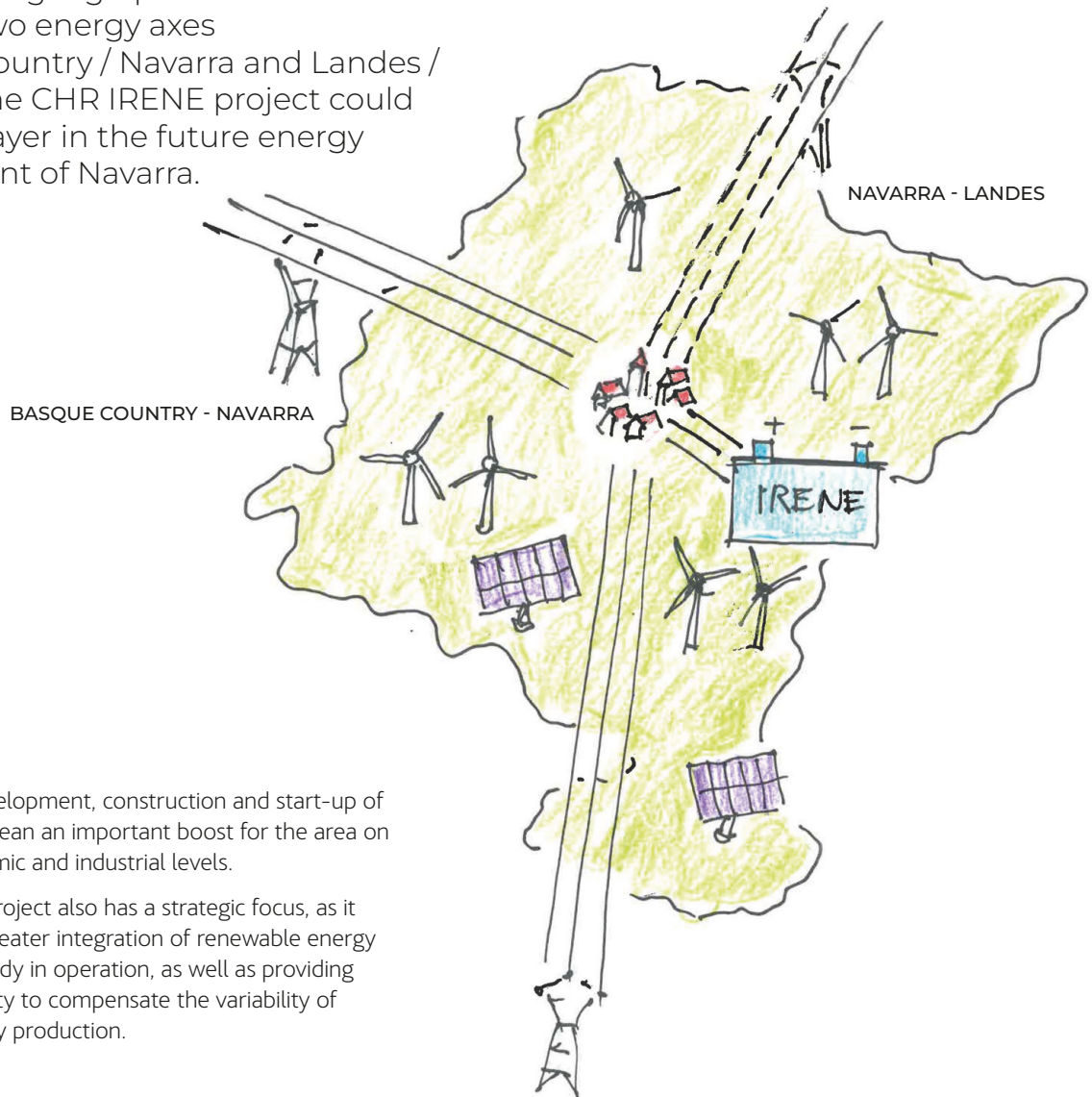
As part of its commitment to clean energy as a vector in the fight against climate change, ACCIONA Energía presents a new project in Navarra: the IRENE Reversible Hydroelectric Power Plant.

With power generation capacity of 500 MW and 3,750 MWh of estimated storage capacity, CHR IRENE is an opportunity to take advantage of clean, locally-produced energy and promote energy storage in Navarra in a sustainable manner.

In line with ACCIONA Energía's track record and vision reflected in the sustainability of its projects, the CHR IRENE power plant is designed with maximum care to conserve the environment.

Thanks to its geographical situation between two energy axes

- Basque Country / Navarra and Landes / Navarra - the CHR IRENE project could be a key player in the future energy development of Navarra.



Likewise, the development, construction and start-up of CHR IRENE will mean an important boost for the area on the socio-economic and industrial levels.

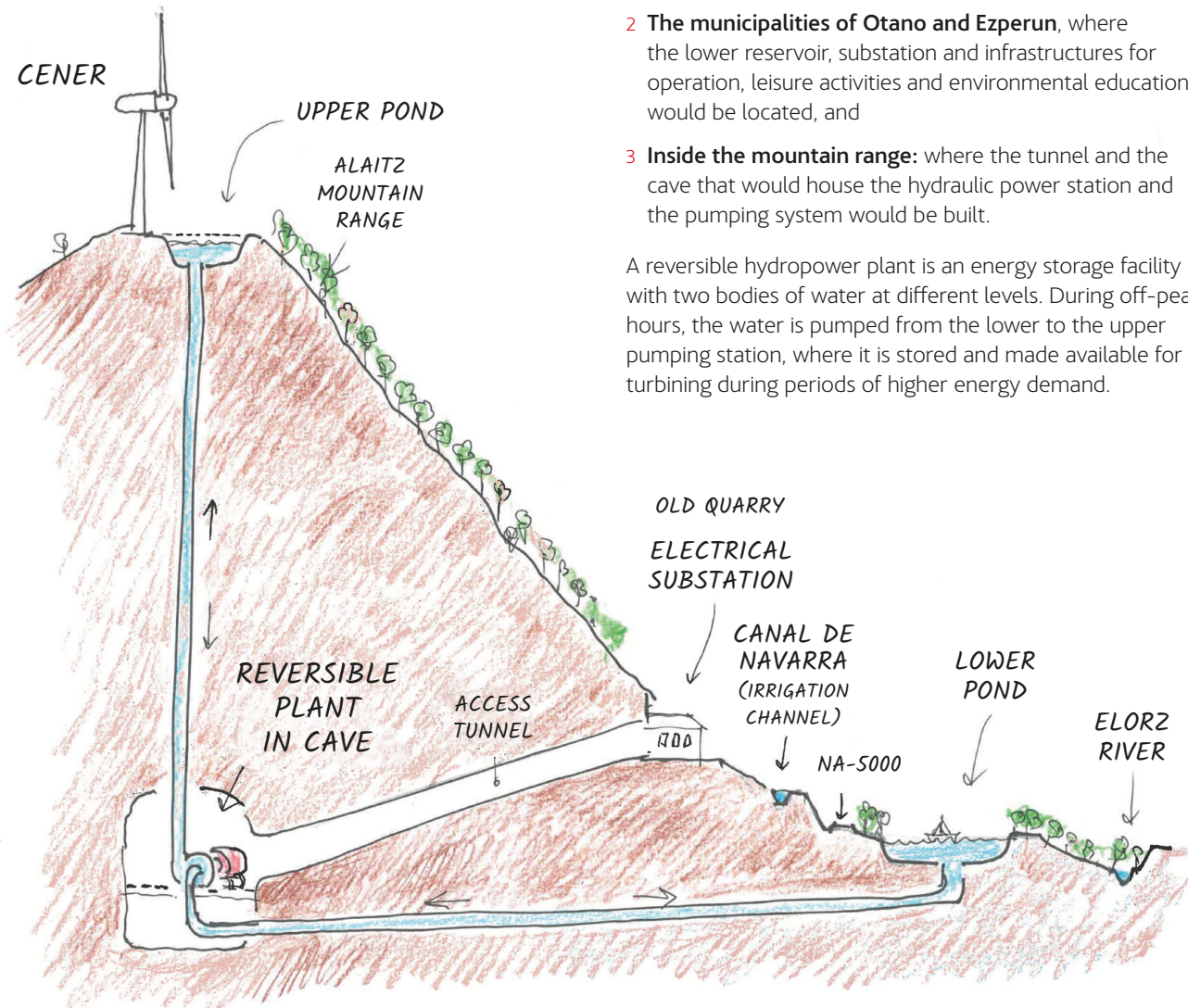
The CHR IRENE project also has a strategic focus, as it will allow for a greater integration of renewable energy installations already in operation, as well as providing regulation capacity to compensate the variability of renewable energy production.

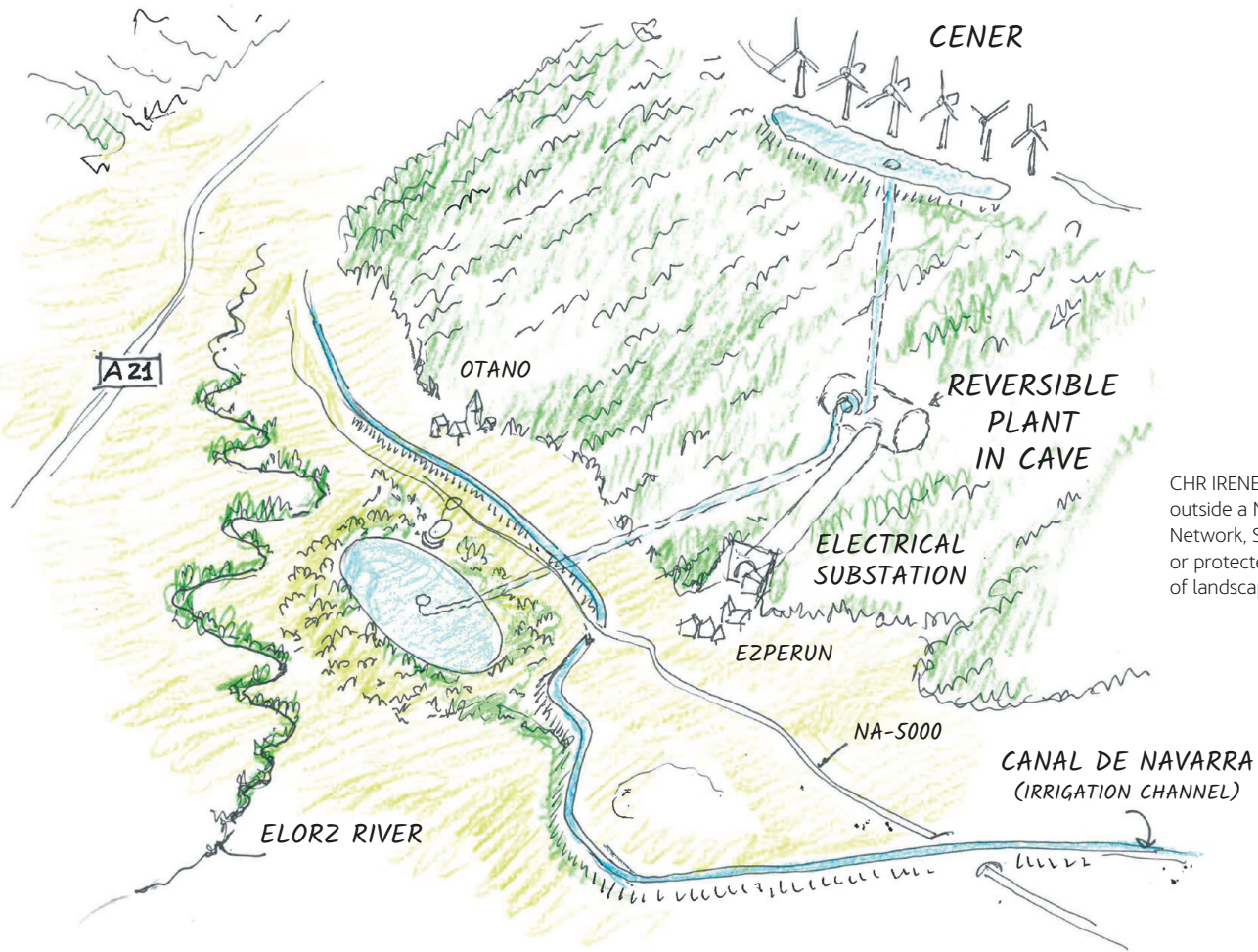
A REVERSIBLE HYDROELECTRIC POWER PLANT

The planned location of the CHR IRENE project is in the Alaitz mountain range, at three points:

- 1 **The crest of the range**, in CENER's experimental park, where the upper water reservoir would be located.
- 2 **The municipalities of Otano and Ezperun**, where the lower reservoir, substation and infrastructures for operation, leisure activities and environmental education would be located, and
- 3 **Inside the mountain range**: where the tunnel and the cave that would house the hydraulic power station and the pumping system would be built.

A reversible hydropower plant is an energy storage facility with two bodies of water at different levels. During off-peak hours, the water is pumped from the lower to the upper pumping station, where it is stored and made available for turbinizing during periods of higher energy demand.





CHR IRENE is located outside a Natura 2000 Network, SCI, SPA or protected area of landscape interest.

KEY ASPECTS

It is a project that will promote the development of innovative and sustainable solutions for environmental, economic and social management, climate care and immersion in the environment of the Elorz Valley (Noáin).

Caring for the environment and the climate

Landscape and ecosystem integration

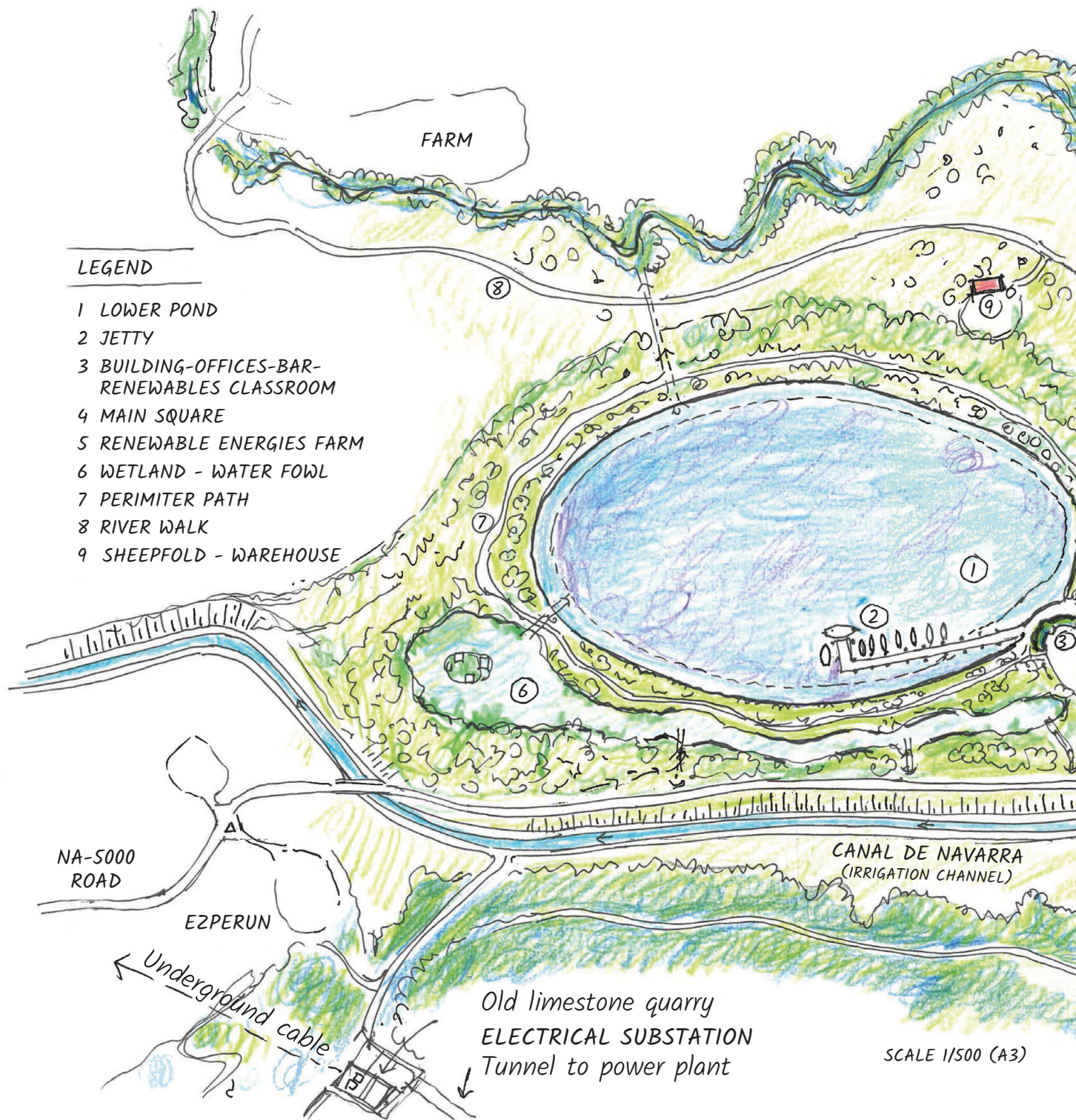
Good practice laboratory

Economic, social and environmental sustainability

Sustainable Mobility

Environmental education and active leisure

Promoting biodiversity





The CHR IRENE project will include a major **socio-economic, environmental and training development programme** in the municipalities of the area, based on four pillars:

- 1 CLIMATE COMMITMENT
through planting, crops
and livestock management
- 2 Economic management
and maintenance of
the AGRO-ECOSYSTEM
- 3 Improvements for
NEARBY LOCALITIES
- 4 ENVIRONMENTAL EDUCATION,
dissemination, attraction of
SUSTAINABLE TOURISM
and transforming experiences

Sketch of the lower reservoir environment and proposed developments

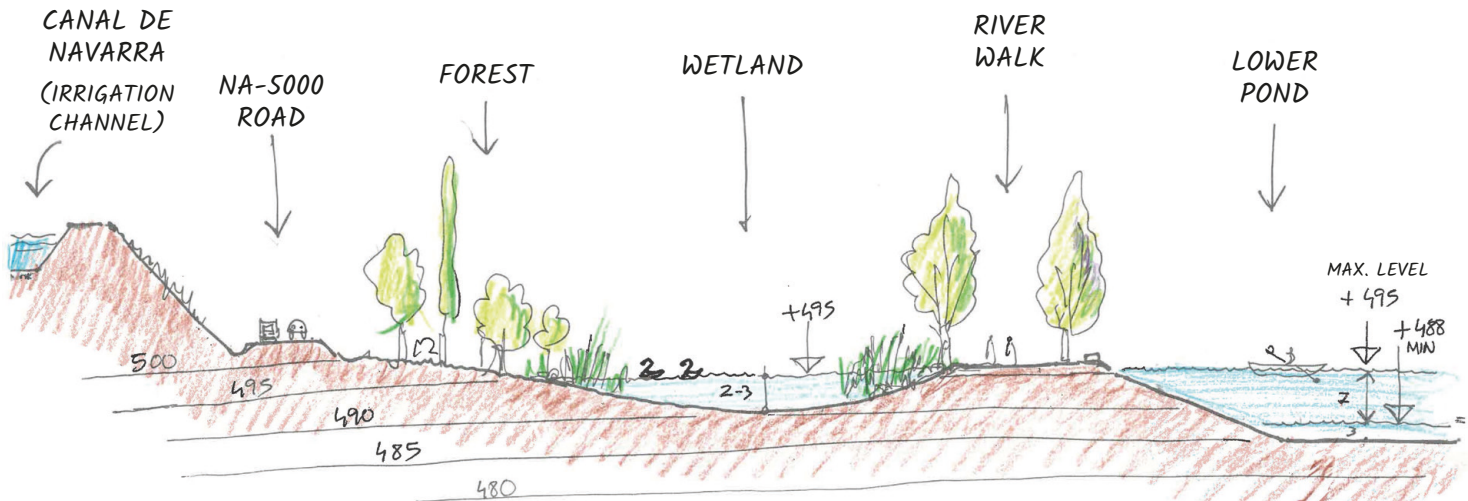
1

CLIMATE COMMITMENT through planting, crops and livestock management

Creation of woodland, shrubland, grassland and crops according to carbon sequestration and estimation criteria.

Annual calculation of the carbon footprint of the agro-ecosystem created.

Design of a management plan that allows for maximum growth of all plant types to maximise carbon sink potential.



CROSS-SECTION I

SCALE 1/500 (A3)

2

Economic management and maintenance of the AGRO-ECOSYSTEM

Stands of native forest trees and fruit-bearing shrubs in copses to support agri-environmental management and maintenance.

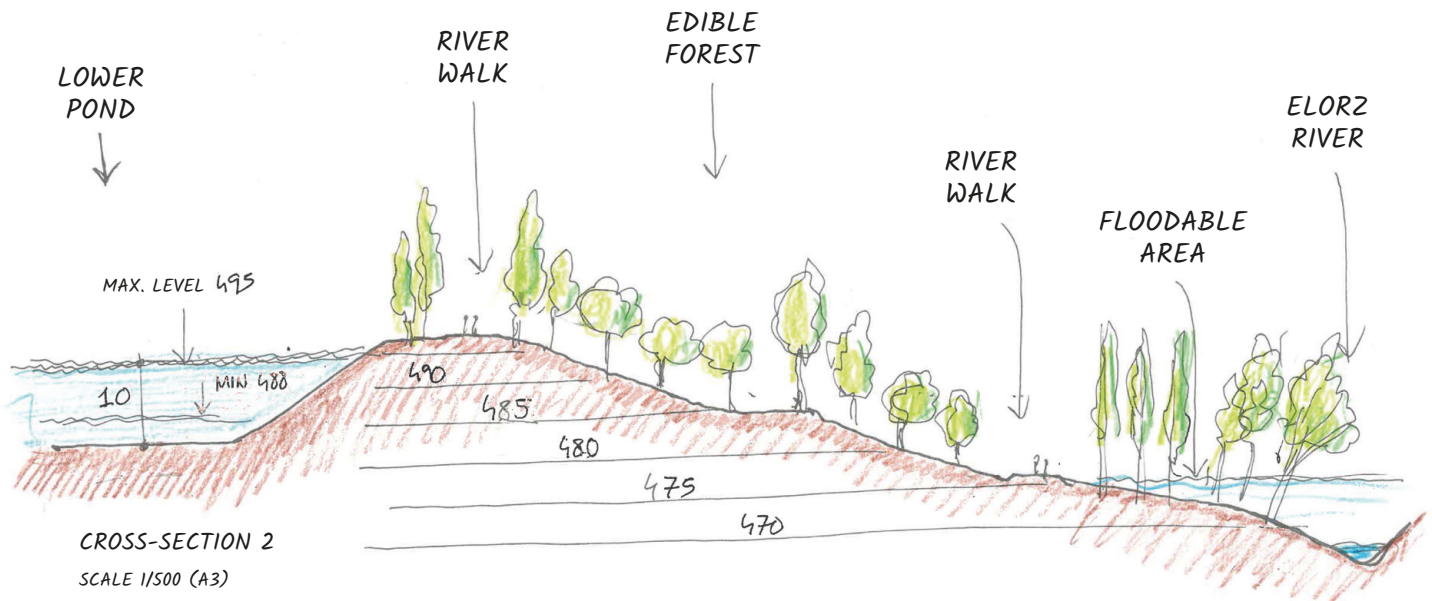
Masses of fruit or hardwood trees.

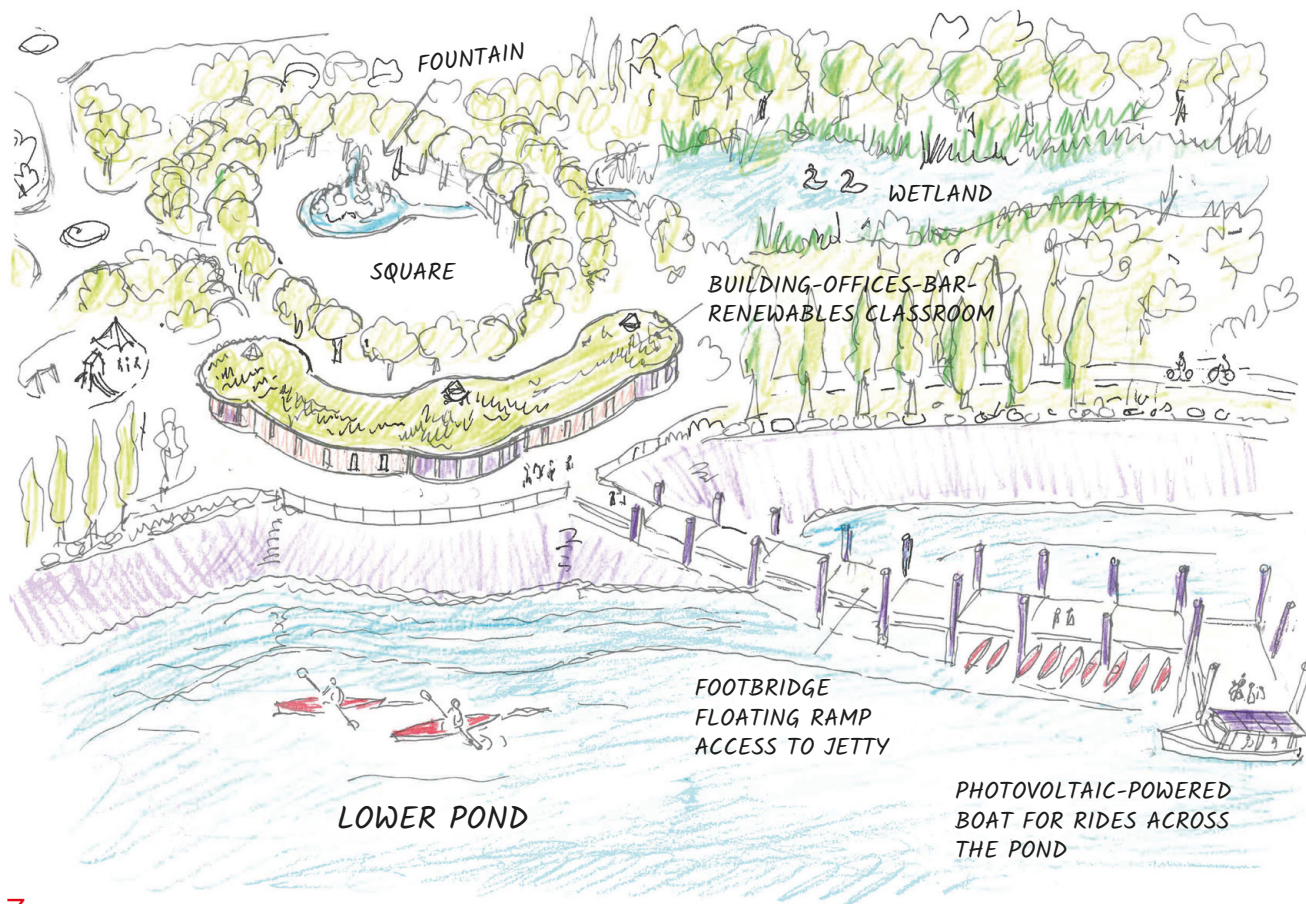
Aromatic, medicinal or culinary bushes.

Meadow areas for livestock management (sheep, horses, cows, chickens, ducks, bees...).

Areas of diverse rainfed crops and kilometre-zero horticulture.

Wildlife observation areas.





3

Improvements to the environment and NEARBY LOCALITIES

ACCESSIBILITY FOR LEISURE AND VISITS

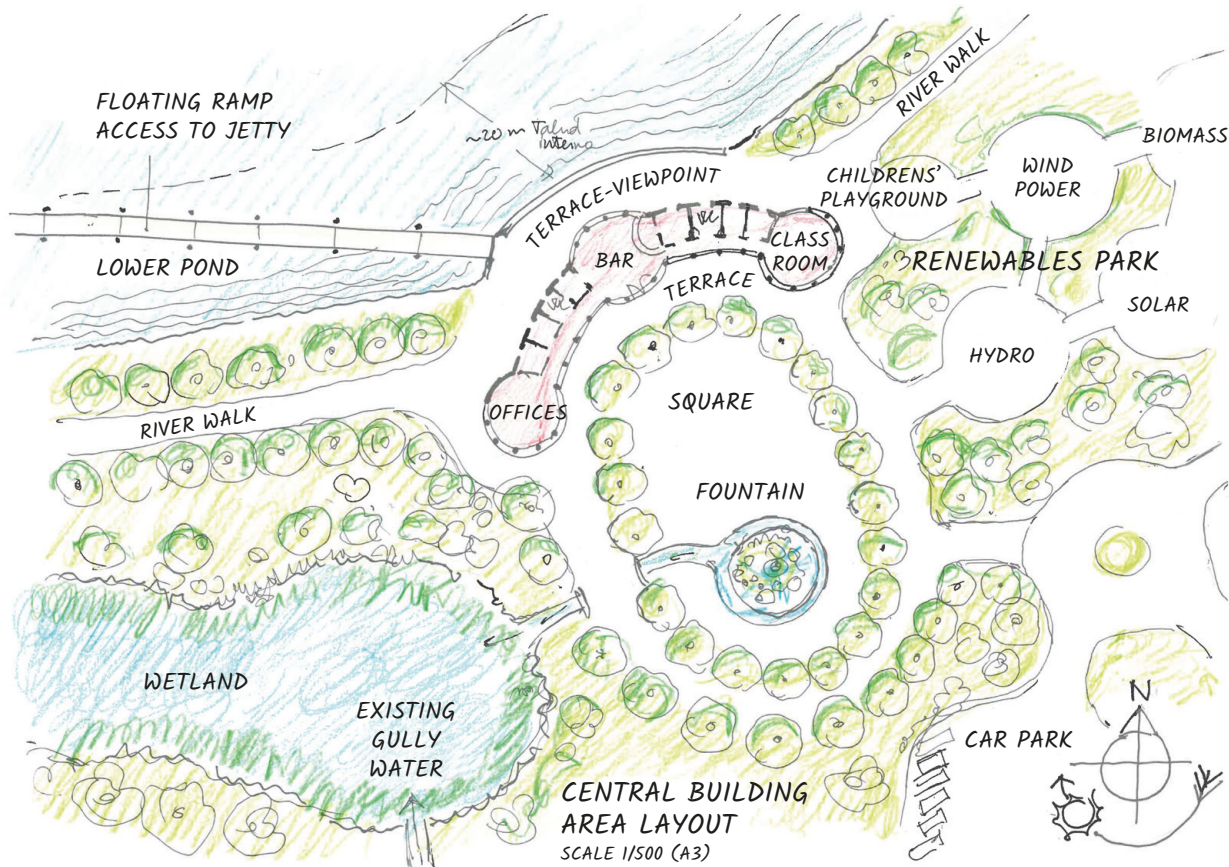
Adaptation of the section
along the Elorz river walk.

Connection and
improvement of the road
surface in the road network
nearest to the valley.

Improvement and
maintenance of paths in the
Alaiz mountain range.

4

ENVIRONMENTAL EDUCATION, outreach, attraction of SUSTAINABLE TOURISM and transforming experiences



Tours: on foot,
by bike or boat

Self-collection
zones

Immersion
in nature

Participation
in its creation

Sustainable
tourism
promotion

Observation
of livestock
in action

Attraction of
knowledge,
experiences,
propositions
and alliances

Dissemination,
environmental
education and
participation

A project by:

