

PLANNING OF A MULTIECOLOGICAL
NEIGHBOURHOOD
as a model of urban resilience
PROJECT LIFE LUGO + BIODYNAMIC



**LIFE Lugo +
Biodinámico**

En la vanguardia del urbanismo sostenible

Sponsored by:



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SYMBOLGY LEGEND:

- Scope delimitation (292,468.14 m 2):
- Functional Units
- Assigned
- Cadastral Plots
- Existing Vegetation
- Watercourse
- Railway Track
- Existing Construction Outside the Scope
- Other Relevant Interventions:
- Existing Construction Within the Scope
- Existing Woodland Within the Scope:

CONSTRUCTION:

- Proposed Construction

ROADS AND PATHS:

- Proposed Roads and Paths:
- 1 st Category:
- 2 nd Category
- 3 rd Category:
- Road Configuring Elements:
- Pavement:
- Hedgerow:
- Use Separation:

VEGETATION:

- Proposed Tree Varieties:
- Oak Tree:
- Chestnut Tree:
- Willow Tree:

USES:

- Residential:
- Equipment:
- Tertiary:
- Open Spaces and Green Areas:
- Road Communications Infrastructures:

FUNCTIONAL UNITS F.U.		
SECTOR	F. UNIT	SURFACE (m²)
S-1.R	1	38.141,85
S-1.R	2	36.692,73
S-1.R	3	66.867,84
S-9.R	4	36.230,86
S-9.R	5	34.450,54

PLANNING OF A MULTIECOLOGICAL NEIGHBOURHOOD

as a model of urban resilience

PROJECT LIFE LUGO + BIODYNAMIC

(LIFE14 CCA/ES/000489)

1.INTRODUCTION

The Project LIFE Lugo + Biodynamic is designed for the north of the city of Lugo, nearby the O Ceao industrial estate and the As Gándaras industrial park. Its purpose is to develop an innovative urban strategy adapted to climate change.

The multiecological neighbourhood planning is framed within the Byodinamics Strategic Plan. Namely, it corresponds to the C2.8 sub-action, related to the detailed urban planning scope of action.

This scope includes sectors S-1.R (141,636 m²) and S-9.R (70.648 m²), defined in the (PXOM-2011). They are located in the A Garaballa de Lugo area. These plots are classified as enclosed building land and they will be developed by means of a partial plan.

Regarding the urban space where it is inserted, it is made up of two sectors with superb access conditions. They are crossed by Infanta Elena Duquesa de Lugo Avenue, the main artery for entering and leaving the city of Lugo from the A-6 expressway (O Ceao).



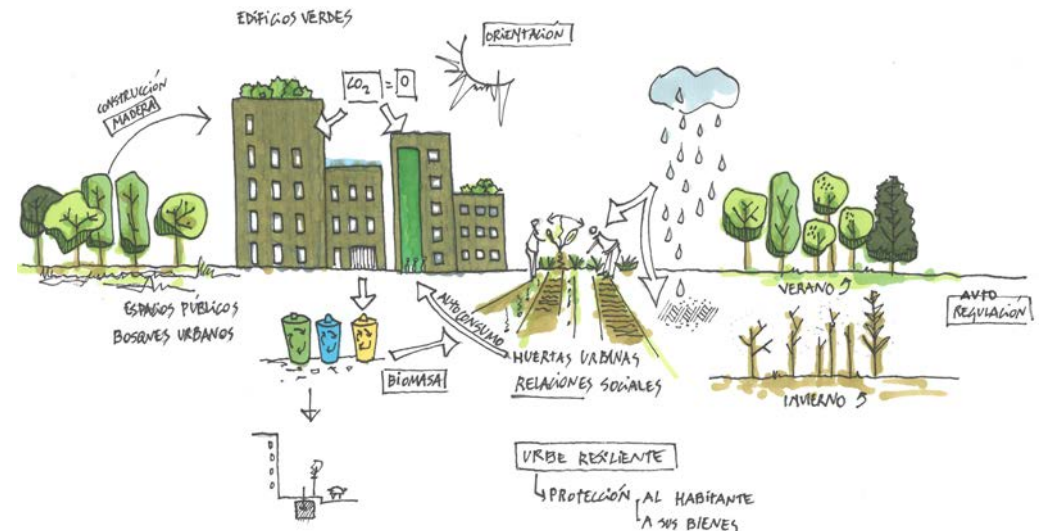
The neighbourhood belongs to the "Parque lineal Verde" (green linear park) area, which surrounds the city, from west to northeast, following the Miño, Rato and Fervedoira river courses and whose projection is included in the PXOM within the new Planning Model designed for the city of Lugo.

> Lugo Green Linear Park Scheme.
Source: own development



The planning includes the criteria established by the Reference Framework for Sustainable Cities (RFSC) in its five dimensions: spatial, governance, social, economic and environmental

> Scheme of ecological urbanism principles.
Source: Own development.



2. NEIGHBOURHOOD DESCRIPTION

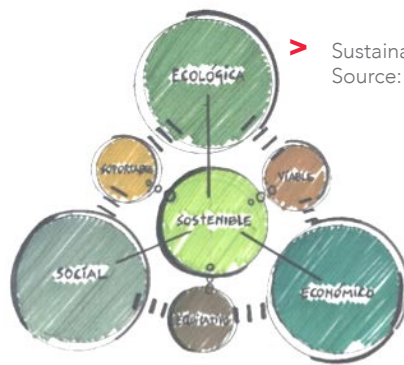
The neighbourhood's purpose is to attain an effective urban planning adapted to climate change while generating an inhabitable and sustainable urban environment.

In order to ensure a sustainable and balanced urban development, the proposal's planning not only has considered economic criteria but also environmental and social values. The proposed planning adapts to the natural terrain, without varying the existing topography by using the land and the natural resources in a rational manner. Therefore, it guarantees a compatibility between economic progress, growth and development and a preservation of the environment and the landscape, cultural, historical and ethnographic values in the territory. The goal is to ensure life quality for the current population and the future generations.

The neighbourhood has been conceived as a self-sufficient urban system that minimises the pressure on biodiversity, agriculture and soil sealing. The pursued objective is to reach the highest level of self-sufficiency to obtain a neutral carbon system by opting for renewable energy generation.

In the same vein, urban development is linked to the local water cycle (rainwater collection, reuse of used water...). A further purpose is to ensure the maximum water self-sufficiency that combines the collection procedures with the cost- saving and efficiency measures.

For all citizens' safety and comfortability, environment variables have been controlled, such as key habitability elements, temperature, shades, soundscape, green volume, urban diversity or immission of pollutants



> Sustainable urban planning scheme.
Source: Own development.

There is a promotion of atmosphere protection and the use of clean technologies, products and materials which reduce polluting emissions and greenhouse gases in the building sector, as well as reused and recycled materials that contribute to the improvement of resource use efficiency

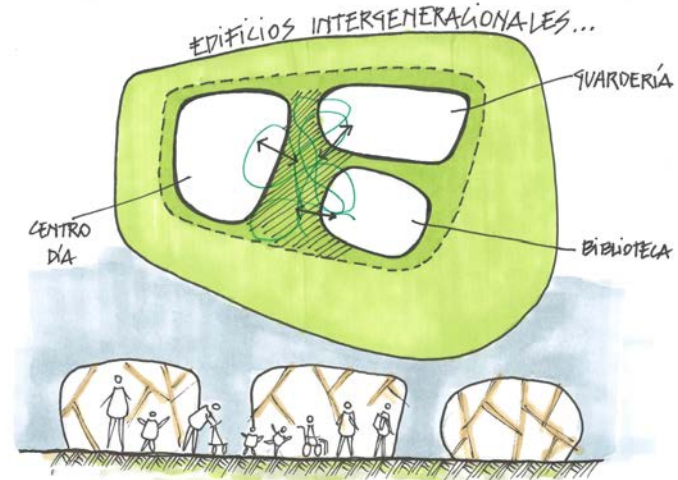
In space organisation, the idea is to create an 'urban village' that provides the neighbours with housing, transport, recreational and community services and facilities as well as public spaces and small shops.

Hence, a wide array of uses is created in the neighbourhood. In order to facilitate community diversity and cohesion, these services and facilities will meet the needs of various social groups with different interests and demands.

2.1.RANGE OF USES

2.1.1.RESIDENTIAL USE In both sectors, residential is the characteristic use. This use is strategically distributed in both approaches so as to mix with the other intended uses. The specific category is collective housing prioritising intergenerational buildings for users of all ages.

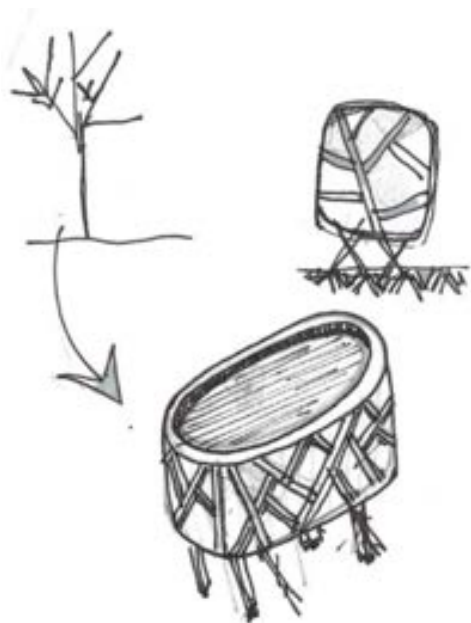
- > Scheme of intergenerational buildings.
Source: own development.



In the light of the current monofunctionalism trend, the proposal is a building able to embrace urban complexity, thus generating building models that favour the mix of complementary uses.

The planning allows for the development of different building typologies, thus obtaining flexible or versatile housing possibilities.

The construction is released from the regulatory exigence to include a private vehicle, thus complementarily establishing the resources needed to fix alternative transports (electric vehicles, bicycle and motorbike parking lots, etc.).



> Scheme of residential buildings.
Source: own development.

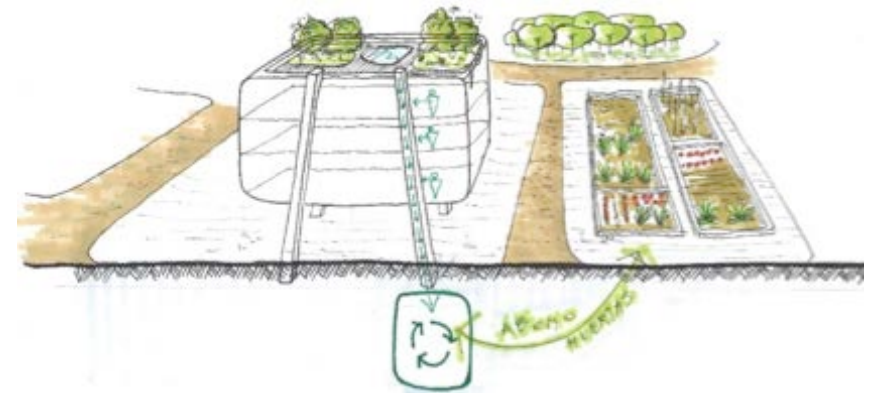
The construction follows an urban vegetation strategy, coherent within the territorial, urban and architectural levels. The roof or the balconies may house hydroponic cultivations, solar panels and even glazed greenhouses, everything integrated inside the building's structural mesh.

A part of the residential use is reserved for protected housing. There will be a boost of the specific building regulations regarding a flexible protected housing model in a way that it is easily adaptable to the spatial, dimensional and equipment needs of users during the lifespan of such regulations. Such flexible housing model would have its lifespan increased thanks to its adaptation capacity to certain residential requirements likely to keep evolving, thus slowing down the technical, spatial or functional obsolescence. In the same way, the environmental impact would be reduced as compared to a rigid housing model which required more adaptation or replacement actions. Lastly, it would contribute to the enjoyment of longer periods of comfort and adaptation to the special demands of the dwellers.

General material consumption is reduced since the construction features renewable, recycled or reused materials and/or lower energy consumption materials during production or on-site implementation.

Water consumption is reduced in the construction; besides, water recycling and selective use is promoted: For example, there will be water saving equipment (flow reducing and/or diffusers in taps and showers), toilets and household appliances with a minimum efficiency in terms of water consumption...

Buildings incorporate separation systems for rainwater collection.



2.1.2.TERTIARY USE

Tertiary services are aimed at the service provision for the general public, companies and institutions, such as temporary housing services, all sorts of commerce forms, information, administration, management...

It is about bringing people closer to services and workplaces in order to reduce energy consumption.

The following classes are included in the neighbourhood:

Commercial

It includes the activities related to goods supply or service provision to the general public. Small and medium-sized businesses will be allowed, unlike department stores.

Offices

It corresponds to the activities whose function is to provide administrative, technical, financial, informational and other services performed by managing and transmitting information to companies or individuals. The offices will be integrated and spread along the neighbourhood's residential fabric so as not to create empty dark areas with no purpose outside working hours.

Green growth will be promoted and circular economy will be favoured by supporting the implementation of companies and green constructions in the sectors



2.1.3.EQUIPMENT USE

Community, public or private equipment use is defined as the equipment that provides citizens with education, cultural enrichment, health and welfare and it also offers the services genuine of urban life in terms of administration, procurement and infrastructure.

The proposal is to adapt the equipment to a local level; therefore, the plots are strategically distributed.

For public procurement, the idea is to create a "neighbourhood core" providing municipal areas for hosting knowledge initiatives that generate innovative activities and promote and strengthen resources, public services and management.

The following classes are included:

Education

It comprises the areas or establishments whose purpose is to provide human and intellectual training activities by means of education and investigation actions.

Cultural

It comprises the activities aimed at the custody, conservation and transmission of knowledge as well as at the dissemination of culture and the exhibition of arts. A library and a daycare centre are planned to be built in the neighbourhood.

Besides, living laboratories will be created (participative public spaces, expository areas or exchange zones) in order to favour and foster street life.

Health care

It comprises activities aimed at the provision of outpatient, hospital or geriatric health or surgical services.

By analysing the area's health care assistance, we observe that we need to build a health centre not only to cover the neighbourhood needs but also for serving a wider area.

Welfare

It comprises the activities aimed at the provision of non-specific health care through social services, such as areas or buildings purposed for social matters, elderly care, childhood care, public shelters or other similar goals.

A community centre is located in the neighbourhood.

Sport

It comprises those areas and facilities purposed for recreational and leisure physical activities, elite or high-performance sports, the exhibition of sport events and complementary facilities.

Multiple areas and sports courts have been arranged in the scope of action. All of them are closely linked to green areas.

Urban services

Food supply

Facilities which supply food products and other staples stimulating green growth and circular economy. A local market offering traditional signature products is also devised.

Administration services

Administration services are those which develop management tasks dealing with the government Administration at all levels for citizens.

Although it is not located within the scope of the sectors, it is relevant to take into account the “green boost” building (first public building in Galicia built with wood) located in the intersection of Paulo Fabio Máximo and Duquesa de Lugo avenues. This building is the first step in the creation of the multiecological neighbourhood hereby proposed. This public building will feature municipal services as well as a coworking space for environmental entrepreneurs.

The neighbourhood administration services will be complemented by those offered in this unique building.

The idea is to create a “neighbourhood core” by enabling municipal areas that host learning initiatives and generate innovative activities.

Basic infrastructure services

These are buildings aimed at the provision of services linked to water supply, energy, sanitation, telephone and telecommunications facilities.

Renewable energies are prioritised over fossil fuels and their aim is to fight energy poverty, thus fostering energy savings and the efficient use of resources and energy, preferably its own generated energy.

Besides, an underground tank is devised for rainwater to be subsequently reused for green areas irrigation and street cleaning.

There will be containers every 100 metres for organic waste collection, which can be repurposed for green areas, among other possible uses.



2.1.4. TRANSPORT AND COMMUNICATIONS USE

Road network

First-class roads

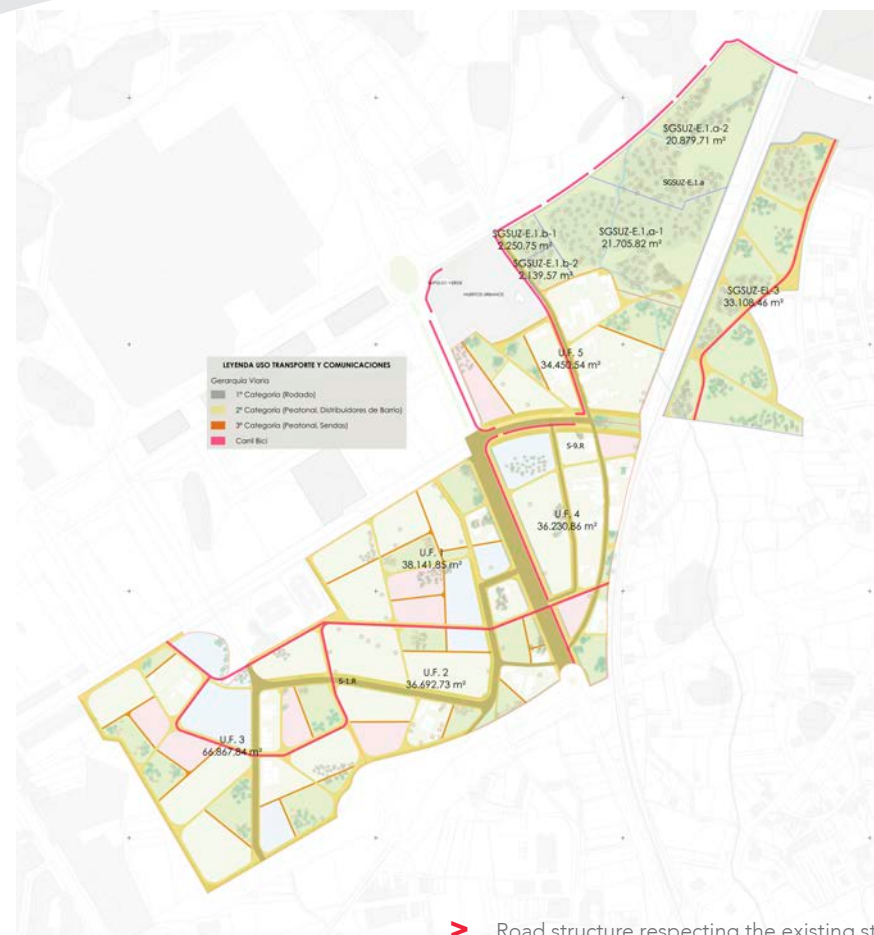
These are the roads for accessing the neighbourhood that derive from other superior roads (A-6, N-VI...). They are Infanta Elena Duquesa de Lugo Avenue, Paulo Fabio Máximo Avenue, A Coruña Avenue and Ronda Norte

Second-class roads

These are the roads which are important in the spatial structure and organisation of the different uses in the neighbourhood.

The existing road structure has been preserved so as to minimise the action's environmental impact. Mainly, we refer to Rúa do Vento.

This street at the core of the neighbourhood has been conceived as a restricted area for private vehicles having calm traffic areas with a 30 km/h limit for occasional access. Hence, pedestrians and bicycles are prioritised. There are parking lots for these vehicles in Infanta Elena Duquesa de Lugo Avenue, where permeable pavements will be used.



➤ Road structure respecting the existing structure.
Source: Own development.

There are strategic recharging spots for electric vehicles as a sustainable transport promotion.

Neighbourhood road exits

These are smaller roads but they are important for the area's urban planning. They channel traffic flows from second-class roads to the buildings' accesses.

Pedestrian paths / bike lane

Alternative and sustainable mobility is fostered by means of bike lanes and walking and cycling paths. There are also safe parking areas for bicycles.

Pedestrian paths pass by the green passage network and the naturalised space network featuring autochthonous species for improving vegetation quality and for integrating the landscape in the neighbourhood environment.

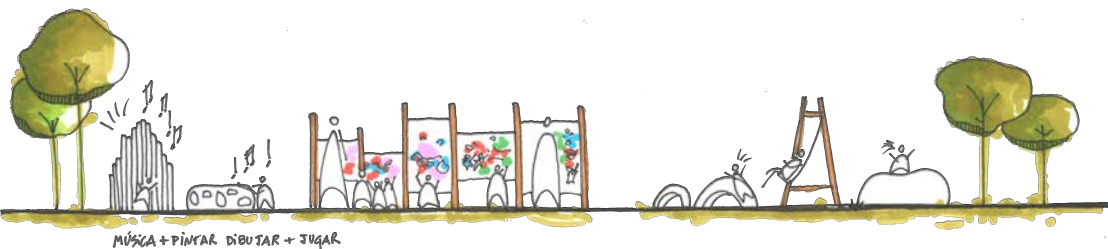
Public transport

We have carried out a study of the current public transport in the municipality of Lugo in order to locate the new neighbourhood access points (bus stops not further than 200 metres away) and ensure the access of all citizens to this service.

2.1.5. OPEN SPACE AND GREEN AREA USE

Public space is the urban planning structuring element. It is the citizen coexistence area and forms, together with the equipment, residential and green area network, the main pillar for social life and relations. The quality of these spaces is a stability indicator.

> Playing areas scheme.
Source: own development



It features an efficient design of the new public spaces so all users are involved and feel a part of them.

Therefore, the plan includes biodiversity areas and cultural-supportive areas where music, dance, theatre or art events are held.

Given their appearance and state, some existing lush autochthonous trees will be preserved.

The development is adapted to the area's topography so as to minimise earthwork and protect high-value soils and prevent the deterioration of the original landscape, the destruction of the soil structure and the increase of future execution and maintenance costs.



LIFE Lugo + Biodinámico	
ACCIONES DE PLANIFICACIÓN URBANA	
	Catálogo de Soluciones de Diseño Urbano
	Plan Estratégico de Infraestructuras Ecológicas: Plan Especial Biodinámico
	Planificación Detallada de Zonas de Confort Climático Residencial (ZCCR)
ACCIONES DEMOSTRATIVAS	
	Ferriñas
	Cultivos Energéticos
	Plantación de Castaños (Souto)
	Restauración de humedal - DNE (Espacio Natural de Interés Local)
	Arboretum
	Agricultura Urbana
	Edificio Impulso Verde

2.2. GENDER IMPACT

To design the planning, gender perspective in urbanism has been taken into account.

The proposal about the Sectors helps prevent the consolidation of the existing differences in terms of participation, resource distribution, discriminatory norms and values and direct or indirect structure discrimination, thus favouring the change towards an effective equality.

Security is promoted in the sector by mixing uses and well-lit paths that allow to recognise people at a certain distance without having nooks and crannies, being always visible before initiating the route.

Equipment is used as a space to satisfy citizen needs and as a basic part for the articulation of the urban fabric.

They promote equality, are sectoral revitalising areas and are adequately integrated as wealth elements within the public sphere.

Mobility is guaranteed in a reasonable time; it is based on an adequate balance between all of the transport systems, giving preference to public and collective transports, therefore fostering walking and cycling transfers.

The concept of proximity is closely related to mobility and accessibility. This quality allows everything to be close-by so everywhere is at a walking, cycling or public transport distance. For that reason, the maximum distance established between equipment, shops and public transport options is 300 metres. It is thought for all kinds of citizens regardless of the age,



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