European Green Capital Award 2023

Application Form

City Introduction and Context

Give an overview of the city and a general background to the application, including examples of social and economic sustainability in the city.

Discuss positive and negative factors that have influenced the quality of the environment within the city and its surrounding area.

Provide a description of the key environmental challenges which the city faces including historical, geographical and/or socio-economic factors which have influenced the city's development.

The city's infrastructure plan should be briefly explained.

Applicants are advised to include any former or outstanding environmental legal proceedings in this section.

Please provide the following two maps:

1. Map 1 should show the layout of urban areas, geographical and other features across the city;
2. Map 2 should show the city in the context of the wider surrounding area.

Please also complete the following table:

Table 1: Benchmarking Data - City Introduction and Context

Indicator		Units	Year of data
Population	151.136	Number of inhabitants	2019
Area	79,57	km^2	2019
Population Density	1.899,4	Inh/km^2	2019
GDP	24.479	€/capita	2017
Köppen climate classification	Cfb		

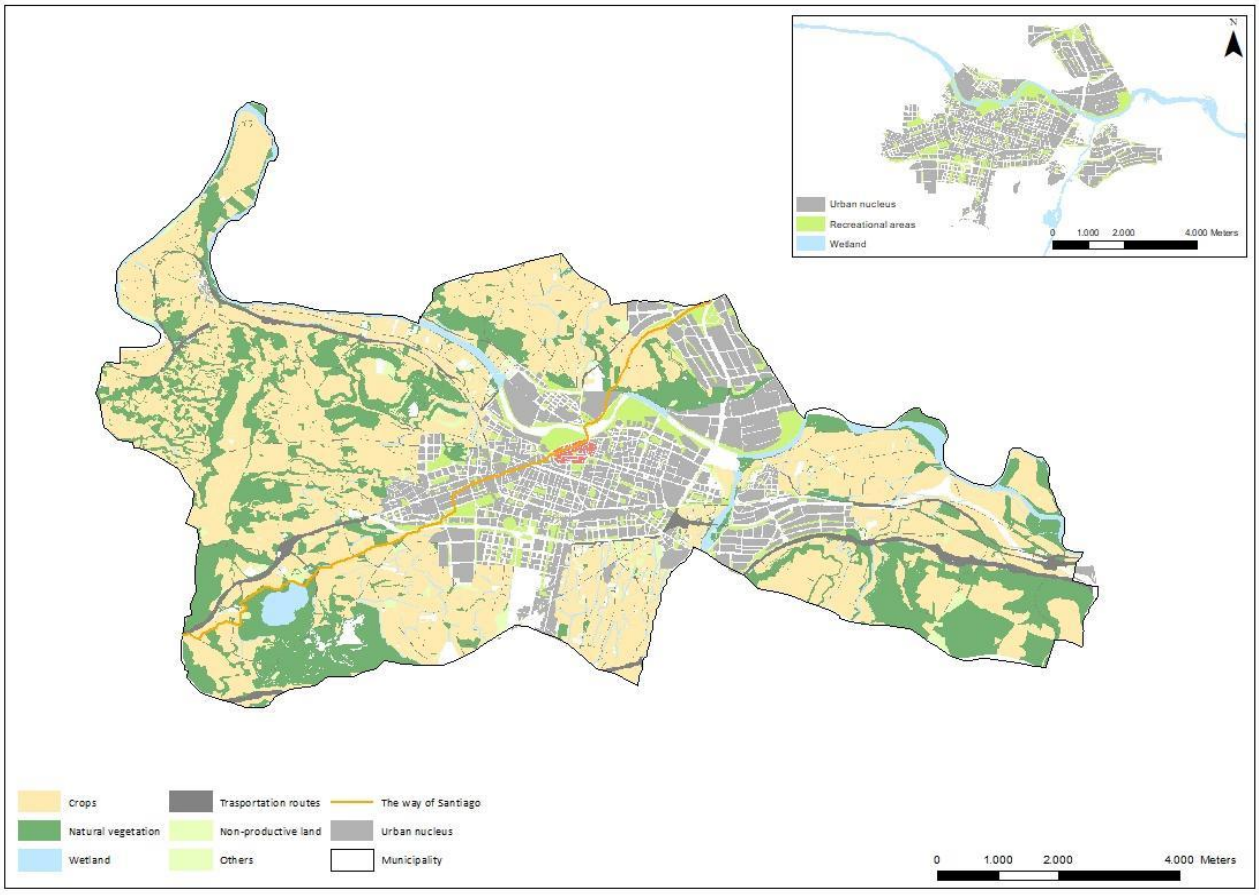


Figure 1. Urban and geographical areas of the city

History of the city to date

Logroño has an area of approximately 80 km2 and it is bordered by nine municipalities belonging to three different autonomous communities, the Basque Country, Navarre and La Rioja, of which it is the capital. The

fact that it is bordering with several regions has been the case since the Middle Ages, when the city was located between the kingdoms of Castile, Navarre and Aragon. Logrono has always been prosperous both economically and culturally, due to its proximity to the river Ebro and its location on the pilgrimage routes to Compostela ("Camino de Santiago"). Logroño has expanded continuously since the 11th century.

Figure 2. Logroño multi-cultural city, part of The Way of Saint James

The development of the city has continued to date, with a significant increase in its population from the middle of the last century favoured by the fact that Logrono is the capital city of the autonomous community of La Rioja. This has contributed significantly to its economic, social and urban development. It should be mentioned that in Spain different administrations (national, regional or local) have competence in the various areas covered by this form, and that is why we refer to national, regional or local policies, depending on the indicator.

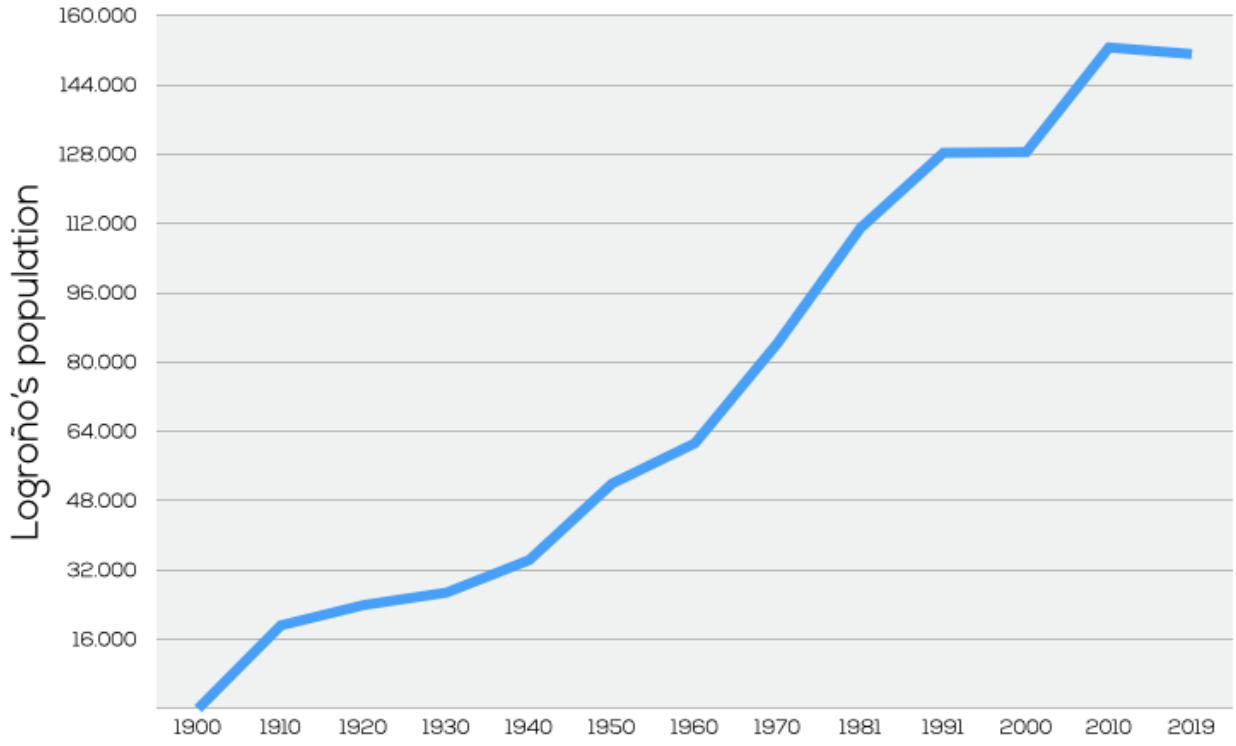


Figure 3. Evolution of the population of Logroño

Logroño has an extensive network of parks, gardens and river areas, which provides citizens with a green and blue infrastructure for its enjoyment and in which biodiversity can be enhanced. The presence of the river Ebro to the North of the city, with its tributary, Iregua, to the East and the reservoir of La Grajera to the Southwest is remarkable. The city is in proximity with the rural environment, and surrounded by small villages mainly dedicated to agriculture, in particular, vineyards. La Rioja is well known for its excellent winemaking. Logroño is an economic, social and cultural centre for the immediate surroundings and has been expanding its urban area with new districts replacing non-urbanised agricultural areas. Logrono has 50% of the population of La Rioja. It is also an industrial benchmark for the whole Autonomous Community, with important industrial parks located to the East of the city.

Since the middle of the 20th century, this expansion has been guided by successive urban plans that have managed to configure a dense, compact city with a mixture of uses, achieving an orderly urban fabric that favours active mobility.

Looking forward

Currently, there is an early version of the Municipal General Plan which promotes a city model based on an innovative urban regeneration for resilient development and that supports social cohesion. This plan is based on the efficiency of urban resources, avoiding urban expansion and giving priority to actions in the existing city

and built heritage. The twofold aim is to improve the quality of life of all people and to reduce the impact on the environment.

The mobility actions are focused on pedestrianisation, traffic calming measures and the improvement of the accessibility of the city. Actions have also been carried out to promote public transport and encourage the use of bicycles. Recently, the “Logroño Open Streets” strategy has been developed to adapt the city's streets in order to achieve a more balanced and fair distribution of space and a new Sustainable Urban Mobility Strategy is in the process of being drawn up.

The project to integrate the railway underground in the city is being finalised, with the removal of 6 km railways which crossed the city causing a barrier effect.

There are plans to improve ambient noise quality by reviewing the present strategic noise map and its action plan, and by establishing special noise protection zones with their specific plans.

Logroño is committed to green growth and eco-innovation to improve the city's habitability. There are plans to bring together local companies working in the green sector and other relevant actors to take advantage of the knowledge and resources of different sectors as a source of regeneration of the local economy. Thus, the city is moving towards a green digital transformation, the implementation and design of ICT tools, with a Smart City platform that integrates data from different areas. In 2014 Logroño received the "City of Science and Innovation" award from the Ministry of Science and Innovation.

The City Council continues to improve the management of the water cycle and energy efficiency, optimising consumption, use and final treatment. Improvements in citizen participation procedures, governance and public procurement are influencing the path initiated towards a more sustainable and resilient city vision.

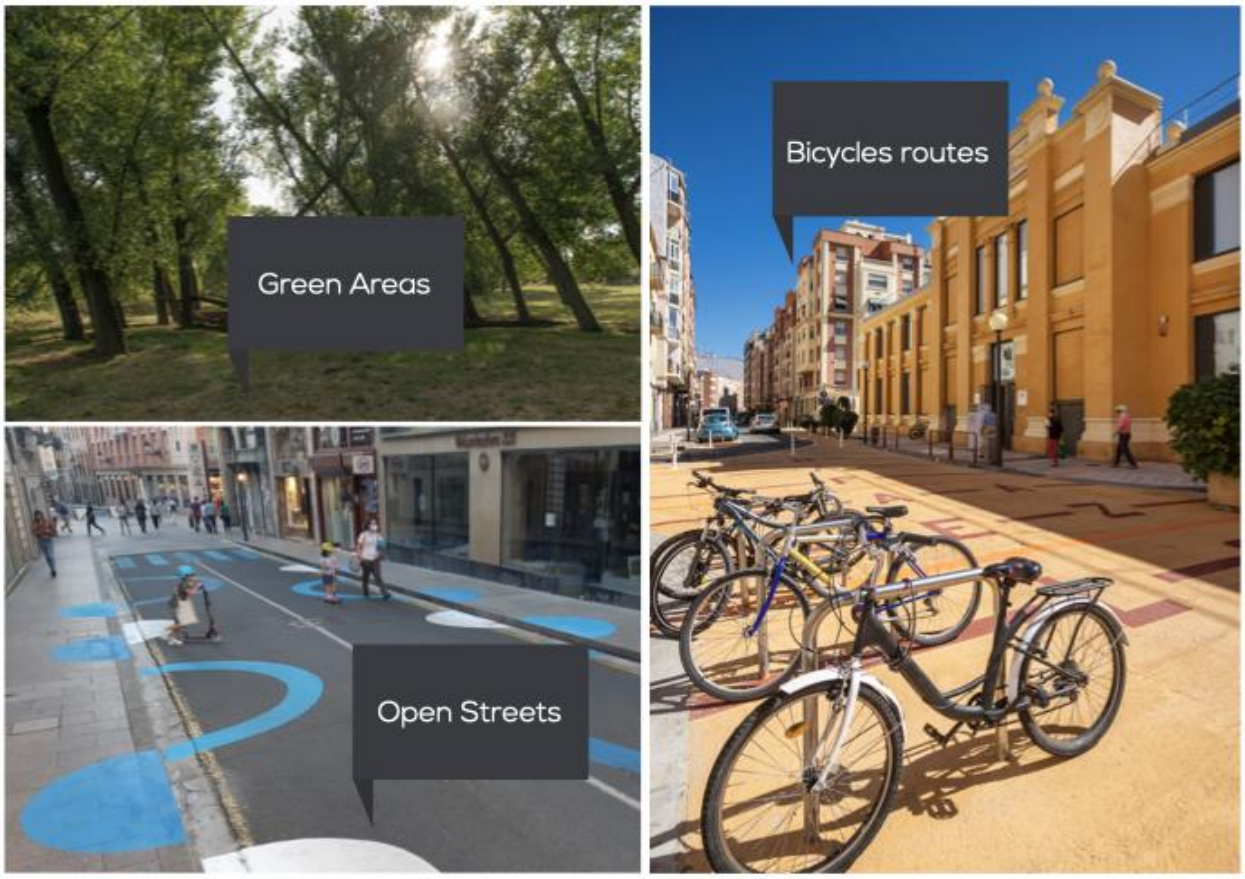


Figure 4. Logroño initiatives to achieve the goal of a more sustainable city

All these processes will be based on the management and conservation of the natural environment within the municipality: developing and expanding energy efficiency mechanisms, generating environmental awareness, involving citizens, and taking advantage of the benefits of nature to solve urban problems. The development of a Biodiversity Action Plan within the Green Shield Strategy will be a contribution to this.

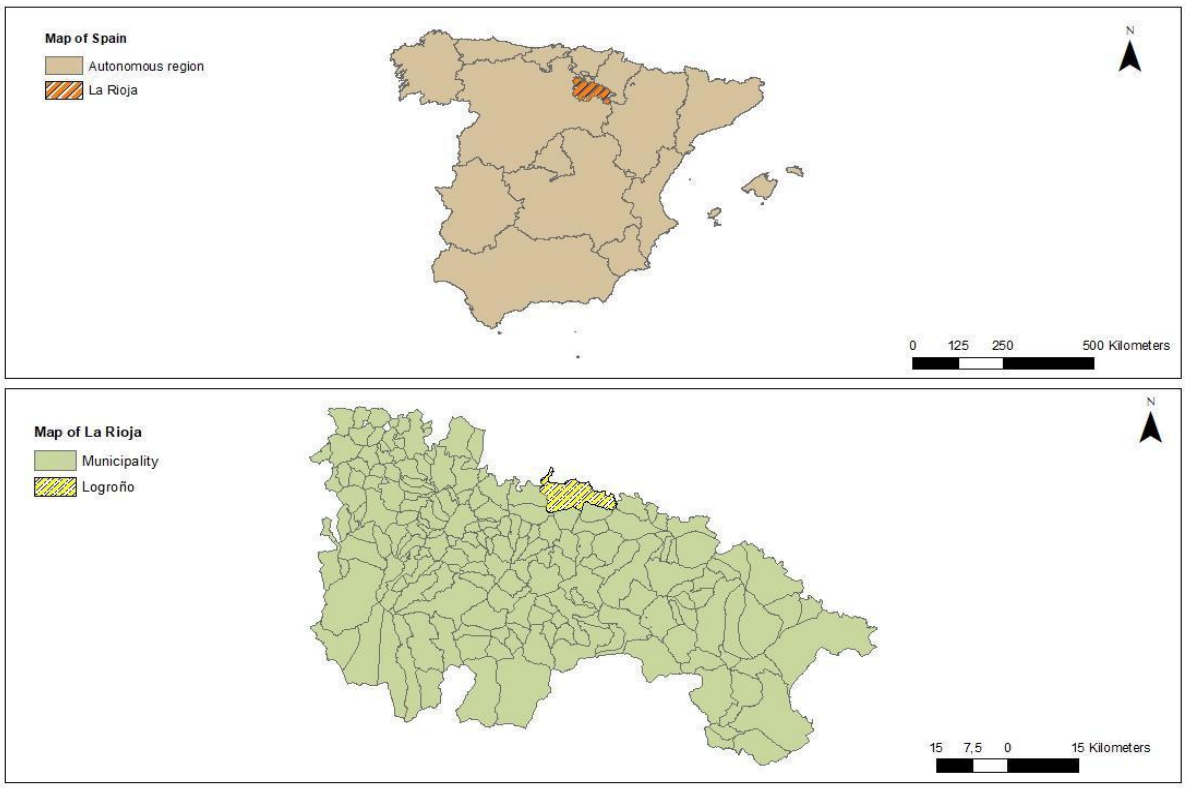


Figure 5. Logroño is a city with a privileged enclave in the northern third of the Iberian Peninsula

The historical, social, economic and environmental development of Logroño has shaped a city and a natural environment that constitute a privileged base to move towards the greatest challenges of environmental sustainability, which are those that, in a transversal way, support this application to the EGCA:

- Decarbonisation of the urban model, in the three main areas, which are mobility, building and productive activities.
- Promotion of biodiversity and the naturalisation of the city and its surroundings, as the basis for improving the quality of life of the present inhabitants but, above all, of future generations.
- Promotion of the social and economic fabric of the city, characterised by social cohesion, which is one of its best values and which should serve as the basis for a Governance that supports the achievement of the objectives of this candidacy.

Logroño presents its application with a good position in many of the indicators considered and with a firm commitment to improve in those others where it is needed.

1. Air Quality

Refer to Section 2.1 of the Guidance Note

1A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Air Quality

Indicator		Unit	Year of Data
Number of PM_{10} monitoring stations	1	No. of monitoring stations	2020
For each station provide the number of days per year PM_{10} exceeded 50 µg/m^3	7	Days	2019
For each station provide annual average PM_{10} concentration	22.7	µg/m^3	2019
Number of NO_2 monitoring stations	1	No. of monitoring stations	2020
For each station provide the number of hours with NO_2 concentrations higher than 200 µg/m^3	0	Hours	2019
For each station provide annual average NO_2 concentration	18.7	µg/m^3	2019
Number of $PM_{2.5}$ monitoring stations	1	No. of monitoring stations	2020
For each station provide the annual average $PM_{2.5}$ concentration	12.5	µg/m^3	2019

Describe the present situation in relation to ambient air quality, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator. Topographical constraints should also be mentioned where relevant.

Make reference, providing data in the table above, to:

i) Assess the contribution from local sources and from long-range transport to annual mean concentration of NO_2, PM_{10} and $PM_{2.5}$;

ii) If available, provide information on the relative contribution of different local sources (e.g. road traffic, residential wood combustion etc.) to the annual mean of NO_2, PM_{10} and $PM_{2.5}$;

iii) If exceedances occur, describe the extent of the exceedances in the city as a whole, not only at the monitoring sites. If available, provide maps of air pollutant concentrations.

Charts:

Air quality data (addressing NO_2, PM_{10} and $PM_{2.5}$ at a minimum) should be provided to show trends over time.

Please use five charts to illustrate:

1. Trend (10 years at least) of annual average NO_2 for each monitoring site;
2. Trend (10 years at least) of annual average PM_{10} for each monitoring site;
3. Trend (10 years at least) of annual average $PM_{2.5}$, for each monitoring site;
4. Trend (10 years at least) of number of daily limit exceedances of PM_{10} per year;
5. Trend (10 years at least) of number of hourly limit exceedances of NO_2 per year.

An example of the requested chart is provided in the Guidance Note, Figure 2.1.

Describe whether air quality objectives and measures taken go beyond what is required by the Ambient Air Quality Directives, and how this is achieved.

Describe whether and how air quality planning and measures are integrated with other plans and measures in the city, and whether and how synergies have been achieved between objectives and measures on air quality and those in other areas.

In La Rioja, ambient air quality is in general good, with the risk of increased levels of particles in dry periods and increased levels of tropospheric ozone (O3) on hot, sunny days. A large part of the potentially air polluting activities are located around Logroño, its largest urban centre, the neighbouring municipalities of Lardero and Villamediana de Iregua and others close to its metropolitan area (Agoncillo, Navarrete and Fuenmayor).

Urban pollution affects large areas due to the dispersion from these locations and at the same time, this dispersion favours the reduction of the pollutants concentration. The largest source of air pollution in the city is vehicle traffic. In the residential sector, air polluting emissions come mainly from the use of domestic fuels (coal, diesel, biomass, natural gas, etc.) for heating and hot water. Another important air pollution sources are cooking and the use of aerosols.

Ambient air quality in Logroño is monitored by the regional administration as part of the **Air Quality Monitoring Network in La Rioja** counting with five monitoring stations (1). The monitoring station located in Logroño (Fig. 1) includes the neighbouring municipality of Lardero and covers a total area of 99.93 Km^2. It is a location defined as urban and focused on traffic. It is the only air quality station in the region that does not have the purpose of controlling any industrial air pollution source, such as combined cycle power plants.

Figure 1. Air quality monitoring station Logroño-La Cigüeña

The monitoring station in Logroño is an urban background station measuring SO_2, NO, NO_2, CO, O_3, PM_{10}, $PM_{2.5}$, Benzene, Toluene and Xylene. It collects data, since 2002, that are automatically sent daily to the data control centre of the regional administration for validation or cancellation in the event of detection of anomalies or technical failure in the measurement. Once validated, the data are available on the Internet (2).

Information on air quality in Logroño is collected, with real-time data in the **National Air Quality Index** (3).

Air quality data for Logroño 2019-2020

In 2019, all the limit values and air quality objectives were met, both for the whole region and in the urban agglomerations, including Logroño. More than 94% of the time the situation was good or very good (4).

There was no exceedance of the hourly limit value for SO_2 emissions, nor for NO_2 emissions. For particulate matter, there was no exceedance of the daily limit value for PM_{10} particles, reaching a daily maximum of 44.8 µg/m3. The annual average for $PM_{2.5}$ particles (12.5µg/m3) was well below the limit value.

O_3 exceeded the daily limit value on only one day, reaching 123.4 µg/m3. The levels of CO and benzene, both in Logroño and in the whole of La Rioja, were well below the lower assessment threshold with an annual average in 2019 of 0.4 mg/m3 and 0.15 mg/m3 respectively.

Throughout 2020, the levels recorded for both nitrogen oxides (NOx), in particular NO_2 and SO_2, are below the limit value harmful to human health.

Traffic is the main cause of NO_2 emissions in Logroño and during the lockdown due to the Covid-19 pandemic, from 15 March and throughout April, the air quality measurement station in Logroño recorded values of this pollutant 35% lower than the same period in the previous year (Fig. 2).

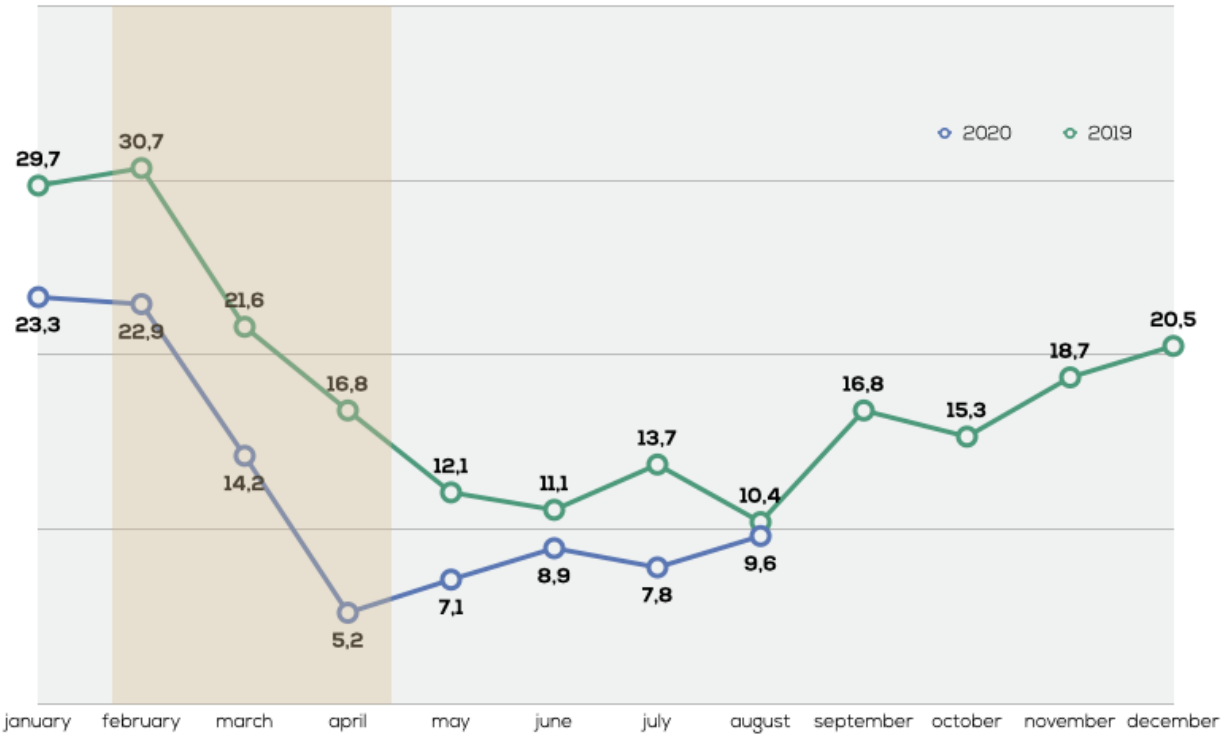


Figure 2. Trend of NO2 monthly emissions (µg/m3) from 2019-2020

Improving air quality through municipal policies

Although it does not currently have specific competences in ambient air quality, the City is carrying out measures aimed at improving its quality. One of the objectives of the Sustainable Urban Mobility Plan is to promote air quality in the city focusing in areas where there is a greater concentration of traffic. These programmes include the promotion of public transport, the pacification of roads and the promotion of cycle lanes and pedestrianisation (see Indicator 10).

The energy rehabilitation of buildings also contributes to the improvement of air quality (see Indicator 8). In addition, industrial facilities are encouraged to move out of the city centre and to locate in the industrial parks in the Eastern zone, as the predominant winds come from the West. Improving air quality is expected by increasing vegetation cover and recovering soil as part of the Green Shield Strategy (see Indicator 5).

Biomonitoring of air quality in the Logroño metropolitan area

During 2018, a pilot study was carried out in the metropolitan area for the **biomonitoring of heavy metals (HM) and polycyclic aromatic hydrocarbons (PAH)** content (6 and 7). The study complemented the activities of the **Network for Biomonitoring of Heavy Metals in the Autonomous Community of La Rioja** (8) which has generally detected low levels of the PM studied in our territory.

Biomonitors of transplanted moss Mossphere®, developed within the European Ecoinnovations programme, and ornamental *Ligustrum lucidum* were used to analyse 13 HMs and 18 PAHs.

Data collected with the Mossphere® devices indicate that these pollutants are more present in the eastern part of the city, where the two large industrial parks are located, and close to the motorway and the ring road. This zoning is influenced by the prevailing winds from the West.

The biomonitoring with ligustrum was carried out by collecting samples of perennial leaves exposed to pollution throughout the year from trees in the urban area. Data collected indicated a more diffuse zoning with more enriched trees in areas close to traffic routes.

In both cases, the concentrations of pollutants were relatively low and did not appear to be of concern for human and ecosystem health (ligustrums).

Graphics

The following graphic (Fig. 3) shows the annual average values from 2007 to 2019 for NO2, PM10 and PM 2.5 (requested graphics 1, 2 and 3)

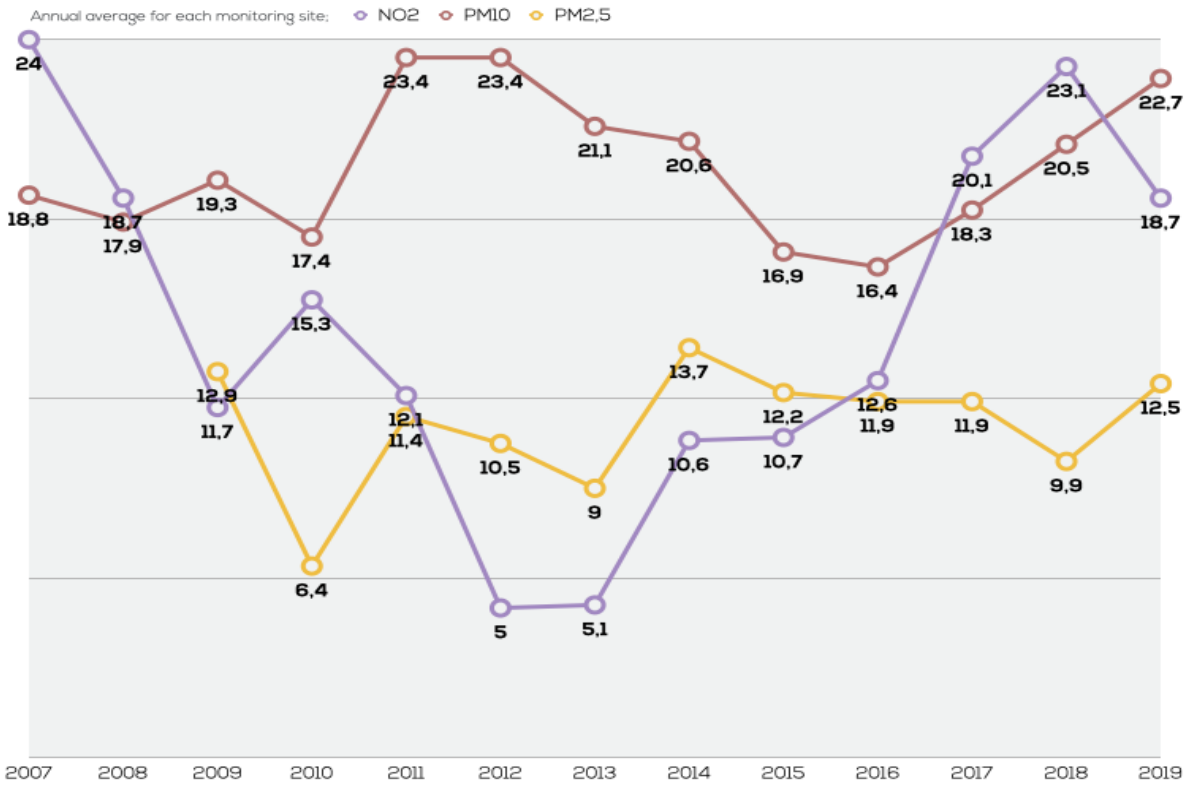


Figure 3. Trend of annual average NO2, PM10 and PM2.5 (µg/m3) for each monitoring site (2007-2019)

The following graphic (Fig. 4) shows the number of times the daily limit value for PM10 was exceeded (requested graphic 4).

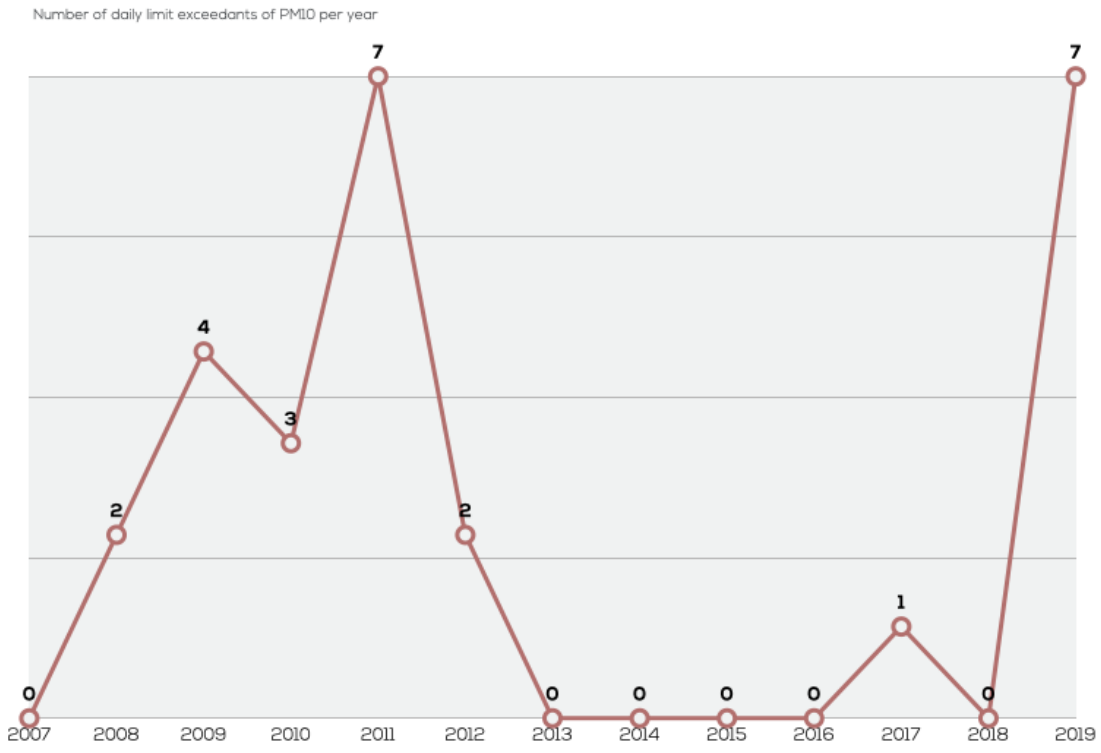


Figure 4. Trend of number of daily limit exceedances of PM_{10} per year (2007-2019)

In the last 10 years, the hourly limit for NO2 (200 µg/m3) has not been exceeded (graphic 5 requested) as shown below (Fig. 5).

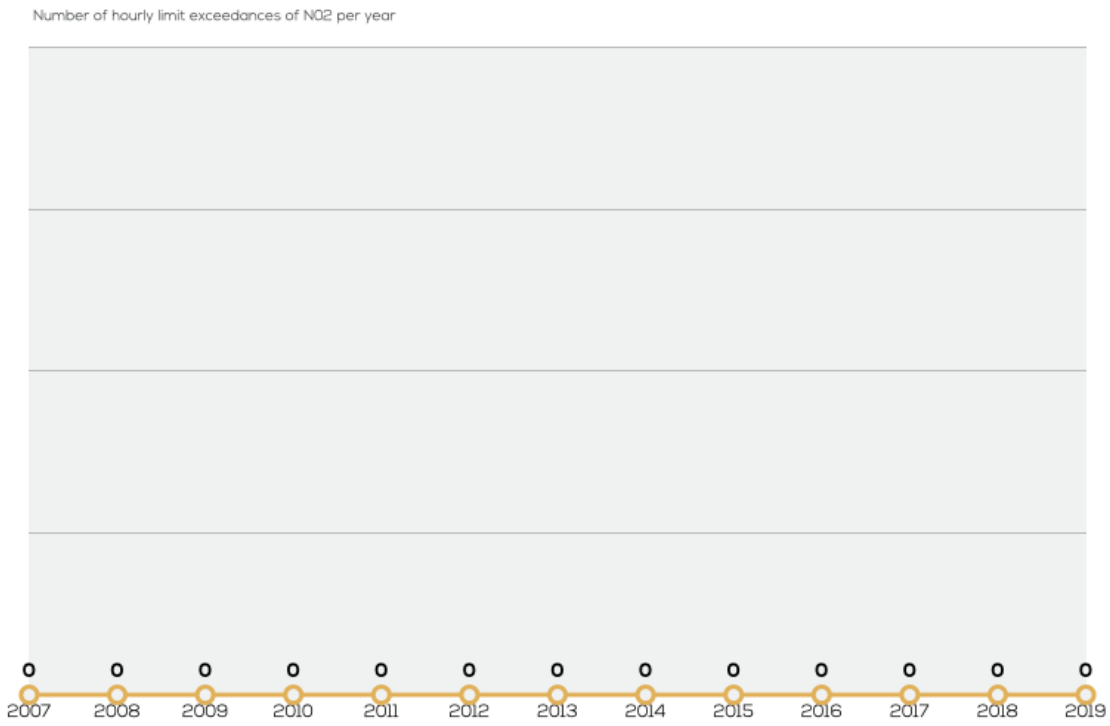


Figure 5. Trend of number of hourly limit exceedances of NO_2 per year (2007-2019)

1B. Past Performance

Describe the plans and measures implemented over the last five to ten years for the improvement of ambient air quality. Comment on which measures have been most effective.

Particular reference should be given to:

1. Existence and implementation status of an air quality management plan (specify if it is a local, regional and/or national plan);
2. Local measures taken to improve air quality and quantify their effect on air quality in terms of pollutant emissions abatement;
3. Information for the public (both inhabitants and tourists) on air quality levels (e.g. web pages, information screens) in order to increase public awareness and behavioural change. Make reference to relevant stakeholder/citizen participation process, including whether and how citizen science initiatives were deployed or taken up.

The **Air Quality Improvement Plan 2010-2015** (9), drawn up by the regional government, brings La Rioja into compliance with Directive 50/2008/EC on ambient air quality and cleaner air for Europe. Its objective is "to

achieve and maintain within the Autonomous Community of La Rioja levels of air quality that do not give rise to unacceptable risks to human health and the environment".

The Plan establishes, in accordance with current legislation, a zoning of the territory of La Rioja according to the levels of pollutants for which air quality objectives have been established. For the definition of the zones, in addition to the quality assessment, the different regional plans and strategies and the participation of local entities were taken into account. In accordance with this, two clearly differentiated zones were determined: the Logroño agglomeration and the rest of the Autonomous Community.

For each of the zones and the agglomeration defined, air quality assessments are carried out and air quality objectives are established. This information, used for the zoning proposed in the Plan, must be taken into account by the public administrations when drawing up and approving urban and land use plans, as well as when processing the authorisation procedures for activities which potentially pollute the atmosphere.

For the industrial sector, the Plan proposes to focus the main measures and actions on environmental control; energy saving and efficiency; promotion of good practices and technological improvements; and regulatory development and recommendations.

According to the data contained in the **La Rioja Air Quality Report (2002-2018)** (10) for the Logroño agglomeration, SO_2 emissions in that period showed stable concentrations, both in average annual values and in maximum values. With regards to particulate matter, the annual average values were more or less stable, and the legislation, which refers to exceedances of the daily limit value, was complied with. Although the average value for NOx increased from 2013 onwards, the values remained well below the hourly maximum limit of 200 µg/m3. As regards ozone, the rises and falls in its average and maximum values were mainly due to the number of sunny days in the spring and summer period and to the temperature, as well as to the emission of precursors in the area. In 2018 a slight increase in the annual average values was observed which did not exceed the limit values for health protection.

Pilot air quality monitoring of a street in Logroño

As part of the LIFE Green TIC project (11), in which the Logroño City Council participated as a partner, a remote monitoring system was installed to control the air quality and noise of a "pilot street" in which LED lighting was also installed (12).

This small station is located in Avenida de la Paz just in front of the Town Hall. It automatically collects the levels of suspended particles (PM_{10}), nitrogen oxides, sulphur oxides and ozone present at street level. Thirty-six light points were also installed, as well as sensors for noise pollution (dB), traffic volume by radars, temperature, degree of humidity, rain and wind.

During the experimental phase of the project, which was carried out between 2013 and 2016, the impact of the regulation of calm traffic (30 km/h) on air quality and noise parameters was analysed.

Data collected are stored in a municipal server and is available for consultation on the Logroño Town Council website (13).

1C. Future Plans

Describe the short and long-term objectives for the future, proposed plans and the proposed approach and measures for their achievement. Quantify the expected effects of proposed measures on air quality in terms of pollutant concentrations in ambient air (if possible).

Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes.

The improvement of ambient air quality in the city will continue to be integrated in a transversal manner into the various areas of action of the City, in particular in the future Action Plan for Climate and Sustainable Energy (PACES), in the revision of the General Municipal Plan for urban planning and in the development of the Green Shield Strategy which promotes naturalisation and the protection of biodiversity.

The pilot study in the Logroño metropolitan area for the biomonitoring of heavy metals (PM) and polycyclic aromatic hydrocarbons (PAH) content recommended continuing with this type of periodic air quality assessment to check its temporal evolution.

On the other hand, in principle, the regional administration does not consider it necessary to set up a new air quality measurement station for Logroño, from the point of view of its objectives for assessing air quality in La Rioja. However, Logroño City Council plans to incorporate ambient air quality measurement stations on streets and roads with heavy motor vehicle traffic. Although ambient air quality is not a major problem in Logroño, it is an indicator of the success of actions to be developed in other areas, such as sustainable mobility or improvement in the energy efficiency of buildings, so it is proposed to increase the network of sensors in the city.

1D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

1. Verification of the criteria for the location of air quality stations and the minimum number of measurement points in La Rioja (July 2017) (ES)
2. Measuring stations (access to data on website) (ES)
3. National Air Quality Index (ES)

4. La Rioja Air Quality Report (2019) (ES)
5. Report on NO2 reduction during the Covid-19 lockdown (ES)
6. Biomonitoring of air quality in the Logroño metropolitan area (summary, ES)
7. Biomonitoring of air quality in the Logroño metropolitan area (full report, ES)
8. Heavy metals biomonitoring network in La Rioja (ES)
9. Plan for the Improvement of Air Quality in La Rioja 2010-2015 (ES)
10. Report on Air Quality in La Rioja (2002-2018) (ES)
11. LIFE Green TIC Project (EN)
12. Life Green TIC Project (Logroño City Council website) (ES)
13. Logroño City Council Environmental Data (ES)

2. Noise

Refer to Section 2.2 of the Guidance Note

2A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Noise

Indicator		Unit	Year of Data
Share of population exposed to total noise values of L_{den} above 55 dB(A)	79	%	2014
Share of population exposed to total noise values of L_{den} above 65 dB(A)	26	%	2014
Share of population exposed to total noise values of L_n (night noise indicator) above 50 dB(A)	43	%	2014
Share of population exposed to total noise values of L_n (night noise indicator) above 55 dB(A)	8	%	2014
The percentage of citizens living within 300 m of quiet areas	No data	%	
Percentage of implementation of the last noise action plan	No data	%	
Which limits or reference value does the city apply to residential areas? (Ld/Le/Ln)	Ld 65 dB(A) / Le 65 dB(A) / Ln 55 dB(A)		
In the last year how many noise complaints did the city receive related to leisure or recreational activities?	No data		
How many noise experts make up the applicant's city staff?	1		

Describe the present situation in relation to the quality of the acoustic environment, including any disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator. Where available, information/data should be provided from previous years (5-10) to show trends. Present situation may also include information describing the city's commitment to the aims of the Environmental Noise Directive.

Additional figures for noise exposure to individual noise sources (road, rail, air, industry, and leisure/entertainment) can also be included.

Information on formally defined and delimitated quiet areas, or sound improved areas, should also be included.

Logroño is a medium sized city with a densely built urban centre in contrast with the new urban developments that have been carried out creating large public spaces with squares and parks. The traffic on its streets is numerous and the city also includes two regional roads to the East, LR-131 and LR-250, which cross Logroño over

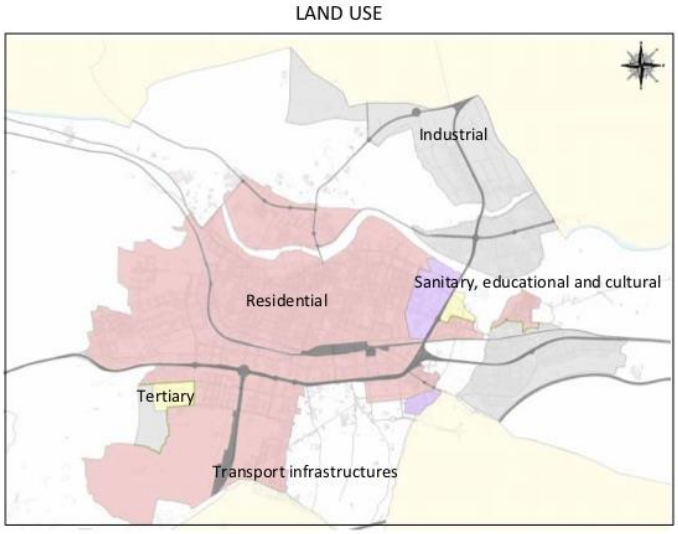
a total distance of about 8 km, and a high capacity road to the south, the LO-20 ring road. To the South are located the motorway entrance and a railway line with little traffic and partially underground.

In the city of Logroño, noise and its management is a factor that generates conflicting positions. Leisure activities, associated with social relations in restaurants, bars and cafés, have an important role in the local economy and culture. Moreover, the climate of the city allows these activities to be transferred to the streets for months, for example to the terrace tables or the doors of the bars, generating some conflicts with the neighbours, especially in the areas with a greater presence of these activities. On the other hand, some new urban developments in the city have been carried out in areas that were still occupied by industries, which has generated discomfort for the new residents.

Logroño City Council is competent in environmental noise matters and therefore, over the last 10 years it has developed and approved various instruments aimed at managing noise: municipal ordinance, strategic noise map, action plan and noise zoning.

The municipal **Ordinance for the Environmental Protection against Noise and Vibration Emissions in the City of Logroño** (1) came into force at the beginning of 2010. Its scope of application includes activities, facilities, establishments, buildings, equipment, machinery, works, vehicles and in general any other individual or collective focus or behaviour, which in their operation, use or exercise generates any type of noise pollution within the municipal area of Logroño.

In application of the Ordinance, in 2016 the **Noise Zoning of the municipality** (2) was approved for use in general territorial planning and in urban planning instruments. It shows the acoustic areas of the city, defined as those territorial areas that share identical acoustic quality objectives, classified according to the sectors of the territory with a predominance of different types of land (Fig. 1).



Noise Zoning

Type of acoustic area		Noise index dB(A)		
		L_d	L_e	L_n
E	Sanitary, educational and cultural	60	60	50
A	Residential	65	65	55
D	Tertiary	70	70	65
B	industrial	75	75	65

Figure 1. Noise Zoning of the City of Logroño

The **Strategic Noise Map (SRM)** of the Logroño Municipal District (3), approved in 2014, evaluates overall exposure to noise in the city, due to road and rail infrastructures, as well as industrial activities.

The following map (Fig. 2) shows the representation of the immission levels at four metres height generated by road, railway and industrial traffic noise and all of them, as well as the population affected by these noise emitters for the Lden noise indicator (day-evening-night).

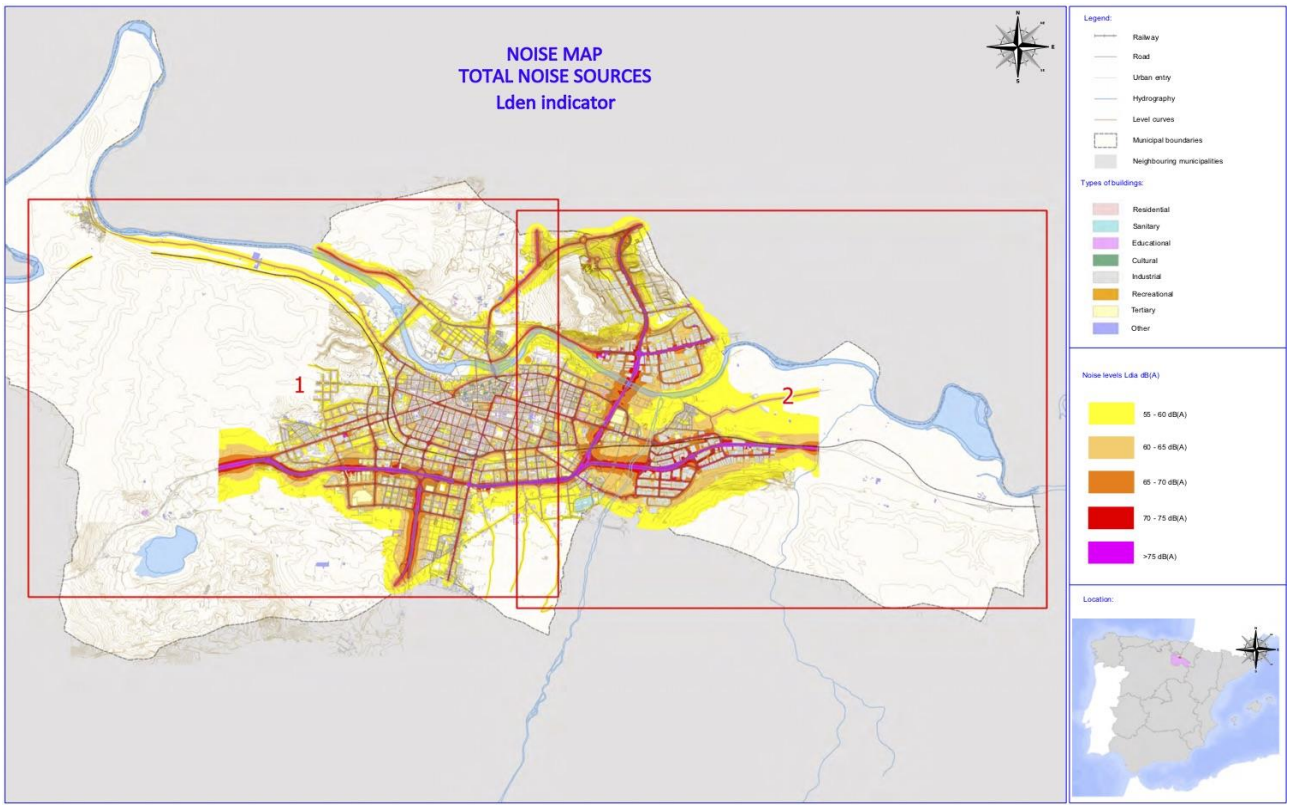


Figure 2. Noise Map of the City of Logroño

Based on the SRM, in 2017 the **Action Plan against** Noise in Logroño and its municipal area (4) was approved, which determines the actions to be carried out in the corresponding acoustic areas, in the event of failure to meet the noise quality objectives. With a duration of five years, this action plan is developed in three main lines of action: corrective, preventive and noise pollution assessment and control actions to be carried out immediately, in the short term (three years) and in the medium term (five years).

Among the control measures to be carried out in the short term is the definition of the acoustic areas where the corresponding noise quality objectives are not met, called **Special Noise Protection Areas (SPAs)**. The SPAs require specific zoning plans to be drawn up, which must include the corrective measures applicable according to the degree of deterioration recorded. The measures to be applied in each area will be proportional to the seriousness of this deterioration, taking into account cultural, seasonal, tourist or other duly justified factors. Logroño does not currently have these areas declared.

The noise maps of the sections of regional roads in the municipality of Logroño, which are under regional jurisdiction, and the noise map of the ring road, which is under State jurisdiction, were integrated into the strategic noise map of Logroño. The noise action plans for these infrastructures were also integrated into the Logroño noise action plan.

In 2017, the regional administration produced the strategic noise maps of regional roads (Third phase) which record a traffic volume of more than three million vehicles per year, including the two sections of regional roads which cross Logroño over a total distance of about 8 km (5).

The data presented in Table 1 come from the work carried out for the elaboration of the SRM and action plan considering the total of the noise sources evaluated according to the German method VBEB. The exposed population was counted for a total of 150,782 inhabitants in Logroño (January 2013).

2B. Past Performance

Describe the measures implemented in recent years for improving the urban sound quality and increasing awareness to noise. Comment on which measures have been most effective.

Make reference to:

1. Classification of territory (if applicable) into appropriate noise classes and with appropriate noise limits (e.g. specially protected, hospitals/schools, residential, commercial, industrial) including details on enforcement mechanisms if in place;
2. Stakeholder involvement;
3. Communication with citizens (participation/involvement/engagement);
4. Preservation and improvement of good acoustic urban environments such as quiet areas;
5. Noise reduction measures that influenced the current situation;
6. Municipal regulations concerning noise management and reduction;
7. With respect to action plans that are already adopted, what is the percentage of the plan effectively implemented (e.g. overall amounts already paid for actions versus overall amounts initially committed). A clear description of the following issues will be valuable: noise action plan integration with city strategy, time plan, budget, and tools for monitoring its implementation.

The SRM study used the German VBEB method ("Vorläufige Berechnungsmethode zur Ermittlung der Belastetenzahlen durch Umgebungslärm") to calculate the population exposed to noise. According to this method, and considering the total number of noise sources studied, it was estimated that 35.77 % of the population was affected during the day and evening by a noise level above the noise quality objectives, while 9.25 % of the population was affected during the night by a noise level above the noise quality objectives.

The noise source identified as generating the most impact is road traffic, followed by rail traffic and industry. With regard to the effect produced by road sources, it was found that roads contribute only 5.22% of the total effect during the day and evening periods and 21.19% of the effect at night.

To complement the information obtained from the SRM, a non-strategic leisure noise map for the city was drawn up in in 2018, but this was never approved. It included the delimitation of quiet areas, special noise protection areas and the preparation of specific zoning plans for these areas.

As part of the Action Plan against noise, the **Noise Roundtable** was created at the end of 2017. This is a participatory body created to contribute to making Logroño an acoustically healthy city in which different agents involved in the problem of noise in the city participated: representatives of municipal political groups, the Local Police, the Municipal General Directorates for the Environment, Town Planning, Mobility and Legal Assistance to Technical Services, the Government of La Rioja, the Ministry of Public Works, professional associations, neighbourhood associations and business associations. The Noise Roundtable subsequently met twice during 2018.

The Logroño City Council carries out tasks related to compliance with the **Ordinance on the Protection of the Environment against Noise and Vibration Emissions in the City of Logroño** including its integration into other municipal areas, such as town planning; inspection and control; and carrying out training and awareness-raising activities. In particular, the Local Police are trained in the contents of the ordinance and its measurement procedures.

Initiatives being implemented in other areas, in particular the reduction of traffic and the creation and care of large green areas contribute to the improvement of environmental noise quality.

As part of the **European LIFE Green TIC Project** (6), a pilot action for the intelligent management of the urban environment was carried out in the city of Logroño which included the installation of noise pollution (dB) and traffic volume sensors. A microsite was set up to allow citizens to view information on environmental quality (atmosphere and noise) on the municipal website. The municipal app also provides information on these parameters.

2C. Future Plans

Describe the short and long-term objectives for quality of the acoustic environment and the proposed approach for their achievement. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes.

Make reference to:

1. Stakeholder involvement;
2. Consultation with the population including noise perception surveys; citizen participation, involvement and engagement initiatives; and awareness initiatives;
3. Actions planned to reduce the impact of noise from transportation or other sources (probably those integrated in the Noise Action Plan);
4. Foreseen reduction in the share of population exposed to noise values of L_{den} (day-evening-night indicator) above 55 dB(A) and above 65 dB(A) and in the share of population exposed to noise values of L_n (night indicator) above 45 dB(A) and 55 dB(A), mention targets;
5. Actions to preserve, extend, or improve urban quiet areas, and raising awareness and promoting quiet

areas;

6. Holistic/qualitative approaches to the acoustic environment (e.g. by soundscape design approaches, using green infrastructure solutions etc.).

Logroño City Council is reformulating its strategy to combat noise pollution in the city, especially with regard to noise from traffic and leisure activities.

At the time of presenting this candidacy, the following work is being contracted:

- revision of the strategic noise map (SRM) of the city;
- revision of the action plan on noise pollution;
- preparation of a proposal for the declaration of Special Noise Protection Areas (SPAs); and
- drawing up the corresponding specific zoning plans.

The work, which will be carried out using the common European method CNOSSOS-EU, will include the analysis of the evolution between the current noise map approved in 2014 and the new strategic noise map. The total investment in this work is €80,000.

At the same time, the revision of the city's General Urban Planning Plan will take noise issues into account, carrying out new noise zoning if necessary and establishing new rules for land use that will prevent the implementation of activities that generate noise pollution near homes.

On the other hand, the actions proposed to promote active mobility and reduce motor vehicle traffic are contributing to a reduction in noise levels, although a network of sensors has yet to be deployed to monitor the result of the measures.

Finally, the **Green Shield Strategy** (7), whose objectives include increasing urban vegetation, should contribute to noise reduction by using vegetation as a green screen.

2D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

1. Ordinance for the protection of the environment against the emission of noise and vibrations in the city of Logroño (ES)
2. Noise Zoning of Logroño (ES)
3. Strategic Noise Map of Logroño (ES)
4. Action Plan against noise in Logroño (ES)

5. Strategic Noise Map of the main road axes of La Rioja (ES)
6. LIFE Green TIC Project (EN)
7. Green Shield Strategy (ES)

3. Waste

Refer to Section 2.3 of the Guidance Note

3A. Present Situation

Please complete the following table providing the most recent data that is available for the city. If city data is not available, please provide a brief explanation and use regional or national data where available. If no data is available, please state this and indicate the reason why.

To ensure a correct interpretation of the concepts used in sections 3A to 3C ('municipal' waste, 'biowaste', 'packaging waste' etc.) it is important to refer to the explanation in the Guidance Note.

Table 1: Benchmarking Data - Waste

Indicator	Type of Data (City)		Unit	Year of Data
Amount of municipal waste generated per capita	360		kg/capita/year	2019
Percentage of municipal waste that is recycled (including through composting and anaerobic digestion of biowaste)	67		%	2019
Percentage of municipal biowaste that is recycled (through composting and digestion)	>99*		%	2019
Percentage of municipal waste sent to incineration (R1 code)	0		%	2019
Percentage of municipal waste sent to landfill (or other forms of disposal (D codes)	33		%	2019
Percentage of municipal waste that is collected separately	20		%	2019
Percentage of recycled packaging waste	44**		%	2019
Percentage of packaging waste that is collected separately	38		%	2019
Established collection systems for hazardous waste:	**Type of Data (City/ National)**	**Yes/No**	**Unit**	**Year of Data**
▪ WEEE	0,83 (City)	Yes	kg/capita/year	2019
▪ Batteries	0,08 (City)	Yes	kg/capita/year	2019
▪ Waste oils	0,16*** (City)	Yes	kg/capita/year	2019
▪ Household chemicals	0,02 (City)	Yes	kg/capita/year	2019

▪ Asbestos	Collection of the little amount left in uncontrolled dumps on a regular basis. The waste generator has an obligation to dispose of it safely.	No	kg/capita/year	2019
▪ Construction & demolition waste	0,53 (City)	Yes	kg/capita/year	2019
▪ Unused pharmaceuticals	0,10 (National)	Yes, private (SIGRE)	kg/capita/year	2019

Comments on the table:

**Both, the organic waste collected separately from large producers, and the biodegradable material present in the residual waste which is almost entirely recovered, are treated through digestion or composting.*

***This proportion is higher than the percentage of packaging collected separately because and additional tonnage is recovered in the Ecoparque treatment facility. This is our best estimate of the proportion of packaging waste that is recycled. We have had to make some assumptions about the percentage of recovered waste that is packaging based on the type of materials recovered (plastic, metal, glass, etc).*

****A small amount is collected through privately managed bins in the supermarkets. This amount is not included in this figure.*

Describe the present situation in relation to waste production and management by providing details about each of the following areas:

1. Waste management strategies or plans in place;
2. Waste prevention strategies or plans in place including possible specific measures to reduce food waste, plastic waste and other waste materials;
3. Reuse and/or repair initiatives or partnerships currently in the city (include examples describing the types and quantities of materials reused);
4. Current waste collection system including the types of waste collected separately (both covering dry recyclables such as paper, plastics, glass metals and biowaste, as well as hazardous waste) and the extent of roll-out (% coverage) of the systems as well as clean-up initiatives;
5. Sorting, recycling and other treatment of separately collected and residual waste as well as any home/community composting practices;
6. Application of the 'polluter pays' principle and economic instruments, including through differentiated tariffs ('Pay as You Throw' (PAYT) initiatives) and landfill and incineration charges.

The **La Rioja Waste Master Plan 2016-2026** (Plan Director de Residuos de La Rioja) [1] is currently the main instrument for waste management policy in the Autonomous Community of La Rioja. Logroño does not have a municipal waste management or prevention plan, but is governed by the regional Master Plans of La Rioja. The 2016-2026 plan includes

waste prevention programmes with prevention targets and prevention measures aimed at achieving a reduction in the weight of the waste produced.

In 1998 the **Consorcio de Aguas y Residuos de La Rioja** [2] was set up to manage urban waste, the supply of drinking water and the treatment of waste water. The Consortium provides a service which falls within the competence of the municipality, but which is voluntarily transferred to take advantage of economies of scale and to facilitate technical management. Logroño City Council was one of the founders and participates actively through the governing bodies, contributing with half of the total population served by the organisation. The Town Hall has not ceded its waste collection responsibilities but benefits from the facilities of the **Ecoparque** [3] which centralises waste treatment and separation in La Rioja since 2007. **100% of the municipal waste in La Rioja is treated.**

Figure 1. Ecoparque: waste treatment facility of La Rioja

The Ecoparque was built with the objective of treating and making the most of the biodegradable materials present in municipal waste, especially in the residual waste which makes up 80% of all waste. The treatment of the residual waste is therefore the main function of the Ecoparque. **Almost half of the waste in the residual waste, (48%), is biodegradable material that is recycled entirely through a process of composting and anaerobic digestion with energy recovery.** The biogas is converted into energy and is used for the cogeneration engines and the surplus is fed into the electricity grid.

The compost is matured and refined to be used as fertilizer (bio-stabilized material) by the agricultural sector. As much as possible of other recyclable waste, (such as plastic, glass, metals, WEEE etc.), are also recovered and passed on to recyclers. **The Ecoparque recovered 60% of residual waste in 2019.**

Logroño's collection system is wide-ranging and has a very good coverage. It is formed by a network of bins for paper/cardboard, textiles, glass, light packaging [4] and residual waste across the city. There is also a door-to-door paper/cardboard collection service for pedestrian areas and commercial areas with a frequency of 2-3 days per week. In addition, there is a door-to-door collection service for **organic waste** from large producers. Additionally there is a **traditional recycling centre in an industrial state and three mobile recycling centres**. Separate collections started between 2000-2005, depending on the material.

It is the Council itself, (either directly or through contracts with other organisation) who manages the separate collections of waste. Depending on the type of waste, it is either taken to the Ecoparque (i.e. light packaging, organic waste and light packaging), or processed by the collectors (i.e. glass [5], textiles [6] and paper/cardboard [7] for which the Council has agreements).

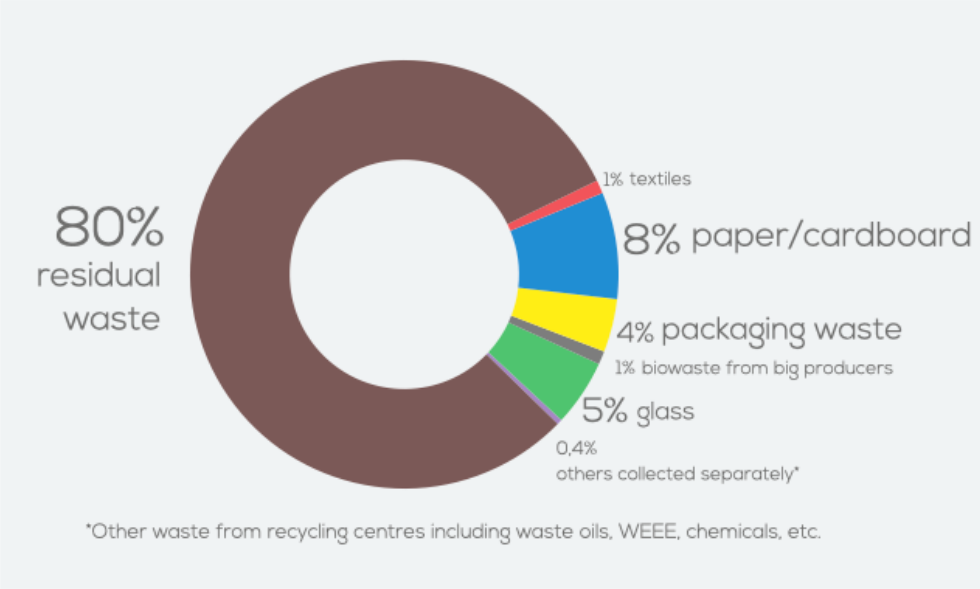


Figure 2. Breakdown of Waste Collected Separately in Logroño, 2019

Traditional and mobile recycling centres [8] – The network of recycling centres is formed by a traditional recycling centre in an industrial state, and 3 mobile recycling centres that are located in 24 different locations across the city between Monday and Saturday. The mobile recycling centre system has been well received since its implementation with an exponential increase in users each year.

Organic waste - Logroño has a door-to-door organic waste collection system for large producers (markets and supermarkets) since 2017. The quality of the material collected is outstanding. In a waste compositional analysis carried out in 2018, 98.52% of the collected material was biodegradable waste with only 1.48% of unsolicited materials (most

of the unsolicited material being commercial/industrial film).

Textiles - The Council has an agreement with a non-profit organisation which collects from a network of bins located across the city, as well as in sports centres and the recycling centres. Collections are also made from other collection points in schools, churches, shopping centres or on demand.

3B. Past Performance

Describe the measures implemented over the last five to ten years for improving waste management and include details on the following:

- Past trends in the amount of municipal and packaging waste produced per capita in the city;
- Past measures which have promoted waste prevention and recycling;
- Trends in municipal and packaging waste treatment in the city including changes in recycling (including composting and digestation), recovery and disposal rates over the previous 5-10 years;
- Evolution of separate collection systems in the city;
- The collection market in terms of how it has developed and the role of municipal (public) authorities and/or private waste companies;
- Type and scale of infrastructure put in place to treat municipal and packaging waste distinguishing between dry recyclables, biowaste and residual waste, and progress to date;
- Use of instruments (economic or regulatory) applied in the city to manage municipal and packaging wastes.

The amount of total municipal waste per capita per year has increased between 2011 and 2019, but there is an increase in waste collected separately (with the exception of paper which has decreased due to the lower readership of print newspapers) and a slight decrease in residual waste.

Unit: kg per capita per year	2011	2012	2013	2014	2015	2016	2017	2018	2019	Change between 2011-2019
Total Waste**	349.12	337.51	332.52	340.87	348.52	351.20	354.46	362.98	357.38	2%
Residual Waste	289.34	280.55	277.13	284.62	288.36	291.99	294.77	295.81	288.55	-0.3%
Paper/cardboard	32.61	29.66	27.74	27.80	28.25	28.47	27.95	29.16	29.64	-9%
Glass	14.71	14.15	14.49	15.22	18.27	16.56	16.79	17.5	18.15	23%
Packaging	12.43	12.3	12.28	12.27	12.45	12.83	13.27	14.51	15.35	23%
Textiles*	0.04	0.85	0.88	0.97	1.19	1.36	1.63	1.97	2.28	6369%
Biowaste from big producers							0.05	4.03	3.41	n/a

*Textiles include only those collected from bins (but not the textiles collected from churches, schools, shopping centres etc.). The average textiles per capita per year with this additional tonnage in 2019 was 3,55Kg

** There is also a 0,4% missing in the table from Other Collected Separately (e.g. oils, WEEE etc) because no trend data was available.

The total waste per capita per year including the Other Collected Separately and the missing Textiles was 360,22Kg in 2019.

Figure 3. Trend in municipal waste (kg per capita)

Measures to promote recycling have been successfully implemented as shown in Figure 3, with the corresponding increase in the amount of waste recycled or reused. The main measures implemented include:

1. **Improving the coverage of the collection system**

   The number of bins for separate collection has increased year after year throughout the city for all types of waste, as shown in Figure 4 (below). The ratios of inhabitants per container have been reduced despite the increase in population in this period. This has resulted in an increase in the capacity of separate collection services per person per day (an increase of 11% in capacity between 2011 and 2019 for glass, 9% for light packaging and 8% for paper/cardboard) and has led to the increase in kg collected per person per day for all materials, that was shown in Figure 3 (above).

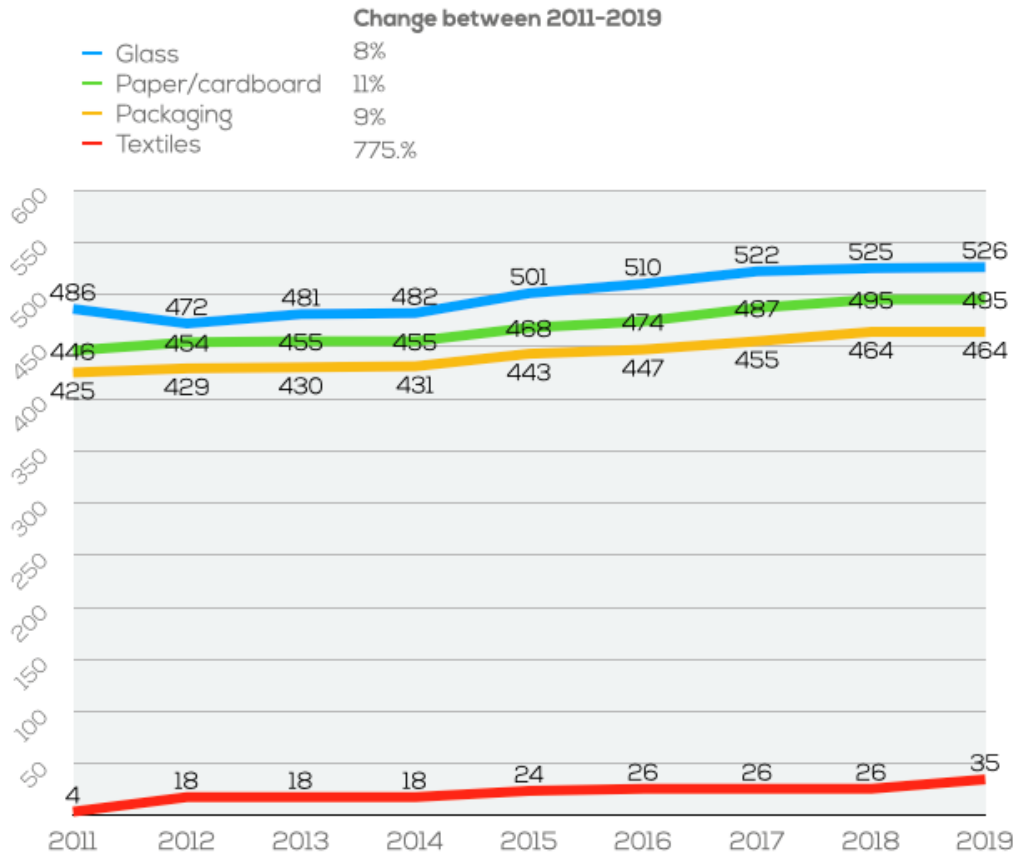


Figure 4. Separate collections: trend in bins coverage

In the case of paper/cardboard, Logroño has received the distinction **3 Pajaritas Azules** [9] in 2018, 2019 and 2020. This is the highest distinction awarded by the Spanish Association of Pulp, Paper and Cardboard Manufacturers (Aspapel), which rewards excellence in separate collection services and recycling of paper and cardboard and the efforts to continuously improve the service.

It is also worth highlighting the separate collection service of **textiles**, whose main objective is to reuse through the second-hand sector **to protect the environment and create "green" employment, aimed at people with special needs.** 85-90% of the collected textiles are reused. Assuming that each inhabitant generates 7kg of textile waste per year, it is estimated that Logrono's separate textile collection service collected 50.75% of the city's textile waste in 2019, meeting the objectives set by the La Rioja Waste Management Plan 2016 - 2026, which sets a textile collection target of 50% by 2026.

2. Separate collection of organic waste

In 2017 there was a small pilot to collect organic waste in two streets of the city for 3 months. The project consisted on the installation of 12 containers (1 container for every 123 inhabitants), accompanied by a small

public awareness campaign in the streets where the containers were installed. The quantities collected were lower than expected and the levels of unsolicited materials were high.

Despite the disappointing results, the Council continued to focus its efforts on organic waste collection. In 2017, a new project, **Separate Collections of Organic Waste for large producers**, (i.e. supermarkets and markets), was launched. Initially there were 15 markets and supermarkets with the a door-to-door organic waste collection service. In 2018, there were 20 markets or supermarket. The Council provides the bins with a capacity of 360/800 litres on demand, (currently 31 bins have been provided), as well as rubbish bags for easier maintenance.

3. Making recycling easier for citizens

Figure 5. Photos of mobile recycling centre

Logroño has an innovative recycling centres' system, in addition to a traditional recycling centre, it has three mobile recycling centres that park in 24 regular points across the city between Monday to Saturday. This system has been very well received by the citizens, as shown by the user figures.

Number of users in:	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mobile recycling centres	15,456	17,858	20,164	21,111	32,215	39,147	41,940	46,973	54,871
Recycling centre site	2,885	2,773	2,324	2,033	2,408	2,988	3,084	3,712	3,964
Number of mobile recycling centres	3	2	2	2	3	3	3	3	3

Figure 6. Trends in recycling centres' usage

The mobile recycling centres have the capacity to collect a wide range of waste materials from small electrical appliances, to batteries, oils, etc. For bulky waste, residents can go to the traditional recycling centre or contract a free collection through the Council telephone line.

TheCircularLab innovation centre [9], located in Logroño, studies, designs, tests and implements best practices in all phases of the packaging life cycle, from its conception to its reintroduction into the consumption cycle through new products. The region of La Rioja acts as a testing ground in the research of concepts such as the packaging of the future. At least two projects have been tested in Logroño:

- **Smartwaste** [10]. Improving and optimising packaging collection routes through the use of technology. The collection trucks that participated in the pilot installed weighing instruments to identify container filling levels as well as route optimisation. The programme ended in September 2019 to coincide with the renewal of vehicles and containers. An improved development of this application will start in the coming months.
- **Recycling reward system** in collaboration with Carrefour Logroño. When recycling the packaging of Carrefour own brand products, customers could choose between a discount on purchases or a contribution to an environmental project. The conclusions of the project were positive but with little impact on the population and the promoters decided to rule out its application at the national level.

3C. Future Plans

Describe the future plans of the city in terms of progressing towards better waste management and the transition to a circular economy in a wider sense (i.e. maintaining the value of materials and resources within the system for as long as possible and closing material loops through activities such as green public procurement, reuse, repair, refurbishment etc.). The response should address:

a) How the city is taking account of recently updated EU policy on waste management within the broader policy framework of the Circular Economy including a description of the short and long-term objectives and targets for the future management of waste and measures to ensure these are achieved and monitored;

b) The city's approach to the future management of plastics (inter alia taking account of the EU Strategy for Plastics in relation to the Circular Economy) and the prevention of food waste;

c) Other specific initiatives to promote the transition to a circular economy in the city.

The **Spanish Circular Economy Strategy** [11], has been recently approved, in June 2020, and it is aligned with the objectives of the European Union's two circular economy action plans, "Closing the circle: an EU action plan for the circular economy" (2015) and "A new Circular Economy Action Plan for a cleaner and more competitive Europe" (2020), as well as with the European Green Pact and Agenda 2030 for sustainable development.

The Strategy has a long-term vision, circular Spain by 2030, which will be achieved through successive three-year action plans to be developed. These three-year plans will make it possible to incorporate the necessary adjustments to complete the transition in 2030.

In this context, the Strategy establishes strategic guidelines and includes the following quantitative targets to be achieved by 2030:

- To reduce national consumption of materials by 30% in relation to GDP, taking 2010 as the baseline year.
- To reduce the generation of waste by 15% with respect to that generated in 2010.
- Reduce food waste generation throughout the food chain: 50% reduction per capita at household and retail level and 20% in production and supply chains from 2020.
- Increase reuse and preparation for reuse to 10% of municipal waste generated.

La Rioja and Logroño in particular will continue to implement the **2016-26 Waste Master Plan**, which was already aligned with some of the objectives such as reducing by 10% by weight of the waste generated in 2020. The formal incorporation of the Spanish Circular Economy Strategy is not planned at the moment, pending the development of the three-year plans. However, both the regional and municipal governments are going to prioritise the collection of organic waste in the coming years. Although there is no strategy at regional level in this regard, Logroño City Council already has a project prepared for the end of 2020 or the beginning of 2021.

This is a **new project for separate collection of biodegradable waste** for which there is a budget of 236,000 euros per year. 50 containers will be installed, in two neighbourhoods of the city with similar characteristics, (100 containers in total). It will be accompanied by a public awareness campaign (45,000 euros budget) across the city. The neighbourhoods for the pilots have been chosen according to their demographic, social and economic characteristics. Neighbourhoods with young middle-class families. **Various types of containers will be tested with the idea of introducing the collection of biodegradable waste throughout the city with the most appropriate type of bin** in the coming years. The Ecoparque facilities already have the capacity to treat this additional organic waste, as most of it is already being captured through the residual waste treatment. Separate collections of biodegradable waste will have a positive impact on the quality of compost for agricultural use and will facilitate its commercialisation.

Another challenge for the near future is separate collections in the historical centre of the city that has a high density of

hospitality businesses and narrow pedestrian streets. **The HORECA Plan** is due to start at the beginning of 2021 and has an initial budget of 600,000 euros, which the City Council hopes to complement with the support of the EU Life Programme. This project intends to use smaller electric waste collection vehicles to access pedestrian and semi-pedestrian streets. This will allow separate door-to-door collections. It will also be complemented with "removable" bins, which will be placed at the time of deposit and removed at the time of collection. There will be different times and days for the different waste streams. There are also plans for a close monitoring of the implementation process until it is working adequately.

As a waste prevention measure, the Council, together with the regional government, is also considering the introduction of pay-as-you-throw tariffs for the HORECA sector. At the 2018 Regional Waste Workshop, in which the Government of La Rioja and Logroño City Council participated (together with the waste management companies operating in the region), the possibility of introducing this system was studied by analysing the cases of other municipalities in other regions of Spain that have already done so. There is still no plan or strategy in this respect just yet and the impact of COVID19, which has been particularly severe for the HORECA sector, may delay the introduction of this system for the time being.

3D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

1. La Rioja's Waste Master Plan 2016-2026 (ES)
2. La Rioja's Consortium for Water and Waste (ES)
3. Ecoparque of La Rioja
4. Ecoembes (ENG)
5. EcoVidrio (ENG)
6. Foundation Caritas Chavicar (ES)
7. RECIRSA (ES)
8. Logroño's Recycling Centres - traditional and mobile (ES) (mobile and regular site)
9. 3 Pajaritas Azules: List of local entitites awarded with the distinction in 2020 (ES)
10. Smartwaste Project ENG
11. a) Spanish Circular Economy Strategy 2030 -Executive Summary (ENG) b) Spanish Circular Economy Strategy 2030 (ES)

Other documents consulted

12. Anual Summary – Street Cleaning, DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
13. Anual Summary – Recycling Centres, DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
14. Anual Summary – Bulky Waste, DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
15. Anual Summary – Separate collection of glass and Management of the Agreement with the Ecologic for the recycling of Glass Packaging (ECOVIDRIO), DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
16. Anual Summary – Collection of batteries, DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
17. Anual Summary –Separate Collection of paper and cardboard, DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
18. Anual Summary –Separate Collection of light packaging and management of the Agreement with ECOEMBALAJES España S.A. (ECOEMBES), DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
19. Anual Summary –Separate Collection of textiles, Foundation Caritas Chavicar, 2019 (ES)- *not available online*
20. Anual Summary –Separate Collection of biowaste, DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
21. Anual Summary – Management of illegal waste dumping, DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
22. Anual Summary – Residual Waste, DG Ennvironment, Council of Logroño 2019 (ES)- *not available online*
23. The Ecoparque in numbers – data from 2019 (ES)
24. Ecoparque's Waste Compositional Analysis – Residual Waste, 2019 (ES)

4. Water

Refer to Section 2.4 of the Guidance Note

4A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Water

Indicator		Unit	Year of Data
Domestic usage (drinking water) - litres per capita per day	110.64	Litres/capita/day	2019
Total usage (drinking water) - litres per capita per day	235	Litres/capita/day	2019
Share of population that has access to drinking water (excluding bottled water)	>99	%	2020
Newly set up outdoor and indoor equipment (e.g. drinking water fountains) in public spaces	11	Number	2017
Provision of drinking water for free or for a low service fee for customers in restaurants, canteens, and catering services	No data	Number	
Water loss in pipelines	No data	Infrastructure leakage index ILI, or other appropriate method, or %	
Compliance with the requirements of the 'new' DWD[1]	No	Yes/No	2020
No. of WWTP	2	Number	2020
Total design capacity (Population Equivalent - PE)	Logroño – Bajo Iregua: 466,560 El Cortijo: 687	PE	2019
Total load received by UWWTP (PE)	Logroño – Bajo Iregua: 243,756 El Cortijo: 288	PE	2020
Connection rate	>99	%	2020

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583491875802&uri=CONSIL:ST_6060_2020_REV_1

Treatment level which is applied in each UWWTP: secondary or more stringent;	Logroño – Bajo Iregua: secondary El Cortijo: primary and parcially secondary	Treatment level	2019
Treatment rate of central waste water treatment plant for parameters: BOD_5, COD, N, P	BOD_5: 98 COD: 95 N: 71 P: 57	%	2019
Compliance with the requirements of the UWWTD 91/271/EEC	Yes	Yes/No	2020
Additional treatment steps beyond requirements of the UWWTD 91/271/EEC	Yes	Yes/No	2020
Energy efficiency measures at urban waste water infrastructure	Yes	Yes/No	2020
Waste water reuse (describe type of reuse)	0	%	2020
Water pricing (overall and split into water supply and waste water services, incl. taxes and service charges, and if possible a split of CAPEX and OPEX)	1.65	€/m^3 (overall)	
	0.72	€/m^3 (water supply)	
	0,67 (waste water) + 0,26 (sewage)	€/m^3 (waste water supply)	
Ecological status of surface water bodies - describe WFD status	Iregua River: "Good" Ebro River: "Moderate"	Status	2018
Ecological status of groundwater bodies - describe WFD status	"Good"	Status	2015

Describe the present situation in relation to water management, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator.

Describe the current general features of waste water treatment according to national requirements and the

requirements of the Urban Waste Water Treatment Directive (UWWTD, 91/271/EEC), and the situation regarding drinking water quality and the requirements concerning the Drinking Water Directive (DWD, 98/83/EC) and the 'new' DWD.

Please provide information of the EU Water Framework Directive 2000/60/EC and and related legislation (Groundwater, Environmental Quality Standards) regarding implementation.

In detail, please make reference to:

a) Total water drinking water consumption (in cubic meters/year and litres/capita/year) including a breakdown for different sectors (e.g. households, industry, energy, agriculture, small business, tourism, public sector); describe plans currently in place to reduce water consumption and to improve water status;

b) Proportion of urban water supply subject to water metering, both for domestic and non-domestic metering;

c) Source of water (surface water, groundwater) - make reference to aquifers and river basin management;

d) Quality of drinking water (e.g. how many days of non-compliance with the Drinking Water Directive?) - make reference to connection to large/small supplies;

e) Improvements as regards access to and promotion of tap water;

f) Water loss in pipelines, leakage management and network rehabilitation; please provide information on leakage management and network rehabilitation;

g) Storm water management (including number of storm water overflows) and use of natural water retention measures (www.nwrm.eu) and/or sustainable urban drainage systems (SUDS);

h) How the links between water and energy consumption (water-energy nexus) if available provide data on yearly energy consumption (kWh/m^3 of distributed water); describe measures in place to reduce/optimise the energy consumption for waste water plants or water supply services;

i) Compliance with the EU Water Framework Directive and other EU/national/regional legislation applicable at the city level indicating status of water bodies relevant for the urban area within the city limits and relevance of measures enshrined in the applicable river basin management plans; this shall include the status of the relevant river basin (e.g. water bodies in good/bad status; if information on droughts, scarcity; expected future trends);

j) Compliance with the EU Water Framework Directive and link to the relevant Flood Risk Management plans;

k) Use of 'non-conventional resources' and water recycling initiatives (rain water use and grey water or waste water reuse);

l) The scale of river restoration projects planned e.g. for resurfacing (lost) rivers, naturalising previous channeled rivers;

m) Projects to reconnect citizens with waterbodies e.g. creation of wetland parks, improving water quality to allow for swimming; and

n) Already existing bathing sites (if any) identified in accordance with the Bathing Water Directive (2006/7/EC) e.g. current status, challenges faced, management measures.

Include data and a short explanation for the following specific indicators. Provide explanation in the case of missing information.

- Proportion (%) of total generated waste water load, not connected to waste water collecting systems and explanation of the type of waste water treatment applied to this fraction (reference to individual or other appropriate systems, i.e. IAS);
- If the city is located in an EU Member State include data on waste water treatment obligations according to the UWWTD (based on city's size and nature of the area of discharge);
- Waste water collecting systems: main type of collecting system (combined/separated) and annual proportion (%) of COD-loads discharged via storm water overflows;
- UWWTPs: organic design capacity (PE), most advanced treatment level, annual incoming and discharged loads (load or concentration) of BOD_5, COD, Ntot and Ptot and treated waste water amounts (m^3/annum) of all UWWTPs serving the city. If the city is located in an EU Member State, indicate whether the UWWTP complies with the treatment requirements under the UWWTD;
- Annual amounts of generated sewage sludge (tonnes/year) and description of treatment/disposal pathways (% of total amount);
- Further information (e.g. on treated waste water reuse, economic sustainability, use of integrated constructed wetlands or other GI/nature-based solutions) is highly appreciated; and
- Additional treatment steps beyond requirements of the UWWTD 91/271/EEC, such as disinfection, UV-radiation, membrane technology, removal of micropollutants, reduction of microplastic.

Please note:

In case the city is served by a private, or public/private services company, or the regional/national authorities are responsible for the water services, please provide the information requested and describe the additional city activities.

Logroño City Council manages the urban supply system coming from the Rio Iregua Drinking Water Treatment Plant (DWTP). The water comes from the Iregua River catchment area at Islallana (Nalda).

The supply of drinking water has decreased from 145.95 litres/capita/day (1994) to 110.64 litres/capita/day (2019) mainly due to an increase in the efficiency of the distribution network, an improvement in the control of leaks and a greater public awareness brought about by the campaigns of the municipality (1).

In 2019, total consumption of drinking water in Logroño was 8,953,201 m3 (6,167,601 m3 for domestic use; 2,785,600 m3 for non-domestic use). A total of 4,146,000 m3 of drinking water is not billed and is used for municipal services (ornamental fountains and drinking fountains; cleaning and irrigation). In 2017, 11 new drinking fountains were installed, reaching 347 units distributed throughout the city.

100% of the water supply is subject to measurement and 100% of water quality analyses comply with the requirements of the Drinking Water Directive.

The system for locating and managing leaks in the drinking water supply pipe network (439 km in total) is owned by the municipality. Leakage monitoring (outsourced) is carried out on a continuous basis by means of leak noise sensors. Some 15 leaks are detected per year in the oldest fibre cement pipes (approximately 20% of the network).

The energy needed for the purification process is generated in a mini hydroelectric plant located in the DWTP, the rest (80%) is sold. With an installed electrical power of 750 kW, a total of 2,373,862 kWh were generated in 2018 (0.19 kWh/m3 of drinking water and 0.16 kWh/m3 of input water).

At the Logroño WWTP, the ratio between energy consumption and the volume of treated water has been very stable in recent years at 0.36 kWh/m3.

Water bodies

Logroño is located in the hydrographic basin of the Ebro river, its surface waters are included in the Ebro Hydrological Plan and the Ebro Hydrographic Confederation (CHE in Spanish) is the body responsible for controlling its status (2).

In Logroño there is one surface water body in the river Iregua and two in the river Ebro. Their quality states are shown in the table below (Fig.1):

Water body	Ecological status	Ecological status according to physico-chemical indicators	Ecological status according to biological indicators	Final status
275	Good status	Good status	No data	Good status
411	Moderate status	Good status	Moderate status	Less than good status
866	Moderate status	High status	Moderate status	Less than good status

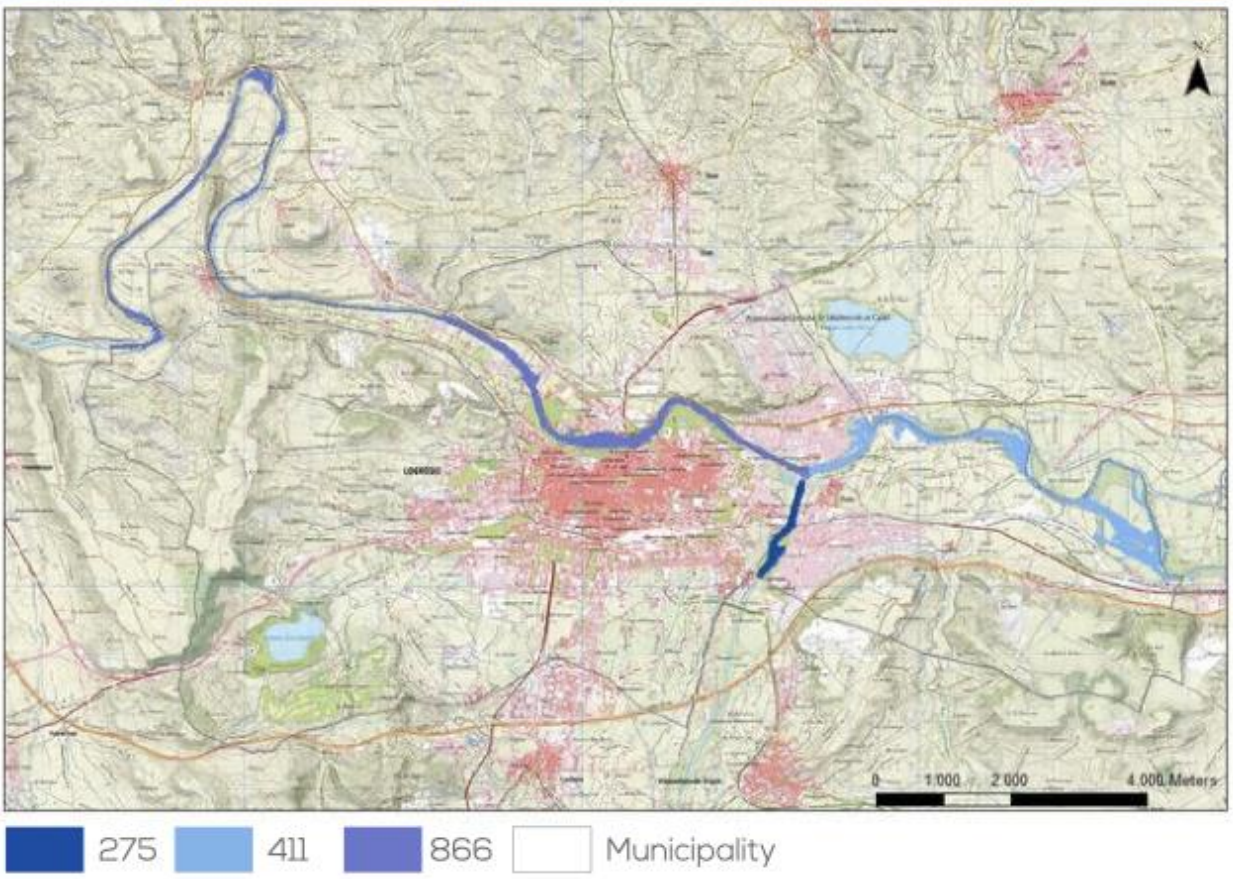


Fig. 1. Superficial water bodies status in Logroño (2018)

There are currently no bathing areas in Logroño identified in accordance with the Bathing Water Directive, which also falls within the remit of the CHE.

Groundwater is recharged by the infiltration of rainwater and of irrigation returns as well as by the infiltration of side gullies and storage during flooding. The vulnerability of the aquifer is high and its functioning is linked to the dynamics of its rivers.

79% of the alluvial surface is agricultural soil, mostly irrigated. Groundwater is in good condition but is at risk from diffuse pollution from agricultural sources and from occasional pollution from industrial sources. This

alluvial is included among the waters affected by or at risk from nitrate pollution of agricultural origin (4).

Waste water

All the waste water generated in the urbanised area of Logroño is collected and transferred to one of the two WWTPs: El Cortijo WWTP and Logroño - Bajo Iregua WWTP (5) managed by a supra-municipal public entity with subcontracted operation. In 2019 El Cortijo WWTP received an average load of 288 h.e. and Logroño - Bajo Iregua WWTP of 243,756 h.e.

In Logroño a stricter treatment than the secondary treatment originally installed is carried out, which includes internal recirculation and elimination of nitrogen (N) and phosphorus (P). With average annual data for 2019, its performance has been BOD5= 98%, DQO=95%, N=71% and P=57%.

The requirements of the Urban Waste Water Directive are met in Logroño (Fig 2). In 2019, minor breaches of the discharge authorisation were detected: 6 -SS, 2 -DBO5 and 2 -DQO (Logroño-Bajo Iregua WWTP) and 6 -SS (El Cortijo WWTP).

				Incoming Loads							Discharged Loads						
	Total waste water load (m3)	Average waste water load (m3)	Average anual PE	BOD_5	COD (mg/l)	Nt	Pt	pH	SS	NH4	BOD_5	COD (mg/l)	Nt	Pt	pH	SS	NH4
2011	18.756.168	1.563.014	244.213	285,33	474,52	43,87	5,49	7,69	216,98	25,95	4,79	29,36	20,89	1,84	7,40	8,41	9,82
2012	17.821.582	1.485.131	191.137	241,75	484,58	44,74	5,87	7,75	224,12	26,66	4,69	26,28	16,92	2,06	7,39	6,82	5,47
2013	20.562.245	1.713.520	206.281	218,30	433,42	37,61	4,88	7,58	207,17	22,66	4,24	21,96	16,16	2,84	7,28	6,44	6,13
2014	18.445.293	1.537.107	221.217	261,01	505,36	40,55	5,42	7,45	230,32	26,91	3,02	23,71	16,55	1,68	7,22	6,72	6,75
2015	18.814.768	1.567.897	180.620	216,73	434,33	39,23	5,22	7,39	204,26	26,15	3,82	23,99	17,74	1,69	7,14	7,69	7,80
2016	18.419.586	1.534.965	173.652	246,60	490,81	42,39	5,46	7,45	246,60	26,75	2,94	26,08	17,63	2,33	7,23	8,42	6,46
2017	16.530.477	1.377.539	218.122	265,26	548,56	47,89	6,03	7,58	265,26	32,46	3,60	27,45	19,09	2,47	7,34	8,58	9,14
2018	19.480.997	1.623.416	248.588	280,09	557,87	45,18	5,93	7,56	280,09	28,09	5,16	26,41	15,01	2,46	7,35	8,64	6,39
2019	19.111.650	1.592.637	243.756	283,73	553,11	52,53	6,00	7,42	263,99	46,46	5,98	26,73	13,52	2,58	7,19	8,40	7,59
2020*	12.405.442	1.550.680	194.990	236,34	444,57	43,29	5,20	7,42	207,71	36,36	6,10	30,55	12,73	2,56	7,23	10,27	5,76

*For 2020, the data includes January to August.

Figure 2. Waste water treatment indicators (El Cortijo WWTP)

The sludge produced (Logroño-Bajo Iregua WWTP) is anaerobically digested, dehydrated and used (100%) as an organic amendment in agriculture. A total of 1,986 Tn were produced in 2019, the lowest amount in the last

ten years, with a maximum of 2,740 Tn (2010) and an annual average of 2,295 Tn.

This WWTP has a biogas and energy recovery line. Its water line includes a complementary physical-chemical treatment facility to condition the water for biological treatment, which has not been necessary in the last 10 years. It has a system for the reuse of treated waste water pending to be approved by the CHE.

El Cortijo WWTP has a lagoon treatment system that works without electricity and has contracted 5 kW for the sieve and the street lights.

4B. Past Performance

Describe the measures implemented over the last five to ten years for improving water management, including waste water management. Describe the baseline (situation) ten years ago and comment on which measures have been most effective and what progress has been achieved.

With specific reference to waste water, drinking water and bathing water, please note that if the city is located in an EU Member State, special reference should be given to non-compliance situations, exceedances and relevant infringement cases. Particular reference may be given to capacity building, measures for maintenance, management and restoration of waste water collecting systems and UWWTPs, as well as for water supply systems.

Make reference to:

1. Technical, nature-based, economic and institutional measures adopted and their effectiveness in achieving reduction of total water consumption or improvement of water status;
2. Bye-law implementation in relation to efficiency in water usage, tariff and metering systems and water quality;
3. Citizen engagement and public awareness initiatives;
4. Actual and projected improvements (in %) of water status/potential compared to 2009, when the first river basin management plans were to be in place.

Describe actions and activities carried out by the city (or service provider) over the last ten years to improve the situation (e.g. information of citizens, public activities such as flyer or public information desk).

Logroño City Council carries out the drinking water management, with its own staff, covering the whole cycle from the water collection from the river Iregua in Islallana, to the entry of the waste water into the two treatment plants.

The municipal regulations governing the quality of drinking water are contained in two municipal ordinances, one regulating the water service (6) which regulates pricing by blocks, penalising higher consumption, and the 1998 sanitation and discharge control ordinance (7) which regulates the quality of the waste water discharged into the collectors.

Access to quality drinking water is guaranteed for the entire population of Logroño. The City Council has

developed, with its own personal resources, a SCADA and remote control management system for the quality of drinking water and the process, which includes an application for remote monitoring. The DWTP laboratory analyses the water taken in different parts of the city. In addition, random analytical controls are carried out on the quality of tap water to ensure that the private pipeline network is in adequate condition. The supply and delivery of water to the city has been integrated into the municipal quality assurance system since 1999.

Drinking water is distributed throughout the different areas of Logroño; sometimes it is pumped into water tanks where it is re-chlorinated, if necessary before being distributed by gravity.

The maintenance and fault management of the collector network is monitored by a computerised programme developed by municipal staff. There is a database for the analysis of the complete purification cycle, beyond what is required by current regulations.

The water treatment plant has a sludge line. The resulting sludge is dehydrated (19% dryness) and managed as an inert waste while the resulting water is stored and used for irrigation in the southern area of the city.

With the exception of the central area of Logroño, the rest of the city counts for the last 20 years with separated rainwater collecting system (110 km), which is channelled to the river Ebro, and waste water collecting system (209 km), which is sent to the corresponding treatment plant.

The rainwater collectors have sufficient capacity and there is no data on rainwater overflows. Natural water retention measures and sustainable urban drainage systems (SUDS) are not currently used.

The City has implemented a "Smart Rain" (2013) irrigation system for public gardens with connection to weather data to adjust the watering of public gardens. The result was an annual reduction of 20-27% in water consumption in the period 2013-2017, which was applied to only 60% of the green spaces. In 2018 a second phase was started to cover 85% of the city's green areas and improve irrigation algorithms by including variables such as the plant species in each garden.

Logroño City Council, as part of its public awareness campaigns and environmental education programmes, offers guided tours of the DWTP and WWTP to raise awareness of the Water Cycle.

Information on the quality of water in the municipal distribution network, including the values of the different parameters analysed, is available on the Town Hall website (8).

Compliance with the Water Framework Directive and the management of the Flood Risk Management Plans are the responsibility of the state and regional administrations and for the moment Logroño Town Council does not participate in their management.

The City of Logroño's Climate Change Adaptation Plan includes proposals for action in response to flood risk (see Indicator 9). The city enjoys large parks around its rivers: the Parque del Ebro to the North (Fig. 3) and the Parque del Iregua to the East (see Indicator 5).

Figure 3. Río Ebro in Logroño

The Logroño - Bajo Iregua WWTP (Fig. 4) was put in place with co-financing from the EU Cohesion Fund (2002). It was designed for 466,560 h.e. and has a large capacity reserve, given that it receives half this load, thus normally only 2 of the 4 primary decanters and 2 of the 3 biological reactors operate. It covers an area of almost 8 hectares, of which a third is a green area irrigated with treated water. The plant counts with two reliefs, a general one with a storm tank and relief sieves and another one functioning under control before the biological treatment. There is no data available on the flow rates relieved that will begin to be measured in the near future.

The plant applies the alternative of activated sludge at half load and has been designed to eliminate nitrogen by up to 89% whenever temperatures exceed 18ºC. The treated water is discharged directly into the river Ebro, upstream of the flow of it affluent the river Iregua. The discharge authorization imposes more demanding conditions than those which would apply according to the WFD. Over the last 10 years, the disinfection of reuse has been implemented and internal recirculation to eliminate nutrients has been installed.

El Cortijo WWTP consists of a roughing mill and a lagoon in three stages (anaerobic, facultative and aerobic). It was sized in 1990 for a population (permanent and seasonal) of 825 PE (with a load of 50 gr/per day); with the current load (BOD_5) of 60 gr/per day its capacity is 687 PE.

Since 2008, a Waste Water Pumping Station (WWPS) has been carrying the industrial effluents from the discharges from the Cantabria Industrial Park, located on the left bank of the river Ebro (PE of 56,000) to the

Logroño-Bajo Iregua WWTP.

The WWPS includes a roughing and pumping station and a drive line to the Logroño WWTP that crosses the course of the Ebro River. It also has a tank in which abnormal discharges can be retained, thus preventing them from affecting the waste water treatment process.

Figure 4. The Logroño - Bajo Iregua WWTP in the Northeastern limit of Logroño

4C. Future Plans

Describe the short and long-term objectives for water management and the proposed approach for their achievement, including how they are influenced by the expected impacts from climate change and other long-term trends. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes.

Place particular emphasis on water quality goals and on key water saving and reuse targets for the future and the proposed approach to achieve these, including technical and nature-based measures incorporating water infrastructure to deal with future impacts of climate change.

Describe the future short and long-term objectives for waste water treatment and management and the proposed approach, and specify the measures for their achievement. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes. Emphasise to what extent plans are triggered by the demands of EU and national regulations.

Please describe future action/plans taken regarding water (re-opening of water-courses, housing development with specific regard to water issues). Reference to legal action may be give (e.g. obligation for green roofing, subsidies for disconnection to sewer, unsealing measures); describe intentions and best practice measures and indicate its planning status (intention or detailed planning).

Refer to:

1. Improvement/maintenance/management of collecting systems;
2. Improvement of connection to collecting systems and to the UWWTPs (inter alia, additional

percentage of PE forecasted to be connected);

3. Improvement of design capacity, treatment level and treatment performance of UWWTPs and indicate if these go beyond the requirements in the Directive;
4. Improvements of further environmental and economic aspects of waste water treatment (e.g. removal of emerging substance, micropollutants, pharmaceuticals, micro-plastic particles and pollution prevention measures; and measures on water reuse;
5. Improvement in the quality of bathing water;
6. Measures to improve public information and participation; and
7. Other improvements.

The present Hydrological Plan is currently being revised in order to draw up the Ebro Hydrological Plan 2021-2027, in whose public consultation process the City Council participates.

The Autonomous Community of La Rioja has developed the Master Plan for Water Supply to the municipalities of La Rioja 2016-2027. As far as the city of Logroño is concerned, this Plan estimates that it will not be necessary to increase the capacity of the water treatment plant that supplies it.

Logroño City Council is drafting, through technical assistance, the project for the use of water and improvements in the city's irrigation system to reduce the consumption of drinking water and energy by 35% and 50% respectively.

Logroño City Council plans to carry out the Study and Project of the southern interceptor aimed at collecting rainwater and surplus irrigation water that reaches the South of the city in order to prevent flooding and to allow this water to enter the sewage network. The intention is to use this water to create a lagoon system. This project is an adaptation response to climate change by creating green and blue infrastructure that can increase the city's biodiversity and create new green spaces, including orchards to encourage urban agriculture. Among the benefits of this project are cost savings by reducing the amount of water that is taken for treatment and lower maintenance and cleaning costs for the collectors (see Indicator 9).

In accordance with the regulations of the Ministry of Health, the preparation of the 2020 Water Health Plan is planned.

In the short term, the Emergency Plan for drought situations will be drawn up in compliance with national legislation.

As part of the continuous improvement of the drinking water supply process, the renewal of supply pipelines is planned to replace fibre cement pipelines with cast iron pipelines to reduce the risk of breakages. It is also planned to improve the quality of drinking water through the use of ozone which would reduce chlorination.

With regard to the management of waste water, a project has been drawn up to introduce more demanding treatment at El Cortijo WWTP in order to comply with the limitations for agglomerations of more than 2,000 h.e. The new WWTP will have complete secondary biological treatment, for which purpose the anaerobic ponds will be remodelled, the facultative lagoon and a subsurface flow wetland will be maintained (remodelling of

the anaerobic lagoon). The aim is to reduce their energy consumption as much as possible in order to adapt it to the 15 kW limit of the supply line.

The Logroño WWTP is part of the project for microbiological surveillance in waste water and bathing water as an epidemiological indicator for an early warning system for the detection of SARS-CoV-2 in Spain (9).

Logroño aims to increase soil permeability in urban areas to improve rainwater infiltration and reduce the impact of storms on the drainage system. The use of Sustainable Urban Drainage Systems is one of the main lines of action. In the last LIFE call for proposals, a project was presented to analyse these systems in various models of tree holes and small green areas in the city's streets.

As for the Ebro and Iregua rivers, in the coming years it is planned to make recreational use of surface water to increase the relationship between citizens and the city's rivers, which should raise awareness of their environmental importance.

4D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

1. The Water Cycle. Environmental Education of Logroño City Council
2. Surface Water Quality data (CHE)
3. Groundwater: Alluvial from La Rioja-Mendavia
4. Waters affected by nitrates from agricultural sources (2012-2015)
5. Logroño Wastewater Treatment Plant (WWTP)
6. Ordinance regulating the Water Service in the city of Logroño
7. Sanitation and Discharge Control Ordinance of the city of Logroño
8. Logroño drinking water quality data
9. Microbiological surveillance in wastewater

Additional information:

10. Law 5/2000 of 25 October on the drainage and treatment of waste water in La Rioja
11. Ebro Resilience Strategy
12. Ebro Flood Risk Management Plan (PGRI)
13. WWTPs: Water analysis and treatment flows

14. Ebro Hydrological Plan 2021-2027
15. SAICA, Automatic Water Quality Information System
16. Main parameters of drinking water in Logroño 2014-2019
17. Report on the biological state of the rivers of La Rioja (2016-2018) – not available online

5. Nature and Biodiversity

Refer to Section 2.5 of the Guidance Note

5A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Nature and Biodiversity

Indicator	Number	Total Area (ha)	Year of Data Provided
Number and total area of Natura 2000 sites that are located in the city or nearby (i.e. within 10 km)	8	2,136	2020
Number and total area of designated sites of **national** biodiversity importance within the city (habitat/species management areas)	1 (incl. Natura 2000)	270	2020
Number and total area of designated sites of **local (city)** biodiversity importance within the city (habitat/species management areas)	1*	86.15	2019
Date and time horizon of the city's Biodiversity Action Plan	N/A	N/A	N/A

* Note on the table: The Grajera Reservoir is protected by the Regional Government under the "Guidelines for the Protection of Non Developable Land of La Rioja" [1].

Describe how nature and biodiversity is monitored, protected and managed in the city, and how local people are engaged in nature conservation and biodiversity action.

Please provide details of the following:

1. Maps showing protected sites, habitats, ecosystems or biotopes;
2. Examples of species and habitat monitoring programmes;
3. Current strategies, plans and projects for the management of ecological networks, key sites, and priority species;
4. The city's approach to involving and engaging residents, visitors, business and institutions in planning and action for nature; and
5. On pollinating insects specifically:

   - Has the city set an overall vision, ambition and/or policy for protecting and restoring wild pollinators as part of its broader commitment to biodiversity action? Does it align with the EU Pollinators Initiative priorities, Convention on Biological Diversity (CBD) approach, the Aichi Biodiversity targets or other national or international policy?

   - Describe examples of stakeholder participation, community activity, education and citizen science related to pollinator conservation and promotion. Are schools and young people made aware of the

critical importance of pollinators? Are pollinator conservation projects encouraged amongst city communities? Are city resources allocated to raising public pollinator awareness and practical initiatives?

Within the municipality of Logroño there are two **protected areas**, the La Grajera reservoir and the Natura 2000 site ES2300006 - Sotos y Riberas del Ebro [2]. In addition, within 10 km from the municipality boundaries are located the following seven **Natura 2000 sites**: ES0000064 Peñas de Iregua, Leza and Jubera [3] in La Rioja; ES0000134 Las Cañas Reservoir [4], ES2200029 Sierra de Codés [5] and ES2200031 Ribera Estellesa Gypsum [6], in Navarra Region; and ES2110008 Ebro ibaia/río Ebro [7], ES2110018 Sierras Meridionales de Álava [8] and ES2110021 Lagunas de Laguardia [9], in Álava Province (Fig.1).

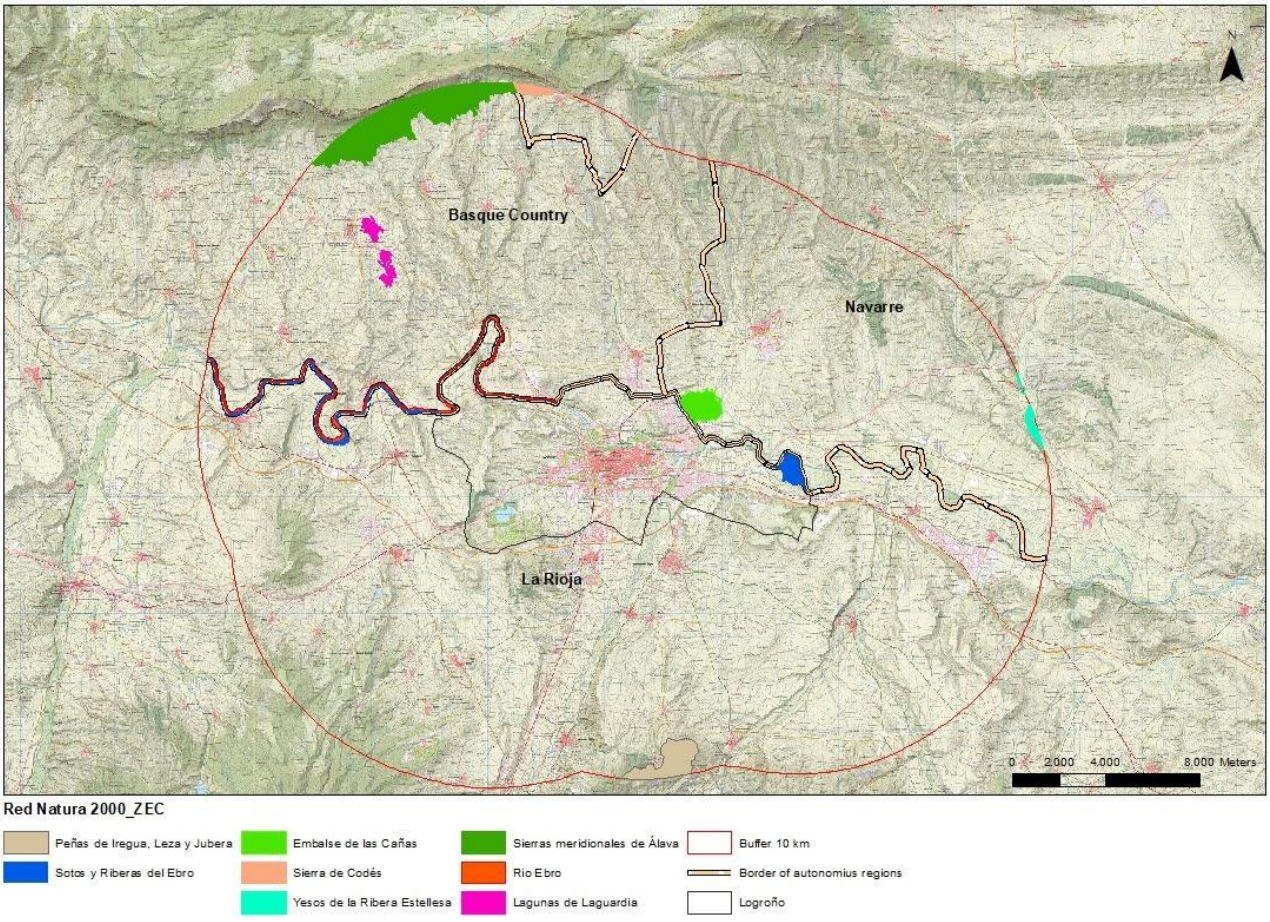


Figure 1. Natura 2000 sites within 10 km

Logroño City Council does not have programmes for monitoring habitats and species, as these functions are the responsibility of the regional administration. It has collaborated in operational aspects in the monitoring of the population of two species of Community interest included in Annexes II and IV of the Habitats Directive present in the rivers Ebro and Iregua within the municipal area: the **European mink (*Mustela lutreola*)** - as part of the

LIFE Lutreola Spain project (LIFE13 NAT/ES/001171) "New approaches for the conservation of the European mink in Spain" [10] - and the **European beaver (*Castor fiber*)**, a species that has been naturalized and integrated into the environment since the release of a small population in 2003.

As a continuation of the LIFE Lutreola Spain project, the restoration of riverbanks and other areas is being carried out to adapt them to the ecological requirements of the European mink. The works have included the "Soto de la Sabuquera" municipal property (13 ha) on the river Ebro, which was included in a project of the regional government to restore areas as favourable European mink habitat. The project was successfully carried out in 2019-2020, achieving a substantial improvement in the mink habitat within the municipality.

Both the river Ebro and its tributary the river Iregua flowing through the city are included in the regional Recovery Plan for the **river blenny (*Salaria fluviatilis*)**, a species catalogued in danger of extinction in La Rioja [11].

Although managed by the regional administration, in Logroño is located the **Wildlife Recovery Centre "La Fombera"** [12] which carries out important work in the recovery of individuals of wildlife species; in 2019 a total of 684 wild animals were collected at the centre.

The **Green Shield Strategy** [13] of the Logroño Town Council seeks to enhance the value of the city's green areas by highlighting the benefits of biodiversity for people. To this end, naturalisation is encouraged, which includes an integrated management of green areas. Phytosanitary products such as glyphosate are no longer used and instead natural control by beneficial fauna is encouraged. If necessary, biological control methods are used, for example by releasing ladybirds against aphids. Mowings have been reduced, allowing wild plants to flower, which encourages the presence of insect pollinators and birds and also protects and maintains soil moisture and biodiversity (Fig. 2).

The presence of native species, adapted to climatic and soil conditions, is favoured in the plantations. In the 2019-2020 season, a total of 1,000 trees were planted in Logroño. Wild plants are allowed to grow in tree pits and grasses have also been planted. Plant invasive allien species have been identified and are controlled and eradicated manually or mechanically as far as possible. A plant nursery, located in the municipal garden park, produces the plants for the city, i.e. a total of 93,090 flowering plants in 2019.

Logroño City Council continues with its Environmental Education activities and collaborates with organisations that carry out citizen science activities by offering them the public spaces. A recent activity was the 'Lepidopterological Bioblitz Marathon' in La Grajera Park organised by the 'Zerynthia, Spanish Association for the Protection of Butterflies and their Environment' [14].

Although a specific strategy in response to the 'EU Pollinator Initiative' has not been developed, there are actions already being implemented in the city of Logroño which contribute to the **knowledge and conservation of European wild pollinating insects.**

Figure 2. Biodiversity in Logroño

5B. Past Performance

Describe how the city created and developed its measures to protect and improve nature and biodiversity over the last five to ten years. Comment on how effective these have been.

1. Indicate changes in the extent of sites and ecological network protected for nature and biodiversity (e.g. Natura 2000 network of sites);
2. Illustrate habitat and species trends using collected monitoring data;

3. Give examples of conservation actions to manage and restore sites and habitats, and redress species, including any measures introduced to control invasive non-native species;
4. Explain how the city encourages nature in other open spaces. Has naturalisation been encouraged outside of formal nature reserves?
5. What communication and educational activities have been introduced to promote awareness of nature and biodiversity among the public, including young people?

The increase in the presence of nature in the city of Logroño as well as its enjoyment and appreciation by citizens and visitors has been a constant in the evolution of the city of Logroño. The management of green areas has evolved towards their naturalisation, which has been accompanied by a **reduction in the use of synthetic phytosanitary products** since 2010, which have been replaced by others with less impact, or zero waste in accordance with the Sustainable Use of Pesticides Directive. In **integrated pest management**, mechanical means such as washing trees with soap, biological and biotechnical means (e.g. pheromone traps) have been used.

A large **Green corridor** has been created around the city, connecting the parks and natural areas alongside the banks of the rivers Ebro and Iregua, covering a total area of almost 100 ha and an extension of 7 km from Puente Madre on the river Iregua to Puente Sagasta on the Ebro. It comprises an extense park (67.37 ha) bordering the right bank of the river Ebro until it reaches another park on the banks of its tributary the river Iregua (31.66 ha).

Every Autumn, large flocks of starlings (*Sturnus vulgaris* and *S. unicolor*) arrive in the city trying to establish their nests in the centre of the city, causing disturbance and complaints from the residents. The City Council has subcontracted services to disperse them from the urban area by techniques combining the installation of acoustic-optical scaring devices and the use of falconry, resulting in reducing their presence significantly and, therefore, the problems it caused.

Logroño counts with **363 ha of forest**, including La Grajera Park, about 2.7 km from the urban area. It is a semi-natural park established with an initial extension of 86.15 ha, including a reservoir (32ha). In the early 2000's it was extended to 371 ha, including an 18-hole municipal golf course on an 83 ha estate.

The mentioned Guidelines for the Protection of Non-Developable Land in La Rioja, includes the area **"La Grajera Reservoir"** (86.15 ha) as an important Wetland Area due to its natural values recognised in the Spanish Wetland Inventory [15]. Its management is carried out in accordance with a Regulatory Ordinance [16]; the park has two municipal guards in charge of controlling compliance with the Ordinance. The area includes a Protection Zone, bordering the reservoir, destined exclusively for scientific, cultural and educational purposes. This area hosts relevant populations of flora (reeds, rushes, brambles and groves) and fauna including Great Crested Grebe (*Podiceps cristatus*), Little Bittern (*Ixobrychus minutus*), Grey Heron (*Ardea cinerea*) and Purple Heron (*A. purpurea*) associated with lake ecosystems. La Grajera also serves as a wintering habitat and migration stopover for a large number of waterbirds.

La Grajera Park has an **Education Centre** [17] that organises guided tours to discover its wild flora and fauna, as well as visits to the domestic animal farm and observation of the fallow deer population in semi-captivity. In

addition, to commemorate celebrations such as the World Migratory Bird Day, various naturalist activities are carried out, including scientific bird ringing.

In La Grajera Park the control and eradication of the pine processionary (*Thaumetopoea pityocampa*) is carried out using sexual pheromones and installing traps.

Within the urban environment, the city has a **Master Plan for the Management of Trees and Green Areas in Logroño** [18] which declares the tree as an element of public interest and, therefore, protected. Every green area and every tree in the city is cataloged. The city of Logroño has a total of 43,596 trees (20,890 on streets and 22,706 in green areas), a number that has remained practically constant since 2014. There are 171 different tree species, 7 of them representing 50% of the total population. The **Catalogue of Trees and Groves of Local Interest** [19] includes 15 trees and 11 groves of public ownership that form part of the natural and cultural heritage of the city on the basis of: their age, cultural, ecological, historical or popular interest; rarity in terms of their number; or given their presence outside of their natural habitat. Logroño also has two trees and a grove comprising 496 trees listed in the **Catalogue of Trees of Singular Interest of La Rioja** [20].

As part of the City Council's Environmental Education activities, educational tours for all types of public have been and continue to be offered free of charge to the Municipal Garden Park (including an orchard, rose garden, vineyard, municipal nursery, insect hotel and beehives and composting plant) and to the city's parks and gardens where the importance of urban biodiversity and its many benefits are explained. The **Week of the Tree** is celebrated annually during which many schools and private citizens visit the Garden Park. During the **Day of the Tree** schoolchildren carry out tree plantations.

The City Council is holding activities and exhibitions (for example, an exhibition on the European mink) at the Science Centre ("Casa de las Ciencias") to raise awareness of biodiversity among the general public.

In 2012, the Autonomous Community of La Rioja started the **"Educational Centres towards Sustainability Programme"** aimed at all levels of non-university education, in which 12 centres in Logroño have participated. Both the diagnosis and the action plan include the natural environment and activities such as the naturalisation of the playgrounds have been carried out.

In 2013 the City Council started the installation, with the collaboration of the Gardening School, of **school gardens** to bring nature closer to the children of the city, with a total of 14 at present. This is complemented by the work that the Autonomous Community has been carrying out since the 2015-2016 school year to promote Participatory Ecological School Gardens as a learning tool by creating the **Participatory Ecological School Gardens Network** [21].

5C. Future Plans

Describe the city's short and long-term ambitions and objectives for nature and biodiversity (including the conservation of wild pollinators) and the proposed approach. Describe planned measures and indicate how these are supported by strategic and policy commitments, budget allocations, resource allocations and participatory

approaches, and monitoring and performance evaluation schemes to be put in place. Include references to any plans, projects or activities supporting the conservation of wild bees and pollinators. Demonstrate how this work coincides with the EU 2020 Biodiversity Strategy, Nature Directives and other relevant Directives such as sustainable use of pesticides and complementary national strategies.

As a contribution to achieving the objectives of the **EU Biodiversity Strategy to 2030**, a fundamental pillar of the European Green Deal, the following potential actions are identified:

- Preparation of a **Municipal Biodiversity Action Plan** which provides the city with the knowledge, planning and infrastructure necessary to tackle any activity from the perspective of the knowledge, protection and increase of biodiversity in Logroño.

- Enlarging the surface of the **Natura 2000 Network** present in the municipality with the inclusion of the area "Soto de la Sabuquera" within the Natura 2000 site ES2300006 "Sotos y Riberas del Ebro". This action would be a continuation of the conservation actions to protect the European mink that are already carried out in Logroño.

Furthermore, progress will continue to be made in the naturalisation of the city's parks and gardens, without the use of pesticides, and promoting urban biodiversity as part of the **Green Shield Strategy**.

Planting **more trees** of species better adapted to the urban environment and to climate change will be encouraged. Urban trees, including those in urban green areas and streets, contribute to the quality of life in the city by fulfilling several functions: improving air quality, promoting biodiversity, conserving soil, mitigating and adapting to climate change and contributing to sustainable mobility by providing shaded areas that encourage walking and cycling.

It is planned to update the management regulations of the **La Grajera Park** to provide this area with greater legal protection.

It will also be taken into consideration how to deal with the risks posed by episodes of strong winds, e.g. falling tree branches, after several episodes of explosive cyclogenesis that have occurred in recent years, mainly during the Summer.

The **Ebro Resilience Strategy** [22] which will soon start being implemented in Logroño, promoted by the Ebro Hydrographic Confederation, includes the development of actions to improve the biodiversity linked to this river (see indicators 4 and 9).

5D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

1. Guidelines for the Protection of Non-Developable Land in La Rioja (ES)
2. SDF: ES2300006 Sotos y Riberas del Ebro (ES)
3. SDF: ES0000064 Peñas de Iregua, Leza and Jubera (ES)
4. SDF: ES0000134 Las Cañas Reservoir (ES)
5. SDF: ES2200029 Sierra de Codés (ES)
6. SDF: ES2200031 Ribera Estellesa Gypsum (ES)
7. SDF: ES2110008 Ebro Ibaia/Río Ebro (ES)
8. SDF: ES2110018 Sierras Meridionales de Álava (ES)
9. SDF: ES2110021 Laguardia Lagoons (ES)
10. LIFE Lutreola Spain Project (EN)
11. Recovery plan for the river blenny (*Salaria fluviatilis*) in La Rioja (ES)
12. "La Fombera" Wildlife Recovery Centre (ES)
13. Green Shield Strategy (ES)
14. Bioblitz Lepidopterological Marathon in La Grajera Park, 2020 (ES)
15. Spanish Inventory of Wetlands (ES)
16. Ordinance regulating La Grajera Park (B.O.R. 21/07/14) (ES)
17. Education Centre in La Grajera Park (ES)
18. Master Plan for the Management of Trees and Green Areas in Logroño (ES)
19. Catalogue of Trees and Groves of Local Interest (ES)
20. Catalogue of Trees of Singular Interest of La Rioja (ES)
21. Participatory Ecological School Gardens Network (ES)
22. Ebro Resilience Strategy (ES)

6. Sustainable Land Use & Soil

Refer to Section 2.6 of the Guidance Note

6A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Sustainable Land Use & Soil

Land use within the city (this will provide important background information on the character of the city and is not an evaluation criterion itself)				
Land Use Data	**Inner City**[4]	**Overall City**[4]	**Unit**	**Year of Data Provided**
Public Green Area	17.21	19.65	%	2020
Private Green Area	5.03	3.65		
(Urban) Agricultural Land	6.58	11.32		
Blue	1.61	2.58		
Residential	3.35	1.84		
Industrial/Economic	1.31	15.72		
Mixed[1]	21.59	11.30		
Brownfield[2]	8.99	5.49		
Other[3]	34.33	28.44		
Total	**100**	**100**		
Population Data	**Inner City**[4]	**Overall City**[4]	**Unit**	**Year of Data Provided**
Population density in built-up areas (city area minus green and blue)	189.80	105.71	Inhabitants per ha	2020
Population density (inhabitants per hectare) for new developments	322	0	Inhabitants per ha	
Percentage of people living within 300 m of green urban areas of any size	99.83	99.84	%	
Percentage of people living within 300 m of green urban areas of >5,000 m^2	99.31	99.31	%	

[1]Please specify the land use types within the 'mixed land'.
[2]See guidance note for clarification.
[3]Please specify 'other'within Table1: Benchmarking Data - Sustainable Land Use & Soil. Add additional rows as required.
[4] Please refer to Guidance Note section 2.6 on how to delineate 'Inner City' and 'Overall City'.

Within the concept of Mixed Land it has been included:

- *All plots with detailed residential or open residential use of the Municipal General Plan. This use gives rise to a wide variety of specific uses in each property. In fact, it is the use that is most compatible with other uses. On a plot classified as residential, it is possible to build from a block with homes and commercial premises, through to the entire office building, or even a health clinic.*
- *All the plots with complementary uses for housing have also been included because, on the one hand, practically all of them are not independent plots but are annexed to those classified as residential. Normally they only have a ground floor.*
- *Plots with a double residential use and private free space, when this has not been used for green areas or private sports, have also been included in this category.*
- *The few plots with residential use have also been included because they could be transformed into generic residential use.*
- *The plots with private dotational use have also been included here because in addition to being able to be built for residential use (student residences, senior citizen's residences, etc.) they also serve as an endowment for the residential plots. Furthermore, given that they can be used, they could even become residential plots as the first category (through modifications to the Municipal General Plan)*
- *Finally, plots of land which, although qualified as public endowments, are managed privately and are currently providing services similar to the private endowments described above, have also been included.*

Brownfield: We have understood this kind of land as those spaces which, because they are not in their full potential, represent an important opportunity for the improvement of the city. For this reason, three different categories have been included in this type of land, with the aim of establishing three different strategies in the future.

- *Inadequately located industries and facilities. These are industrial facilities located on rural land prior to the 1985 General Plan. They had a tolerance period of 20 years for their relocation and despite having expired (years ago) they are still located on this type of land. In 1992, the Municipal General Plan defined some industrial areas for their conversion to residential use, as they were all located in interior situations of the city. A period of 24 years was established for their transformation and although many of these spaces have already done so, some are still unfinished. It is these areas, the unfinished ones, that have been included in this category.*
- *Also after 1992, more areas of industrial reconversion were identified and although their 24-year deadline has not expired, they have been included in this category.*
- *Finally, we have also found it coherent to include in this category all the urbanized plots without buildings which are distributed throughout the city, but which are especially concentrated in certain neighbourhoods and therefore imply large gaps, as is the case in the El Campillo sector.*

Other: Two concepts have been included in this category:

- *On the one hand, the roads, both road and pedestrian. Within the wheeled roads, all types of roads have been taken into account, i.e. urban, interurban regional or state roads and railways. Spaces for public parking, adjacent to urban roads, have also been included. These account for 27.59% of Inner City and 14.70% of Overall City.*
- *Finally, plots of land classified as public facilities and which are actually managed by public bodies (state, regional or local) have been included in this category. They are divided into 6.74 % in Inner City and 8.12 % in Overall City.*

Green Urban Areas/Green Infrastructure

- Is there a main policy implemented on green areas/green infrastructure within the urban tissue (or on the connection of urban green scapes to rural or natural 'hinterland')? What are the effects of this

policy on public and private places?

- In what way do green areas (green infrastructure) affect the living environment (in the environmental, social, and economic contexts)?
- What is the quality of urban green (and blue) areas, and what indicators are used to assess the quality of the green areas? Is there a budget to ensure this quality?
- How is accessibility to green urban areas ensured for all citizens?

Sustainable Land Use

- Is there a medium-term strategy for sustainable land use (including urban sprawl, soil sealing and/or redeveloping underused areas) which has been implemented in urban and regional planning during the 10 last years?
- How does the city anticipate dealing with current and future changes (such as economic growth, demographic or climate change) in sustainable land use planning?
- How much land within the city consists of brownfields (or derelict or underused zones) and how many of those areas have been regenerated during the last 5 years (please refer to the map)?
- To what extent is the (percentage of) sealed surface (with buildings, pavement or otherwise) causing challenges within the urban tissue?

Urban Farming

- Are there any areas allocated for urban agriculture/allotment gardening? If so, how many?
- To what extend do the urban farming areas contribute to the urban food supply?

Maps

i) Provide a land use map that indicates:
- the municipality boundaries delineating the overall city area;
- the inner city area;

ii) Provide additional map(s) showing green and blue areas in the city, and their connectivity and coherence;

iii) Provide map(s) of the location of brownfield sites (derelict zones) that:

1. Have been regenerated in the past 10 years;
2. Have not been redeveloped (yet).

The land use map below shows how the municipality of Logroño has an agricultural and natural character, with most of its surface area occupied by these uses (Fig. 1).

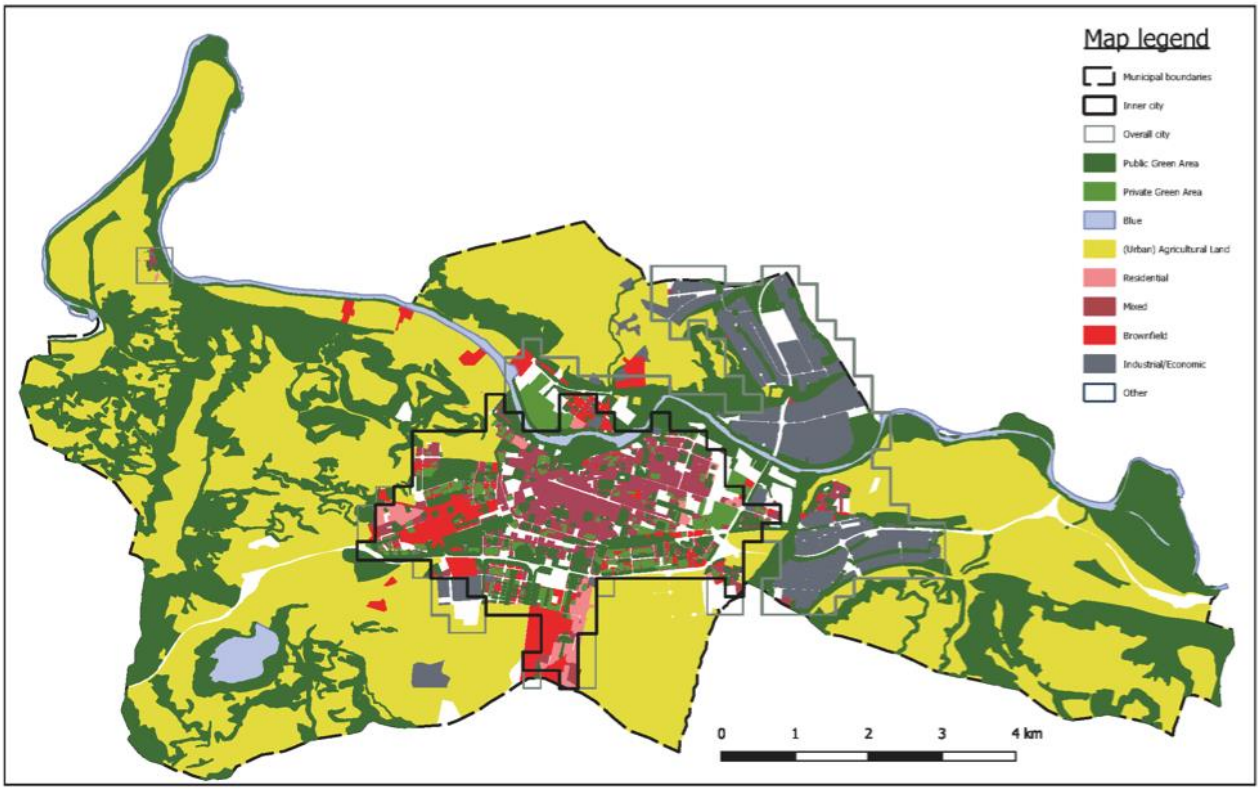


Figure 1. Land use in the municipality of Logroño

The urban area of Logroño is compact, a city that has grown around its central core, with short distances (Fig. 2). It is dense, with an average of 106 inhabitants per hectare in the city as a whole, which rises to 190 in the inner city. It also has a high degree of mixed use, reaching 21.59% of the land in the inner city, compared to 3.35% of the land exclusively residential. This particularly dense and compact feature is related to the fact that more than 98% of the population lives in the inner city and barely 2% in the rest of the territory, including two outlying districts, El Cortijo and Varea. These characteristics of Logroño make it easier to achieve environmental objectives in areas such as mobility, energy efficiency or the conservation of natural soil.

Figure 2. Size of the urban area of Logroño

Green Areas

Public green areas represent 19.65% of the surface area of the city as a whole, while private green areas account for 3.65%. Therefore, more than 23% of the city's surface are green areas, to which can be added 2.6% of blue areas, mainly the river Ebro, which crosses it from west to east, and 11.3% of agricultural areas, mainly orchards. In total, 36.9% of the urban area corresponds to permeable, non-built up areas.

The largest urban green areas are distributed around the two rivers that cross the urban area, generating a linear park of 7 kilometres in length (see Indicator 5). In addition, the new neighbourhoods created over the last 30 years, include large green areas within the urban fabric. The city centre, on the other hand, has a lower proportion of green areas, characterised by a high density and few public open spaces. However, practically the entire population lives less than 300 metres from a public green area, with a ratio of 29.59 m^2 per inhabitant.

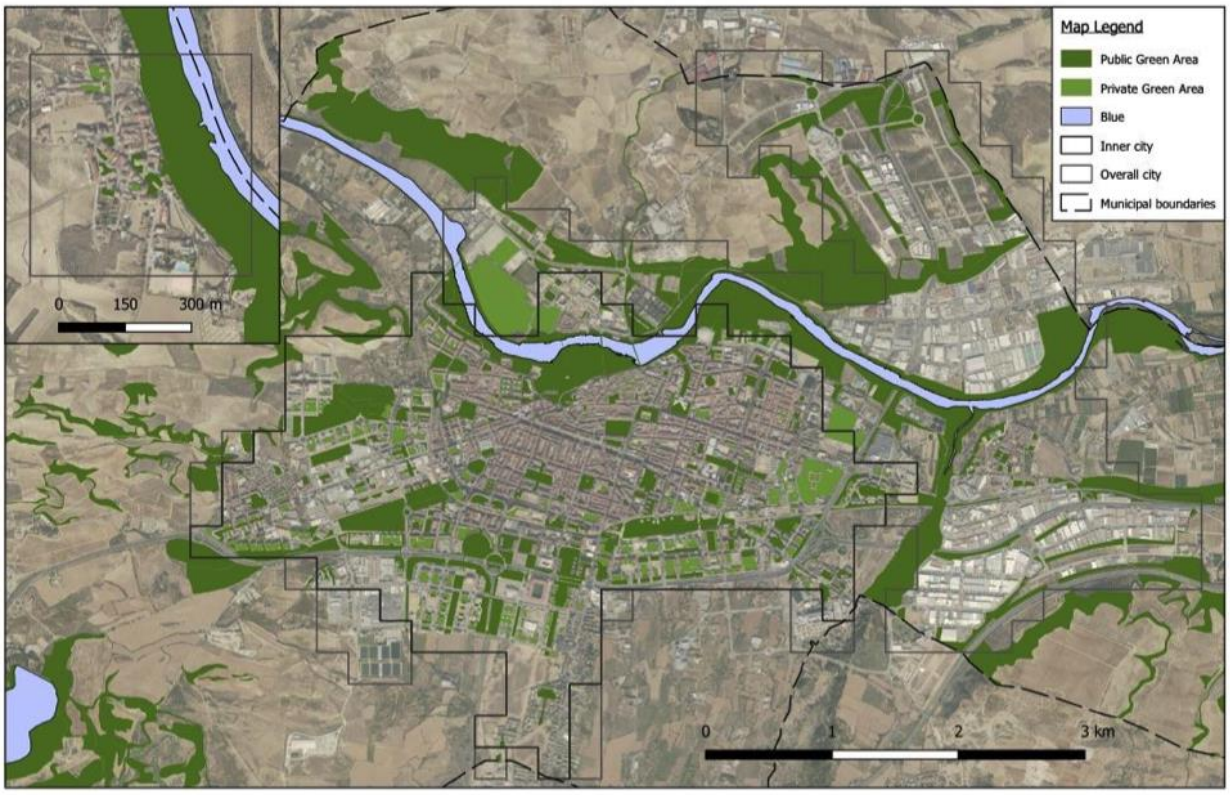


Figure 3. Green and blue area map

In addition, there are public green areas of a recreational nature outside the urban area, such as La Grajera Park, located around a reservoir 3 km from the urban area and through which the Way of St. James runs. There are also public forest areas managed by the regional government.

All of the city's public green areas are inventoried and referenced through a GIS application that facilitates municipal management, to which an annual budget of around 7 million euros is dedicated, representing 5.61% of the municipal budget. There is a follow-up of the complaints, suggestions and recommendations that through the citizen participation individuals or groups transmit to the City Council.

Sustainable land use

Land use is controlled through the General Municipal Plan [1], which establishes what can and cannot be done throughout the municipality. This General Plan has been in force since 1985, although it has been modified over the years to adapt to demographic and economic changes. The Plan only allows for growth in areas adjacent to the existing urban area, encouraging a dense, compact and mixed-use model. The productive and industrial areas are located in the East of the city to allow the dominant winds from the West to disperse possible pollution away from the residential areas.

Since the 1990s, the city has begun a process of transformation of obsolete industrial areas built in the 1960s,

encouraging the relocation of industries to the industrial parks in the East and transforming the resulting land into new residential neighbourhoods, with a mixture of commerce and tertiary services. This is the case of the Cascajos district, a former industrial area which has now been transformed into a mixed neighbourhood, with a majority of residential use but still with the presence of warehouse and production buildings (Fig. 4).

Figure 4. The Cascajos district, a former industrial area in the process of urban transformation

This process is continuing at a slow pace due to the stagnation of the real estate sector since 2008, with 5.49% of the urban area still awaiting transformation or construction (Fig. 5). It is estimated that this area is sufficient to absorb the demand for new housing, which will prevent the use of agricultural or natural land.

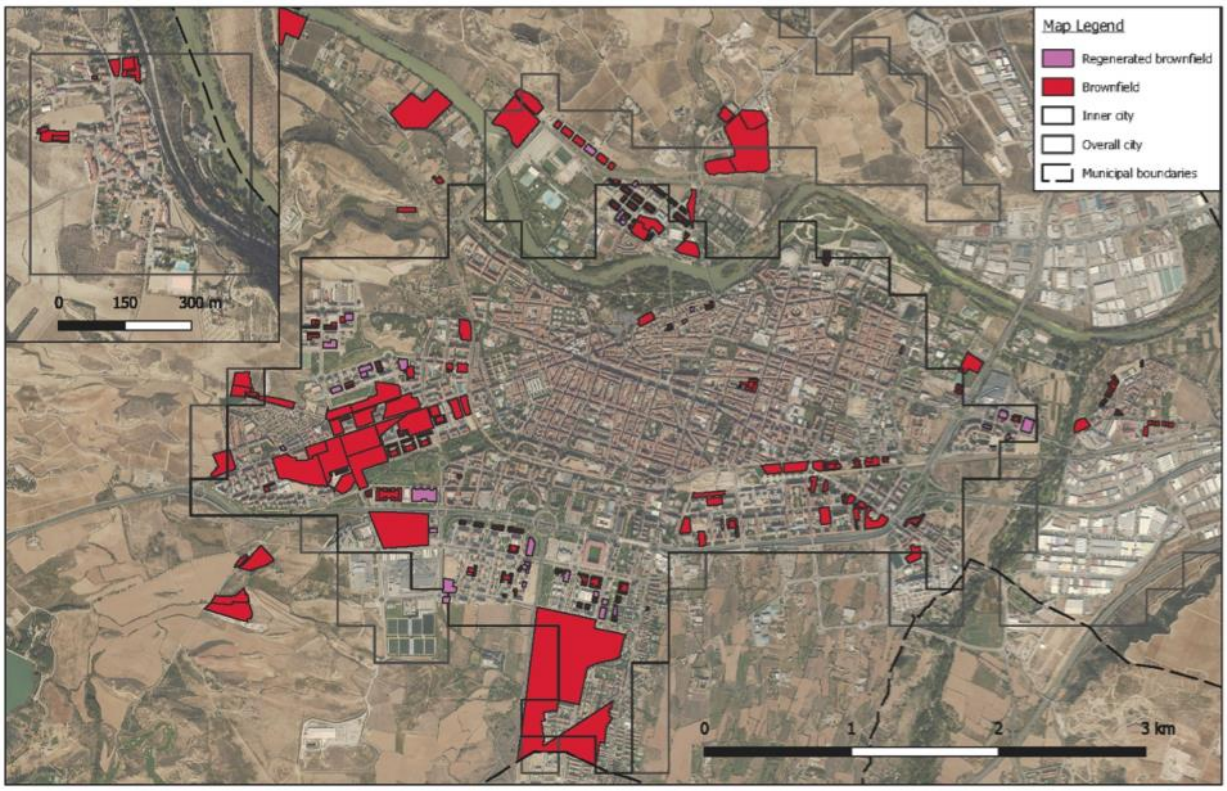


Figure 5. Brownfields

No data is available on the permeable surface of the soil, but with the exception of green, blue and agricultural areas, the rest of the urban area is highly waterproofed, generating some occasional problems in the event of intense storms, which the drainage system has difficulty absorbing. In any case, the small size of the urban area, 23 km^2, which is also crossed by two natural watercourses, prevents it from being a more serious problem.

Urban agriculture

In Logroño there is an important area of irrigated orchards thanks to the two rivers that cross the municipality. These are small and medium sized intensive production farms that mainly grow vegetables for human consumption. In the city there are several markets for local and proximity producers where fresh seasonal products are offered, such as the pepper market from September to November, or the market of organic products.

Figure 6. Leisure Vegetable Gardens

In order to encourage the conservation of the agricultural tradition, to promote the implementation of environmentally friendly techniques in agricultural production and to facilitate options for self-consumption of food, Logroño Town Council has created Leisure Vegetable Gardens to be allocated to citizens. There are currently 258 municipal plots for vegetable gardens with an approximate area of 50 m^2 each. In addition, private initiatives for the rental of small vegetable gardens are emerging in other areas on the outskirts of the city, which shows the progressive attraction of these activities.

Finally, there is a programme developed by the regional government and the City Council to create and maintain vegetable gardens in the city's schools, where children are taught about the natural cycles and how to take care of these spaces (see Indicator 5).

6B. Past Performance

Green Urban Areas/Green Infrastructure

- Regarding the green heritage and potential of the city, has there been a trend in increasing or decreasing accessibility of green areas? If so, please explain the trend;
- What measures have been undertaken to increase green infrastructure and what was the effect of the

measures taken? (for example see Guidance Note);

- What investments or policies have been used for promoting the use of green infrastructure and what was the effect of the measures taken? (e.g. tax reductions for green roofs, building permits, funding schemes for green roofs or biodiversity-rich communal gardens);
- To what extent have citizens been involved in planning, designing or creating green urban areas?

Sustainable Land Use

- What other measures or plans were important for the city in regard to sustainable land use of green urban areas? What were the main policies on housing and settlements to preserve the environment in the last 25-30 years?
- What measures have been taken to minimise the total area of fallow, derelict and contaminated land (brownfields)? Please include some concrete examples;
- What stakeholders, partners, local, regional or national governments have been involved in the renovation or regeneration of derelict zones?
- What measures have been taken to minimise the environmental effects of soil sealing? How effective are those measures? Please include some concrete examples;

Urban Farming

- Does the city have a history or culture of urban farming, or is it a recently emerging development? If urban farming is not happening please indicate this;
- What stakeholders have been involved in urban farming or urban gardening to date?

The urban development of Logroño over the last 4 decades can be considered a good example, having managed to contain growth within reasonable limits, promoting a dense and compact urban fabric that has avoided the dispersion and unnecessary occupation of agricultural and natural land. Furthermore, it has managed to substantially improve green areas and provide citizens with better educational, health and sports facilities, etc. After 35 years of implementing a General Plan for land use, the city has grown in an orderly manner, favouring a mixture of uses, while protecting agricultural and natural soils.

Figure 7. View of the city from North

Green Areas

At the end of the 70s there were only 3 parks for the whole city, with reduced dimensions and historical trees that embellished the streets had been eliminated. The result was a grey and unattractive city, with few public facilities.

From the 1980s onwards, a policy of creating new green areas began to accompany the city's urban growth. In 1987, the design of what is now the Ebro Park (Fig. 8) began, which was completed in 1993 and formed the first part of the current 7 km long linear park along the right bank of the river Ebro and on both banks of the river Iregua. The residential city is framed by the North and the East thanks to this system of parks with a marked natural character.

Figure 8. The Ebro Park with a semi-natural floodable area with a gallery forest

From the same period is La Grajera Park, located outside the urban area, but which is an important leisure area for the citizens.

From the mid-1990s until the end of what is known in Spain as the "Real Estate Bubble" in 2008, the city experienced rapid growth which expanded the urbanised area. Despite the speed of the process, the City Council was able to organize it and achieve the creation of important green areas in the new neighborhoods, always above 20% of the surface (Fig. 9).

Figure 9. Recent neighbourhoods in the south of Logroño, with a higher proportion of green areas, 2019.

Sustainable land use

Logroño has grown from 84,000 inhabitants in the early 1970s to 152,000 today, i.e. it has almost doubled its population in 50 years. This demographic increase has translated into strong pressure to build housing and services for the new inhabitants, which the 1985 General Plan managed to guide in order to avoid urban dispersion and achieve an equipped and ordered city. The objective of this Plan has been to grow towards the South and West of the city, avoiding getting close to the rivers, favouring a dense model with a mixture of uses which has also increased equipment and green areas. The Plan has achieved the objectives: it has contained urban growth while preserving the agricultural and natural environment, and at the same time has favoured a city with short distances and comfortable for its inhabitants.

Since 2008, the population has grown very slowly, which has removed the pressure for expansive growth, and the municipal government has focused on promoting the transformation of obsolete industrial fabrics and urban voids left in the city centre. Thus, since the mid-1990s, a series of industrial zones were identified for the implementation of Special Plans for Interior Reform (PERI), a legal instrument that facilitates the transfer of productive activities to the new industrial areas in the East in order to re-use the land for residential and tertiary purposes, taking advantage of its good location near the city centre. Thanks to this initiative, it has been possible to build several thousand homes on already developed land, avoiding the consumption of natural soil. Other administrations, in addition to the local government, companies and real estate development agents have been involved in these urban regeneration processes.

A special mention within the urban regeneration processes is the integration of the Railway [2], which since 2004 has been burying the railway line to facilitate the connection between the neighbourhoods separated by this infrastructure. The main part, where the new train and bus stations are located, has already been built. It is characterised by an immense roof-park of 50,000 m2 of natural land that acts as a sustainable urban drainage system. It is in the process of obtaining BREEAM urban planning certification [3], one of the first examples in Spain.

Figure 10. Garden-covering over train and bus stations

Urban agriculture

The city's strong agricultural tradition has been maintained over the last few decades, thanks to the protection provided by the city through the Municipal General Plan. Although agricultural activity has lost weight in the city's economy, the municipality is still occupied by large areas of dry farming, especially vineyards, and by smaller areas linked to rivers of irrigated orchards. In the second half of the 20th century these agricultural areas began to be dotted with urban buildings, factories and recreational housing. However, the urban control exercised by the local government since the 1980s managed to interrupt this trend that would have endangered the city's natural environment. As a result, there are still orchards and vineyard and cereal plots being cultivated.

In this way, especially the traditional vegetable gardens, have evolved towards a more leisurely and less productive use, for the benefit of the citizens who have these spaces. Continuing with this inherited culture and as one of the measures to promote actions that will benefit the quality of life of its inhabitants, in 2012 the first phase of the leisure orchards was started, with 68 plots being handed over for cultivation for self-consumption and with responsible and sustainable techniques with the environment. In 2015 the first phase of the leisure

gardens will be extended from 68 to 89 plots made available to the public. Subsequently, phase 2 was handed over in 2013 with 82 plots and phase 3 in 2014 with 87 more plots.

6C. Future Plans

Green Urban Areas/Green Infrastructure

1. What will the future of the city look like with respect to green infrastructure?
2. What are the long-term objectives to the establishment and management (maintenance) of green urban areas (publicly and privately owned)?
3. Are green urban areas/green infrastructure perceived as beneficial or costly? How will they be paid for? Is there a budget or plan?
4. Are there any monitoring and performance evaluation schemes? If so, what criteria will be used to measure progress and impacts?

Sustainable Land Use

5. What will the future city look like with respect to sustainable urban land use planning?
6. Are the long-term objectives, which address the rehabilitation of brown field sites (derelict and/or contaminated land) for both new development and/or desealing measures designed specifically for environmental purposes?
7. To what extent are plans supported by commitments and budget allocations?
8. Are there any monitoring and performance evaluation schemes? If so, what criteria are used to measure progress and impacts?

Urban Farming

9. What are the city's future plans on urban farming? And detail the linkages between the city and its surrounding region?
10. What stakeholders will be involved and how will they impact on the plans and projects?

Green areas / green infrastructure

Logroño intends to develop a Green and Blue Infrastructure Plan to advance in the connection of the urban park system with the natural and agricultural system structure of the territory, achieving the integration of the two systems.

Within this future system, the creation of a linear park or green corridor in the South of the city is already planned, which will fulfil several functions: on the one hand, it will constitute a system of lagoons and canals to reduce the impact of intense storms, acting as a temporary water accumulation system; on the other hand, it will serve as an ecological corridor and promote biodiversity, supported by the presence of water; and finally it

will be a leisure space for citizens in the transition between the city and the countryside.

The City also wants to move to a more sustainable management of green areas, creating less invasive maintenance systems based on natural solutions. Thus, the most peripheral parks and green areas will have a more naturalised treatment, with natural meadows replacing grass and with areas of natural vegetation with less human intervention. A new contract for the maintenance of green areas will come into force in 2021, taking into account these issues and others related to reducing emissions and the use of chemicals.

Sustainable land use

Logroño is revising its Municipal General Plan, which is an opportunity to rethink the city model from another perspective. As a previous step for the revision, in 2019 a Planning Advance was approved [4] in which the model of the city of the future was established. That proposal was approved without any votes against by the political parties represented in the local government.

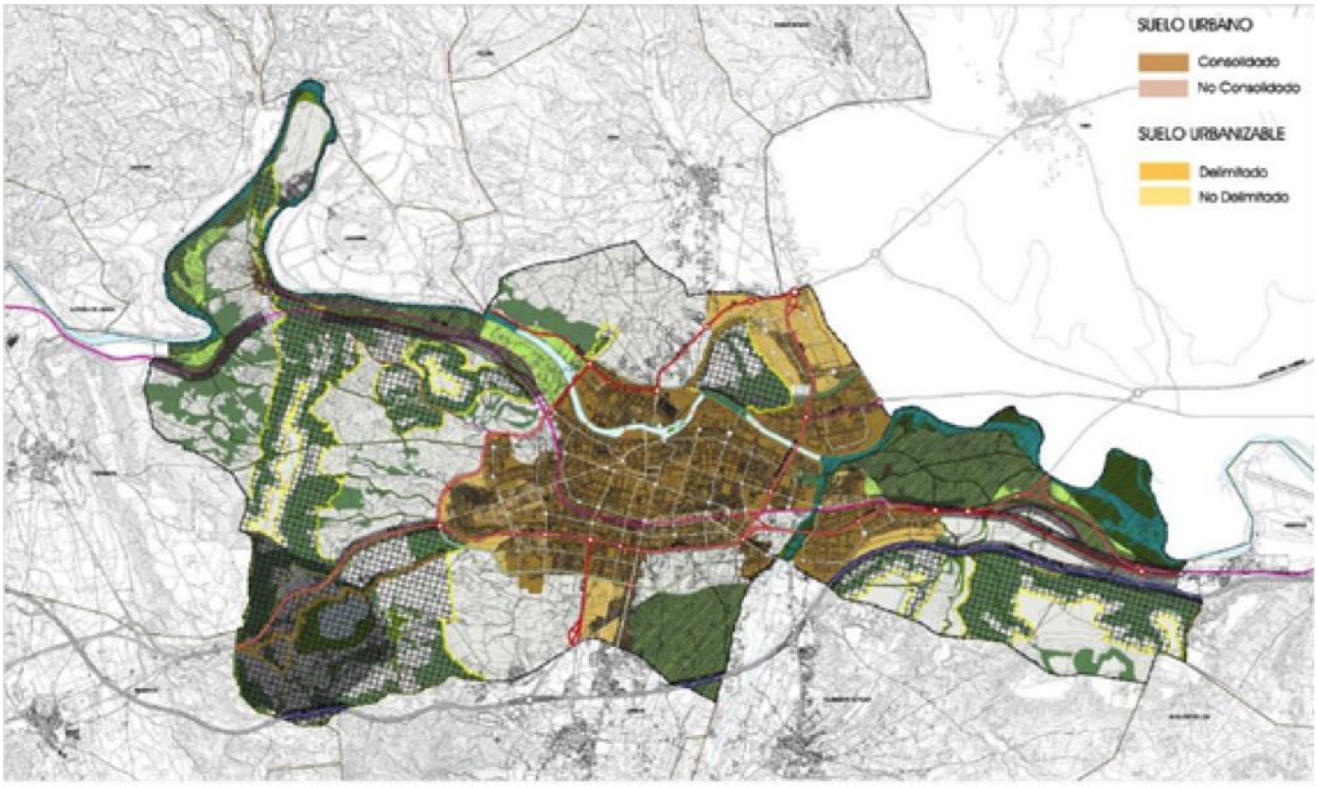


Figura 11. Advance 2019. This image shows the low consumption of new land expected

The city will spend nearly €500,000 on revising the General Plan in a participatory manner and promoting the pending Special Plans for Interior Reform to transform obsolete industrial areas into new urban spaces.

Another future objective is to carry out improvement processes in old neighbourhoods that require urban regeneration to improve their living conditions, with better public spaces, more facilities and, above all, with the

energy and functional improvement of housing. In the next few years several pilot urban regeneration projects will be launched to improve neighbourhoods built in the 1960s and 1970s.

In terms of deteriorated areas, priority will be given to the environmental rehabilitation of depressed areas with landscape potential or interest for recreational use. On the one hand, certain anthropized plots will be recovered as green areas or recreational areas through projects that seek full integration into the natural or urban environment in which they are located. On the other hand, natural sites in a state of abandonment, which are subject to environmental restoration to recover their beauty and regain their recreational functions for neighbours and visitors.

The Action Plan of the Logroño Urban Agenda is currently being initiated, it is a transversal figure which, in addition to urban issues, affects other issues such as mobility or climate change. It is part of the strategic programme of the Spanish Urban Agenda [5] and contains a system of indicators based, in turn, on the United Nations' Sustainable Development Goals.

Urban agriculture

Logroño can take advantage of the agricultural potential of its municipality and its regional environment, as the main market for agricultural producers, which would facilitate "kilometre 0" consumption [6].

On the other hand, the city, continuing with its commitment to support programmes for self-consumption and to promote leisure and recreational activities that respect the environment, plans to increase the number of phases and plots of leisure vegetable gardens, increasing their integration into the city's neighbourhoods.

6D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

1. General Plan 1985 (ES)
2. PERI Rail (ES)
3. BREEAM certification of the Logroño stations (ES)
4. Progress of the Logroño Municipal General Plan (ES)
5. Spanish Urban Agenda (ES)
6. Initiative: the closer the better (ES)

7. Green Growth and Eco-innovation

Refer to Section 2.7 of the Guidance Note

7A. Present Situation

Please complete the following table providing the most recent data available:

Table 1: Benchmarking Data - Green Growth and Eco-innovation

Indicator			Unit	Year of Data
Number of initiatives for accelerating eco-innovation (e.g. new management or service methods for circular material usage, or enhancing product lifecycles in the City & Municipality management, or among the local industrial players; targeting the change of citizens consumption patterns etc.)	10		Number	2019
Share of digital processes operated by the municipality (as a percentage of all processes operated by the municipality)	20%		%	2019
Number of alternatively fuelled (electric, hydrogen, LNG etc.) green vehicles owned by the municipality	0		Number	2020
Share of alternatively fuelled (electric, hydrogen, LNG etc.) green vehicles owned by the municipality (as a percentage of all vehicles owned by the municipality)	0%		%	2020
Number of procurement contracts that include criteria (Green Public Procurement - GPP)	378		Number	2019
Percentage of all procurement contracts that include green criteria (GPP) (going beyond obligatory standards/limits)	80%		%	2019
Share of the city budget dedicated to support environmental R&D by public and private entities	0.1%		%	2019
Number of jobs created in green and circular economy activities including: 1 Jobs created by municipality initiatives in the private and public sector; and 2 Jobs in the municipality	Jobs created by municipality initiatives in the private and public sector	No data	Number	
	Jobs in the municipality	3		2020
Number of initiatives for promoting and enabling sharing, reuse and repair such as, repair cafés, materials library etc. initiated or facilitated by the municipality	3		Number	2020

Describe the present situation in relation to green growth and eco-innovation, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator. Where available, information/data should be provided from previous years (5-10) to show trends.

Make reference to the below (note that the numbers listed below correspond to Figure 2.3 of the Guidance Note):

- Innovations that address material/resource use, (substitution, minimisation of material use, closing loops, etc.) and reduce environmental impacts, i.e. measures to improve resource efficiency;

  Describe the status of digital transformation, such as which processes are turned into electronic, e-services, paperless office management, etc.;
- Awareness raising and training to encourage the development and up-take of environmentally friendly technologies, particularly through training in industrial and business settings; new business models (sharing schemes), including actions inspired by circular economy thinking;
- Efforts to promote green skills or green jobs;
- Efforts to promote Green Public Procurement (GPP) and other green policy measures;
- Social innovation/stakeholder participation, including for example community programmes, that shows entrepreneurship and new ways of organisation that promote sustainable development and protect the environment locally and globally;
- Efforts to drive innovation that address societal and particularly environmental challenges through creating the right enabling conditions, like putting in place advanced infrastructure (IT or more traditional) or investing in and partnering with innovators, platforms, clusters and hubs;
- What efforts does the municipality make to stimulate sharing, reuse and repair different categories of goods; and
- Describe how green growth and eco-innovation improve the livability of the city in the area of various aspects such as health and safety.

Green growth and eco-innovation improve the liveability of the city in areas such as health and safety. Logroño is currently immersed in its green digital transformation, designing and implementing ICT tools to maximise the performance and sustainability of both public services and infrastructures. Logroño has a smart city platform that integrates data from different areas. It is currently incorporating vertical solutions and tools for various departments, the most noteworthy success stories being the emergency coordination centre and the citizen information point. Among the environmentally friendly solutions that have already been implemented are:

● **Smart irrigation:** remote monitoring and control of urban green areas, integrating and controlling devices from different manufacturers.

● **Public lighting**: a preventive maintenance system that monitors the 27,000 existing light points, regulates operating times and detects damaged or low efficiency elements that need to be repaired or replaced.

● **Monitoring energy consumption** in municipal buildings using IoT.

It is possible to carry out administrative procedures online through the **virtual office** and consult diverse information through an award-winning **mobile application** (1) developed in 2015 by a local company.

Logroño has been selected to participate in the EU's **"Intelligent Cities Challenge"** programme (2) which will create a community that takes advantage of advanced technologies to address urban challenges and rebuild local economies, while moving towards smart, green sustainable growth. Logroño's challenges for this programme are: digitisation of public services, green mobility, sustainable tourism and the social economy. The city will develop and implement a roadmap to accelerate its development in these areas.

The city council has also adopted different measures in relation to **resource efficiency**, especially in the following areas: energy efficiency and renewable energies (see indicators 9 and 11), water management (see indicator 4) and waste management (see indicator 3).

Logroño collaborates with the regional government in the development and promotion of training programmes for unemployed people. Green skills are at the heart of some of these programmes to increase the employability of participants. Other ongoing collaborations for social and economic development are with the Business Federation of La Rioja, with the University of La Rioja and with several local foundations and associations.

Logroño belongs to the **Foundation for Innovation in La Rioja** (3), a non-profit organisation chaired by the regional government. Its aim is to bring together the main political, social and economic agents in the region to implement strategic disruptive projects that will attract investors, technology and talent to La Rioja. It integrates public administrations, universities, companies from different economic sectors and various associations, including the Business Federation of La Rioja, an association to promote the social and labour inclusion of people with intellectual disabilities or Ecoembes (see indicator 3). In 2020 Logroño participates in several initiatives, outstanding the following ones: the promotion of SME competitiveness, big data analysis, the creation of a wine region, PET recycling, digital inclusion, becoming a reference point for the Spanish language and support for the video game industry.

Initiatives to promote social awareness and commitment to urban nature include:

● **Grants to non-profit organisations** to implement projects aimed at the local fight against climate change, the reduction of domestic waste, the preservation of biodiversity and other activities that contribute to meeting the ODS (€30,000 in 2020).

● **Participatory budget**: every year, Logroño allocates part of its budget to finance citizens' initiatives (budget of €2,498,950 in 2018). Proposals can be made by individuals, associations or other organisations and there are no pre-defined themes. In the 2020 Municipal Budget, around 10% of the investment budget was allocated to developing initiatives and projects defined through this participatory process, thus multiplying per 2 the investment of previous years (5%).

7B. Past Performance

Describe the measures implemented over the last five to ten years concerning green growth and eco-innovation. Please comment on which measures have been most effective.

Make reference to:

1. Initiatives aimed at increasing green growth and eco-innovation, e.g. projects under Cohesion Policy funds, Horizon 2020, COSME, LIFE, Eco-innovation Action Plan (EcoAP), Green Public Procurement (GPP), as well as national policy initiatives;
2. How European and national policies have been transferred into policy action at city level;
3. The publication of reports, such as green accounts, that make clear the timely implementation of planned initiatives and the focus group they were written for;
4. Describe the actions the city took in order to develop the urban tissue/infrastructures in an innovative/sustainable way including actions inspired by circular economy thinking to reuse underutilised assets e.g. reuse of water (for instance for urban irrigation), improved water efficiency management process etc.; and
5. Name/describe what the City considers to be the flagship of eco-innovation in the city.

Logroño obtained EU funding to develop different **eco-innovative projects**:

● **Integrated Sustainable Urban Development Strategy** (4) for La Villanueva neighbourhood (ERDF, 2017). Logroño is currently developing this strategy for the sustainable and long-term improvement of the physical, social, economic and environmental conditions of the La Villanueva area, located in the historical centre of the city. The project consists of the renovation of streets and buildings, the social integration of vulnerable citizens and the creation of a digital centre.

● **Youth Guarantee Fund** (ESF, 2016). Promotion of training and entrepreneurship opportunities for young people at risk of social exclusion through the implementation of itineraries based on training and qualification in areas of innovative and entrepreneurial demand.

● FIESTA (5) (**Family Intelligent Energy Saving Targeted Action**, 2013). The aim was to support families in reducing energy consumption in their households. An energy assistance service was established in each of the partner cities to help families improve their energy use and achieve real energy savings in the household. Local stakeholders were actively involved in project activities to increase the number of people targeted and ensure the sustainability of the project. Thanks to this project, Logroño implemented different helplines to support households in adopting good practices and alleviating energy poverty.

● **"LIFE Green TIC" project** (LIFE, 2012). Logroño participated as a partner in the project, with the aim of demonstrating and quantifying the potential for reducing CO2 emissions from a better and more intelligent use of information and communication technologies (ICT) to reduce the carbon footprint. Thanks to this

project, Logroño started to include green clauses in public contracts and carried out training activities for public officials in relation to green public procurement.

Logroño has received different **national and European awards** and recognition for its eco-innovative initiatives, among them:

- 3 “Pajaritas Azules” (ASPAPEL, 2019, 2018, 2017): excellence in the selective collection of paper/cardboard
- "Ciudad Mapcesible" (Fundación Telefónica, 2019): awareness and active commitment to universal accessibility to public spaces and services.
- Runner-up for Best European Public Authority for start-up companies (Startup Europe Awards, 2016).
- Spanish city where it is easier to do business (World Bank Report, 2015).
- Special mention in the Access City Awards (EU, 2015).
- Spanish City of Science and Innovation (2014).
- Queen Sofia Accessibility Award (2013).
- Google Digital City Award (2012)
- Silver Q in Excellence of the EFQM model (AEVAL, 2012)

In 2015, Logroño approved its **Transparency Ordinance** and created the **Transparency Portal**, where all relevant information on municipal management is published. It includes contracts, grants and public procurement agreements.

The city also has a comprehensive communication strategy, which combines online and printed resources to reach all segments of the population. For example, it publishes a **weekly newsletter** (6) which is available online (printed, audio and sign language versions) and to which citizens can subscribe and receive in their letterbox (physical or electronic). It is also active in **social media** (Facebook (7), Twitter (8)) and has a YouTube channel (9) where it broadcasts plenary sessions and press conferences.

Logroño has undertaken major renovations of urban infrastructure in recent years with the aim of guaranteeing citizens' safe access to public services, as well as the sustainability (environmental, social and economic) of the various urban networks. The main projects include:

- Renovation of the city's water treatment plant (2011) to increase its capacity by 50% and integrate electronic monitoring and control devices.

● Deployment of a programmable irrigation system for public gardens (2013) with connection to weather data to adjust the irrigation of public gardens (indicator 4).

● Installation of 1,250 solar panels on the roofs of different municipal buildings in the city: the Town Hall, the municipal library, the SmartCity building, two sports pavilions, two preschools and a community centre. The installations generate 384,365 kWh per year, which reduces CO2 emissions by 125,000 kg.

● In 2016, Logroño carried out an audit of the public lighting network to identify the state and propose measures to reduce energy consumption (55% of the municipal electricity bill at that time), CO2 emissions and light pollution. The public lighting master plan drawn up in 2019 included the replacement of street lights with LED lamps, after adaptation of the electrical cabinets, to reduce their energy consumption by 50-75%.

● Logroño has an active partnership with Ecoembes, the Spanish organisation responsible for the recovery and recycling of packaging, to create **TheCircularLab**, an innovation centre for the study, testing and development of best practices in the field of packaging and its subsequent recycling. It is currently carrying out an acceleration programme and has tested some innovative initiatives in the fields of waste collection (sensors to measure the amount of plastic introduced into the truck) and sorting (image recognition in municipal waste sorting facilities).

Logroño's flagship project has been the urban project for the **integration of the railway into the city** (11) by acting on the land occupied by the tracks to bury 2.7 km, building a new railway station and an urban park of 35,000 m2 which extends partly over the roof of the station, acting as a natural system of insulation and rainwater collection. The complex will soon be completed with a new bus station, converting it as the city's multimodal transport node (see indicator 10).

7C. Future Plans

Describe the future short and long-term objectives to promote green growth and eco-innovation and the proposed approach (strategy) for their achievement. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes.

Make reference to:

1. Plans to establish eco-innovation clusters, strategies and initiatives to attract public-private-partnerships for further developing eco-innovation and sustainable employment;
2. Future targets of how eco-innovations can be applied by the city, e.g. make reference to digital transformation plans, usage of sustainable products, low-emission technologies, new management or service methods for circular material usage, enhancing product lifecycles in the City & Municipality management, share of hybrid or fully electric cars in total stock of the public fleet, or plans to support the infrastructure development for electric cars in public areas (i.e. increase the number of charging points for electric cars in public car parks), sharing economy schemes (i.e. bike sharing), use of public procurement for innovation;
3. Participation at green business networks or partnerships and covenants and co-operation with

knowledge institutions, such as universities;

4. Programmes to reach the population promoting green economy thinking e.g. targeting the change of citizens consumption patterns;
5. Programmes to reach the industries promoting green economy thinking; and
6. Identify one key future plan which is considered as the flagship of eco-innovation in the 'City of the Future'.

Logroño is drawing up an ambitious Master Plan to integrate the city's eco-innovative initiatives and bring together local companies working in the green sector by creating a specialised cluster, including the academic world, other public administrations and the third sector, to benefit from existing knowledge and resources to regenerate the local economy, creating jobs and business opportunities for a healthier and more liveable city. A first meeting with local companies working in the green and circular economy has been held.

Regarding **digitalisation**, Logroño's technological modernisation to improve services to citizens and internal procedures is based on **four strategic objectives:**

● **Efficiency in internal functioning:** restructuring the ICT department, updating the inventory of systems and applications, modernising infrastructures (communications, data processing centre, microcomputing), reviewing internal procedures, deploying a system of productivity indicators, facilitating remote work by employees with performance indicators, digitising internal management procedures, sharing services/infrastructure with other public administrations.

● **Fluid relationship with citizens and companies:** creation of an accessible, indexable and responsive website to easily find information and other resources, the deployment of an e-government platform as a one-stop shop for citizens and businesses, and complementary support by telephone and on site.

● **Intelligent knowledge management:** development of a central database to easily correlate different data, deployment of a municipal GIS, integration of all data sources into the smart city platform, deployment of a reporting system connected to the data and to the platform, and the establishment of a two-way communication channel with citizens according to their preferences.

● **Strategy for security and usability:** reviewing the responsibilities of the Security Committee, carrying out a comprehensive security diagnosis and risk analysis, establishing an effective security strategy, and adapting to all regulations, schemes and recommendations relating to e-government.

The City will launch a citizen's card using A.I. to access all municipal services and obtain data on citizens' needs, habits and use of resources.

Logroño actively participates in networks of cities at national level, including: Intelligent Cities (chairing it), Cities for Science and Innovation, Cities for Climate, Healthy Cities, Walking Cities and Cycling Cities and recently joined three European networks (ERRIN, EUROCITIES and OASC) to learn from the experiences of

peers and cooperate in the areas of digitisation, mobility and sustainability. The City also launched the CELSIUS initiative (see Indicator 11C).

Logroño will continue improving its infrastructure and services to be as efficient as possible. It has identified four initiatives and has applied for EU co-financing (LIFE Programme), together with local partners:

● Implementation of the 1st phase of the Hydrological and Environmental Integration of the Southern Zone of Logroño, an ambitious project including urban design techniques in the development of infrastructures for mitigating the flooding periods of torrential rains, while improving the city's natural assets and green corridors. It includes the design of four flooding areas and a 5 km long "interceptor - green corridor collector" to increase natural spaces in the urban environment, contribute to the city's resilience and to climate change adaptation.

● Study of urban naturalization to mitigate the effects of climate change calculating the environmental impact of existing green areas and comparing it with proposed naturalisation interventions. The results will be used to design and promote new urban and environmental planning policies, to demonstrate the potential of these techniques and provide a roadmap for their adoption by other cities. Different planting techniques and bio-retention gardens will be explored.

● Implementation of an efficient waste collection system for HORECA. In addition to environmental benefits, ir can generate greater competitiveness, new employment opportunities and greater tourist attraction for the city. (See indicator 3C).

● Integrated monitoring and control of the urban water cycle and infrastructures by bringing together several independent technologies: irrigation and treatment of public gardens, integration of precision agriculture techniques to minimise water use and promote plant species better adapted to Logroño's climate conditions, incorporation of cleaner drinking water treatment techniques to minimise added chemicals and waste, and sectorisation and digitalisation of the water distribution network to enable its management at district level, optimising its performance.

The City is committed to promoting ecological values among young people. A Pan-European consortium to submit a proposal to the Erasmus+ K3 programme has been coordinated, providing participants with the tools and knowledge to promote and develop activities aimed at achieving more sustainable urban environments at EU level and to benefit their respective communities. They will contact other communities, design, implement and evaluate their own projects, develop democratic participation skills and communicate the results to different stakeholders.

Figure 3. Open Streets

Logroño's flagship project for the coming years consists of changing its urban mobility model, through the "Logroño Open Streets" Strategy (11). This is a strategy for adapting the streets to achieve a balanced and fair distribution of space in the city. Its implementation has been accelerated due to the COVID-19 pandemic. (see indicator 10C).

7D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

1. Logroño.es mobile application for Android
2. Intelligent Cities Challenge

3. Fundación Riojana para la Innovación https://fundacioninnovacionrioja.com (ES)

4. Integrated Sustainable Urban Development Strategy for La Villanueva (ES)

5. FIESTA Project: www.fiesta-audit.eu (EN)

6. De Fuena Fuente, weekly municipal publication (ES)

7. Logroño's Facebook profile: www.facebook.com/AytoLogrono (ES)

8. Logroño's Twitter profile: @AytoLogrono (ES)

9. Logroño's YouTube channel: www.youtube.com/c/AyuntamientoLogrono (ES)

10. Underground railway: http://www.lif2002.com/parque-felipe-vi/ (ES)

11. Logroño Open Streets Programme: https://logronocallesabiertas.es/ (ES)

Additional information:

(a) National Commission for Markets and Competition, certificate of renewable energy sources (ES)

(b) Eco-Innovation Laboratory in Logroño: TheCircularLab

(c) LIFE Green TIC project: www.lifegreentic.eu

(d) Logroño Transparency Portal (ES)

(e) Celsius Initiative

8. Climate Change: Mitigation

Refer to Section 2.8 of the Guidance Note

8A. Present Situation

Please complete the following table with most recent data available:

Table 1: Benchmarking Data - Climate Change: Mitigation

City's emissions reduction targets (add rows if needed for further commitments) Where possible please use 2005 as the base year for listing city reduction targets	**Base Year**	**Target Year**	**% Reduction**
	2005	2020	20%
	2020	2030	40%
CO_2 (and possibly other greenhouse gases) emissions		**Units**	**Year of Data**
Total CO_2 emissions/capita	4.34	t CO_2/capita	2014
Total transport CO_2 emissions/capita	0.85	t CO_2/capita	2014
Total (excl. transport) CO_2 emissions/capita	3.49	t CO_2/capita	2014
Total CO_2 emissions per year	659,004.3	t CO_2	2014
Total CO_2 emissions per MWh electricity consumed	0.98	t CO_2	2014

Describe the present situation in relation to CO_2 (and possibly other greenhouse gases) emissions, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator.

Give details of any Baseline Emission Inventory prepared by the city, mentioning the baseline year and the applied methodology (direct/indirect emissions, data collection process, monitoring system), as well as the competent/responsible department. Provide a breakdown of the main sources of emissions.

Where available, information/data on the inventory and on the following indicators should be provided from previous (5-10) years to show trends, together with an explanation of the evolution.

Scientific grounds should be provided for any claimed reduction in CO_2 (and other greenhouse gases) emissions. Describe how the inventory system and information is integrated in the design of policies and measures.

Provide figures (in the table above), and comment on, the following specific indicators for the city:

- Total CO_2 emissions (tonnes) per year;
- CO_2 emissions per capita (tonnes) per year;
- CO_2 emissions per capita (tonnes) resulting from fuel use in transport;
- CO_2 emissions (tonnes) per MWh electricity consumed; and

- CO_2 emissions reduction target(s) (e.g. 20% by 2020 compared to 1990).

Please also state clearly what year the data provided relates to.

Mention any target(s) adopted specifically for the municipal administration (e.g. carbon neutral municipality by 2020 (or beyond), adaptation measures set on municipal level).

In 2012 Logroño City Council signed its adherence to the **Covenant of Mayors** (1) with the commitment to reduce the municipality's greenhouse gas (GHG) emissions by 20% by 2020 compared to 2005, taking the "SEAP scope" below as its scope. As part of this commitment, in 2014 the City Council commissioned a **Sustainable Energy Action Plan (SEAP)** based on the European Commission's "20/20/20" strategy that was reviewed and updated at the end of 2015 (2) and (3). Its preparation included an internal participation process in the Town Hall and an external participation day.

The calculation of GHG emissions was carried out in 3 areas of scope:

1. Municipal scope: associated with the different emission sources resulting from the municipality's operational flows, taking into account all the economic sectors that make up the municipality.

2. SEAP scope: associated with all economic sectors except industry and primary sector.

3. City Council scope: associated with the various services and facilities managed and used by the City Council for giving service to the municipality: municipal facilities, public lighting and traffic lights, municipal and outsourced fleet and public transport.

Data processing and analysis was carried out using specific software for preparing municipal emissions inventories. All energy consumption was collected and the CO2 emissions generated were calculated using the emission factors associated with each consumption source.

Data for city-specific indicators (Table 1) were obtained from the CO2 emissions inventory carried out in 2014 at the municipal scope as part of SEAP preparation.

In 2014, **total emissions for the entire municipality** were 659,004.3 tCO2 including total energy consumption (electricity, natural gas, liquefied petroleum gas (LPG), diesel, gasoline and fuel oil) from all sectors included: primary sector, industrial sector, service sector (including the municipality), domestic sector, transport sector, waste treatment and water cycle.

Taking into account the population of the city of Logroño of 151,962 inhabitants (PAES, 2014) the **CO2 emissions per capita** were 4.34 tCO2.

Emissions resulting from the use of fuel from the transport sector during 2014 in the entire municipality were 129,269.2 tCO2, or 0.85 tCO2 per capita.

In 2014, the entire municipality of Logroño reached a total consumption of 2,425,933.6 MWh of which 670,712.3 MWh corresponded to electricity consumption resulting in emissions of 248,163.5 tCO2. This gives a ratio of 0.98 tCO2 emitted per MWh of electricity consumed.

Electricity production and reduction of CO2 emissions

Logroño City Council has facilities for energy production at the Logroño-Bajo Iregua Wastewater Treatment Plant (WWTP) and in the Logroño Drinking Water Treatment Plant (DWTP) (4A) and has a total of 8 photovoltaic panel installations in municipal public buildings. The energy produced is used in the municipal facilities, it contributed to save a total of 51,008 tC02 between 2004 and 2015.

According to data from the calculation of the **Logroño City Council's Carbon Footprint** in 2017, the total CO2 emissions of the local administration, including installations, electricity and transport, were 6,564.85 tCO2eq.

8B. Past Performance

Describe the measures implemented over the last five to ten years to reduce greenhouse gas emissions, including resources allocated to implement these measures. Comment on which measures have been most effective and how the implementation and impacts have been monitored.

Make reference to:

- An overall strategy for climate change or any other strategy or action plan to reduce emissions;
- Mainstreaming of climate protection measures across municipal services and in key areas of action such as energy efficiency in residential and commercial buildings, public transport and waste management. Highlight any innovative schemes for the built environment such as low carbon zones;
- Mechanisms used (e.g. local regulations, financing schemes, partnerships). Explain how the city works on emissions reduction with other governmental bodies, private sector service providers, enterprises and citizens. Mention relevant national legislation or programmes and participation in EU funded projects or networks.

Provide details on the monitoring system (frequency, responsibility, outcomes) and how lessons learned have been used.

In 2008, Logroño City Council became part of the **Spanish Network of Cities for Climate** (4), a Section of the Spanish Federation of Municipalities and Provinces (FEMP) formed by the Local Governments that are integrating climate change mitigation and adaptation into their policies. The Network enables the coordination of the City Councils in the fight against climate change and promotes local policies to combat climate change.

CO2 emissions in the period 2005-2014

According to the SEAP study, between 2005 and 2014 the main source of GHG emissions was electricity, which accounted for nearly 37.7% of the municipality's total emissions, followed by liquid fuels (diesel, gasoline and fuel oil) with 34.2% of emissions.

Within the **SEAP scope** (excluding the industrial and primary sectors), GHG emissions fell by 17.10% in the 2005-2014 period, due to the decrease in energy consumption from all sources except electricity and natural gas. Despite the increase in electricity consumption, associated emissions decreased due to the greater contribution of renewable energies to the Spanish electricity mix.

Within the **scope of the municipal administration**, in the period 2005-2014 there was a 33.01% increase in CO2 emissions parallel to the increase in energy consumption, mainly electricity, associated with public lighting and municipal equipment.

The City's CO2 emissions increased by 49.84% in the period 2005-2014 as a result of increased energy consumption in all sectors of the local administration except for its vehicles and traffic lights. The biggest increase in CO2 emissions was in municipal facilities (113.02%) and public transport (45.00%). In 2005 and 2014 the highest CO2 emissions were from public lighting (with an increase of 38.73%) followed in 2014 by municipal facilities.

Sustainable Energy Action Plan (SEAP)

Logroño City Council's action strategy covered the SEAP scope, which in 2005 represented 59% of the entire municipality's emissions.

Based on data collected on energy consumption and corresponding CO2 emissions, the SEAP includes 44 actions to be carried out in the following strategic lines: ENERGY EFFICIENCY (29 actions), MOBILITY (12), RENEWABLE ENERGY (1), WASTE AND WATER (1) and others (1) aimed at the following sectors: City Council and domestic, services and primary sectors.

The total expected reduction in CO2 emissions was 127,695.42 tCO2, with a high contribution from the actions proposed for the domestic sector (93.91%). The annual carbon sink capacity of living biomass in Logroño was calculated at 93.62 tCO2/year. Although part of the actions proposed in the SEAP have been implemented, the emissions reductions derived from them have not been assessed.

Actions aimed at reducing CO2 emissions

The municipal administration has carried out different projects aimed at reducing GHG emissions although this reduction has not been accounted for. Among them, the following stand out:

Improvements in the lighting of municipal premises: replacement of interior lighting with more efficient lighting using fluorescent or LED lamps, reducing electricity consumption and CO2 emissions; sectorisation of lighting and ignition; installation of automatic lighting stop devices.

Reduction of energy consumption and GHG emissions associated with the air conditioning of municipal buildings by replacing boilers with more efficient and high-performance ones in buildings owned by the City Council; regulation of the set-point temperature of municipal buildings to 21ºC in winter and 26ºC in summer.

Autonomous lighting of the access road to San Pedro Hospital by generating electricity with **solar panels installed on the street lights**.

The **F.I.E.S.T.A. Project** (5), was aimed at reducing energy consumption and GHG emissions in households, including free energy audits in homes and workshops in schools, social centres and for professionals and purchasing groups.

The actions included in the **LIFE Green TIC Project** (6) achieved a reduction in emissions of 1,178.62 tCO2. As part of the project, the lighting on Avenida de la Paz was changed, with 36 LED units and a night-time detection system installed.

Among the activities carried out by the Spanish Network of Cities for Climate, the calculation of the **Carbon Footprint of Logroño City Council** was carried out for several years (7).

Actions in municipal buildings

Logroño City Council has carried out actions in municipal buildings aimed at energy saving and efficiency that have contributed to the reduction of CO2 emissions although these data are not accounted for.

In the period **2007-2012**, eighteen works were carried out in the boiler rooms of Logroño's public schools in which atmospheric diesel boilers (estimated seasonal efficiency of 85-90%) were replaced by natural gas boilers with condensation technology (seasonal efficiency of 99-109%).

Between **2010 and 2018**, atmospheric gas boilers (efficiency 88-90%) were upgraded to gas condensing boilers (efficiency 99-109%) in a total of 16 municipal buildings including schools, social centres, medical centres, local police, fire station and the town hall.

Between **2010 and 2020**, 22 actions were carried out in **municipal buildings**, including the construction of new buildings in accordance with the Energy Saving Regulations of the Technical Building Code (CTE) of Spain, with measures such as solar photovoltaic and solar thermal installations, artificial lighting control and underfloor heating. Some of these buildings, including the new municipal bus station and the train station, included green roofs.

The existing lighting has also been replaced with **LED technology lighting** in several buildings including a youth centre, the Municipal Auditorium and the Municipal Food Market.

In 2016, the **Building Energy Audit Report of five municipal buildings** was contracted to study intervention options for improving energy efficiency. The work was carried out throughout 2016 and 2017 in the following buildings: Breton Theatre, Gota de Leche, Casa de las Ciencias, Casco Antiguo Social Centre and Employment

Centre. Each building was awarded an Energy Efficiency Certificate, with its corresponding rating in CO2 emissions and non-renewable primary energy consumption.

In addition, in recent years the training of municipal technical staff has been carried out. Specifically, training as a **Municipal Energy Manager** on energy saving and efficiency in public buildings and equipment (2011), as well as training in nearly zero energy buildings (NZEBs) and Passivhaus (2020).

8C. Future Plans

Describe the future short and long-term objectives and proposed approach for further emissions reduction. Describe planned measures, including timescales and emphasise to what extent plans are supported by commitments, budget and staff allocations and monitoring and performance evaluation schemes.

Make reference to any long-term strategy employed and how it is integrated with other environmental areas such as biodiversity and climate adaptation.

Briefly explain the rationale for choosing these future measures and highlight any innovative financing arrangements.

Logroño is at a key moment to substantially improve its performance in climate change mitigation. The unanimous approval by the Municipal Plenary of the **Declaration of Climate Emergency** in October 2019 (8) was the first step towards promoting a real commitment to this task. Similarly, the commitment of the Covenant of Mayors to reduce emissions by 40% in 2040 has just been ratified.

As part of this commitment, an **Action Plan for Climate and Sustainable Energy (PACES)** is expected to be drawn up in 2021, establishing the baseline and strategy for the following years.

Until the city has a defined Action Plan, the local government's climate change mitigation strategy focuses on four areas

1- Mobility, by promoting active mobility and reducing motorised modes and travel needs (see Indicator 10) a significant percentage of emissions produced by combustion engines can be avoided. Logroño is a city which, due to its size and dense and compact model, can favour mobility for pedestrians, cyclists and public transport, reducing the public space available for the more polluting private vehicle. The **"Logroño Open Streets"** Strategy (9) (see indicators 7 and 10) symbolises the commitment in this direction.

2- Buildings, both public and private. The city's building stock is estimated to produce up to 30% of GHG emissions, so energy rehabilitation, generation of renewables and monitoring of consumption are key actions for mitigation. The Local Government has created the **Office of Urban Regeneration** in 2020 to boost the process of transforming existing buildings towards almost zero consumption of less than 15 kWh/m2. Directly managed municipal buildings will serve as an example of this type of action, as well as support for energy generation systems from renewable sources. Along these lines, as an example, a proposal has been made for

thermo-acoustic improvements in the space of the ice rink at the Lobete Municipal Sports Centre aimed at reducing CO2 emissions into the atmosphere and on the other hand improving both acoustic and thermal comfort.

3- Reduction of emissions from municipal public services, including water supply, irrigation of green areas, lighting or public transport. The contracting of service companies will have as one of the key factors the reduction of GHG emissions. On the other hand, from 2021 onwards, the consumption of clean electrical energy will be contracted, which should save around 12,000 tCO2 per year.

4. Fostering CO2 capture by increasing plant mass and soil permeability as part of the **Green Shield Strategy** (10) (see Indicator 5). In this way climate change can be mitigated while favouring biodiversity and improving public spaces.

8D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

1. Logroño City Council's adhesion to the environmental commitment of the Covenant of Mayors (ES)

2. Logroño Sustainable Energy Action Plan within the framework of the Covenant of Mayors initiative, Logroño City Council (ES)

3. Update of the Sustainable Energy Action Plan of Logroño in the framework of the Covenant of Mayors initiative. Logroño City Council. December 2015 (ES, not available online)

4. Spanish Network of Cities for Climate (ES)

5. F.I.E.S.T.A. Project (EN)

6. LIFE Green TIC Project (EN)

7. "Updating, calculation and registration of the municipal carbon footprint" - Includes Logroño (ES)

8. Institutional Statement on the Climate Emergency (ES)

9. “Logroño Calles Abiertas" Strategy (ES)

10. Green Shield Strategy (ES)

9. Climate Change: Adaptation

Refer to Section 2.9 of the Guidance Note

9A. Present Situation

Please, complete the following table with most recent data available:

Table 1: Benchmarking Data - Climate Change: Adaptation

**double left click the check box and select 'Default Value - Checked' where appropriate*

Systematic climate risks and vulnerabilities assessment							
☒	**Existing**	**If yes, year it was or will be finished:**	2019	**Considers:**	☒ Heat	☐	Current climate risks
☐	**In preparation**		[……..]		☒ Droughts	☐	Future climate risks
☐	**None**				☒ Floods	☐	Sea level rise
					☒ Other: Environmental degradation		

Climate change adaptation strategy						
☒	**Existing**	**If yes, year it was approved or will be finished:**	2019	**It is:**	☒	A stand-alone strategy
☐	**In preparation**		[……..]		☐	Integral part of another strategy
☐	**None**					

Considers:					
☒	Heat	☒	Floods	☐	Current climate risks
☒	Droughts	☐	Sea level rise	☐	Future climate risks
☒	Other: Environmental degradation				

Action plan for climate change adaptation						
☒	**Existing**	**If yes, year it was approved or will be finished:**	2019	**It is:**	☒	A stand-alone plan
☐	**In preparation**		[……..]		☐	Integral part of another plan
☐	**None**					

Considers:					
☒	Heat	☒	Floods	☐	Current climate risks

☒	Droughts	☐	Sea level rise	☐	Future climate risks
☒	Other: Environmental degradation				

Showing self-commitment in Europe, nationally or internationally			
Signed Covenant of Mayors for Climate and Energy	☒	Covenant of Mayors 2020 target	Baseline Year: 2005 Target year: 2020
	☐	Covenant of Mayors Adaptation target	[Baseline Year][Target year]
	☒	Covenant of Mayors 2030 target (which also incl. adaptation)	Baseline Year: 2020 Target year: 2030
☐ **Others**	[…list here]		
☐ **None**			

In relation to the above, describe the present state of climate change adaptation in the city. Thereby, include an answer to each of the following questions:

Awareness and Commitment

- How does the city assess the level of awareness on the need to adapt to climate change with different stakeholder groups - administration, politicians, citizens, business etc.?
- How has the city organised the responsibility for adaptation in the administration and established collaboration between different departments?
- Does the political level show commitment and in which way?

Vulnerability and Risk Assessment

- Does the city have a systematic vulnerability and risk assessment to identify and prioritise the future climate change impacts in the city? In addition to the basic information in the table, please provide more detail on the:
  - Identified climate impacts (temperature, different types of flooding, droughts, vulnerability of certain population groups, etc.);
  - Sectors it considered (e.g. transport, water management, health etc.);
  - Identified specific climate challenges for the city.

Climate Change Adaptation Strategy/Action Plan

- Does the city have a climate change adaptation strategy and/or an action plan? In addition to the basic information in Table 1, please provide more detail on the:
  - Status of development/approval/implementation;
  - Relation to overall city planning and other plans and strategies;
  - The impacts and sectors considered;

- Targets and milestones set.

Adaptation Measures

- Does the city implement or plan adaptation measures?
- Does the city have a comprehensive adaptation action plan or systematic list of measures?
- Which types of measures does the city consider (technical measures, green and blue infrastructure, soft measures like regulation and behaviour)?
- Describe key measures. Reference relevant adaptation measures in other indicator areas. Note that measures, like green infrastructure or river renaturation, can only be considered, if their specific design and placement supports adaptation in the city and the concrete contribution to adapt to the cities climate impacts is described;
- Does the city mainstream measures into other sectors like water management, climate mitigation, green spaces or other to use win-win options? Please, describe and cross reference to other relevant indicators where appropriate;
- What share of the budget or €/inhabitant is invested in climate change adaptation?

Participation

- How does the city involve stakeholders, like citizens, other sectors, public and private owners etc. in awareness raising, planning and implementation?

Monitoring

- How does the city monitor progress in terms of the implementation of measures and of actual reduced vulnerability/risks?

Climate risk analysis of the city of Logroño

As part of the work carried out to prepare the document "Plan for Climate Change Adaptation in the city of Logroño" (1), Logroño City Council counts with a climate risk analysis based on the following impact chains:

- **Heat waves:** these are likely to have the greatest impact on human health.
- **Droughts:** they will affect the availability of water with negative consequences for the population and economic activity.
- **River and urban floods:** these will have their main impact on housing and infrastructure.
- **Environmental degradation:** causing the alteration of ecosystems and the loss of biodiversity.

It is estimated that heat waves will have the highest impact in the city, followed by environmental degradation and floods, with very similar risk indexes, with droughts having a lesser impact.

In order to study in more detail how each of the four impacts analysed affects the territory of the municipality, the city was divided according to its five districts (Centre, North, South, East and West) and the impact and general risk indices were calculated for each of them. The following map represents the different levels of risk by

district.

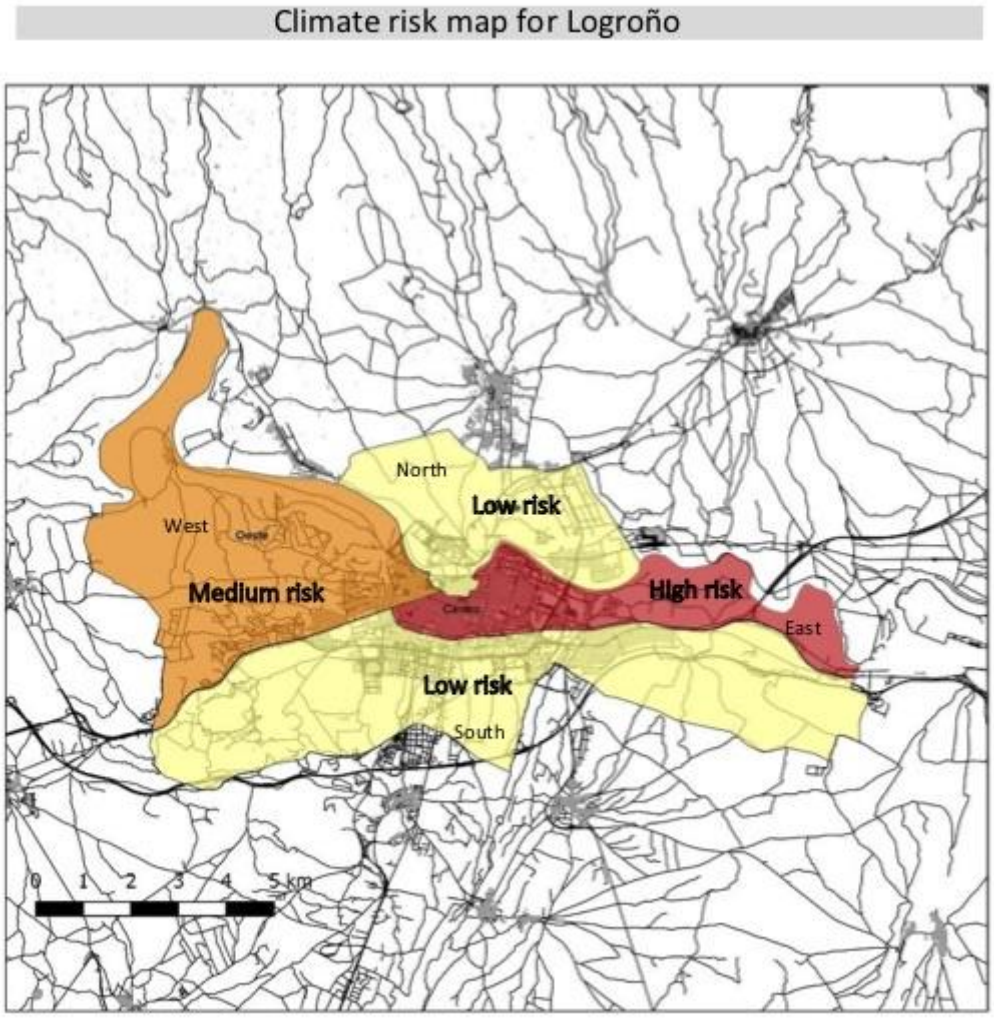


Figure 1A. Climate risk map for Logroño

The Central and Eastern districts would be the most impacted by climate change. In the case of the Eastern District, this is because it is at high risk for heat waves, droughts and floods and in the case of the Central District, the high sensitivity to floods and the medium risk it presents for heat waves means that it is generally at high risk. The Western District would be at medium risk as the exposure and sensitivity to climate change in this district is medium, and the capacity to adapt to it is also medium.

The North and South districts would be at low risk from climate change, largely because they are the districts with the greatest capacity to adapt to this phenomenon.

The study proposes that in order to establish adaptation measures and priority areas, attention should be focused on identifying the areas that are least prepared or most vulnerable for each impact according to their relevance. "In the central area of the city, for example, heat waves and floods are expected to have a greater impact on the

population. In the southeast, heat waves, floods and droughts would have major impacts on the population. In the northwest, which has a large non urbanised area, measures should focus on preventing and mitigating the impacts of environmental degradation, especially in protected areas."

Logroño climate change adaptation strategy

As part of the work on the Adaptation Plan document, a vision was developed and four strategic objectives were set.

Vision: Logroño is a climate change-resilient municipality capable of coping with heat waves, floods, droughts and environmental degradation in a sustainable manner with the support of a co-responsible and involved citizenry.

Strategic objectives:

Objective 1: To adapt citizens and the natural environment

Objective 2: To plan an efficient and friendly municipality.

Objective 3: To develop Logroño in a sustainable way.

Objective 3: To develop good governance.

Action Plan for Climate Change Adaptation

In order to achieve these objectives, five goals and ten lines of action were defined, with a process of consultation and debate within the local administration and with the public in an open day. The proposed Action Plan has a total of 58 actions to be carried out between 2019 (the year in which the Plan is implemented) and 2030. The actions are prioritized in four-year periods.

The **goals** established are as follows:

GOAL 1: To increase the resilience of the citizens and the city.

GOAL 2: To raise awareness and train citizens in relation to climate change.

GOAL 3: To generate information related to climate change to facilitate decision-making.

GOAL 4: To improve resilience to extreme weather events and emergencies.

GOAL 5: To promote adaptation to climate change of the natural environment.

The lines of action for each goal involve a list of actions with a general time planning and without a budget associated with each one of them.

Adaptation to river flooding

The **Ebro Resilience Strategy** (2) is a framework for collaboration between the different public administrations, as well as with other stakeholders, to work in a joint and coordinated way in the management of the flood risk of the middle section of the Ebro River, forming a sub-programme of the **Flood Risk Management Plan of the Ebro River Basin District**. Its scope of action covers the middle section of the Ebro River and the lower sections of its tributaries, between the towns of Logroño (La Rioja) and La Zaida (Zaragoza).

In La Rioja, the **Special Plan for Civil Protection against floods (INUNCAR)** has been approved (3). The regional Ministry for Ecological Transition, in coordination with La Rioja's Civil Protection, is analysing the "Javier Adarraga" Centre for Sports Technification located on the left bank of the Ebro River in Logroño as a pilot for the application of flood risk adaptation guidelines. The most vulnerable buildings, the main points of entry for water and the potential impacts that flooding could cause are being identified.

9B. Past Performance

Describe the city's situation of climate change adaptation five to ten years ago and how the action evolved over time to reach the present situation. What climate and adaptation challenges was the city facing, how did the city overcome these, what actions were taken and to what effect? Use the questions under Section 9A as a guide to formulate the response, use diagrams showing trends or tables comparing the past with the current situation where appropriate.

Adaptation to river flooding

The city of Logroño is located on the banks of the middle stretch of the river Ebro where, due to the low slope of the valley and the abundant spring rainfall, frequent floods occur, flooding large areas of land. In the last few decades, the most important floods have occurred in 1961, 1966, 1977, 1978, 1980, 1981, 1993, 2003, 2007, 2015 and more recently in 2018. In the last sixty years, action against flood risks has consisted of the construction of structural defence works and the artificial maintenance of constant drainage sections, cleared of vegetation and sediments. This has been carried out by the various public administrations and by private individuals.

Since 2007, an attempt has been made to implement other types of actions in the Ebro river basin aimed at coexisting with flooding rather than fighting against it, incorporating the concept of resilience.

9C. Future Plans

Following on from the present situation described under Section 9A, describe the future short and long-term objectives and proposed approach for further 'climate-proofing' and adaptation to the impacts of climate change. Describe planned measures, including timescales, and emphasise to what extent plans are supported by commitments, budget and staff allocations, participatory approaches and monitoring and performance evaluation schemes.

Make reference to any long-term strategy employed and how it is integrated with other environmental areas.

Briefly explain the rationale for choosing these future measures and highlight any innovative financing arrangements.

The **National Plan of Adaptation to Climate Change (PNACC) 2021-2030** (4) is the basic planning instrument for promoting coordinated action against the effects of climate change in Spain over the next decade. Without prejudice to the competences of the various public administrations, the PNACC defines objectives, criteria, areas of work and lines of action to promote adaptation and resilience to climate change.

The **Logroño Climate Change Adaptation Plan** will therefore be adapted to the PNACC in order to carry out its actions, which include:

- Increase in green spaces (2019-2022)
- Inclusion of climate change adaptation in general and sectoral municipal regulations and planning (2019-2022)
- Creation of water storage tanks (2027-2030)

On heavy rainfall events, **urban flooding** occurs in strategic communication areas, such as the LO-20 road or railway line and in the developed housing estates south of these communication belts. Logroño Town Council has a project for the execution of works to manage extraordinary hydrometeorological events with their integration into the landscape of the southern area of Logroño. The so-called Southern Interceptor will be a perimeter walk connecting the area of the peri-urban park of La Grajera with the Iregua Park through a strategy of collecting and capturing the run-off water generated.

Given that there are other points of conflict in the city's sanitation and drainage network, it is considered of interest to initiate new rainwater treatment projects using Sustainable Urban Drainage Systems (SDUS).

It is also necessary to take into account the effects of climate change on parks and gardens and to develop adaptation measures to deal with damages such as falling trees.

With regard to the fight against heat waves, the **Green Shield Strategy** (5) (see Indicator 5) involves increasing vegetation in the city's streets and public spaces to take advantage of their capacity as a microclimate regulator and to generate shade, favouring active mobility.

Regarding the **Ebro Resilience Strategy**, its framework of competence corresponds to the existing legislation, so that actions on watercourses located in urban areas (urban sections and their surroundings) are transferred to the Town Councils. Therefore, Logroño Town Council will participate in possible future actions. The financing of this Strategy is provided by each Administration within its competences and European funds will be sought for the joint financing of actions of common interest. Specifically, a project proposal has been submitted to this year's LIFE Programme call.

This Strategy will promote actions aimed at reducing the impact of flooding in the most high-risk sections of the middle section of the River Ebro, implementing measures that will in turn contribute to improving the status of water bodies and river habitats. Work will also be done to improve the population's response capacity to these episodes. The vision for the future is to achieve for this section of the Ebro River the coexistence of economic activities and urban settlements with a good state of conservation of the river, without having significant damages from the inevitable floods.

9D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

1. Plan for Climate Change Adaptation in the city of Logroño, 2019 (ES, not available online)
2. Ebro Resilience Strategy (ES)
3. Special Plan for Civil Protection against floods of the Autonomous Community of La Rioja (INUNCAR) (ES)
4. National Climate Change Adaptation Plan (PNACC) 2021-2030 (ES)
5. Green Shield Strategy (ES)

10. Sustainable Urban Mobility

Refer to Section 2.10 of the Guidance Note

10A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Sustainable Urban Mobility

Indicator	Data		Units	Year of Data Provided
Proportion of population living within 300 metres of an hourly (or more frequent) public transport service.	96*		%	2020
For all journeys under 5 km, proportion of these journeys undertaken by: i) Car (private car and/or shared car); ii) Public transport; iii) Bicycle (private and/or shared bike); iv) Foot; v) Multimodal (active/shared mobility + public transport); vi) (E)-scooters and similar personal mobility devices; vii) Other.	Car	27.4	%	2018
	Public Transport (bus)	9.1		
	Cycling	2.1		
	Foot	58.4		
	Multimodal	0		
	(E)-scooters and similar personal mobility devices	0.8		
	Other	2.1		
Proportion of buses operating in the city that are: ▪ Low emission (at least Euro VI); and ▪ Alternatively fuelled (electric, hydrogen, LNG etc.).	Low emission	52	%	2020
	Alternatively fuelled	8		

Comments on the table:

**It has been obtained through the QGIS desktop GIS. A vectorial analysis "Join data by location" has been carried out, where the input parameters used were the LAYER of plots based on official land registry data, and the other LAYER corresponded to the buffer areas of 300m with respect to the bus stop network. The analysis is shown graphically in the following map:*

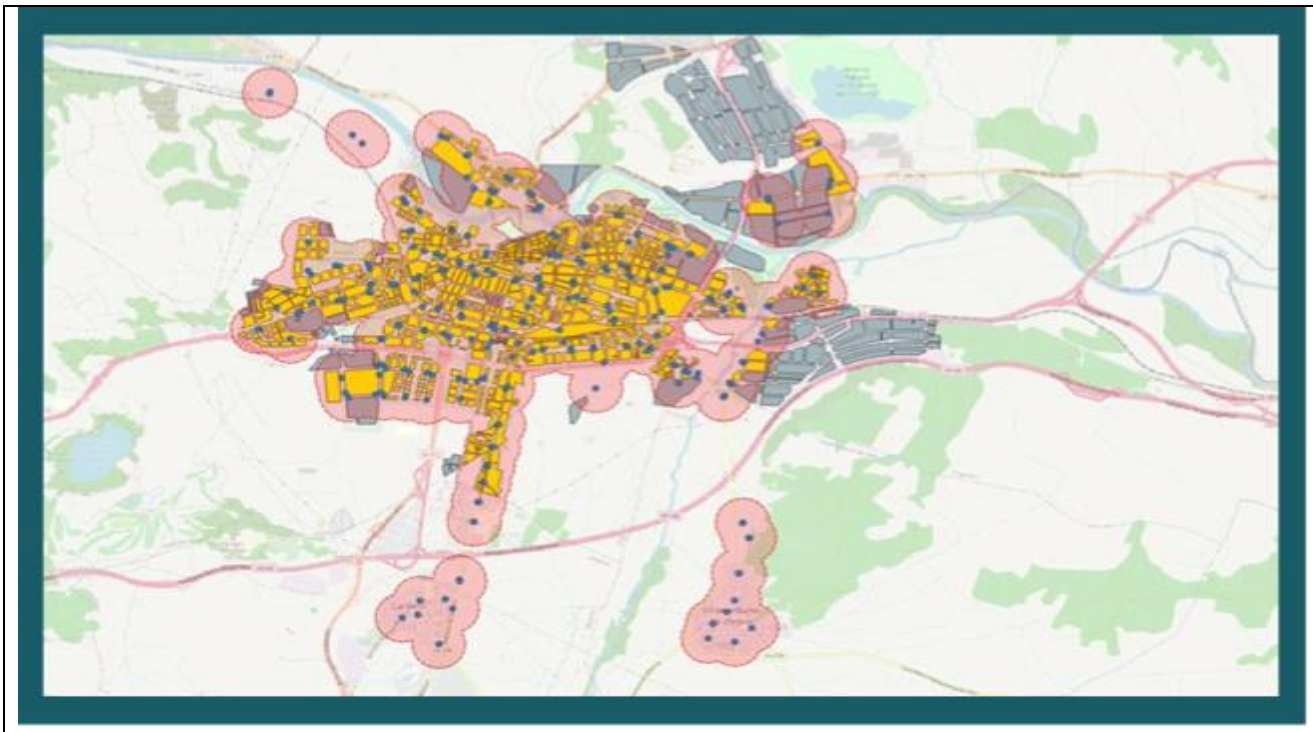


Figure 1. GIS analysis to calculate the Proportion of population living within 300 meters of an hourly public transport service

In relation to the above, please state:

- For the 'proportion of population living within 300 metres of an hourly (or more frequent) public transport service': the data and calculation method of the figure;
- For public transport, please include journeys by any type of public transport present in the city (e.g. buses, trams, trolleybuses, light rail, and other rail services) even if these are privately operated;
- For 'other' in the table above please state what is included by any figure presented as 'other'.

The remainder of the text in this section should describe the present situation for both local passenger transport and urban freight transport. This should include qualitative and quantitative information on:

- Infrastructure for public transport, cycling and walking (including infrastructure for alternative fuel);
- Numbers of public transport vehicles;
- Mobility flows;
- Infrastructure management tools;
- Existing modal shares;
- Shared mobility schemes;
- Use of alternatively-fuelled vehicles;
- Any disadvantages or constraints of relevance to transport;
- Governance arrangements and responsibilities;
- Sustainable Urban Mobility Plans (SUMP) in force or in revision;

- Urban vehicle access regulation (UVAR) schemes such as low-emission zones or congestion charging;
- Involvement of stakeholders in development of strategies, plans and measures.

Provide references where possible and relevant details.

Logroño has an ideal scale for active journeys, as the distances between neighbourhoods and areas generating and attracting passengers are largely in the range of pedestrian distances (2-2.5 km or half an hour walking) and entirely in the range of cycling distances (7 km or half an hour pedalling). The Logroño urban axis is 4.5 km long at its longest point, a distance that can be covered in one hour's walking time and in less than twenty minutes' pedalling time (see 6A).

Active mobility, (on foot or by bicycle) in the city of Logroño represents **more than 60% of the daily journeys**. Walking is the most common way of getting around in the city, **with 58% of daily trips being made on foot.**

Cycling has grown considerably in recent years and accounts for **2% of journeys**. In addition to an extensive cycle path system, there is also a **public bicycle lending system** with parking facilities throughout the city, **BiciLOG** [1].

Figure 2. Cycling routes

The urban bus network [2] is characterised by a high level of coverage. More than 65% of the inhabitants have at least one bus stop within 150 metres of their homes, and if the radius is increased to 450 metres, the coverage rate is almost 100%. This network of 50 urban buses provides good coverage from the areas that generate and attract passengers.

Given the importance of the city in the region, in 2010 the Government of La Rioja established a m**etropolitan bus service** [3] that directly connects the municipalities of the metropolitan area with the centre of Logroño. It is an alternative to the use of private vehicles, particularly for daily commute to work or education centres, and for access to medical services. It has a fleet of 13 buses that comply with the Euro VI regulations on contaminating gas emissions.

Out of the total daily number of journeys made by residents, the majority (91%) are internal (within the city) and therefore less than 4.5km. The remaining 9% are journeys between Logroño and other municipalities or cities.

Urban freight transport. There has been a Municipal Ordinance on Loading and Unloading since 1986 [4] which limits the hours of loading and unloading, and which conditions loading and unloading at night. It also establishes restrictions on the size of vehicles and parking and/or access to pedestrian areas.

Logroño has had a **Sustainable Urban Mobility Plan (SUMP**) [5] since 2013, the actions of which are still being implemented.

During the state of alert due to COVID-19, the city of Logroño developed the **Open Streets Strategy** [6] in line with the requirements of physical distancing and to encourage a more balanced distribution of urban space and to promote active mobility. The city has been implementing a series of measures, some of which are temporary, but others will be permanent. The Council has taken the opportunity to accelerate the transition to a more active mobility system which prioritises walking and cycling.

Figure 7. Open Streets - distribution of the urban space

In school surroundings, uses and spaces have been redefined, reducing space for vehicles and giving it to pedestrians (fig. 4).

Figure 4. Before and after images in the access to Duquesa de la Victoria Primary School

10B. Past Performance

The aim of this section is to make clear how the situation described in Section 10A has been achieved. Where available, quantitative information and data should be provided for the previous five to ten years in order to show recent trends.

The section should describe the **strategies and plans** that have been implemented over the last five to ten years (including any SUMP or equivalent) to ensure that the development of transport in the city was undertaken in an integrated manner (see Guidance Note for more details).

Describe the **measures** implemented, including those that have helped to deliver:

- Increased use of public transport, cycling and walking;
- Decreased, and more efficient, car use, including measures to reduce congestion;
- Improvements in the environmental performance of urban freight (including diverting trucks from the city centre and urban freight deliveries);
- Increased use of alternatively-fuelled vehicles, using renewable and sustainable fuels;
- Urban vehicle access regulation (UVAR) schemes such as low-emission zones or congestion charging, to reduce emissions and congestion;
- Measures to promote shared mobility;
- Spatial planning approaches which have led to more environmentally-friendly transport models.

The SUMP establishes the strategic lines that have guided the transformation of the city in terms of mobility. Progress has been made in the implementation of priority measures and the following stand out:

● **Plan to improve accessibility and remove barriers** with the creation of the Plan for the Integration of People with Disabilities (2015-2018) [7]. The city of Logroño has received several awards for its efforts to be an accessible city including:

➢ "**Mapcesible City" (**Foundation Telefónica, 2019) [8]: awareness and firm commitment to universal access to all services and public spaces.

➢ Special mention in the **Access City Awards to Logroño** (EU, 2015) [9] for its work in the area of building and public spaces.

➢ **Reina Sofía Accessibility Award (**2013) [10]. The Royal Board on Disability rewards the continuous work of a municipality, for at least I five years, in favour of the integration of disabled people.

● **Traffic calming measures:** Creation of superblocks with the intention of calming traffic within these areas. Measures implemented include limiting speed to 30km/h, creating "ears" at some intersections, widening pavements, etc. These measures have been implemented in several areas of the city along with other measures

to give priority to pedestrians in public spaces.

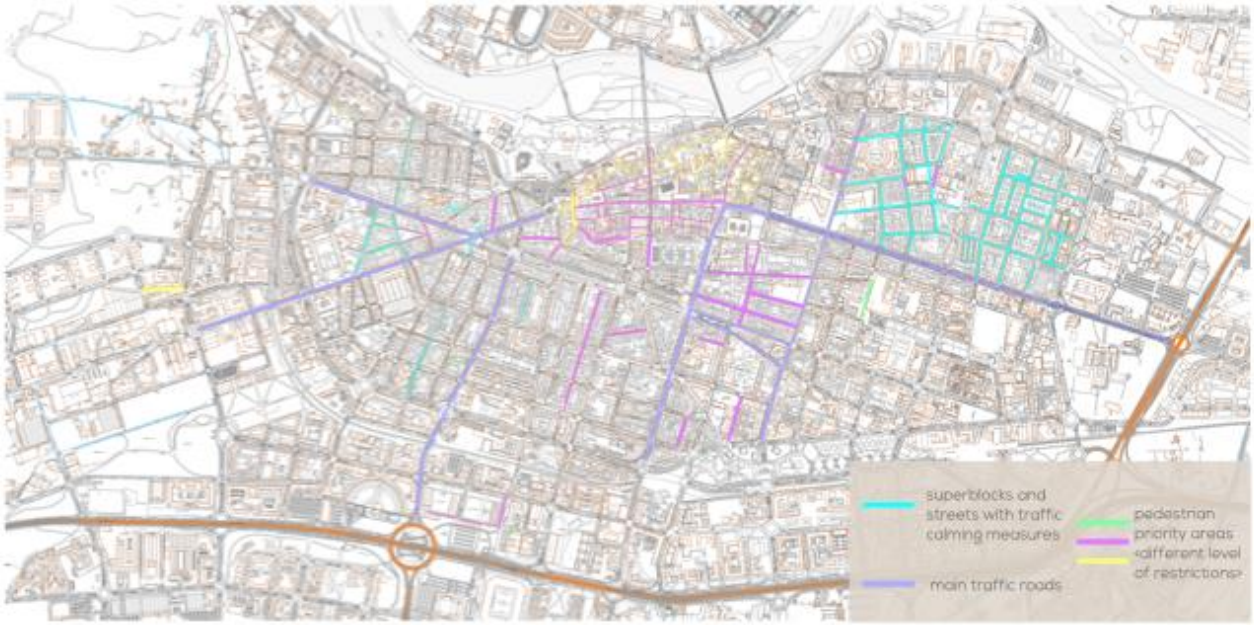


Figure 5. Superblocks where traffic calming measures have been implemented

- **Plan to promote good practices in mobility**: Includes initiatives such as "Safe School Roads" and “Cyling to School" in schools in Logroño or various road safety and sustainable mobility campaigns focused on children.

  The Town Council has worked on planning safe routes to school in order to improve road safety in school environments; encourage the acquisition of good habits when travelling in a safe and healthy way; and achieve more sustainable mobility. With the initiative "Safe routes to school: Pedibus" [11], a well-identified adult (parent) picks up children at stops near their homes and "drives" them (on foot) to school.

Figure 6. Image of the Pedibus-Safe itineraries to School awareness raising

There have also been courses for cyclists and drivers of private vehicles to improve coexistence between them and other campaigns to encourage the use of bicycles run by the local police. In addition to this, work was done with local driving schools to promote a more sustainable way of driving.

- **Implementation of a pedestrian mobility plan** which has consisted of the creation of pedestrian routes throughout the city for which architectural barriers have been removed and pavements have been widened to provide continuity to the routes.

- **Measures to promote public transport** such as increasing bus frequency in some lines, particularly at weekends; improving night-time transport; adjusting the route of some lines around bus and train stations to promote intermodality; and improving surveillance/visibility at some stops to increase user safety. Also, worth mentioning is the “child bus pass" with which children up to the age of 9 can travel free on the bus.

- **A cycle mobility plan** has been developed. This includes the improvement of cycle routes, the installation of bicycle parking facilities in the city or improvements to the BiciLOG bicycle loan system. The proposals for improvement are included in the *Study for Improvements in the Existing Cycling Network in the City of Logroño* (2020) [12].

- **Measures to discourage the use of private vehicles** in the city. A management plan has been implemented to regulate parking, including the extension of areas where payment for parking is

required. The capacity of the local police to fine illegally parked vehicles has also been strengthened and parking spaces have been reduced.

- **Plan to improve environmental quality and energy effiency**, with measures such as purchasing of more efficient municipal vehicles or the installation of a charging point for electric vehicles.

- **Road safety plan** with measures such as increasing speed controls or the installation of fixed speed cameras to reduce speed in the urban area.

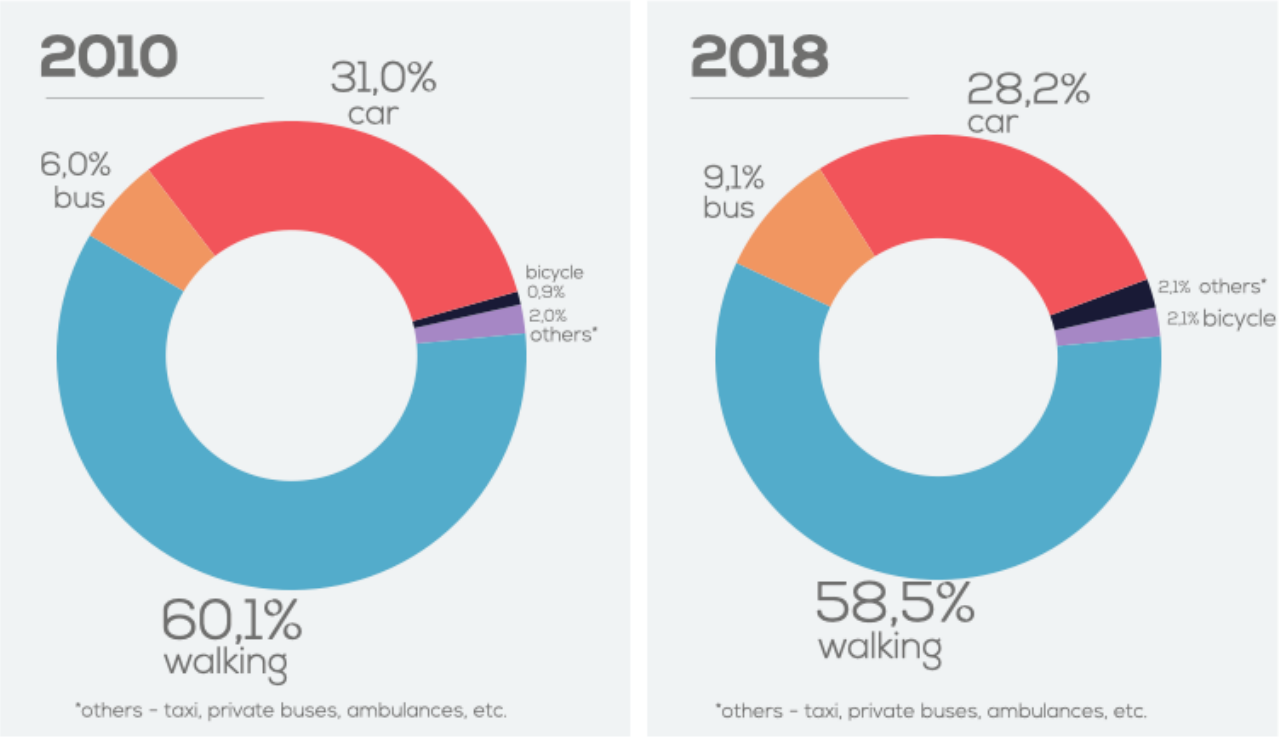


Figure 7. Modal share in 2010 and 2018 regarding transport use

Trends in modal share in Logroño:

- Travelling on foot continues to be the preferred way of get around in the city, as shown in Figure 6. In 2010, 60% of the daily trips were on foot compared to 59% in 2018.

- The most significant change in the modal distribution between 2010 and 2018 is the increase in the number of daily trips by bicycle. In 2010 they represented only 0.9% of the daily trips, compared to 2.1% in 2018. This figure is similar to the proportion of daily trips of other cities with a larger populations such as Barcelona (1.6%). Of these, only a small proportion correspond to the use of BiciLog, which has a more occasional or touristic use. This is because most cyclists have their own bicycle. In 2010, the City Council launched an initiative to subsidise the purchase of bicycles in local shops [13].

- There is also an increase in the frequency of daily trips on public transport, due to its low cost and good

coverage.

Logroño forms part of the **Cycling Cities Network** [14]. This is an association made up of local entities whose objective is to generate a dynamic between Spanish cities in order to facilitate, make safer and develop the movement of cyclists, especially in urban environments. From 2020, Logroño will also form part of the **Walking Cities Network** [15], whose objective is to promote and improve pedestrian mobility.

At the beginning of 2020, the Town Council approved a new **Ordinance that regulates Personal Mobility Vehicles (VMP)** [16]. Although this regulation is temporary, (as it will be integrated into the future new Mobility Ordinance of Logroño Town Council), it fills a legal gap with respect to this type of vehicles which are becoming increasingly popular.

10C. Future Plans

The aim of this section is to demonstrate that there are plans and strategies in place to continue to develop the city's transport system in a sustainable direction.

Describe the short and long-term **objectives** for local transport (both passenger and freight) and how the city plans to achieve these.

Outline the **plans and strategies** in which these objectives are found, and the extent to which these are supported by political commitments, budget allocations, and monitoring and performance evaluation schemes. If new plans and/or strategies are to be developed, describe how these build on previous plans and strategies. Refer to integrated transport, land use planning, stakeholder involvement and the use of a SUMP or equivalent.

Set out the **measures**, including those adopted but not yet implemented, that contribute to the delivery of the objectives, including:

- Increased use of public transport, cycling and walking;
- Decreased, and more efficient, car use;
- Improvements in the environmental performance of urban freight (diverting trucks from the city and urban freight deliveries);
- Increased use of alternatively-fuelled vehicles;
- Development of shared mobility schemes.

The development of the **Sustainable Urban Mobility Plan (SUMP),** drawn up in 2013, was a first step towards sustainable urban mobility for the city of Logroño. The City Council is currently working on developing a new strategy, taking into account new factors such as the new public transport infrastructure (new bus and train stations which almost form a multimodal station) and new needs in urban goods distribution. The Council is in the process of tendering the work to develop the new mobility strategy, the ***Study and Actions on the Local Sustainable Urban Mobility Strategy of Logroño,*** in order to have a plan with concrete actions.

In general terms, **the future of mobility in Logroño will be addressed from the design of public spaces**. 70% of the surface of the streets in the city centre is dedicated to motorised mobility, despite the fact that this is not the preferred way of getting around in the city by citizens, as we have shown. Restoring this space for active mobility and other activities is one of the municipal priorities, which is strongly committed to discouraging and reducing car use.

Along these lines, in 2019, a ***Study for Improvements in the Existing Cycling Network in the City of Logroño*** was carried out, with the objective of defining a network of cycling routes which would complete and improve the existing network, complying with criteria which would allow it to be integrated with the rest of the modes operating in urban areas and which would be attractive not only to current cyclists. The study concludes that the current cycling network, although it is of considerable length, has low connectivity between routes, lacking functionality or being mainly recreational. The main type of cycling roads in the existing network are segregated roads, with a predominance of cycle paths within pedestrian areas. This creates conflicts at intersections or with occupation of segregated spaces for both modes. The study suggests a series of improvements for Logroño's cycle network which minimise the risk of accidents, connects the urban centre with outlying districts (centres which attract and generate journeys), and provides an effective alternative to cars with direct, easy-to-cycle routes.

In line with this, and given the context of 2020 with the state of alarm due to COVID-19, the Council developed the **Open Streets Strategy**. Some of the measures in this strategy were temporary given the requirements of physical distancing, but others will be permanent. The Council's vision is that, in some way, this exceptional situation will promote and encourage the consolidation of mobility policies that are more respectful to the environment and urban life. The strategy has already transformed eight spaces within the city, the most emblematic being the entrance to the municipal library which has been converted into a cultural centre with open-air activities: workshops, concerts, etc. The strategy consists of the following programmes:

1. **Healthy and active networks (for pedestrians and cyclists)** to guarantee safe walking and cycling travel between the different neighbourhoods of the city and between the main travel generators in Logroño (city centre, university, hospitals, shopping areas, administration offices, etc.).

2. **Superblocks with traffic calming measures within,** using the SUMP 2013 proposal as a starting point but including some adaptations in order to guarantee safety and interpersonal distancing.

3. **Improvement on the surrounding areas of the points of interest in the city** in terms of journeys generated. Mainly educational centres but also others.

4. **Improvement measures to support the use of public transport** such as extension of stops to guarantee interpersonal distance.

5. **Regulation changes**: implementation of maximum speed at 30km/h throughout the city.

In addition, work is underway on a **new Mobility Ordinance for Logroño**. The new Ordinance will regulate the maximum speed allowed within the city, loading and unloading times, parking, the management of abandoned cars, etc.

Another important project to highlight is the approval of the **PERI railway** [17] in 2019. This project consists of burying the train track in the city and creating a park and green areas. The Council is also collaborating with the national and regional public administrations in the construction of the new bus station. Due to its location, next to the train station, it will be part of an intermodal station. The project includes energy efficiency measures such as the use of LED lighting which a system that allows the regulation of the lighting level and with a centralised lighting management system that allows different lighting scenarios. This is all focused on a more efficient management and use of the facilities.

Figure 8. Photo showing how the gardens will look like once the underground works of the new train Station are completed

10D. References

List supporting documentation (e.g. survey about user satisfaction with the urban transport system), and add links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

1. BiciLOG: Public bicycle lending system's website (ES)
2. Information about Logroño's public transport system (ES)
3. Information about Logroño's metropolitan public transport system (ES)
4. Municipal Ordinance on Loading and Unloading since 1986 (ES)
5. Sustainable Urban Mobility Plan (SUMP) (ES)
6. Logroño's Open Streets Strategy
7. Plan for the Integration of People with Disabilities (2015-2018) (ES)
8. Logroño's "Mapcesible City" Award (Foundation Telefónica, 2019) (ES)
9. Special mention in the Access City Awards to Logroño (EU, 2015) (ES)
10. Reina Sofía Accessibility Award (ES)(2013) [10].
11. Video showing how the "Pedibus" work in practice (ES)
12. Study for Improvements in the Existing Cycling Network in the City of Logroño (2020)- *not available online.*
13. Article in local paper about the Council's subsidies for the purchase of new bicycles in local shops (ES)
14. Cycling Cities Network's website (ES)
15. Walking Cities Network's website (ES)
16. Municipal Ordinance that Regulates Personal Mobility Vehicles (VMP) (ES)
17. Information about PERI-Ferrocarril project (ES)

Other documents reviewed:

1. Study of Daily Urban Mobility in the City of Logroño 2018 (ES)

2. *Annual Summary 2018, DG Urban Mobility and Projects from Logroño's City Council* – Not available online
3. *Reviewed versión of the Sustainable Energy Action Plan* - not available online

11. Energy Performance

Refer to Section 2.11 of the Guidance Note

11A. Present Situation

Please complete the following table providing the most recent data that is available. It is highly recommended that, where possible, all the benchmarking data provided relates to the same year.

Table 1: Benchmarking Data - Energy Performance

Indicator		Unit	Year of Data
Final energy consumption	2,425,933.6	MWh	2014
Final energy use per capita	15,964.08	kWh/capita	2014
Share of renewable energies of final energy demand	Not available	%	-
Share of locally produced renewable energies of final energy demand	0.59	%	2014
Energy performance of municipal buildings	71.63*	kWh/m^2	2019
Final Energy Use/Sector			
Agriculture & fisheries	3.90	%	2014
Industrial & commercial	34.91		
Transport	21.30		
Domestic	24.80		
Services	14.82		
Other	0.27		
Total	**100**		

Comments on the benchmarking table:

** This data corresponds to a representative sample of municipal buildings including a school, a nursery, the fire station, the public library, etc. for which there was information about the surface.*

The indicators in the table are the latest data available for the city of Logroño including industrial, municipal and domestic energy consumption. They were published in a SEAP update in 2015. Final energy demand includes electrical energy, natural gas, liquefied petroleum gas, fuel oil, diesel oil and gasoline. Per capita energy demand including only electric energy and natural gas in 2014 was 10,005 kWh/capita.

Describe the present situation and development (particularly in relation to the building sector), using quantitative data and figures. Where available, information/data should be provided from previous years (5-10) to show trends. Highlight the most relevant driving forces for the observed trends. List any disadvantages

resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator.

1. Present total final energy consumption by sectors (structure of energy consumption);
2. Past development of energy consumption and current plan (activities) for energy efficiency improvements and decreasing the use of energy, particularly for energy performance of municipal buildings (in kWh/m^2) with specific reference to city owned buildings and important developments related to other end-use sectors besides the building sector (e.g. transport, industry production, services, public, lighting, electrical appliances, food);
3. Present situation, development and current plan for the energy supply mix, particularly regarding the renewable versus non-renewable mix of energy sources during the past ten years (for both heat, electricity and transport; expressed in kWh, MWh or GWh);
4. The current plan for integration and performance of renewable energy technology in municipal buildings and homes compared to the total energy use;
5. The development so far and the current plan of compatible and integrated district heating energy and of combined heat and power energy consumption compared to the total energy use, (expressed in kWh, MWh or GWh);
6. Application of innovative technologies (e.g. current plan for increasing the use of LED lamps in public lighting and use of green roofs/walls for energy saving).

Municipal energy consumption has been monitored regularly, and since 2012, on a monthly basis. This makes it possible to observe the progress of the energy efficiency measures implemented in recent years, which have focused primarily on the municipal level, as detailed below. The following graphs reflect the consumption of electrical energy, natural gas and municipal fuels consumption, which includes among other things municipal buildings, lighting or vehicles providing a municipal service (such as local police, fire brigade, etc.). However, it does not include the fuel consumption of public transport in the city, because it is managed by a private company. Information on the public transport fleet is detailed in indicator 10.

As can be seen, there has been a significant decrease in energy consumption in recent years. Between 2011 and 2018 there has been a 7% drop in electricity and a 31% drop in natural gas. Fuel consumption has been reduced by 17% between 2013 and 2018.

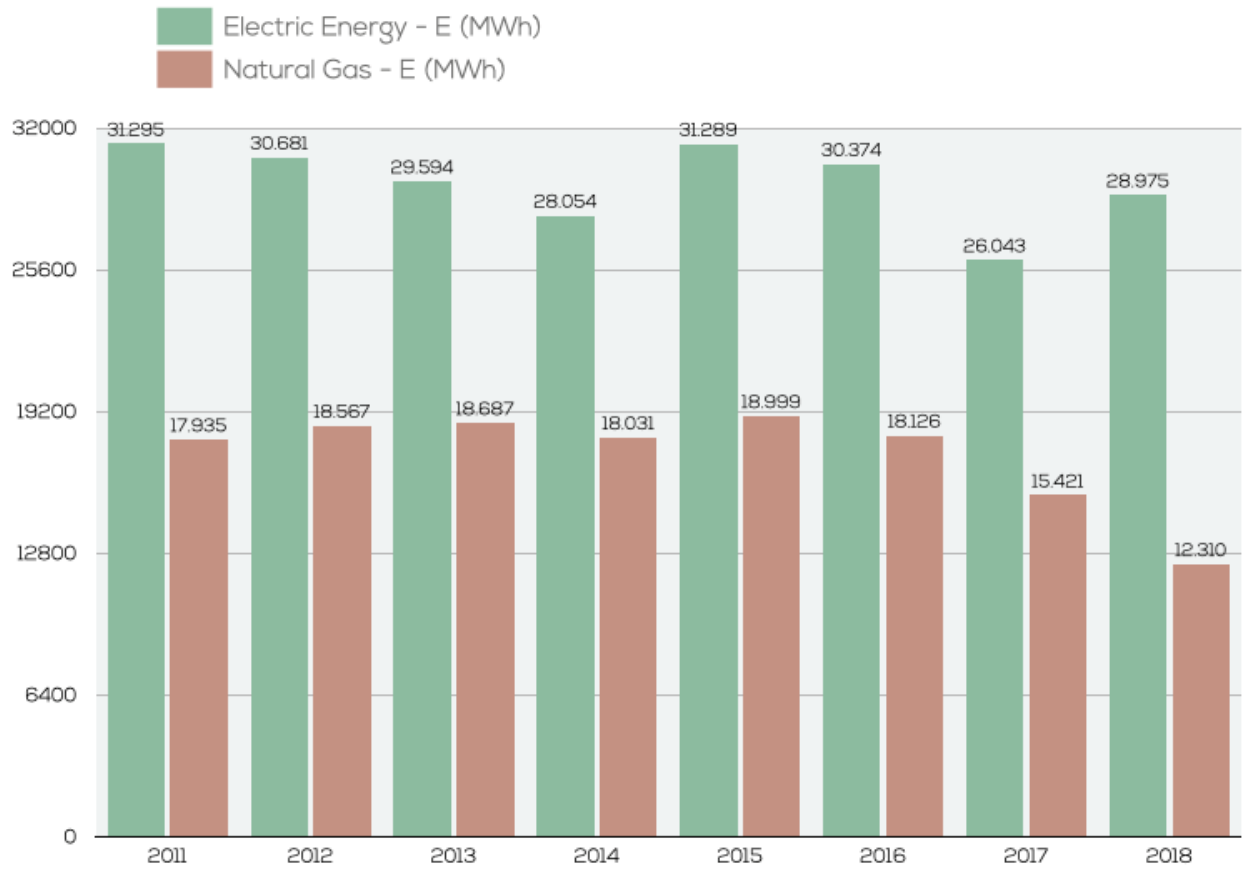


Figure 1. Electric energy and natural gas consumption trend for municipal buildings

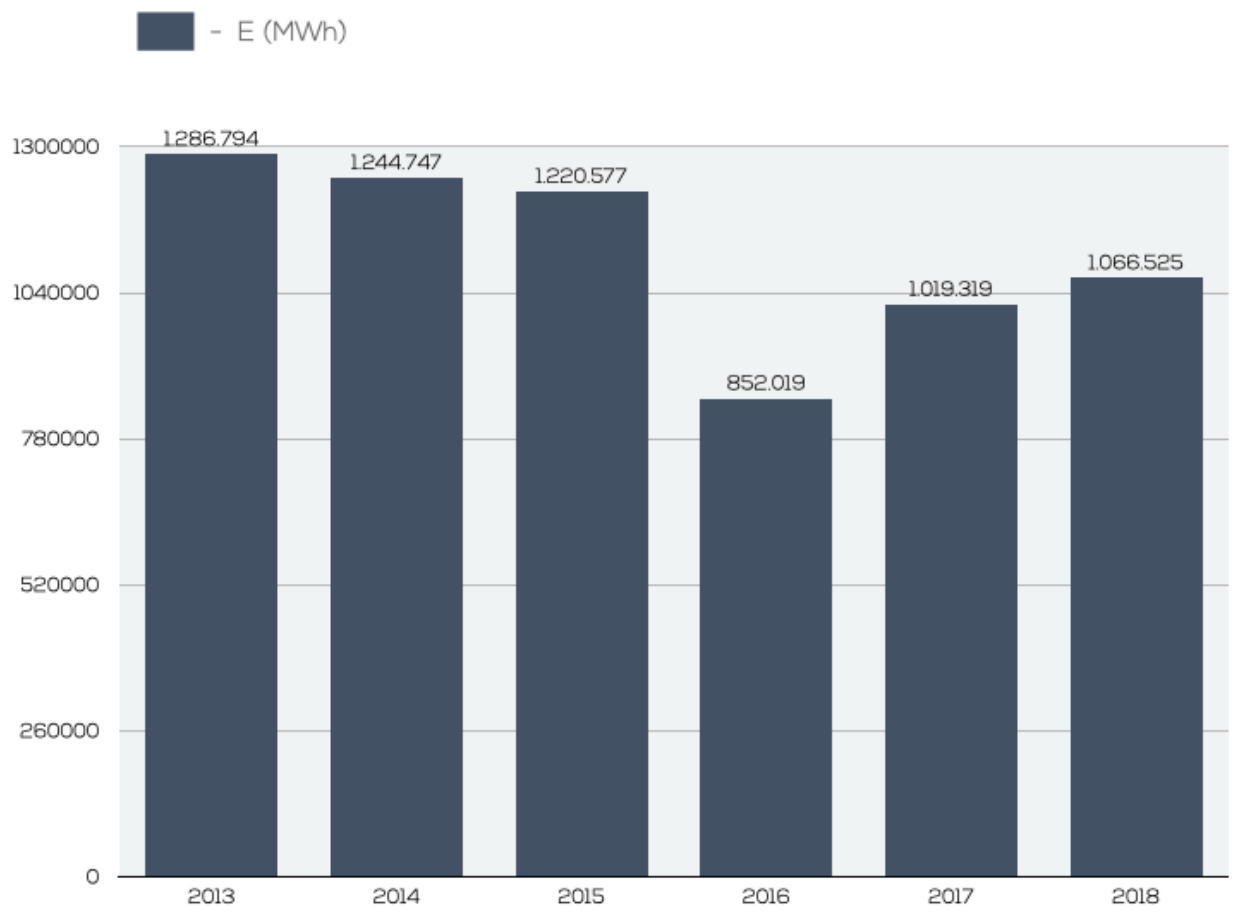


Figure 2. Fuel consumption trend for municipal vehicles

Logroño's City Council has been working for years to develop intelligent strategies and solutions aimed at designing a global system for the sustainable and innovative management of the city (see 7). In 2014, the Spanish Ministry of Science and Innovation awarded Logroño with the **'City of Science and Innovation**'[1] award for the work of its City Council. The City Council also has an **Innovation Plan 2016-20** [2] which includes measures to achieve more sustainable mobility and greater energy efficiency. This Plan has not been officially approved.

External lighting system isolated from the grid. An action was implemented to light a street autonomously by generating electricity through solar panels on the street lamps.

As an innovation project, the Town Hall created a **"Smart Rain" system**[3], to optimise the consumption of water and electrical energy (see indicator 4).

Since 2016, Logroño City Council has several **photovoltaic installations** on the roof of 8 municipal buildings, with an installed power of 221.91 kW. In 2018 overall they were generating 242,117.68 KWh/year.

Figure 3. Solar panels installed in municipal buildings

In 2018 the City Council had to adapt the installations in line with the new national legislation to reduce the wastage of renewable energy produced by the solar panels installed in municipal buildings. Most of the installations were not connected to the grid. The municipal photovoltaic network is now connected to the grid, which also allows the Council to sell the energy surplus. At the same time as the photovoltaic installation was updated, a Smart GRID system [4] was installed. The **Smart GRID system** (4) allows real time measurement and monitoring of the system, which ensures a rapid response to any faults or unforeseen event. At the Town Hall, citizens are informed of the photovoltaic energy generated in municipal buildings at all times by means of screens.

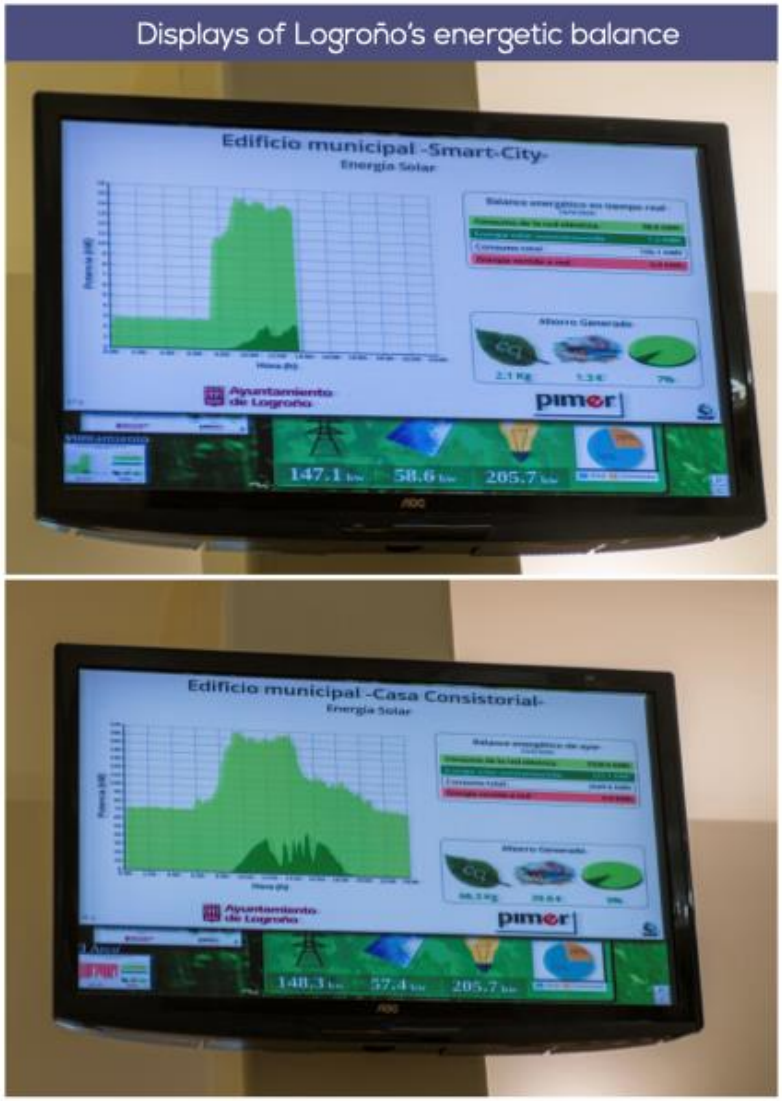


Figure 4. Screens at the City Council showing real time energy generation by solar panels in municipal buildings

11B. Past Performance

Describe the measures implemented over the last five to ten years concerning energy, as a qualitative narrative. Comment on which measures have been most effective.

Make reference to:

1. Attempts to improve the energy performance (i.e. energy efficiency standards particularly of municipal buildings) above national requirements;
2. Maximising and prioritising the use of renewable energy technology (particularly in municipal buildings);
3. Implementation of energy efficiency measures in municipal buildings as the model role for residential

and private non-residential buildings over the last five to ten years including a short description and achieved quantitative outcomes;

4. Implementation of energy efficiency measures in residential buildings over the last five to ten years including a short description and achieved quantitative outcomes;
5. Implementation of energy efficiency measures in private non-residential buildings (service, office, industry, etc.) over the last five to ten years including a short description and achieved quantitative outcomes;
6. Implementation of measures to facilitate integrated district system solutions (e.g. co-generation) and a more sophisticated city-wide control;
7. Implementation of measures to trigger stakeholder engagement in the city to improve overall energy performance preferably including local government institutions, local market actors and citizens; mention existing co-operations. Examples include the uptake of demand response and smart technologies, in industry, the commercial sector and households, to energy consumption to avoid unnecessary energy infrastructures, and the related waste, costs and pollution;
8. Measures to boost just transition such as prioritising energy efficiency, renovation, awareness-raising among population groups suffering from energy poverty;
9. Membership of climate and energy networks and associations (e.g. Energy Cities, Covenant of Mayors for Climate and Energy, etc.);
10. The City's energy strategies and plans including targets and list of implemented measures with achieved outcomes;
11. The City's organisational structure in charge of energy performances (e.g. Energy efficiency department, Systematic energy management, etc.).

The regional administration developed the **La Rioja Strategy for Climate Change 2008-2012** [5] and later a series of strategic lines to contribute to the preparation of a **La Rioja Energy Plan 2015-2020** [6]. The lines were defined through a participatory process and a reference document was created which is available online. However, the plan itself was not developed.

In the energy context, the actions of Logroño City Council have been influenced by its innovative spirit (see indicator 7) and by its adhesion to the **Covenant of Mayors project in 2012** [7]. Within this framework it prepared the **Sustainable Energy Action Plan (SEAP**) [8] in 2014. Since then, progress has been slower than anticipated due to the lack of both economic resources and human capital and it has been necessary to prioritise in order to make significant progress.

Within the SEAP, the City Council has prioritized the areas of energy efficiency in the municipal sphere (municipal buildings) and has carried out actions in mobility with the Sustainable Urban Mobility Action Plan (SUMP) (see indicator 10). Some of the main projects carried out are:

- **Improvement of energy efficiency in the hydrothermal area and swimming pools of the "Lobete" sports centre.** Carried out by Logroño Deporte (Logroño Sports, public organization in charge of sport

activities in the city) in 2017, this is the project which has achieved the greatest energy efficiency with a saving of 469.07 MWh/year.

- Logroño City Council has carried out a series of **improvements in municipal buildings** such as the installation of more efficient lighting, the replacement of boilers with more efficient ones, the installation of automatic lighting control devices, or the regulation of temperature to 21ºC in winter and 25ºC in summer.

- **Photovoltaic installations** from 2016 on the roof of 8 municipal buildings with a **Smart GRID** system.

- Between 2014 and 2017, through the **Family Intelligent Energy Saving Targeted Action (F.I.E.S.T.A.) project** [9], financed by the Intelligent Energy Europe Programme, free energy audits were offered in private homes with the aim of reducing domestic energy consumption. The objective was to inform about the importance of replacing electrical appliances, light bulbs and boilers with more efficient ones, and to provide information to help citizens make decisions to reduce their energy consumption. Fifty audits were carried out, as well as several campaigns in schools in Logroño. The Council facilitated the collaboration of local shops to offer discounts to participating families to update their electrical appliances [10].

In 2016, a **Master Plan for the city's exterior lighting was developed** [12], but due to a lack of resources it has not been implemented. The plan analyses in detail the distribution, consumption, power or pollution produced by the city's 27,000 lighting points, 90% of which were sodium vapour and inefficient technologies. The Master Plan contains a series of initiatives, such as an energy audit of the city, the preparation of light maps, the study of light pollution and the replacement of old lights with LED.

Logroño is part of the **Spanish Network of Cities for Climate** [13]. This network is made up of Local Governments that are integrating climate protection into their policies in response to the need for coordination in the fight against climate change. Logroño is part of the Mobility, Waste and Energy Efficiency sub-groups.

Participation in the **GREEN TIC Project** [14], to extend the remote management of lighting with SMART technology. 36 lights with LED technology were installed as a pilot action, to replace the existing high-pressure sodium vapour lights (VSAP).

From this project, the **Green Procurement Manual for Information and Communication Technologies** was prepared [15] to encourage green public purchasing. The manual includes methodologies and a step by step guide to be followed by public other administrations.

11C. Future Plans

Describe the future short and long-term objectives for shaping a sustainable energy system and the proposed approach for its achievement including measures adopted, but not yet implemented with expected quantitative outcomes.

Emphasise to what extent plans are consolidated by commitments, budget allocations, and monitoring and performance evaluation schemes, what potential there is and what kind of barriers might be expected in the implementation phase. Describe and explain if and how far the strategies and targets go beyond national ambitions.

Make reference to the city's strategy to achieve goals by 2030 and 2050 and highlight:

1. The role of energy efficiency improvements in the following sectors: building, district heating systems and public lighting;
2. The role of an increasing share of renewable energy in the total energy supply;
3. The city's strategy regarding renewable versus non-renewable energy mix, (please break down the the percentage of different renewable energy sources that comprise the renewable energy mix). Describe the planned energy mixes for at least the coming two decades, preferably add diagrams to describe this evolution; and
4. Other measures affecting the total energy use in the city, e.g. changes in transport systems, industrial practices, food and commodities production and consumption, urban morphology and use of Green Infrastructure, consumer behaviour and import and export chains.

The **National Integrated Energy and Climate Plan (2021-2030)** [16] will be the framework for action at regional and local level.

The recently created **Directorate General for Energy Transition and Climate Change of the Government of La Rioja** is defining the work plan for the development of future regional strategies in this area.

The Council has three general strategies in this field for the future:

1. Reduction of motorised mobility and promotion of active mobility, as a way of avoiding the consumption of fossil fuels, the main energy support for motor vehicles.

2. Improve energy efficiency of buildings to reduce energy consumption and, occasionally, to produce renewable energy. In two areas:

    a. Public buildings: Actions to improve the energy efficiency in municipal buildings.

    b. Private buildings: Aid for energy renovation and regulatory changes to promote energy efficiency.

3. Reduction of energy consumption in municipal services: transport, lighting, cleaning, gardening, etc.

In the short term, the Council will continue to implement the pending measures in its SEAP in the areas of energy efficiency and mobility. The Council intends to draft a new **Sustainable Energy and Climate Action Plan (SECAP)** in the framework of the commitment recently signed in the Covenant of Mayors to reduce emissions

by 40% by 2030. This new Plan will replace the SEAP and help establish a new baseline, strategy and concrete actions to be developed in the future to achieve the objectives.

Another action that is already in tendering process and whose implementation will begin in spring 2021, is the **new energy supply contract that requires that the electricity supplied by the bidder for municipal facilities and buildings must be 100% renewable.**

Logroño also participates in a working group (Front-runners Group) of the **Celsius Initiative** [17], a European initiative that seeks to exchange experiences and good practices related to the implementation of **District Heating projects.**

11D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

1. Spanish Ministry of Science and Innovation awarded Logroño with the 'City of Science and Innovation' (ES)
2. Innovation Plan 2016-20 (ES)
3. Smart Rain Project (ES)
4. Smart GRID Project (ES)
5. La Rioja Strategy for Climate Change 2008-2012 (ES)
6. La Rioja Energy Plan 2015-2020 (2015) (ES)
7. Covenant of Mayors Adhesion document (ENG)
8. Sustainable Energy Action Plan (SEAP) (ES)
9. Local newspaper article about the project Families Intelligent Energy Saving Targeted Action (FIESTA) (ES)
10. Agreement with local shops to offer discounts to those families purchasing new electric appliances after receiving an audit under FIESTA (ES)
11. Sustainable Urban Mobility Plan (SUMP) (ES)
12. Master Plan for the city's exterior lighting – *not available online*
13. Spanish Network of Cities for Climate (ES)
14. GREEN TIC Project (ENG)

15. Green Procurement Manual for Information and Communication Technologies (ES)
16. National Integrated Energy and Climate Plan (2021-2030) (ES)
17. Celsius Initiative (ENG)

Other documents reviewed:

1. Energy Transition Plan for Logroño - Elena Application (Covenant of Mayors for Energy and Climate (2018) – *not available online*
2. Logroño Climate Change Adaptation Plan (2019) – *not available online*

12. Governance

Refer to Section 2.12 of the Guidance Note

12A. Plans and Commitments

Please complete the following table providing the most recent data available:

Table 1: Benchmarking Data - Governance

Commitments	Yes/No	Date From:	Comments
Signatory of CoM	Yes	Adoption on 6/9/12 (1)	Updated agreement on 26/10/2020
Aalborg signatory	No		
ISO 14001 for municipal operations	No	Pending	Integrated approach in the City Council's integrated management manual, which needs to be updated with the new administrative and political structure.
Eco-management and audit scheme for municipal operations	No		

Vision, Strategy and Projects

Does the city have a clearly defined, widely understood and supported **integrated environmental vision** for the city, for example as part of a broader commitment to urban sustainability. Please provide the name of this document. Describe the short and long-term objectives of the **integrated environmental vision**.

How is this vision reflected in different **strategies and plans**, for individual sectors? Please list the most important strategies and plans and indicate their relationship to the overall vision and whether they have been formally adopted by the city council or other organisations.

Describe up to three **projects that demonstrate the City's commitment to integrated management** of the urban environment. Integrated projects should deliver benefits in more than one EGCA indicator area or deliver significant other co-benefits, e.g. social.

Historical, Geographical and/or Socio-economic Factors

List any disadvantages resulting from historical, geographical and/or socio-economic factors, which may have influenced this indicator.

Logroño City Council has values of ethical and environmentally responsible action at work, optimising consumption, minimising possible pollution from its activity and recycling waste. It is also socially responsible in Public Procurement, promoting quality in employment for the most vulnerable groups, reducing the impact of municipal consumption on the environment and committing to public procurement of innovation.

Consequently, any impact action carried out by the Logroño municipal administration must necessarily be based on the vision declared by it in its strategic planning (Municipal Strategic Plan - PEM 2012/2015 and draft municipal PEM 2018/2020): *"To be an excellent Town Hall in the continuous improvement of the service to the citizens, focused on a close, useful and trust-generating attention, which makes Logroño a modern city and a better place to live".*

The aim is to contribute to the construction of a **system of social responsibility that gives back to society** a good part of what it has achieved through its economic efforts.

Logroño's vision is structured around **five strategic axes**:

1. **Wealth-generating city**: this refers to the need to attract and retain both skilled workers and investors in order to regenerate the local economy, capitalising on existing strengths such as ICT, wine culture, gastronomy and tourism of excellence.
2. **City that cares**: Logroño has made progress in social services and rights and has a high cohesion and quality of life. However, we face new challenges that must be adequately addressed, including the ageing of the population, different inequalities or universal accessibility to basic services.
3. **Beautiful city**: Logroño embraces culture and education, and its presence is essential to improve coexistence and the feeling of shared identity, which leads to a more active citizenship. Logroño takes care of its historical and cultural heritage, promotes and maintains a diverse cultural programme throughout the year, organising and supporting events for different audiences.
4. **Intelligent city**: Logroño is making an important effort to develop its capacities to make the best decisions for its citizens by integrating new technologies. We want to transform the enormous volumes of existing data into knowledge in order to take advantage of existing skills and create new opportunities for economic, social and cultural development. In particular, the city should act as a catalyst for innovative initiatives, using tools such as innovative technology procurement or pre-commercial procurement.
5. **Green city**: Logroño understands the need to coordinate all the efforts we already make to preserve the environment and link them to a new urban model with more space for people, active mobility policies focused on the pedestrian and citizen-friendly architecture. The city will promote sustainable economic development to achieve more livable spaces, reducing pollution and noise, generating less waste and being more efficient in the use of resources.

A responsible Town Hall must not only comply with, but also ensure that social and environmental sustainability principles, among others, are met. The areas of planning and management as well as operations

are directly influenced by the **principles of open government** (collaboration, participation, accountability and transparency), which is reflected in its management scheme.

The strong points of Logroño's governance are its closeness to citizens, its management policy oriented towards them and deeply rooted in the municipal administration, a great deal of respect and care for the good results of the work, and the citizens' trust in the management and quality of the service provided, with compliance with deadlines and transparency.

It has consolidated an image of a friendly and a quality city to live in: green areas, sports and leisure facilities, which has allowed the beginning of the exit from the crisis on a good situation of the city and its finances. The experience of 20 years in certifying municipal management with ISO 9000 has systematised municipal activity, making Logroño well placed to undertake electronic administration and improve services and data management through the development, among others, of the Smart City.

Another strong point is the management of processes with objectives and indicators, structured with known and applied tools and which facilitates decision-making, human capital, the know-how of civil servants, their qualifications, experience, etc.

Logroño has an active participation in working groups, forums, congresses and conferences on matters related to local administrations, such as modernisation, public procurement, cultural centres, citizen participation, which has a wide impact on the public image of the Town Hall. Logroño is nationally recognised for its quality management.

12B. Governance and Management Arrangements

Organisation

Describe the organisational structure of the city council (administration) and show how the environmental vision/strategies are integrated into the organisation.

Please include an organogram and indicate which department or political body is the driving force behind the environmental vision/strategies.

Budget

Is there a dedicated budget for implementing the environmental vision? If so please describe it.

Management, Monitoring and Evaluation

What management tools are used, to achieve the environmental objectives and targets? For example, environmental/sustainability impact assessment of policy proposals, cross departmental project structures, etc.

Describe the system of monitoring and reporting, the implementation of the environmental strategy and projects. What is generally reported to whom at what frequency? For example, what indicators of the state of

the environment are reported to the council each year.

In delivering its environmental policy does the city use any innovative approaches, tools or instruments?

Leadership by the City Council

Is the city council (administration) leading by example in environmental behaviour? Describe the city's activities regarding corporate environmental policy and initiatives, environmental management systems, green public procurement, council staff skills development etc.

The Town Hall is structured on two levels: government areas and administrative structure. The "green" competences are shared between two government delegations: Sustainable Urban Development and Environment. The administrative structure has six areas including the so-called Green City which encompasses four General Directorates: Strategic Urban Planning; Public Space and Activities; Architecture, Urban Regeneration and Housing; and the Environment.

The Transparency Unit, in charge of integrated management, is part of the Intelligent City area. The administrative structure includes a biodiversity annex and a section for supervising the implementation of social and environmental clauses in public procurement.

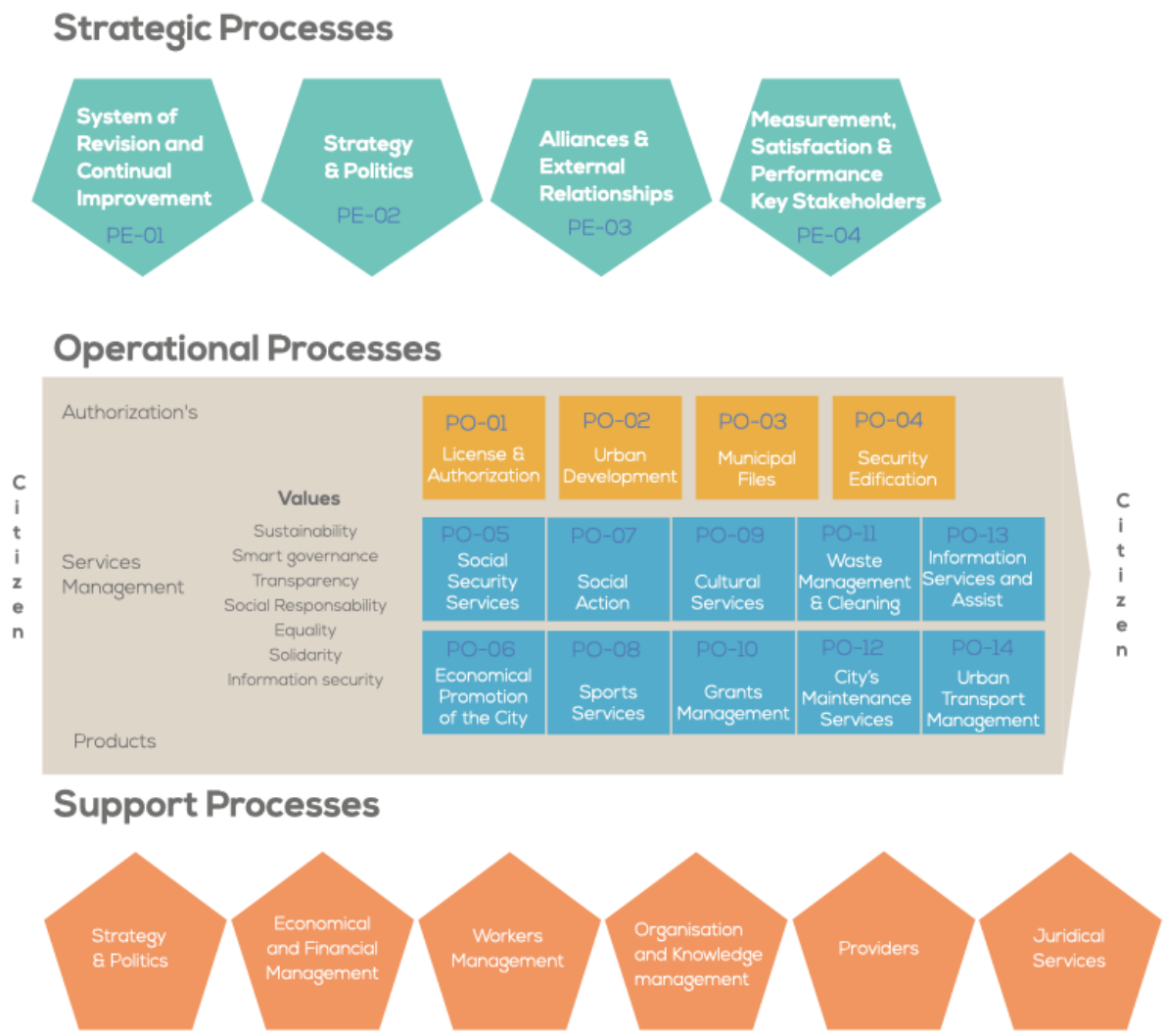


Figure 1. Processes map

In 2015, Logroño approved its **Transparency Ordinance** and created the **Transparency Portal**, where all relevant information on municipal management is published, including public contracts, subsidies and agreements. Reports on the fulfilment of the strategic plan, the progress of the project and the implementation of the budget are prepared and published periodically in different formats.

The **municipal budget**, which has a very stable structure in accordance with the Local Finance Act, amounts to a total of EUR 172,799,000 in 2020. The budget dedicated to implementing the environmental vision is dispersed among various budgetary functions including town planning (EUR 1,645,257.52); drinking water

supply and distribution (EUR 3,787,089.08); waste collection (EUR 7,221,726.00); street cleaning (EUR 8,579,712); parks and gardens (EUR 7,145,729.86) and the environment (EUR 1,268,233.69).

Logroño implements the concept of **participatory budgeting** by allocating part of the budget each year to finance citizen proposals from individuals, associations or other organisations. The new campaign for 2021 focuses on Agenda 2030 and the ODS, renewable energies, sustainable urban planning, pavement repairs and the green agenda.

Logroño City Council has been certified ISO 9000 until the summer of 2020. Although it has not renewed the certification, it will maintain the foundations of the system and has a draft EFQM report adapted to the new paradigm, aligned with the ODS, to be presented once the Strategic Plan is approved.

The processes are reviewed at least once a year; the annual indicators, new SWOT matrices and new action plans, among others, are analysed. There is a Quality Committee and a document has been generated (not yet approved) with the nearly 800 indicators (2) centralized in the processes that it manages as an organization. Once a year the Management (the Quality Delegate) makes the annual revision of the system. The annual context is provided by the Mayor in the annual State of the City Address. Risk analysis and management is incorporated into this annual review by the management.

Logroño City Council has an **Improvement Plan** entitled *"Moving towards a system of municipal social responsibility: social and green procurement and its impact on improving quality in employment and the sustainable environment".*

Logroño Town Council promotes actions of environmental responsibility at work, optimising consumption, minimising possible pollution from its activity and recycling waste, including:

- Purchase of recycled paper with the Blue Angel, PCF, Heavy metal absence, EU Ecolabel Certification and DIN 6738 certifications of permanence in the Archive
- Creation of battery collection points next to the lifts.
- Awareness campaigns to save paper and toner
- Campaigns for saving light and water.
- Progressive replacement of the Town Hall's lamps with low-consumption bulbs.
- Replacement of windows to improve their insulation and avoid energy loss.

12C. Partnerships and Public Involvement

Which stakeholders have participated in the **development** or implementation of the city's environmental vision and associated strategies and action plans (e.g. consultation with NGOs, Businesses, partnerships with

other organisations)?

How was the participation organised?

Involvement of Citizens

Describe the city's activities and engagement with the different communities within **the city that contribute to the development or implementation of the city's environmental vision, strategy and action plans**.

How was this participation organised? In particular, please reference any structures/projects/programmes that the city has in place to involve particular groups of society e.g. young people, elderly citizens, disabled, deprived citizens, or people from different ethnic groups.

Describe the goals of these activities, e.g. public awareness raising, shared responsibility, policy/plan development, delivery etc.

Co-operation and Learning

Does the city co-operate with other authorities at different levels or other organisations (regional, national, EU, international) on environmental and sustainability issues? In which of these co-operation activities or projects has the city initiated or acted as leading partner? Please also refer to the city's participation in European funded projects and to the city's commitment to international initiatives, charters, etc. (for example Agenda 21, Aalborg Commitments, Covenant of Mayors, C40, Climate Alliance, ICLEI, EUROCITIES, etc.).

Public Awareness and Involvement in the City's Bid to be the European Green Capital

Describe the action the City has taken to involve or inform its citizens of this bid e.g. consultation or participation by citizens or stakeholders, publication of the bid etc.

There is a good harmony with the alliances, collaborations and companies contracted, for the provision of services.

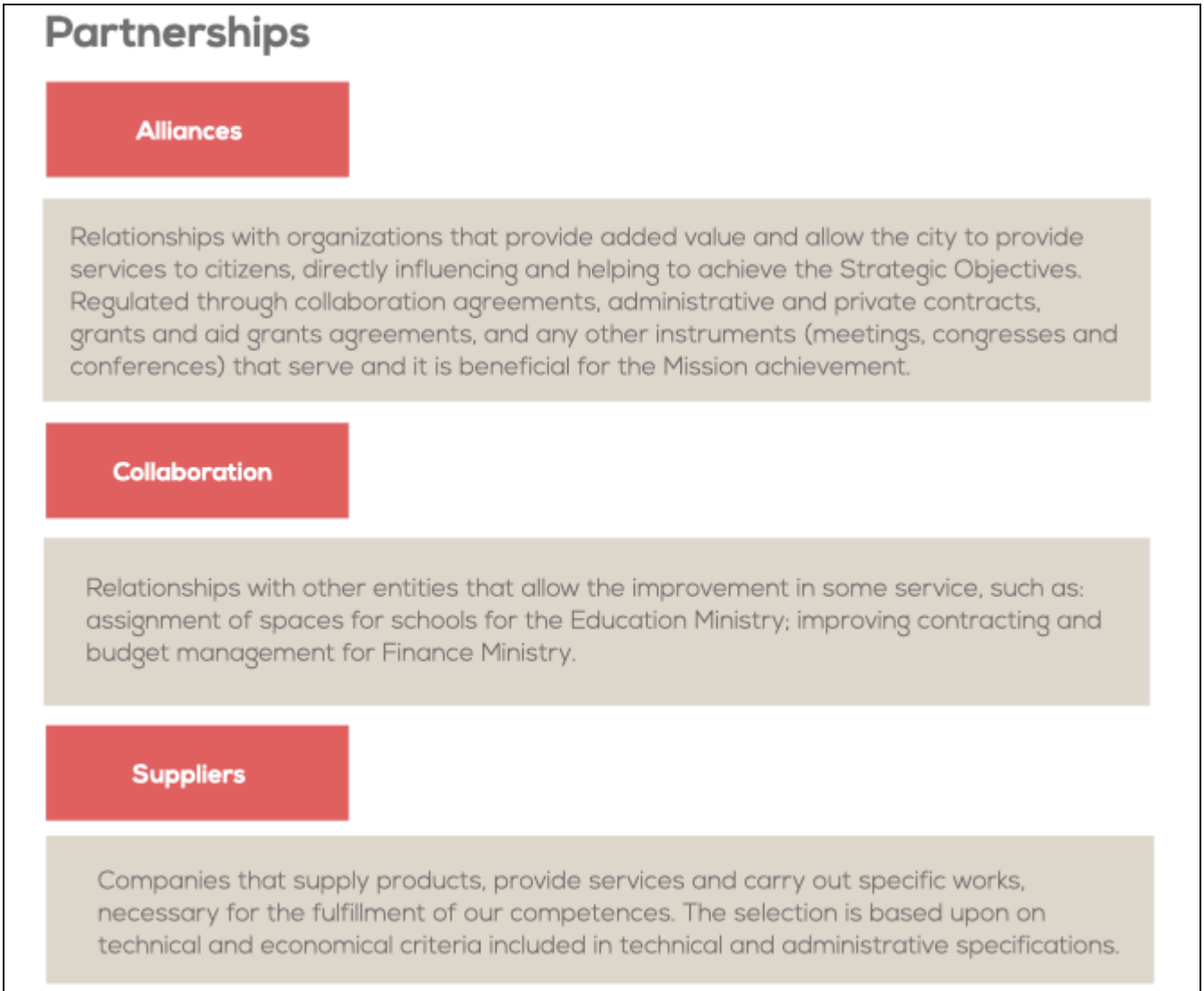


Figure 2. Partnerships types, descriptions and selection policies.

There are **multiple channels of communication with citizens**: Complaints and suggestions management system, with a high response rate, "De Buena Fuente" newspaper, Logroño.es, an App, a registry, Whatsapp, Social Networks, etc. The physical location of the Town Hall allows flexibility and favours contact with citizens. Most of the services are concentrated in the central building itself.

The Casa de las Ciencias also plays a very important role in raising public awareness and disseminating the culture of science and technology, through exhibitions, conferences, workshops, courses, projections, observations and scientific demonstrations since May 1999.

The technological modernisation of Logroño includes actions to improve the attention given to citizens and internal procedures to meet the objectives of a fluid relationship with citizens and companies. It includes the

development of an accessible, indexable and responsive website to easily find information and other resources, the implementation of an e-government platform as a one-stop shop for citizens and companies.

In 2020 a new line of environmental grants has been launched; it is a promotion activity carried out by the Town Hall to involve citizens in environmental sustainability.

In addition to having signed the Covenant of Mayors, Logroño participates in other networks and alliances. Among other initiatives, the city is part of the following networks:

- Walking Cities Network (3)
- Network of cities by bicycle
- Spanish Network of Intelligent Cities (RECI)
- Spanish Network of Cities for Climate (RECC)
- European Regions Research and Innovation Network (ERRIN) (4)
- Eurocities (in the mobility and knowledge society forums) (5)
- Open and Agile Smart Cities (OASC) (6)
- Network of Science and Innovation Cities (INNPULSO) (7)
- FEMP Local Entity Network for Transparency and Citizen Participation
- International Association of Educating Cities
- Spanish Association of Destinations for the Promotion of Gastronomic Tourism
- Spanish Federation of Municipalities and Provinces
- Federation of Municipalities of La Rioja
- Spanish Association of Small and Medium-sized Wine Towns (ACEVIN)
- Healthy Cities Network
- Association of municipalities of the Way of Saint James

The Town Hall has different instruments to measure the effectiveness of its external relations, among which the satisfaction survey of alliances and society and the recruitment survey stand out, with which Logroño measures such relevant aspects as:

- Handing over of facilities and resources.
- Improving the quality of life of citizens.
- Support for the promotion of Excellence.
- Corporate social responsibility.
- Objectivity criteria in contracting
- Transparency in recruitment

12D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-

selection phase. Documentation should not be forwarded at this stage.

1. Agreement of the plenary session n°06092012/o11 of 06/09/2012: adhesion of Logroño City Council to the environmental commitment of the Covenant of Mayors, revised version (ES)
2. General inventory of indicators of Logroño City Council (2018) (ES)
3. Proceedings 3542/2020 Logroño City Council joining the "walking cities" network (ES)
4. Proceedings 3543/2020 Logroño City Council joining the ERRIN (European Regions Research and Innovation Network) network (ES)
5. Proceedings 3540/2020 Logroño City Council joining the mobility forum of the EUROCITIES network (ES)
6. Proceedings 3539/2020. Logroño City Council joins the OASC network (open and agile smart cities) (ES)
7. Proceedings 3295/2019 in accordance with the modification of the statutes and payment of the participation fee in 2019 after the renewal of the Logroño City Council's membership in the INNPULSO network association (ES)

Additional information:

a. Proceedings 163/14. Final approval of the action plan for sustainable energy in Logroño, which will make it possible to achieve the commitment made in the Covenant of Mayors (ES)

b. Manual on integrated management of quality, prevention of occupational risks and environment - revision 9, 14/12/2018 (ES)

Good Practices

Please provide details of at least one present or future flagship project that demonstrates the city's commitment to an integrated approach to the management of the urban environment. This must relate to Indicator 12: Governance (to be completed under heading: Good Practice 1 - Integrated Management Approach).

Please summarise up to five additional good practices, relating to any indicator(s) that demonstrate how the city is improving its environmental record. Please identify to which indicator(s) the good practice is relevant. To be completed under heading(s) Good Practice 2 to Good Practice 6 below.

Good practices should be taken from information already provided within the application form.

Each good practice should be supported by a maximum of three graphics, images or tables.

Good Practice 1 - Integrated Management Approach

Logroño City Council has set out to establish the bases for the strategic planning and impact measurement process around its candidatures for successive calls, with the idea of continuous and integrated improvement of internal processes and the progressive inclusion of interested parties, through the framework of the theory of change of Logroño's candidature for the European Green Capital Award (EGCA).

With its three pillars (focus on processes, focus on learning and focus on participation), the theory of change is a powerful tool to target medium/long term environmental and social impact, serving as a compass for the Town Hall through a shared vision.

In order to define the theory of change, a series of participatory workshops will be held in 2021 to identify qualitative and quantitative impact indicators and create a balanced scorecard.

Writing a theory of change will allow a simple, logical, visual and understandable representation of the estimated or actually measured social and environmental impact of the European Green Capital bid. Furthermore, the process of its development will contribute to the collaboration between the different departments of the City Council to achieve a greater impact.

The graphic result of the theory of change will support the communication campaigns to citizens about the candidacy, its participatory processes, the intended activities and the expected results in the short, medium and long term for the city.