

Best Practice: Network of environmental measurement sensors and data dissemination through the software management system.

The Best Practice is the modernisation of the Environmental Quality Information System of A Coruña, under the line of action "Development of ICT tools for citizen participation and awareness in matters of importance to the city, transparency and electronic administration".

The control and management of air quality is one of the priorities of the environmental policy of A Coruña City Council. In order to assess the quality of the air we breathe, it is necessary to know the composition and concentration of the many gases and particles present in the atmosphere. These are also influenced by various meteorological variables, such as temperature, humidity, wind, rain, solar radiation and atmospheric pressure, which act as dispersers or amplifiers of pollutants.

For this reason, various actions have been taken to identify, detect, act, inform, plan and prevent air pollution in the municipality. A clear example of this is the installation of several automatic air quality monitoring stations in different parts of the city, which form part of the current Environmental Quality Information System for the protection of human health.

In order to modernise this system, **several projects co-financed by the ERDF** have been carried out, which together make up this Best Practice. The first of these was carried out through the contract for the "Supply, in batches, for the installation and commissioning of various equipment for the modernisation of the information system". The first lot focused on the "**Renewal of the air quality monitoring network**" and included the following works:

- Upgrading of equipment for the stations located at Santa Margarita and Pablo Iglesias pending renewal to meet the latest standards.
- Provision of a new complete metering station to be situated in Plaza Fábrica de Tabacos.
- Relocation of one of the existing urban background stations to a new site.
- Installation at the new station sites, inclusive of connections, legalisation of power supply installations, and necessary commissioning procedures.



Station in Pablo Iglesias St



Station in Santa Margarita Park



Indoor installations



The stations can be visited by school groups as part of the council's environmental education programme, and the measurements are available on the website <http://coruna.es/infoambiental/>



New station at Pza. Fábrica Tabacos and school visits

Indoor installations with ERDF image

The second lot covered the "**Extension of the noise monitoring network**", including the supply and installation of environmental noise measurement equipment and data acquisition/processing software, as well as the commissioning of the service and its integration into the existing network.

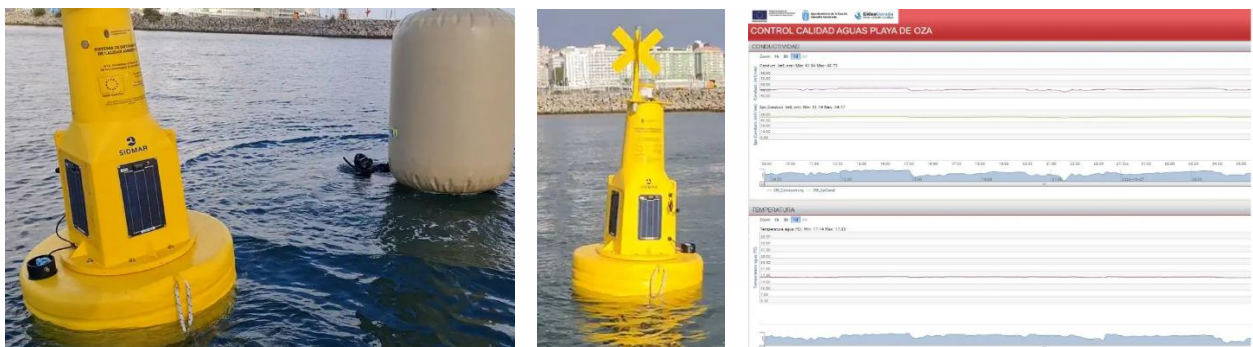


Cantón grande

Avenida de la Marina

Calle Los Picos

Subsequently, the "**Oza Beach bathing water quality control system**" was implemented through a contract for the supply of a smart buoy designed to provide information on the quality of the bathing water at Oza Beach to the Environmental Quality Information System. The basic elements that make up the equipment are the multi-parametric analysis probe, the smart buoy, auxiliary elements and the management software.



Result of the installation of the parametric buoy on Oza Beach.

In order to complete the modernisation of the system, work is currently underway on the "**Development and implementation of various tools within the Environmental Quality Information System**", which includes the following work:

- Multi-platform application of public digital environmental information services and provision of a mobile version of the application.
- Static and dynamic environmental quality information content.
- Waste management system.

The primary goal is to entirely reconstruct the local environmental information portal. It will transition into a more user-friendly and transparent data platform, facilitating the use of environmental data in real-time, both of a specific and territorial nature. All of the data will be geo-referenced within a purpose-built web environment, which will also permit its exportation as open data.

The systems comprise distinct domains - one for the general public (front-end) and the other for private profiles (back-end). Municipal staff, public companies engaged in providing essential services, and other administrations can participate in both domains.

The budget for the action is 359,217.49 euros, of which **the ERDF is contributing 80%, equivalent to 287,373.99 euros**. The breakdown of this amount is as follows:

ACTIONS	BUDGET	80% ERDF
Air Quality	202.132,94 €	161.706,35 €
Environmental noise	19.813,75 €	15.851,00 €
Oza Beach water quality control system	51.346,60 €	41.077,28 €
Application development	85.924,20 €	68.739,36 €
TOTAL	359.217,49 €	287.373,99 €

The criteria for the identification of this action as a Best Practice are as follows:

1. THE ROLE OF THE ERDF HAS BEEN ADEQUATELY DISSEMINATED TO POTENTIAL BENEFICIARIES AND THE GENERAL PUBLIC.

In terms of regulatory communication, ERDF co-financing has been reported in all cases. The equipment has been labelled with the image of the European Union:



Air quality station labelling



Noise measuring station labelling



Water quality control buoy

Id	Código Punto	Ubicación	Estado	Fecha de inicio	Fecha de finalización	Fecha de actualización
1	000100	Araia - A. Araia	Activa	15/04/11	15/04/11	21/05/12
2	000101	Carballi - Oza	Activa	15/04/11	15/04/11	21/05/12

<http://www.elruido.com/portal/web/coruna/inicio>

Details of every action are displayed in the specific section of the beneficiary's **website**:

- [Environmental Quality Information System](#)
- [Bathing water quality control system at Oza Beach](#)
- [Development of applications for the Environmental Information System](#)

The image shows two screenshots from the EidosCoruña website. The left screenshot displays a map titled 'Mapa de obras Eidus' with various colored markers indicating construction sites across the city of A Coruña. The right screenshot shows the 'Sistema de Información de Calidad Ambiental' (Environmental Quality Information System) interface, which includes a video player, general information, and a list of documents and manuals.

www.coruna.gal/eidus

In addition, numerous **articles and advertisements** have been published in the media to inform the public about the progress of the project.

This block contains a collage of media articles and advertisements. On the left, there is an advertisement for 'A cidade que queremos' (The city we want) featuring a yellow sign with a bicycle and a person. In the center, there are two news articles from 'La Voz de Galicia' and 'quincemil' (Quincemil.com) about the installation of a smart buoy at Oza Beach. On the right, there is a news article from 'La Opinión' with a similar title. Red boxes highlight specific text in the articles, such as the funding source and the project's goals.

Press articles

This block contains a collage of press advertisements. It includes advertisements for 'Openbank' (Openbank.com) promoting digital services, 'El Ideal Gallego' (El Ideal Gallego.com) with various news snippets, and '¿DÓNDE?' (¿DÓNDE?.com) with a '¿DÓNDE?' headline. Red boxes highlight specific text in the advertisements, such as the '100% digital' claim for Openbank and the '¿DÓNDE?' headline.

Press advertisements

A comprehensive **social media campaign** has been implemented via frequent organic communications to increase awareness of ERDF co-financing and the modernisation of the Environmental Quality Information System of A Coruña.



Social media campaign (Click on the image to access the publication)

Between 16 and 22 September 2021, a public **information event** was held as a part of European Mobility Week. Several activities were programmed in different locations across the city. One event was specifically aimed at providing an explanation of the Environmental Information System at a marquee situated in the Obelisk area. The event was reinforced with video projections and the distribution of leaflets.



Event and leaflets

These leaflets were also distributed during **school visits** to the air quality monitoring stations as part of the council's environmental education programme. In turn, the visits and the installation of the station in Pza. Fábrica de Tabacos are captured in two **videos** that were broadcast on the [works map](#) section of the [municipal website](#) and on the municipal Youtube profile.



Installation of the station in Pza. Fábrica de Tabacos ([See on Youtube](#))



School visits ([See on Youtube](#))

2. THE PERFORMANCE INCORPORATES INNOVATIVE ELEMENTS.

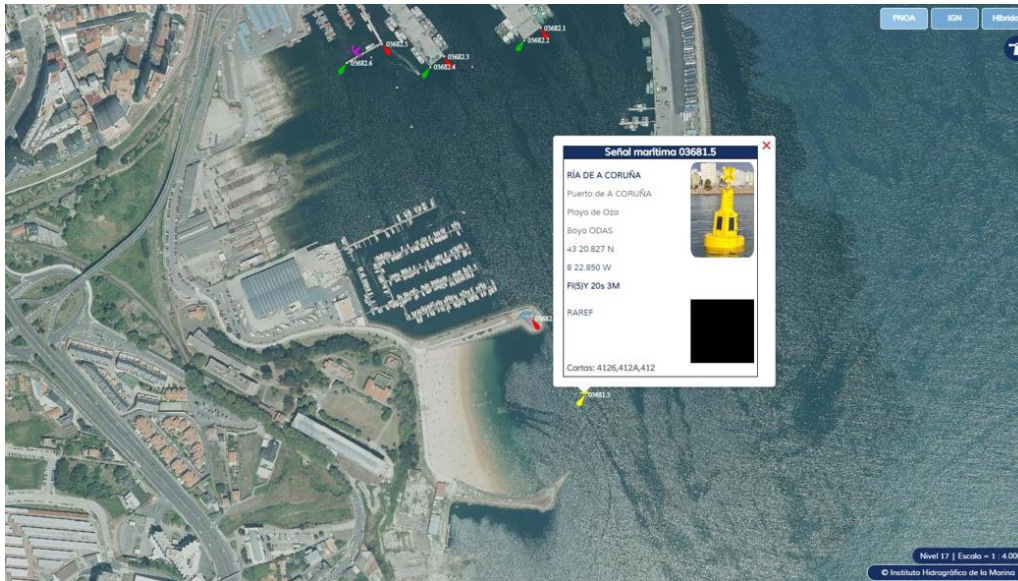
The [Infoambiental](#) website was awarded a prize for the quality and quantity of the data offered. This operation marks the beginning of the necessary renewal and expansion of this platform.

On the one hand, the renewal of the website is based on a **multi-platform approach** and the most advanced standards in terms of accessibility. Digital services are developed to facilitate their maintenance and distribution to citizens on different platforms and devices. To achieve this goal, the team utilises structures and tools enabling them to operate on a single code base, where feasible, and to deploy it across diverse platforms such as Android, iOS, mobile web and desktop web. Additionally, the digital environmental services application is integrated with various local authority backbone services.

Regarding the **water quality control** system, this is the first time in Galicia that this kind of intelligent buoy is available. When it detects any anomaly or alteration in the water quality indexes, this new technological device sends a warning to the monitoring team, which allows for the analysis of decision-making for prevention and safety in the bathing areas.

The system consists of three different pieces of equipment: a multi-parametric probe for water analysis, the buoy itself and management software. The probe is essential for evaluating parameters such as water temperature, pH, conductivity and turbidity, but also salinity and dissolved or suspended solids. In addition, the buoy integrates a solar panel and a communications system to transmit and receive data and alerts, is permanently anchored, and is equipped with a GPS module to geo-position the buoy and issue an incident warning if it is moved from its anchoring point. The management software contemplates the reception of data in real time, remote control of the buoy's switching on and off systems and the creation of graphs and historical data with the evolution of the water quality parameters on Oza Beach.

The buoy is observable using the [Lighthouse and Fog Signal Finder](#) provided by Hydrographic Institute of the Navy. To locate it, simply type the name of the area where it is located, in this case "Playa de Oza", and the system returns data with its principal features.



Headlamp and Fog Signal Finder

3. ADEQUACY OF THE RESULTS OBTAINED TO THE ESTABLISHED OBJECTIVES

With the implemented actions, the following objectives initially set have been achieved:

- The existing environmental information system has been enhanced and updated to gather and analyse a larger volume of data, with the aim of optimising decisions regarding environmental improvements and formulating efficient public policies in this field.
- The multi-platform application of digital public services brings environmental information closer to citizens thanks to the deployment of the mobile version of the app.
- The smart buoy reinforces the safety of s because it allows real-time monitoring of water quality at Oza Beach. This innovative system can measure crucial factors such as temperature, pH, conductivity, turbidity, dissolved oxygen and salinity. Additionally, it can calculate specific conductance, total dissolved solids and total suspended solids. The device provides up-to-date information to the monitoring system, ensuring that data is refreshed at least every 15 minutes.

4. CONTRIBUTION TO THE RESOLUTION OF A PROBLEM OR WEAKNESS DETECTED IN THE TERRITORIAL AREA OF IMPLEMENTATION

This initiative has addressed the primary need to update the city's environmental information portal towards a more easily accessible and transparent data platform, thereby promoting data access for all citizens. Furthermore, visits to air quality monitoring sites by schools foster environmental consciousness among children.

With the installation of new sensors, it is possible to enhance the city's environmental awareness, facilitating a quantitative analysis of impact indicators and traceability, thereby measuring the evolution of habitability levels.

Ultimately, this initiative can provide ample data to devise public policies aimed at safeguarding the health of A Coruña's residents.

5. LEVEL OF COVERAGE OF THE TARGET POPULATION.

The level of coverage is significant due to the distribution of the Environmental Quality Information System throughout the city. In particular, the station located in Plaza Fábrica de Tabacos pertains to District 3, with a population of 25,821 (11,508 male and 14,313 female residents). Conversely, the surveillance stations for noise were placed in District 10, with a total of 8,979 inhabitants (4,232 male and 4,747 female residents). The water quality monitoring buoy is situated in District 6, which has a population of 26,909 individuals (12,471 males and 14,438 females).

In broader terms, the explanatory report on productivity measurement indicators for this operation (April 2023) establishes an estimated number of people reached based on the "Number of external users that are covered by a given Smart Cities electronic public service" (IP E016). For the purpose of computing this measure, "external users" constitutes the complete adult populace of A Coruña aged between 21 and 80 years, totalling to 189,552 individuals, as per the records of the municipal census of 2022.

Finally, the release of data via the forthcoming application implies that information will not be restricted to particular districts or geographical regions, since the environmental information platform will be accessible to anyone interested, irrespective of their place of abode.

6. CONSIDERATION OF THE HORIZONTAL CRITERIA OF EQUAL OPPORTUNITIES AND NON-DISCRIMINATION, AS WELL AS SOCIAL RESPONSIBILITY AND ENVIRONMENTAL SUSTAINABILITY.

The performance complies with the principle of **equal opportunities and non-discrimination** through the specifications that governed the procurement procedure. These included special conditions of execution referring to equal treatment and opportunities that the contractor had to guarantee. These conditions included compliance with current legislation and municipal instructions on equal treatment. Bidders were required to confirm their compliance with the current legal obligations on gender equality in a responsible declaration.

In reference to **environmental sustainability**, this principle is complied with in the design and execution of the entire project, aimed at preserving the health of people and the natural environment of the city of A Coruña. Thanks to the modernisation of the environmental information system, citizens have more and improved information at their disposal, as the number of stations has been increased and the data management system has been renewed. As a result, strategies for environmental and social improvement can be formed.

Furthermore, all aspects of this update were designed to promote **accessibility** for users. For instance, the platform for managing data is now easier to use, gives real-time environmental information, features an intuitive website, and allows data to be exported in open formats. The environment is designed for everyone, including municipal staff and other professionals who can access it using different profiles.

7. SYNERGIES WITH OTHER POLICIES OR INSTRUMENTS OF PUBLIC INTERVENTION.

The action establishes synergies with other public interventions by reinforcing the performance of other funds and enhancing their positive aspects.

Firstly, it is directly related to the [A Coruña's Climate Change Strategy](#), which aims to reduce greenhouse gas emissions resulting from urban activities in the municipality, and to mitigate the effects of climate change, thereby ensuring citizens' well-being. It is also in accordance with the [Green Infrastructure Strategy of A Coruña](#) to convert the city into a versatile space of high environmental quality, with greater resilience and more naturalised.

On the other hand, it is linked to the [Local Plan for the Protection of Ribeira do Mar against Pollution](#), whose objective is to provide the city with an operational strategy to coordinate the prevention, control and effective fight against an accidental coastal pollution event, in order to protect human health, the natural environment and the safety of goods and services within its scope. It is implemented in accordance with the available local resources, constituting an instrument fully integrated into the [Camgal Plan](#) (Territorial Contingency Plan for Accidental Marine Pollution Contingencies in Galicia) and the [National Marine Pollution Response System](#).

It is also linked to the [Sustainable Urban Mobility Plan \(SUMP\)](#), as it focuses on transforming the current model of fuel consumption, noise and pollution caused by private vehicles into a more sustainable one. The SUMP is a planning and awareness-raising tool for citizens, administrations and actors involved in urban mobility. In the same vein, it is worth noting the City Council of A Coruña's participation in the [Network of Cities for Low Emission Mobility](#). This technical support tool provides resources to cities aiming to meet their Low Emission Mobility targets.

It is worth mentioning the exceptional role of the recovery instrument known as Next Generation EU, endowed with 750,000 million euros for all the member states of the European Union. The City Council of A Coruña has been the beneficiary of these recovery funds to finance complementary actions to the Low Emission Zone of A Coruña (ZBECor) such as:

- [Baseline situation analysis, pollution dispersion modelling and dynamic noise updating](#)
- [Supply and installation of a pilot project featuring a continuous exhaust gas measurement system for the low-emission area.](#)
- [Implement of Outdoor LED screens to inform citizens about environmental and traffic conditions.](#)

Finally, A Coruña is developing its [Strategic Local Action Plan](#) within the framework of the Urban Agenda. Strategic Objective 1 aims to transform the city into a resilient and climate-neutral centre, highlighting Specific Objective 1.3, which seeks to promote ecological and energy transition, and Specific Objective 2.2, which calls for digital innovation and the ICT sector's promotion.