

## SPAIN NATIONAL GREENHOUSE GAS EMISSION MONITORING SYSTEM

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## INTRODUCTION

The high-Resolution air Emissions Systems to support modelling and monitoring Efforts (RESPIRE) project is a collaborative effort between BSC and AEMET, aiming to improve emission estimates for air quality modeling and greenhouse gas (GHG) monitoring in Spain.

Within this project, RESPIRE-CLIMATE focuses on quantifying carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) fluxes at high-resolution using activity-based and observation-based methods.

Through a web app, this initiative will provide critical information to national and subnational entities for emission policy development and decision-making.

## METHODOLOGY

### User-centric web app design development

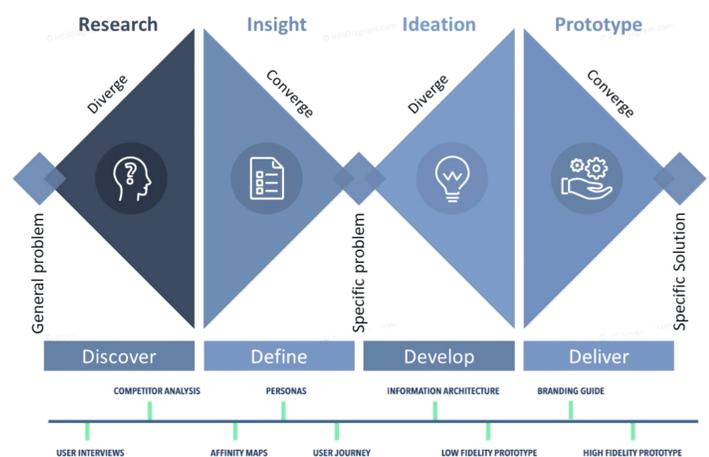


Figure 1: Design methodology that follows the Double Diamond innovation model developed by Design Council

## KEY FEATURES OF THE PROJECT

### A. WEB APP

Access on the data displayed by downloading them on netcdf, xls, png/tif format.

Sector-specific emissions insights for policy assessment and climate mitigation tracking.

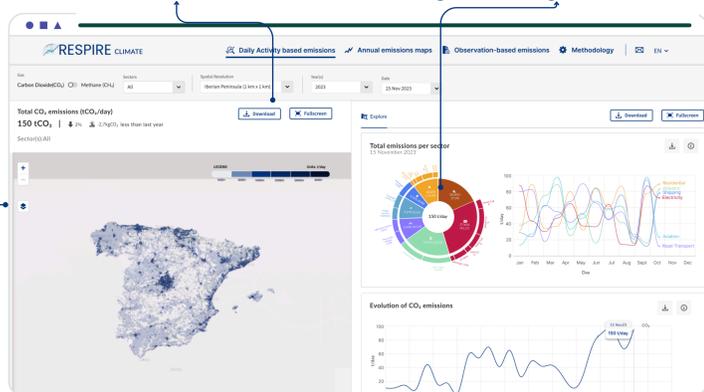


Figure 2: Daily activity based emissions

- Maps on high-resolution of 1 km x 1 km, autonomous and metropolitan regions of daily emissions data based on sector activity for GHG reduction target tracking.
- Maps on high-resolution of 1 km x 1 km, autonomous and metropolitan regions of annual official emissions data based on sector activity for GHG reduction target tracking.

### B. COMMUNICATION

Strategic communication and outreach, including:

- Web app interface.
- Workshops and training sessions.
- Newsletters, reports and policy briefs.
- Social media and news updates.

## IMPACT

- Supports public administration, scientific research, private sector and citizens.
- Provides actionable emissions data to enhance decision-making.
- Strengthens Spain's capacity for climate change mitigation.



Figure 3: Homepage of the webapp

## CONCLUSION

By integrating advanced modeling systems with a user-centric digital tool and strategic communication, RESPIRE-CLIMATE enhances Spain's ability to monitor and reduce greenhouse gas emissions. This project exemplifies cutting-edge innovation in climate policy and emissions management.

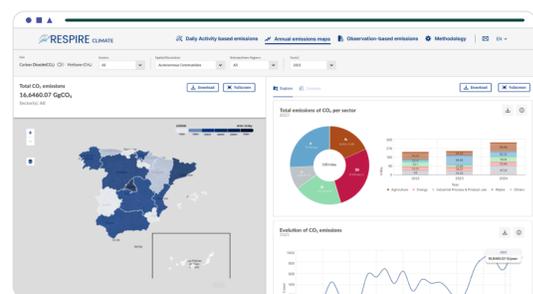


Figure 4: Annual based emissions

The project is part of the Recovery, Transformation and Resilience Plan (Plan de Recuperación, Transformación y Resiliencia, PRTyR) funded by the European Union – NextGenerationEU.