



GREENNOVA
FOUNDATION

2021 Annual Report



ZERO
HOW

Two Industrial PhDs

We end 2021 with two ongoing Industrial PhD, both with the objective to fight climate change by removing carbon dioxide from the air.

Because after the good results of CAPTACO2 Project and the end of the research contract, we have decided to continue with the project despite the effort that this entails.

Therefore Greennova Foundation team has grown and now has two PhD students, Anna and Elizabeth, developing CAPTACO2 and GRAFECO2 projects respectively, the first one in Tarragona and the second one in Barcelona.

Greennova Foundation thus doubles its commitment to pursue its founding purpose, always non-profit, and giving to two young students the opportunity to develop a scientific career.

We cannot forget that climate change is present and its effects are there, visible. 2021 has been the 6th hottest year, and the 10 hottest years have been in the period between 2010 and 2021.

No time to lose.

Sebastià Carrión
Greennova Foundation director

POLUSTOP Project

POLUSTOP project, with the objective of studying the feasibility of filter regeneration applied to atmospheric air cleaning, has been completed in 2021.

The experimentation had three different phases:

1. use of 12 new filters during the same period of time
2. cleaning of these filters following different protocols
3. reuse of these regenerated filters

It has been possible to determine that filter regeneration is feasible by comparing their contaminant retention capacity before and after cleaning.

Specifically, their retention capacity decreases by around 10%, a figure which would allow the cleaning system to be implemented in a prototype and evaluate its operation in real conditions.

The image on the right shows the cleaning of one of the filters. Particles trapped and not yet cleaned can be seen.



POLUSTOP project will continue depending on the resources available to Greennova Foundation.

CAPTACO2 Project

The CAPTACO2 project has started a new phase with the incorporation of Anna Mas to the Greenova team.

Anna is physically in Tarragona, working in the Eurecat and URV laboratories, totally dedicated to the development of the project.

During these first months, apart from becoming familiar with all the aspects related to the membranes and measurements of CO₂, her work has been focused on improving uptake data collection and exploring different ways to immobilize the enzyme carbonic anhydrase.

Anna has designed a new prototype with a larger membrane, which is connected to a gas chromatograph. The chromatograph allows to make CO₂ concentration measurements almost in real time, which will allow a much more precise view of the absorption process.



CAPTACO2 project has been the subject of a report by the CGTN channel, starring Anna. It can be watched [here](#).

GRAFECO2 Project

GRAFECO2 project has followed the in-depth study of MOF + graphene oxide structures ability to capture CO₂.

Elizabeth Martínez, the PhD student working on it, has prepared several samples with different compositions changing both the percentage of graphene oxide and the synthesis method.

Each of the samples was characterized by different techniques: infrared spectrography, X-ray and Raman diffraction, microscopy, and BET and pore volume analysis.

The results obtained so far are in line with previous studies by other authors, so the next step is to add variations to the chemical compositions trying to improve the CO₂ uptake results.



real working conditions.

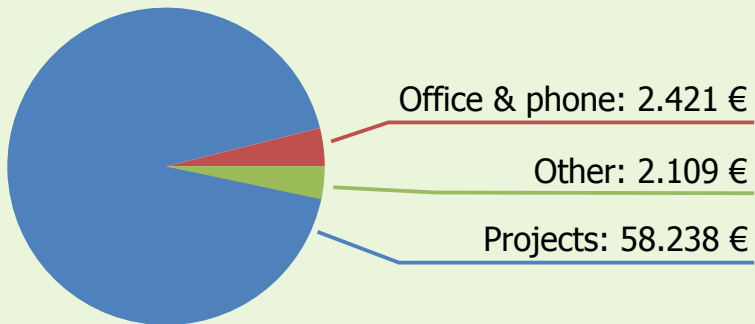
GRAFECO2 project has also been the subject of a report on the CGTN channel, starring Elizabeth. It can be watched [here](#).

Transparent accounts

Greennova Foundation accounting inflows and outflows during 2021

Patrimony start 2021	61.632 €
Received donations	67.444 €
Expenditures	-62.768 €
Patrimony start 2022	66.308 €

Expenditures per type



GREENNOVA
FOUNDATION

C/Córsega 299, 3er 4a, 08008
Barcelona - Tel: +34 931 600 131

www.greennova.org
blog.greennova.org