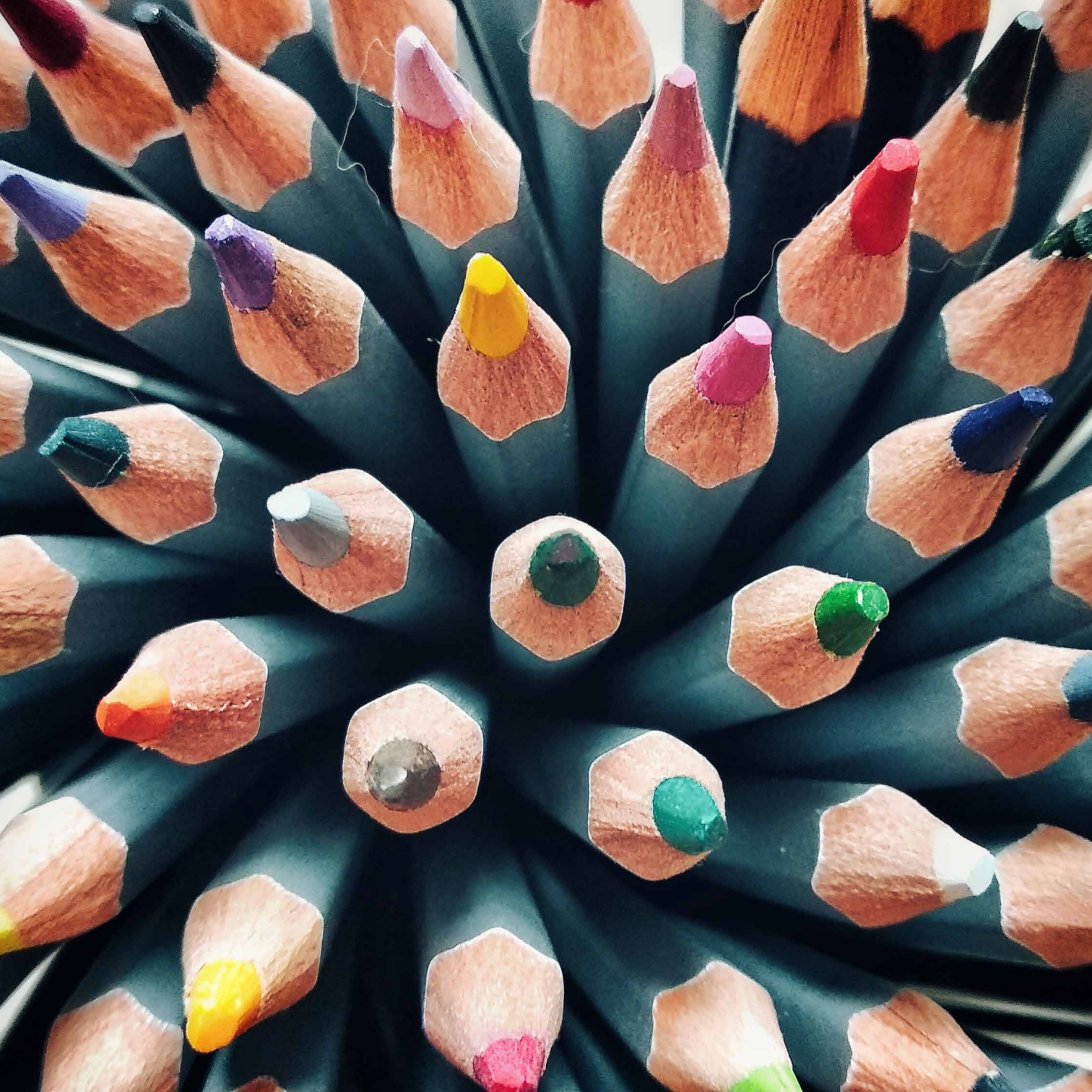




ANNUAL RESEACH REPORT

2019

En In 2014 ENT approved its **2014-2020 Research Plan**, which includes a series of indicators and their evaluation through annual research reports. The results for 2019 are presented below.



RESEARCH ARTICLES

1/2

ARTICLES PUBLISHED AND ACCEPTED IN INTERNATIONAL JOURNALS WITH IMPACT FACTOR

Rodrigues, L. C., Puig-Ventosa, I., López, M., Martínez, F. X., García Ruiz, A. & Guerrero Bertrán, T. (2020). The impact of improper materials in biowaste on the quality of compost. *Journal of Cleaner Production*, Vol. 251. 119601.

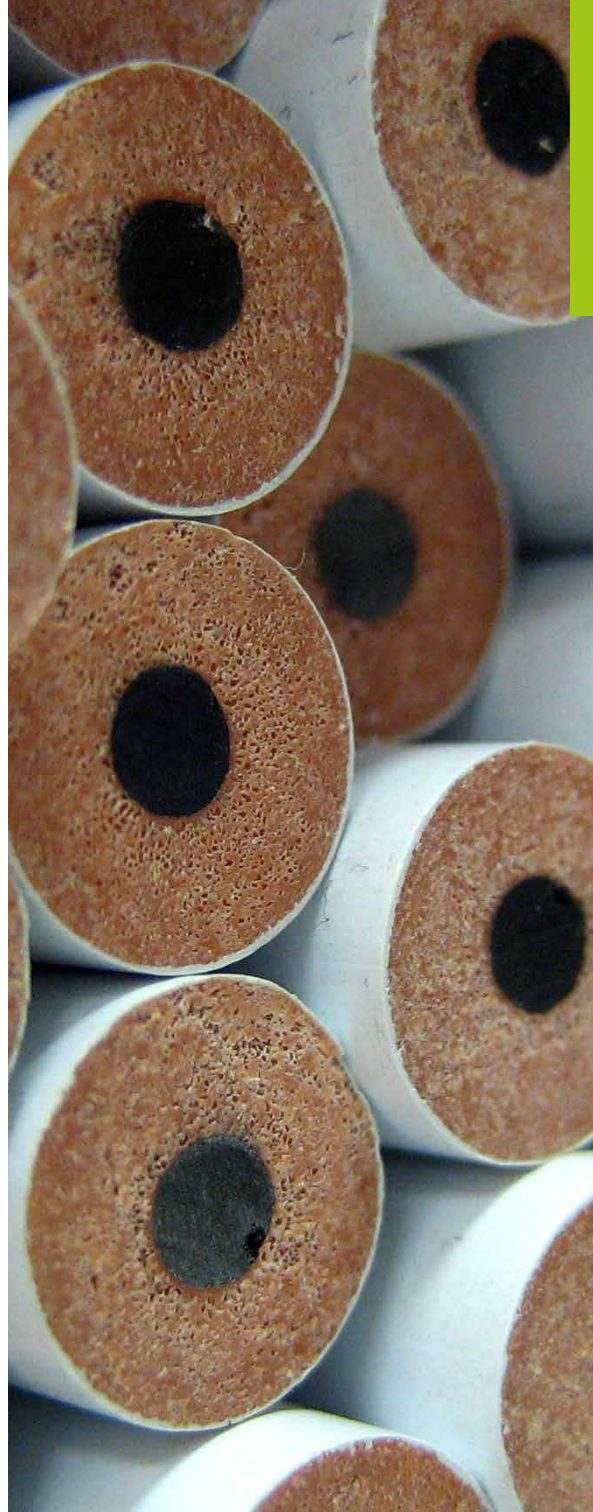
Torrente-Velásquez, J.M., Chifari, R., Ripa, M., Giampietro, M. (2020) Robust information for effective municipal solid waste policies: Identifying behaviour of waste generation across spatial levels of organization. *Waste Manag.* 103, 208-217.

Faraca, G., Martínez, V., Astrup, T. (2019) Environmental life cycle cost assessment: Recycling of hard plastic waste collected at Danish recycling centres. *Resources, Conservation & Recycling*, 143: 299-309.

Freire-González, J. and I. Puig-Ventosa (2019). Reformulating taxes for an energy transition. *Energy Economics* 78, 312-323.

Freire-González, J. (2019) Does Water Efficiency Reduce Water Consumption? The Economy-Wide Water Rebound Effect. *Water resources Management*, 33, 6: 2191-2202.

Freire-González, J. & Ho, M. S. (2019) Carbon taxes and the double dividend hypothesis in a recursive-dynamic CGE model for Spain. *Economic Systems Research*, 31:2, 267-284.



RESEARCH ARTICLES

2/2

Freire-González, J. (2019) Energy taxation policies can counteract the rebound effect: Analysis within a general equilibrium framework. *Energy Efficiency*, November: 1-10.

Torrente, J. M., Giampietro, M., Ripa, M., Chifari, R. (2019) Landfill reactions to society actions: The case of local and global air pollutants of Cerro Patacón in Panama. *Science of The Total Environment*, 135988.

OTHER RESEARCH PUBLICATIONS IN 2019

Puig Ventosa, I., Campos Rodrigues, L., Chifari, R. "Taxes on Air Pollution in Spain", p. 315-336, in Villar Ezcurra, M., Cámara Barroso, C. (Eds.) (2019) *Environmental Tax Studies for the Ecological Transition*. Civitas – Thomson Reuters.

Puig, I., Rodrigo, J. (2019) "L'economia de la natura" a AA.VV. (2019) *Natura: ús o abús?* Institut d'Estudis Catalans.

Sastre Sanz, S., Puig Ventosa, I., Llopart, J. (2019). 'Mind the gap': un modelo para el seguimiento de los objetivos europeos de reciclaje aplicado a las Comunidades Autónomas españolas. *RETEMA*, 216: 102-105.



CONTRIBUTIONS IN INTERNATIONAL EVENTS

Puig, I. "EPR schemes: exploring different options through lessons learned from existing initiatives" | Workshop "Environmentally Sound Management of Plastic Wastes for the prevention of marine litter and plastic pollution" | Barcelona | 3-5 abril.

Puig, I. "Financing Waste Management and Economic Incentives" | Lebanon Waste Management Exhibition and Conference | Beirut (Líban) | 9-11 abril.

Martínez, V. "Bio-waste and bio-waste treatment technologies" | World Congress International Waste Association Association (ISWA) | Bilbao | 7-9 octubre.

Puig, I. "La gestión de residuos en territorios de población dispersa" | CONAMA Local | Toledo | 2-4 abril.

ENT | Workshop "El PAYT per millorar resultats. És realment necessari o és suficient amb el control?" | #Wasteinprogress | Girona | 6-8 marzo.



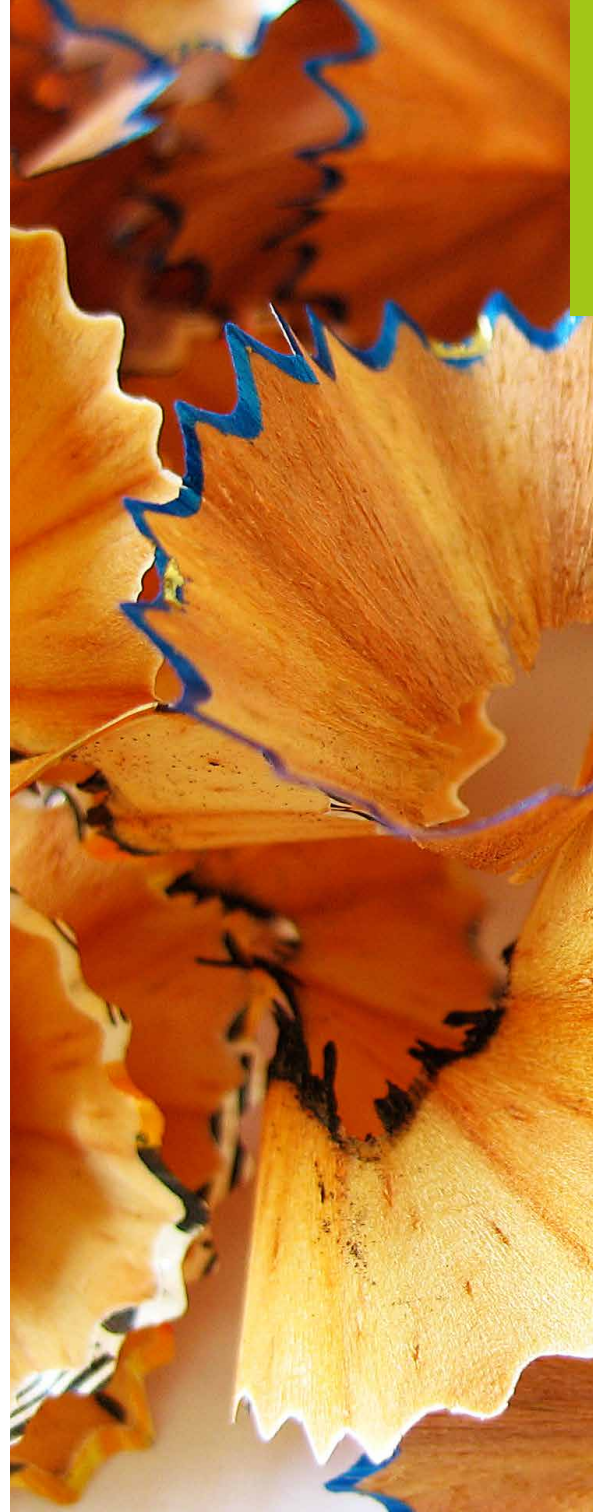
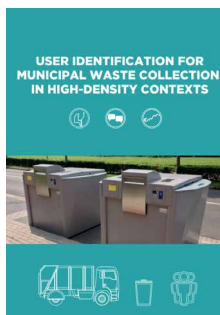
OWN PUBLICATIONS

1/2

Saleh, D., Salova, M., Bulbena, B., Loderus, T., Calaf, M., Puig, I. (2019) Identificació dels usuaris en la recollida de residus municipals en contextos en alta densitat de població. ENT environment & management.

Saleh, D., Salova, M., Bulbena, B., Loderus, T., Calaf, M., Puig, I. (coord.) (2019) Identificación de los usuarios en la recogida de residuos municipales en contextos en alta densidad de población. ENT environment & management.

Saleh, D., Salova, M., Bulbena, B., Loderus, T., Calaf, M., Puig, I. (coord.) (2019) User identification for municipal waste collection in high-density contexts. ENT environment & management.



OWN PUBLICATIONS

2/2

Two issues of the **Ecología Política** journal were coordinated and published:



#57 ARTE | June 2019

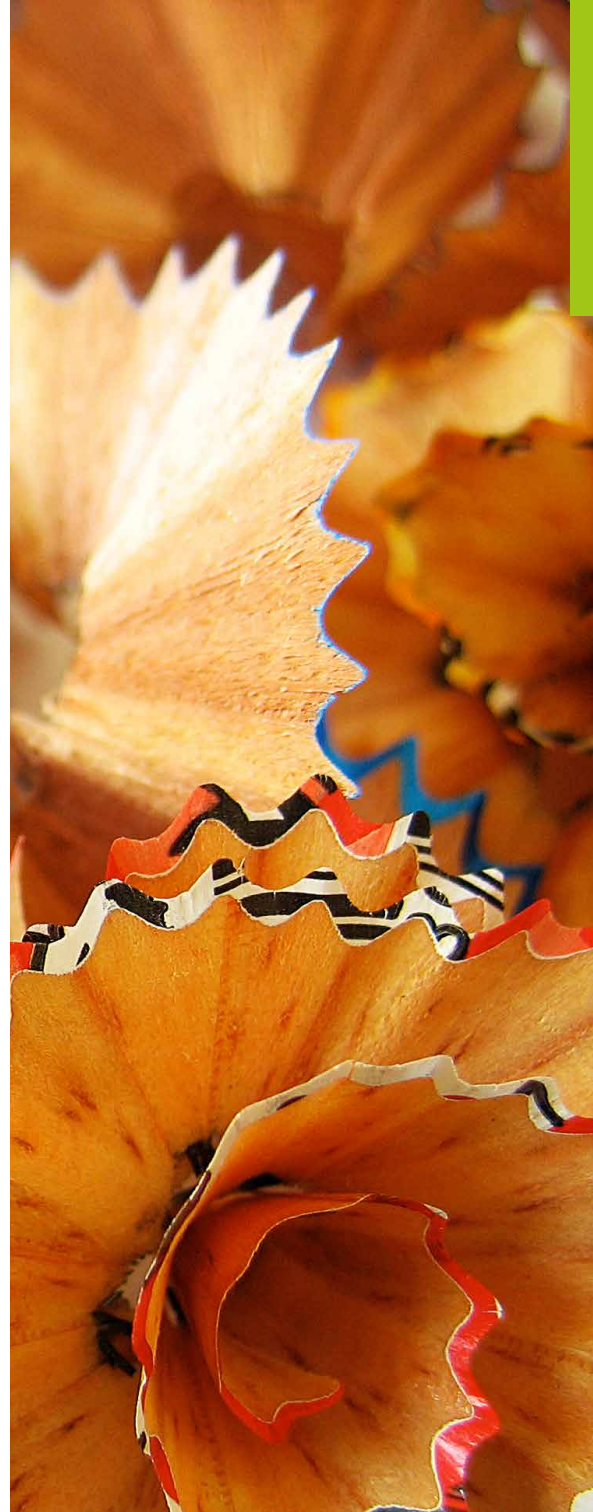
Focused on the relationships between art and political ecology. It includes twenty-one articles that cover a wide range of contributions, debates, and perspectives about the role of art in socio-ecological crisis nowadays. It also analyzes the links among art, activism and environmental conflicts, furthermore, it observes the power of art as a transforming agent.



#58 ¿AUGE O CRISIS DEL ECOLOGISMO? | December 2019

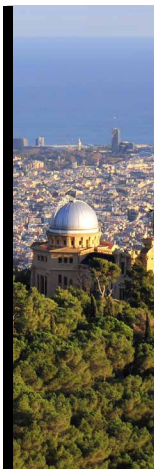
This issue reflects the existing controversy among different environmental cultures and sensitivities. It lays out questions related to both, practical and theoretical concerns analyzing new forms of environmental activism. This issue aims to provide a wide and global perspective of the environmentalism's situation in this historical period of environmental and climate crisis.

www.ecologiapolitica.info



PROJECTS

2019 1/6



ANALYSIS STUDY OF NATURE-BASED SOLUTIONS FOR A CLIMATE CHANGE ADAPTATION STRATEGY IN THE MUNICIPALITIES OF THE PROVINCE OF BARCELONA

Funded by Diputació de Barcelona

Guide for the implementation of nature-based solutions (NbS) at the municipal level. It provides information on the various typologies of NbS, its historical trajectory and aspects of governance, participation and financing. In addition, it contains 20 NbS tokens implemented locally in different cities and towns around the world.



THE SOCIO-ENVIRONMENTAL AND SOLIDARITY ECONOMY AS A TOOL FOR CONSERVATION AND VALUATION OF ECOSYSTEM ENVIRONMENTAL SERVICES

Commissioned by Generalitat de Catalunya

The project aims to enhance the link between the Socio-Environmental and Solidarity Economy and the conservation of environmental services of ecosystems in rural and natural environments.



PROJECTS

2019 2/6



ANALYSIS OF THE ENVIRONMENTAL AND SOCIOECONOMIC IMPACT OF SELF-CONSUMPTION AND RENEWABLE ENERGY COMMUNITIES IN SPAIN

Commissioned by Aguasol

The objective of the study was to evaluate the impact of a binding objective such as community energy (self-consumption and energy communities) by 2030 in Spain in macroeconomic and environmental terms, through the variation of different indicators.



EXTERNAL EVALUATION OF THE GLOBAL GHOST GEAR INITIATIVE

Coordinated by Baobab

The lost fishing gears have become a growing problem for the conservation of marine ecosystems and their sustainable use.

The project consisted of evaluating the strengths and improvable aspects of the global "Global Ghost Gear Initiative" alliance, which is the most important multisectoral initiative in the world to tackle the problem of ghost fishing.



PROJECTS

2019 3/6



STATISTICAL MODELING ON THE PRESENCE OF HEAVY METALS IN SEWAGE SLUDGE

Funded by Agència de Residus de Catalunya and Consorci Besòs-Tordera

This project consists of an analysis of how the composition of water inlets in wastewater treatment plants affects the analytical characterization of the outflows: clean water and sewage sludge, focusing particularly on heavy metals.



TECHNOLOGICAL PROGRESS AND ENVIRONMENTAL LIMITS: LOOKING FOR SOLUTIONS FOR THE JEVONS PARADOX

Beatriu de Pinós research grant from Generalitat de Catalunya obtained by Jaume Freire González

The main objective of the proposal is to obtain a better understanding of the Jevons' Paradox and its potential solutions. We will investigate how government interventions can minimise the Jevons' Paradox, and where is the limit of it through the case study of Catalonia.



PROJECTS

2019 4/6



APPUI TECHNIQUE PORTANT SUR LE DÉVELOPPEMENT DE LA RESPONSABILITÉ ÉLARGIE DES PRODUCTEURS AU MAROC -PRODUITS PLASTIQUES-

**Commissioned by the Regional Activity
Centre for Sustainable Consumption and
Production**

The main objective of the project is to offer technical support to develop a process of implementation of the principle of Extended Producer Responsibility (REP) in Morocco, focused on packaging waste and, in particular, on plastic packaging.



EFFECTS OF CLIMATE CHANGE ON THE MAIN ECONOMIC SECTORS IN THE BARCELONA METROPOLITAN AREA

Funded by Barcelona Regional

The objective of this work was to characterize the effects of climate change on the main economic sectors in the AMB, as well as to propose measures to address these economic effects, taking into account the existing planning. It contains a first part of qualitative cross-sectional analysis and a part of quantitative analysis focused especially on the tourism sector.



PROJECTS

2019 5/6



DECISIVE - H2020: DECENTRALIZED MANAGEMENT SCHEME FOR INNOVATIVE VALORIZATION OF URBAN BIOWASTE

Funded by European Commission

Proposes to change the present urban metabolism for organic matter (foods, plants, etc.), energy and biowaste to a more circular economy and to assess the impacts of these changes on the whole waste management cycle. Thus, the challenge will be to shift from an urban “grey box”, implying mainly goods importation and extra-urban waste management, to a cooperative organization of intra- and peri-urban networks enabling circular local and decentralised valorisation of biowaste, through energy and bio-products production.



TECHNICAL ASSISTANCE OF THE PREVIOUS WORKS OF THE DEFINITION OF THE CARBON BUDGETS OF CATALONIA

Funded by Oficina Catalana del Canvi Climàtic

ENT provided technical assistance to the Catalan Office of Climate Change for the definition of carbon budgets, foreseen by Law 16/2017, on climate change, which must be approved by the end of 2020. Technical assistance consists of analyzing some experiences of implementation of carbon budgets, in particular the United Kingdom, and the proposal of criteria for the elaboration of carbon budgets in Catalonia.



PROJECTS

2019 6/6



MAPPING OBJECTIVES IN THE FIELD OF ENVIRONMENTAL TAXATION AND BUDGETARY REFORM: INTERNALISATION OF ENVIRONMENTAL EXTERNAL COSTS

Funded by IEEP

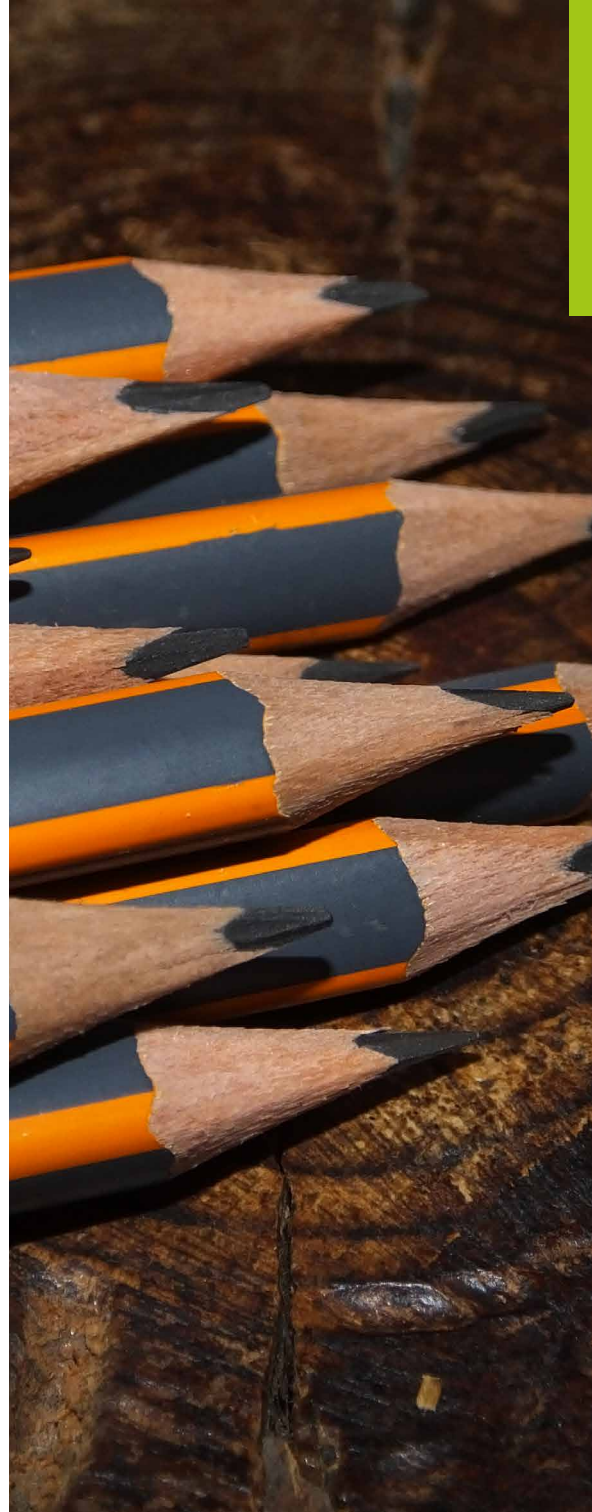
The objective is to put conclusions of the 2015 pilot project in practice by producing operational guidance to stakeholders to trigger its engagement in the decision making process and to map potential areas where economic instruments, including taxation would be a cost-effective solution to cover gaps in the environmental policy. Second, to analyse subsidies that trigger environmentally harmful behaviour by presentation of environmental externalities they cause in certain areas and which measures could bring about their internalisation.



NATURVATION - H2020 NATURE-BASED SOLUTIONS

Funded by European Commission

Nature-Based Solutions have the potential to limit impacts of climate change, enhance biodiversity and improve environmental quality while contributing to economic activities and social well-being. To unlock the potential of nature based solutions for sustainable urban development, NATURVATION will take a transdisciplinary, internationally comparative approach to capture the multiple impacts and values of these solutions, identifying the most promising governance, business, finance and participation models and how to overcome the systemic conditions that currently limit their use.



FELLOWS & INTERNSHIPS

1/2

In 2019 ENT Foundation had **4 fellows**:

Dr. Santiago Gorostiza

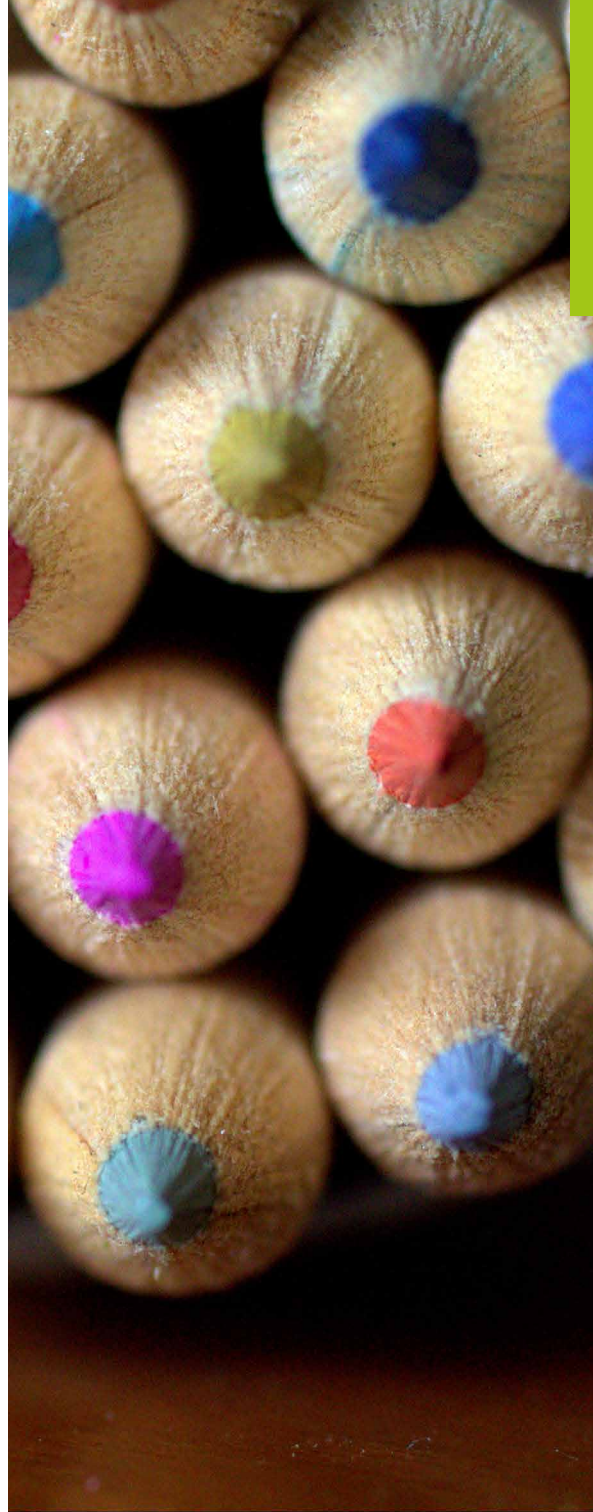
Postdoctoral researcher at the Centre d'Histoire de Sciences Po (Paris), an environmental history specialist in the Spanish Civil War and the Franco regime. He made a research internship at ENT during his doctoral research in the framework of a European Marie Curie project on political ecology. He is a member of the editorial board of *Ecología Política* journal and has edited several issues of the journal. After completing his doctorate at the University of Coimbra (Portugal), he was a postdoctoral researcher at the Institute of Environmental Science and Technology (ICTA) at the UAB, where he did research on environmental history and historical climatology.

Dra. Irmak Ertör

Assistant professor at the Atatürk Institute – Bogazici University. Economist and specialist researcher in political ecology and specifically in relation to fishing and aquaculture.

Dr. Gabriel Weber

Associate Professor of International Affairs and Sustainability at ESSCA, Bordeaux. He was a Marie Curie Post Doc Fellow at ENT in the field of Political Ecology. He holds a PhD in Environmental Management and Accounting from TU Dresden in Germany. His research focuses on mitigation and adaptation to climate change, environmental policy instruments, and waste management, within the fields of ecological economics and political ecology.



FELLOWS & INTERNSHIPS

2/2

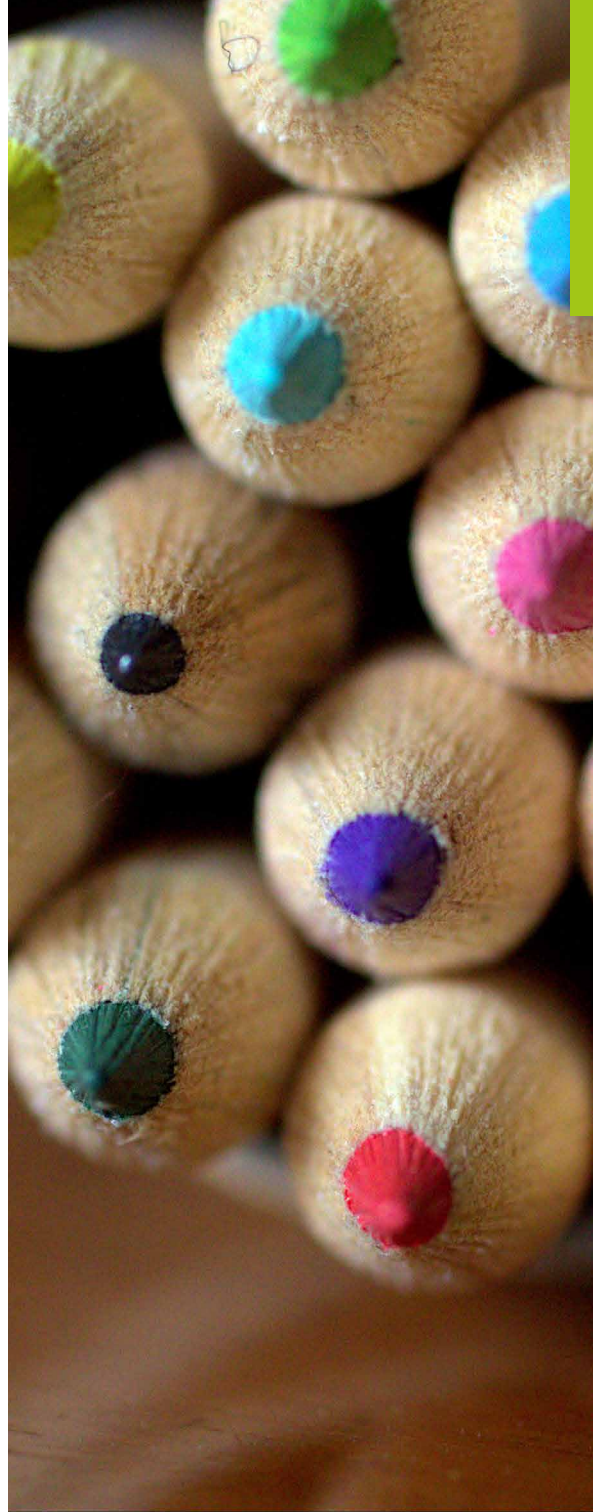
Dra. Marien González Hidalgo

Environmental Scientist and researcher specialized in political ecology studies with a feminist perspective and psycho-social perspective in environmental conflicts.

In 2019 we host one intern:

Oliver Canosa Daroca

Environmental Sciences degree student (UB). His work was focused on the project "Input-output analysis of energy in Catalonia". An analysis of the 2014 input-output tables prepared by Idescat and the energy satellite accounts was carried out. Subsequently, energy intensities, drag coefficients and key sectors in energy use in Catalonia were calculated, in order to show the behavior of the Catalan economic structure in relation to global energy use. The supervision of his research stay was in charge of Dr. Jaume Freire.



OTHER RESEARCH ACTIVITIES

In 2019 two ENT member had han directed and supervised two doctoral theses:

PhD student: **Martín Bordon.**

“Three essays about the Direct Rebound Effect in Households”. Department of Applied Economics, Autonomous University of Barcelona.

Period: **2019-2022.**

Supervisors: **Jaume Freire-González (ENT Foundation)** and Emilio Padilla Rosa (UAB).

PhD student: **Jorge M. Torrente V.**

“Assessing the performance of Municipal Solid Waste Management System in the socio-economic context of a developing country”. ICTA, Autonomous University of Barcelona.

Period: **2017-2020.**

Supervisors: Mario Giampietro (UAB), **Rosaria Chifari (ENT Foundation)** and Maddalena Ripa (UAB).



ANNUAL RESEARCH REPORT

2019



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