




**THE  
POWER  
OF USED COOKING OIL**



The top half of the page features an abstract background composed of several overlapping, semi-transparent green shapes. These shapes are primarily triangles and quadrilaterals, creating a layered, geometric effect. The colors range from a medium green to a lighter, lime green. The bottom half of the page is plain white.

*Disclaimer: The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME or the European Commission are responsible for any use that may be made of the information contained therein.*

## **1. THE RECOIL PROJECT**

Introduction \_ **5**

Overview \_ **6**

Milestones \_ **8**

**2. KEY FINDINGS AND ACHIEVEMENTS \_ 10**

**3. PILOT-PROJECTS \_ 14**

**4. ONLINE GUIDE \_ 22**

**5. SUCCESS STORIES \_ 24**

**6. OPPORTUNITIES FOR NEAR FUTURE \_ 26**



# INTRODUCTION



Orlando Paraíba  
Project coordinator

The coordination of the Recoil project has been one of the most challenging, inspiring and learning experience for me personally. The success of this project was possible just because of the engagement and hard work of the consortium partners. Local authorities and UCO operators also had a crucial role; actively engaged in the project and offered the conditions to successfully implement the pilot projects on the field.

On behalf of the consortium I would like to thank, for the support and guidance, the project officers who follow this project from the beginning Mr. Dário Dubolino, Mr. Emilio Font de Mora and Mr. Pau Rey-García.

Now, that the Recoil project is finished and we are proud of the results and the capacity build during this journey. Recoil clearly supported the UCO to biodiesel chain stakeholders to develop and optimize their activity by contributing to the establishment and enhance effectiveness of UCO collection systems in several European regions. This project also contributes with recommendations to revise / new local and European policies that supports UCO to biodiesel activities. ■



# OVERVIEW

RecOil aims to increase sustainable biodiesel production and its local market intake by enhancing the household Used Cooking Oil (UCO) collection and transformation. The project focuses in 6 European countries namely Portugal, Greece, Italy, Spain, Belgium and Denmark and is supported by the European Commission through the Intelligent Energy for Europe programme.

The domestic sector, in which there are no wide spread collection systems, is the main source of UCO in some EU countries (particularly in South Europe). The UCO improperly disposed in drainage requires energy for its removal at the waste water treatment system, clogs the sewage system, and becomes a contamination source. UCO could be used as the raw material for biodiesel production, which could directly replace diesel. According estimations biodiesel produced from UCO could replace 1.5% of the EU27 diesel consumption.

The RecOil project presented an integrated assessment of the UCO-to-biodiesel chain best practices, aiming to encourage new efficient collection, transformation, commercialization of UCO chain at local or regional level:

- 44 UCO collection systems implemented in different European countries were evaluated. 21 of them are considered good examples and are presented on the RecOil online guide to give some inspiration on implementing and optimizing UCO collection systems;
- A households' survey in the RecOil countries (877 participants) identified the most appropriate UCO collection methods in the perspective of the householders that generate it, as well as the psychosocial factors that can function as barriers or facilitators to this collection. With this survey, the RecOil consortium identified which are the citizens perceptions and motivating factors with regard to the promotional campaigns for UCO collection systems in their regions;

- RecOil assesses the most commonly used practices in UCO processing and biodiesel distribution under different criteria (including technical aspects, quality characteristics, environmental performance and impacts, climate/geographical parameters) and presents the most important technical and practical issues to process UCO to biodiesel;
- The key actors, regional/local authorities and private operators, were actively involved through meetings and workshops to integrate their expertise on the identification and definition of the best practices related with collection of UCO and its transformation to biodiesel;
- The legal framework for collecting, transporting, and processing UCO and for biodiesel commercialization was analyzed comparatively to identify the barriers limiting the development of a full chain from UCO collection-to-biodiesel and to provide policy recommendations to local and European decision makers;

The above information is available on-line ([www.recoilproject.eu](http://www.recoilproject.eu)), in the printed guide, but mainly in the online guide. This guide is an interactive and user-friendly application, designed to support all those who are interested in the implementation/optimization of a UCO to Biodiesel chain.

8 demonstration pilot projects were accomplished testing the good practices identified aiming to collect and exploit locally used cooking oil, and to stimulate new or to improve existing UCO collection systems.

Integrated communication campaigns and promotional/informational materials were developed to promote the UCO collection, to inform about the benefits and ways of proper disposal and to effectively involve citizens and families to UCO recycling.

The RecOil project finishes but its impacts just now begin. The agreements signed with local authorities ensure that UCO will continue to be collected in pilot areas and the information collected, and particularly the online guide, will continue to support all those implementing and optimizing UCO collection and transformation systems. ■



# MILESTONES



## PHASE 1

Identification of the best methods for UCO collection and transformation, and its promotion, and characterization of the legal framework. Assessment of barriers and opportunities to develop the “UCO to biodiesel” chain was also performed.

## PHASE 2

Pilot projects development on UCO collection and transformation, and its promotion.

The state of the art of all “UCO to biodiesel” chain was recorded. Development of the pilot projects on UCO collection and transformation, and its promotion to validate/demonstrate the effectiveness of the proposed methods.





**PHASE 3**

Pilot projects evaluation.

Evaluation and quantification of the results of the pilot projects based on predefined success indicators, aiming to demonstrate the effectiveness of the new established or improved UCO collection systems to the local stakeholders ("UCO to biodiesel" operators and local authorities).

**PHASE 4**

Development and dissemination of the Recoil printed and on-line guide.

Practical tools were produced and disseminated. The online guide was developed and disseminated to all the parties interested in the implementation and/or improvement of an effective UCO-to-Biodiesel chain. The Recoil online guide provides information about UCO collection systems, transformation methods, legal framework and several useful tips related to communication, maintenance, safety, promotional campaigns on how to implement and optimize UCO to biodiesel chain to interested stakeholders.

# KEY FINDINGS AND ACHIEVEMENTS

The demonstration of good practices on promotion, collection, transformation and commercialization of UCO supports waste collection companies, decision makers in local and regional governments and relevant actors who seek to scale up and mainstream UCO collection systems from households.

A wide range of tools was developed such as public opinion insights, targeted promotional campaigns and materials, technical analyses of the UCO to biodiesel chain and a practical guide (also an online tool) to support decision makers and newcomers to the field on how to implement the UCO to biodiesel chain, outlining the critical aspects and main steps to optimize a UCO collection system and providing examples from the RecOil countries and the EU.

Findings of the households surveys, the analysis of good practices as well as the market actors' feedback through interviews and workshops in the five RecOil Member States (Denmark, Greece, Italy, Portugal and Spain) provide practical tips on how to collect and exploit locally

the household produced UCO and to stimulate new or to improve existing UCO collection system.

RecOil identifies the key success factors when building a UCO collection system as follows:

- Support from local administrations, involvement of local municipal waste management companies and engagement of the local stakeholders.
- Appropriate locations for the UCO collection points in public places (strategic siting in easy accessible and convenient spots).
- Focus on citizens awareness with regular, targeted, multi-channel communication activities.
- Motivation of citizens through ease of delivery/disposal and rewards to achieve their active participation
- Involvement of the school communities (students, teachers, parent) making them ambassadors, multipliers of the key messages.

Furthermore:

## UCO COLLECTION POINTS

The establishment of public collection points in easily accessible sites that may attract large numbers of people, such as streets, schools, supermarkets, car parks, municipal buildings, civic amenity sites, etc is critical. The UCO containers should be placed near other waste disposal/recycling facilities, and at places with high visibility for safety and maintenance reasons.

When introducing a collection system with few containers, neighborhoods that have families with children must be preferred.

Facilities on which you throw the container with the oil inside are preferred by the citizens from those on which direct disposal of the oil is needed. Whatever the system is, it must be well managed.

The engagement of local stakeholders, public authorities and/or municipal waste management companies is very important. Schools' engagement can be an asset.





### UCO TRANSFORMATION PROCESSES

The transformation of UCO to biodiesel is depending on a number of parameters (like the climate, the quality characteristics of collected UCO etc.) and on the different normative framework in the EU Member States, thus their efficiency is dependent on how well those factors are being considered during the design phase. Appropriate policies and supporting measures can lead to efficient implementation of the UCO to biodiesel chain and can facilitate the expansion and replication of such initiatives. In the RecOil guides (online guide and printed guide) interested actors may find useful technical and practical information on the existing methods to process the UCO-to-biodiesel chain.

### COMMUNICATION ASPECTS

The active engagement of local stakeholders (i.e. neighbors/citizens associations, NGOs, local waste management companies, school communities) is a prerequisite.

Activities and materials specifically targeted to educate, motivate and

engage the school community (pupils, parents, students and teachers) are considered essential, as children have important influence to the family and can play a significant role at a behavior change at home.

Householders must be informed through wide, well targeted and continuing in time communication campaigns about what, how and where to deliver UCO:

- Information about the UCO Collection System
  - Collection points location
    - preferable with photos to identify locations
  - Procedures - Emphasize how practical and easy it is to recycle oil, but provide all information about the handling of UCO;
  - How to deliver it (choose an easy and secure way)
- Information about the UCO collection benefits
  - Information on environmental benefits should focus on 'please, do not throw it to sewage'
  - Information about UCO uses must be emphasized
  - Be careful on providing benefits

to people, avoid direct payments as people usually stop recycling when these are withdraw.

Environmental reasons for recycling shall be made explicit and preferably related to individual behavior. It is important for people to know exactly the handling procedure of UCO. During the implementation of this project, the benefits of UCO recycling for the sustainable promotion of biodiesel were widely communicated:

- 2.063.471 citizens were reached by promotional campaigns;
- 91.415 citizens learned about RecOil activities (conferences, events, school community);
- 334 media appearances (including TV, radio, newspapers, websites and social media).





### Policy framework

After analysing the national and European policy framework and assessing the “UCO to biodiesel” chain best practices through the industry expertise, the local policy makers and stakeholders contribution, RecOil has identified the main barriers hindering the development of a full chain from UCO collection-to-biodiesel and proposes actions to promote the production of this clean alternative fuel:

- UCO collection and processing are affected by uncertainties in the EU and National Energy and Environment policy
- The national frameworks, miss measures to facilitate small producers’ participation in the market
- The limited use and production of advanced biofuels should also be addressed by developing higher blending targets for biodiesel
- The lack of public and private financial resources to implement supporting measures limits the advanced biofuels market intake
- Unclear waste classification (by-product or waste) and certification schemes limit the creation of value chains
- Policy makers and the general public are not aware of the problems that no collection and improper disposal of UCO may produce. ■

# RECOIL PILOT-PROJECTS



Pilot demonstration projects were conducted in the RecOil regions to locally collect and exploit UCO, and to test and validate the best practices identified in previous phases of the project. The pilot projects were supported by targeted promotional campaign aiming to raise awareness and challenge the active participation from the householders and other interested stakeholders. The following municipalities have been participated in this campaign:

- Athens (Greece)
- Barreiro, Moita, Montijo & Alcochete (Portugal)
- Cádiz (Spain)
- Castrolibero (Italy)
- Castrovillari (Italy)
- Rethymno (Greece)
- Setúbal, Palmela & Sesimbra (Portugal)
- Viborg & Ørum (Denmark)

Within these pilot projects different collection strategies were applied (public containers, door-to-door collection systems), different types containers were used, tailor made communication strategies have been put in operation resulting to the establishment of new UCO collection systems or the expansion of existing ones:

| Municipality                         | N.º of Collection Points  |  |
|--------------------------------------|---------------------------|--|
|                                      | 2012 (before the project) | 2015 (after the project)                         |
| City of Athens (Municipality) (EL)   | 0                         | 25   |
| City of Marathon (Municipality) (EL) | 0                         | 28   |
| Rethymno (EL)                        | 0                         | 32   |
| Barreiro (PT)                        | 32                        | 45   |
| Moita (PT)                           | 24                        | 24   |
| Montijo (PT)                         | 13                        | 17   |
| Alcochete (PT)                       | 4                         | 12   |
| Setúbal (PT)                         | 28                        | 41   |
| Palmela (PT)                         | 28                        | 39   |
| Sesimbra (PT)                        | 7                         | 11   |
| Cadiz (ES)                           | 111                       | 111  |
| Castrolibero (IT)                    | 0                         | 3.500 bottles for UCO (door- to-door collection) |
| Castrovillari (IT)                   | 0                         | 2.000 bottles for UCO (door- to-door collection) |
|                                      |                           | 1  |
| Collection points in schools         | 71                        | 160  |

Note: Regarding Denmark (Viborg) during the pre-pilot period, due its cooking traditions and recycling habits at home, not sufficient amounts of fat was gathered to activate the regular fat collection scheme. ■

## SOME COMMUNICATION MATERIALS USED

1. Communication action (Spain)
2. Brochure (Denmark)
3. Poster (Spain)
4. Flyer (Portugal)
5. Poster (Italy)
6. Flyer distributed with water invoices (Portugal)





3

BIO degradabile renovable sostenible **tú DECIDES tú reciclas?** NO tóxico menos CO<sub>2</sub> libre de azufre

# Biodiésel

PROYECTO RECOIL  
 Campaña de recogida de aceite usado de cocina.  
 1 litro de aceite reciclado = 1 litro biodiésel - 1 litro de aceite sin tratar = 1.000 litros agua contaminados

www.recoilproject.eu

RECOIL

Logo of the Ayuntamiento de Cádiz

4

RECOIL

Logo of the European Union

Logo of HIESO

Logo of the Presidencia de Canarias

Logo of the Conselleria d'Energia i Medi Ambient de les Illes Balears

# NON SPRECHIAMO NEANCHE UNA

CAMPAGNA PER IL RECUPERO DELL'OLIO DA CUCINA ESAUSTO DA DESTINARE ALLA PRODUZIONE DI BIODIESEL

www.recoilproject.eu

Logo of VARAT

Logo of ETS

5

4

Reciclar ou não reciclar

**Está nas tuas mãos!**

Logo of ENA - Agência de Energia e Ambiente da Arrábida

Logo of RECOIL

Co-funded by the Intelligent Energy Europe Programme of the European Union

BIO degradabile renovable sustentável **Tu DECIDES tú reciclas?** não tóxico menos CO<sub>2</sub> sem enxofre

# Biodiesel

Campanha de recolha de óleo alimentar

1 litro de óleo reciclado = 0,8 litro de biodiesel  
 1 litro de óleo usado = 1.000 litros de água poluída

Para mais informações não hesite em contactar a ENA - Agência de Energia e Ambiente da Arrábida

www.ena.com.pt  
 geral@ena.com.pt  
 telefone: 265 546 194  
 ou  
 www.recoilproject.eu

A responsabilidade do conteúdo desta publicação é dos autores. Não se refere necessariamente à opinião da União Europeia, nem à EAC nem à Comissão Europeia são responsáveis por qualquer uso que possa ser feito das informações nela contida.



## SOME COMMUNICATION MATERIALS USED



7



8

7. Outdoor (Portugal)

8. Bus advertisement (Spain)

9. Funnel (Portugal)

10. Outdoor (Portugal)

11. Poster (Greece)

12. Wall game (Portugal)



9

10



11

**ΑΠΟ ΤΟ ΤΗΓΑΝΙ ΣΤΟ ΑΥΤΟΚΙΝΗΤΟ...  
...ΔΕΝ ΑΦΗΝΟΥΜΕ ΟΥΤΕ ΣΤΑΓΟΝΑ ΝΑ ΠΑΕΙ ΧΑΜΕΝΗ**

**ΣΤΟ ΡΕΘΥΜΝΟ**  
ΑΝΑΚΥΚΛΩΝΟΥΜΕ ΤΑ ΤΗΓΑΝΕΛΙΑ

Κερδίζουμε πιο καθαρό περιβάλλον  
Μειώνουμε τον όγκο των απορριμμάτων στους ΧΥΤΑ  
Εξοικονομούμε χρήματα για το Δήμο και τους πολίτες  
Προστατεύουμε τον πλανήτη και τη διατροφική αλυσίδα

**Το βιοντίζελ από χρησιμοποιημένα μαγειρικά λάδια**

- Ρυπαίνει λιγότερο από τα συμβατικά καύσιμα
- Είναι βιοδιασπώμενο
- Προσφέρει αυξημένη λιπαντικότητα και μεγαλώνει τη ζωή του κινητήρα
- Συμβάλλει στη μείωση των εκπομπών διοξειδίου του άνθρακα (CO<sub>2</sub>)

**ΌΛΟΙ ΜΑΖΙ προστατεύουμε την πόλη μας και το περιβάλλον**

**ΣΗΜΕΙΑ ΑΝΑΚΥΚΛΩΣΗΣ ΣΤΟ ΡΕΘΥΜΝΟ\***

- Πίσω από το κύριο της Αντιπεριφέρειας επί της οδού Κεφαλογιάννηδων (Περιφερειακός)
- Οδός Μοάτσου, απέναντι από το κρεοπωλείο Αντωνάκης
- Δημοτικά και Ηγούμ. Γαβριήλ, στη γωνία του Δημοτικού Κήπου (επί της οδού Δημοτρακίτη)
- Στην είσοδο του Εμπορικού Λιμανιού, κοντά στο Λιμεναρχείο
- Πλατεία Αγ. Γεωργίου Πεταλιώτη (Καλλιθέα)
- Περιοχή Αγ. Φωτεινής, επί της οδού Σταμαθιοδάκη (Κουμινές)
- Έξω από το ΙΚΑ, στην οδό Κονδυλάκη (Ματαμιάς)
- Καζαντζίκη και Ζυμβρακάκη, Σχολή Χωροφυλακής

**ΠΡΟΣΟΧΗ:** Στον κάδο ρίχνουμε το γεμάτο μπουκάλι, χωρίς να το αδειάζουμε

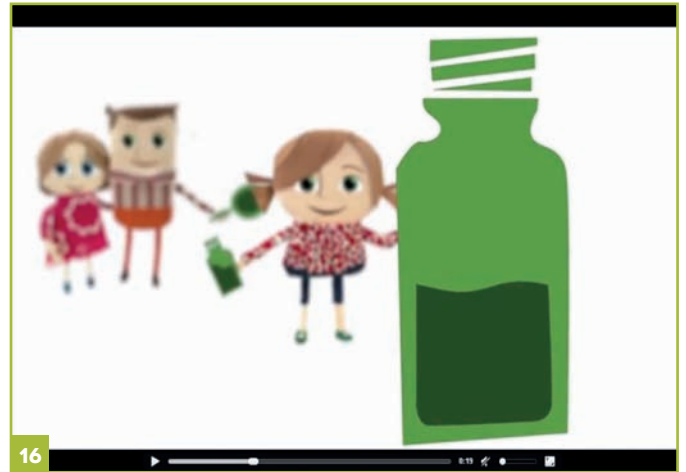
\*Οι κάδοι συλλογής τηγανελαίων βρίσκονται κοντά στους υπόλοιπους κάδους απορριμμάτων και ανακύκλωσης. Περισσότερες πληροφορίες και επικαιροποιημένη λίστα σημείων ανακύκλωσης: [www.rethymno.gr](http://www.rethymno.gr) | [www.recoilproject.eu](http://www.recoilproject.eu)

RECOIL THE POWER OF USED COOKING OIL



12

# SOME COMMUNICATION MATERIALS USED



- 13. City map with collection points (Rethimno – Greece)
- 14. Brochure (Greece)
- 15. School award (Greece)
- 16. Movie (several countries)
- 17. Brochure (Denmark)

18 [www.recoilproject.eu](http://www.recoilproject.eu)   

**NON SPRECHIAMO NEANCHE UNA**

**CAMPAGNA PER IL RECUPERO DELL'OLIO DA CUCINA ESAUSTO DA DESTINARE ALLA PRODUZIONE DI BIODISEL**



19

**tú DECIDES ¿tú reciclas?**



**no** El aceite usado de cocina es un residuo problemático cuya presencia en el medio natural tiene graves consecuencias ambientales; pequeñas cantidades de aceite usado pueden ocasionar importantes problemas de toxicidad en ríos, marismas y otros ecosistemas naturales.

También es un problema económico: el aceite dificulta el funcionamiento de las depuradoras municipales y encarece el mantenimiento del alcantarillado público. Se estima que cada litro de aceite usado vertido a la red de saneamiento incrementa el coste de depuración en 2,25 €.

Vertir el aceite usado por el fregadero es una práctica poco respetuosa con nuestro entorno que además deteriora y obstruye las cañerías de nuestro hogar, genera malos olores y favorece la proliferación de ratas e insectos.

**si** cómo reciclar:

Reciclar el aceite doméstico usando depositarlo en los puntos de recogida es un gesto sencillo, cómodo y rápido con el que los ciudadanos consiguen importantes beneficios económicos y sociales: evitan el vertido del aceite usado en forma de biodiésel.



**Biodiésel**

El biodiésel es un combustible renovable producido a partir de aceites y grasas de origen vegetal y animal. Sus propiedades son similares al gasóleo pero con claras ventajas:

- Mejora la lubricación y el rendimiento del motor.
- Es biodegradable y su toxicidad es baja.
- Es una fuente de energía limpia y renovable.
- Reduce la emisión de hasta el 80% de CO<sub>2</sub> por kilómetro recorrido en comparación con el gasóleo o la gasolina, ayudando en la lucha contra el cambio climático.
- Favorece el desarrollo de zonas rurales.
- El biodiésel obtenido a partir de aceites de cocina usados permite además la puesta en valor de un residuo, genera puestos de trabajo y contribuye a la diversificación energética.



- 18. Brochure (Italy)
- 19. Brochure (Spain)
- 20. Brochure (Denmark)

20

**RECOIL**

[www.recoilproject.eu](http://www.recoilproject.eu)

DNA - Energy and Environment Agency of Antakya (TR) - lead partner: [otando.parakostelena.com.tr](mailto:otando.parakostelena.com.tr)  
 FI - Factor Social (FI) - [joanralfactorsocial.it](mailto:joanralfactorsocial.it)  
 INMUC - Technical University of Crete (GR) - [ifra-ivola.fraimaki@imuc.gr](mailto:ifra-ivola.fraimaki@imuc.gr)  
 AIEECCO - Local Energy Agency of the Province of Cosenza (IT) - [agil@aiiecco.it](mailto:agil@aiiecco.it)  
 APECC - Provincial Energy Agency of Cádiz (ES) - [Proyecto@apecc.es](mailto:Proyecto@apecc.es)  
 Enerгия - Regional Energy Agency for Samara, Makh. Mordov. and Alchevka (RU) - [joan.energia@energiya.ru](mailto:joan.energia@energiya.ru)  
 Binkoflex S.A. - Production and Trade (GR) - [thorax@binkoflex.gr](mailto:thorax@binkoflex.gr)  
 EA Florence (IT) - [marco.cecchi@eaflorence.it](mailto:marco.cecchi@eaflorence.it)  
 MAC - Municipality of Castellón (ES) - [marco.fico@mac.es](mailto:marco.fico@mac.es)  
 BSLA - European Biomass Industry Association (EU) - [aranka.vatso@bsla.org](mailto:aranka.vatso@bsla.org)  
 ADP - Agro Business Park (DK) - [info@agropark.dk](mailto:info@agropark.dk)

Supported by **INTELLIGENT ENERGY EUROPE**

The RECOIL project is supported by the European Commission under the Intelligent Energy Europe programme

Promotion of used cooking oil recycling for sustainable biodiesel production



**RECOIL**

USED COOKING OIL

[www.recoilproject.eu](http://www.recoilproject.eu)

# ONLINE GUIDE

The RecOil online guide is based on good practices identified by the European initiative RecOil and provides guidance on how to implement and optimize the Used Cooking Oil (UCO) to biodiesel chain. In this guide, interested stakeholders may find information about UCO collection systems, transformation methods, legal framework and several useful tips related to communication, maintenance, safety, promotional campaigns, also lists of authorized operators.

**RECOIL**  
THE POWER OF USED COOKING OIL

UCO Collection Systems | UCO to Biodiesel Transformation Processes | Other Information | EN

### FURTHER INFORMATION

Here you have access to a set of recommendations for each of the following topics.

- Door-to-Door collection
- Disposal with bottles
- Collection in public places
- Direct disposal
- Security
- Maintenance
- Communication
- Promotional campaigns

**RECOIL**  
THE POWER OF USED COOKING OIL

UCO Collection Systems | UCO to Biodiesel Transformation Processes | Other Information | EN

### SETÚBAL'S MUNICIPAL UCO COLLECTION SYSTEM

Location: Setúbal, Portugal  
 Population density: 524,49 hab/km<sup>2</sup>  
 Terrain: Plain  
 Per capita income: 9,723 €/year  
 Education level: Secondary education  
 Implementation period: November of 2011  
 Collection method: Public Access Places  
 Collection points location: UCO Containers placed on streets, supermarkets, municipal markets, fire department, not-for-profit associations  
 Number of collection points: 24  
 Disposal method: Bottles  
 Annually collected quantities: 7611 litres  
 Collection frequency: Initially, once per month, then twice per month.  
 Entity responsible for the system's management: ENA – Energy and Environment Agency of Arrábida /Ana Marques  
 Contacts of the management entity: Av. Belo Horizonte, Edifício Escarpas Santos Nicolau, 2910 - 422 Setúbal; Phone: +351 265 546 194 Email: geral@ena.com.pt www.ena.com.pt  
 Collection operator: Biocarater Unipessoal, Lda  
 Produced derivatives: Biodiesel

Download

The RecOil Online Guide is available in seven languages: English, Danish, French, Greek, Italian, Portuguese, and Spanish.

**GUIDED SEARCH**

The following list presents UCO collection systems, from the Recoil database which are implemented in regions with characteristics similar to yours. The number of results reflects the number of features that the system in question has in common with your region, so the higher the number the greater the number of regions that have implemented the system and can provide a good example for you.

| Designation of UCO collection system                                     | Results |
|--|---------|
| Used Cooking Oil Selective Collection in the geographic area of Resitejo | 4       |
| REVIVE   | 4       |
| AB - CSR PROGRAMME RECYCLING TO PROTECT THE ENVIRONMENT                  | 4       |
| Selective collection of used cooking oil in São João da Madeira          | 3       |
| Municipal Recycling initiatives  | 3       |
| Raising awareness and encouraging  | 2       |

It consists of a web tool that allows easy access to a wide range of information with two navigation options. The user can either directly access the database by searching the information stored, or he may proceed choosing a set of local characteristics that enables the compilation of data from good practices and results to decision making guidelines. With the option of guided search the user can obtain information and recommendations that suit best to the geographical, economic and social reality of his region. ■

**GUIDED SEARCH**

To identify the most appropriate UCO to biodiesel transformation process for your case please define the following criteria:

Are you interested in a High Technology Process (the most advanced technology available) even if this might mean a higher investment cost?

Is it possible that you will have problems handling waste water?

I am interested only in processes with lower investment costs

Yes, there might be problems related to waste water handling

I am willing to consider a high technology process even if it means a higher cost of investment

No, problems with regard to waste water handling are not foreseen

Are there extreme climate conditions in your area? Do you assume that climatic parameters should be taken into account?

There are processes that are more innovative, but might entail increased health and safety risks. Are you willing to consider

Access the Online Guide at:  
<http://www.recoilproject.eu/index.php/en/on-line-tool>

# SUCCESS STORIES

**With the development of this project there are some success stories that should be mentioned:**

**Municipality of Sesimbra in Portugal, with a small population but huge returns of UCO collected**

The municipality of Sesimbra with approximately 55.000 inhabitants, located in Portugal, is considered to have a well dimensioned collection system. With a few number of collection points available (11 public collection points, 300-360 L containers), citizens were very actively involved in the UCO recycling as the collecting company gathered a considerable amount of UCO per collection point (320 L per collection point). This UCO mainly comes from the containers placed inside the markets regularly visited by the general population (containers under surveillance and easily accessible by the citizens where the UCO is

directly poured into the containers. ENA (regional agency) alongside with the Municipality and the Company which collects and transforms the UCO into biodiesel developed several promotional activities in schools and in public events during the 19 months of the pilot project in order to raise awareness among the local communities.

**The newly established UCO collection system in the Municipality of Rethymno multiplied its network of collection points in few months following to the successful implementation of a small scale demonstration project**

Rethymno is a Cretan small city of 55.000 citizens, where the lack of awareness among citizens and lack of collection systems led most consumers to pour UCO directly to the sink or soil. There was no previous experience or existing UCO collection system from households in the municipality, not even in the whole region.

The project was largely embraced by householders and the whole school community and was actively supported by the local stakeholders, involving in its actions the Municipality of Rethymno Management board, the Department of Education - Lifelong Learning -Volunteering, the Waste Management and Environment Department, the Municipal Planning and Development Services, the Union of students' parents of Rethymno and the Municipal Enterprise of Water and Sewage.

The RecOil pilot project started at the beginning of 2014 with just 3 collection points in schools and by the end of 2015 the UCO collection network will have 45 points.

**Local engagement of the Local Authorities helping to implement/optimize the collection systems**

With the implementation of the pilot projects it was managed to get the engagement of 16 local





authorities and 10 UCO operators. The protocols signed with these local actors are the main formal guarantee for the sustainability of the project, along with the organizational commitment of these entities with the UCO collection and transformation.

### Municipality of Castrovilari in Italy increased 150% of UCO collection between June 2013 - December 2014

Castrovilari is a very good example on the impact of the optimization of a collection system and how collection quantities can be increased, thanks to the RecOil project, the UCO collection increased by 150% between June 2013 and December 2014, reaching 1.500 L/month. A pilot plant for the production of biodiesel was also built. Some amounts of biofuel have been already produced and chemical analyses have shown the excellent quality of the product. The massive promotional campaign during RecOil reached many families in the area. Several actions have involved the schools of Castrovilari in order to raise awareness among young people on environmental issues. The citizens were involved directly through initiatives on the streets of the City of Castrovilari and through targeted meetings; the press has always followed all the initiatives giving proper emphasis to each event. The short chain of Castrovilari is ready and available to the territory. RecOil still intends to go beyond the time limit of the project, spreading to other towns the experience of Castrovilari.



### The good example of Castrolibero

Municipality of Castrolibero (MC), around 3900 families and 1040 citizens, located in South Italy, is an example of new system started during RecOil project. Despite a waste recycle, MC does not have household UCO collection. This project was an opportunity to start a system for collecting UCO, engage citizens, increase their participation and improve their awareness of the negative effects of UCO in the environment.

The main difficult of MC is also its best success: to change citizen habits. The low results of the first collection date (39 liters) was the starts to involve policy maker in the communication action. The Mayor was been a special teacher, that explain very well what could happened at animal life if we introduce oil in the water of river or sea, and what happened at our building if we introduce oil in the civil drains. The combining between

the door-to-door collection systems and the environmental action in the school were been an increase of UCO collected. Our results showed an increase of UCO collected from 39 liters (first UCO collection date) to 1400 liters (last UCO collection date), a clear indication that there is a change in UCO household manage.

### Engagement of the stakeholders and schools' involvement

The engagement of the schools is one real success story of this project; right now we have 160 collection points located in schools. Working with schools allows not only to collect UCO in the present (children know how to be really persuasive with their parents) but also guarantees the continuity of the collection in the future. ■

# OPPORTUNITIES FOR NEAR FUTURE

Recycling UCO into biodiesel offers a genuinely sustainable alternative for a problematic waste product, creating a significant income source and simultaneously reducing environmental pollution and fossil fuel dependency. These benefits shall be understood and considered by the policy makers who can encourage and facilitate the implementation of the UCO to biodiesel chain. The policy driver is a critical success factor to ensure a wider affirmation of the UCO recycling practice:

- UCO shall be classified as a food waste rather than as a by-product, minimizing the risk of any type of legal ambiguity. This measure would lead to the creation of unambiguous treatment, collection and recycling pathways;
- Ambitious goals on the recycling of waste such as UCO should be established;
- Regional/municipal administrations should be encouraged to establish new UCO collection systems;
- EU Directives could work in parallel with the Covenant of Mayors to push dissemination of best practices, information campaigns and recycling targets, within the context of local sustainable energy action plans (SEAPs);
- At the EU level the Commission could do much more to inform and raise awareness about the importance of recycling UCO and the benefits of this biodiesel source;
- An ambitious mandatory goal for advanced biofuels could be a great boost for the UCO industry;
- Consumption could be stimulated by higher mandatory biofuels blending targets, in particular for heavy transports which do not have any other feasible alternative to fossil fuels but biofuels and are already technically able to use them;
- A Directive's revision must provide an annex with an exhaustive list of wastes and residues and more information on how to implement the double counting system, with clear and homogeneous custody rules, procedures, and documents;
- The definition of an ambitious, mandatory, and clear target for the post-2020 period with penalties high enough to prevent buy-outs could greatly help market uptake for UCO based biofuels. The Commission decided not to include any goals for the transportation sector in its 2030 framework for climate and energy policies adding extra uncertainty to a sector that has been suffering from too much legal and policy inconsistency.
- Finally, there should be stronger investment support on EU, national and regional levels for research and production at a non-commercial level and support for-of-its-kind plants. ■



**Some examples of relevant documents done under RecOil project:**

- Compilation of the UCO collection promotional campaigns;
- Guidelines for UCO collection, transport and respective promotional campaigns based on previous experiences;
- Assessment of preferred methods for UCO collection;
- Guidelines for implementation of the best collection methods and its promotion and communication plan
- Assessment of best practices in UCO processing and biodiesel distribution
- Guide on UCO processing and biodiesel distribution methods
- Comparative analysis of the different legal frameworks - Identification of barriers and opportunities
- Analysis of UCO the qualitative aspects
- Final analysis of the pilot projects
- Promotional campaign materials
- Printed guide
- Policy position Paper



More information about RecOil project on:

**WWW.RECOILPROJECT.EU**

