



AMBILAMP

Association for Lamps Recycling

“Workshop on Mercury Management and Decontamination in the framework of the Mediterranean regional plan on mercury”

(Almadén, Spain, 12 December 2012)

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Operations Manager



AMBILAMP

Building up a lamps specialized Collection and Recycling System Organization (CRSO) in Spain
2005 - 2012



1. Legislation

2. Institutional

3. Operational scheme

3.1 Collection and logistic model

3.2 Recycling Process

3.3 Information and Awareness

4. Financial sustainability

5. Key success factors



LEGISLATION

LEGAL ASPECTS OF CRSO(s)



Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste



Waste and contaminated Spanish soil Law 22/2011 July 28th 2011

Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on Waste Electrical and Electronic Equipment WEEE*



WEEE Spanish Royal Decree 208/2005 February 25th

* Presently, in a recast process

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WHAT IS A COLLECTION AND RECYCLING SYSTEM ORGANISATION (CRSO)?

CRSO: Non-profit entities, owned by the producers of electronic devices and whose main objective is the creation of an organizational structure that meets the requirements of WEEE legislation.

CRSO's main duties:

Obligatory

- ✓ Collection and logistics
- ✓ Recycling (meet Recycling and Recovery rates)
- ✓ Regional administration permits
- ✓ Annual information to Regional Administration

Voluntary

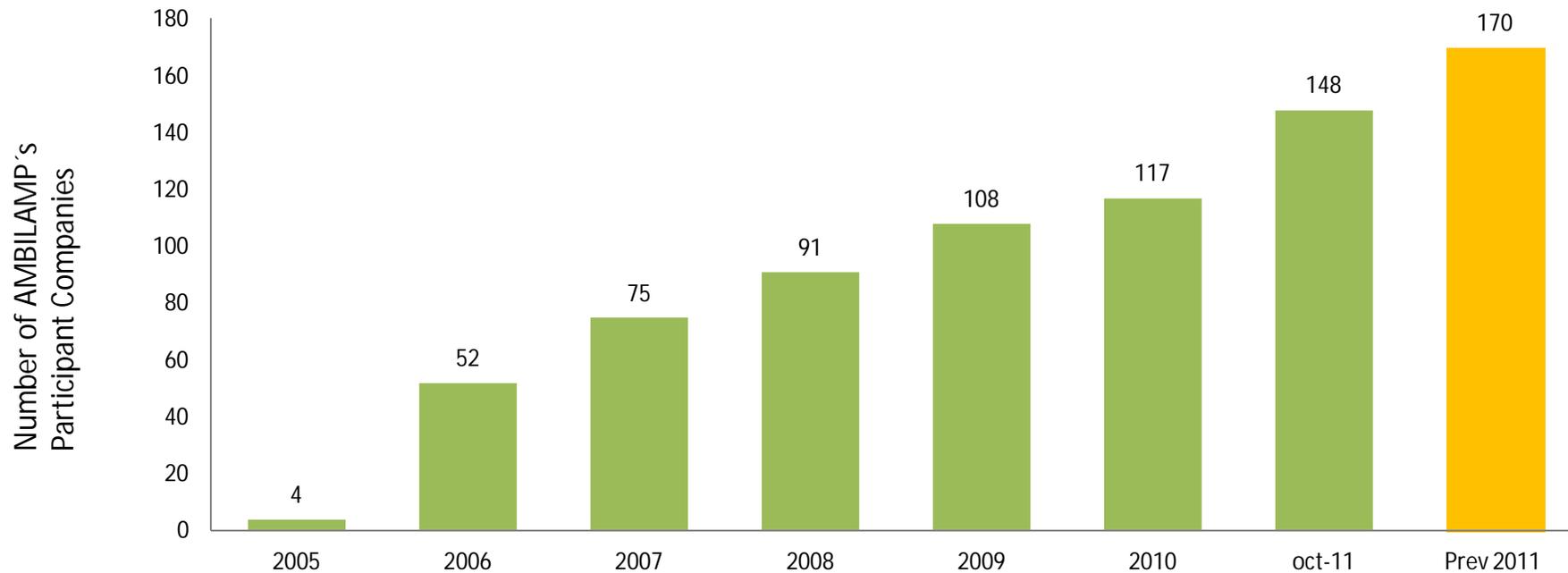
- ✓ Producers Registration
- ✓ Communication
- ✓ Free Riders persecution
- ✓ Lobby activities



AMBILAMP

AMBILAMP is a **non-profit Association for Lamps** Producers / Importers with more than 90% share in Spain

Created in 2005 by



LAMPS CRSO'S EUROPEAN NETWORK



29 CRSO's in EUROPE
All big countries with lamp specialized CRSO's



Consulting support by:



- 1 Austria
UFH Alllampen
Systembetreiber
- 2 Belgium
LightRec
- 3 Bulgaria
under construction
- 4 Cyprus
- 5 Czech Republic
EKOLAMP
- 6 Denmark
Lysskidebranchens
WEEE Forening
- 7 Estonia
Ekogaisma
SIA Eesti Filiaal
- 8 Finland
FLIP
- 9 France
Récylium
- 10 Germany
Lightcycle (CSO)
LARS (RSO)
OLAV (RSO)
- 11 Greece
Appliances
Recycling S.A.
- 12 Hungary
ELECTRO-COORD
- 13 Ireland
WEEE Ireland
(Recolight Int. lamp sector)
- 14 Italy
Ecolamp
- 15 Latvia
SIA "Ekogaisma"
- 16 Lithuania
under construction
- 17 Luxembourg
Ecolret
- 18 Malta
- 19 Netherlands
LightRec NL
- 20 Norway
El-Retur
- 21 Poland
ElektroEko
- 22 Portugal
Amb3E
- 23 Romania
Recolamp (Romania)
- 24 Slovakia
EKOLAMP
Slovakia
- 25 Slovenia
ZEOS
(EKOSIJ lamp
sector)
- 26 Spain
AMBILAMP
- 27 Sweden
EH-Kretsen
- 28 Switzerland
Stiftung Licht
Recycling Schweiz
- 29 United Kingdom
Recolight Ltd.



EUROPEAN NETWORK



WHY BUILDING UP A CRSO SPECIFIC FOR LAMPS?

Lamps represent only 1.3% of all elec. Waste weight but more than 25% of the collection and recycling cost

- ✓ Negative value of the waste
- ✓ Hazardous waste (Hg)
- ✓ Fragility
- ✓ Specific and complex shapes
- ✓ Specific Recycling process
- ✓ Specific collection system
- ✓ LED Lighting growing up



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¿WHAT TYPE OF LAMPS ARE IN THE SCOPE OF THE WEEE Directive?

IN THE SCOPE



FLUORESCENTES



AHORRADORAS



DE DESCARGA



LED'S RETROFIT

OUT OF THE SCOPE



BOMBILLAS DE FILAMENTOS



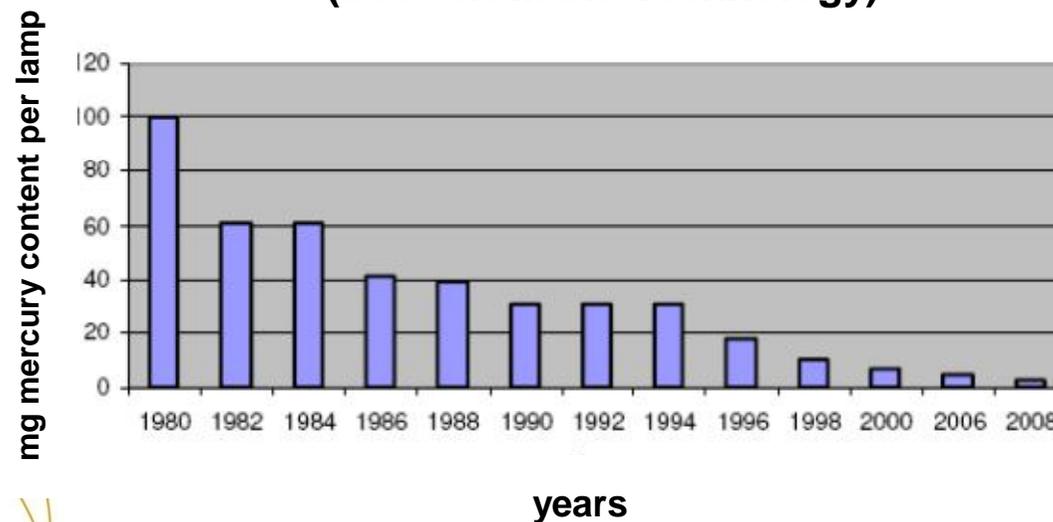
HALÓGENAS



MERCURY REDUCTION ON LAMPS

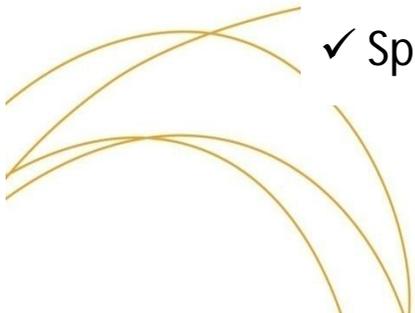
- In the last 25 years lamp manufactures have invested on innovative production proceses with the aim of increasing the performance of the lighting sources with the reducing at the same time of the mercury content for its funtioning.
- The mercury content in lamps has drop more than 90%.
- The **RoHS** Directive regarding the Restriction on the use of Hazardous Substances in EE equipment together with the **WEEE** Directive has help in this process.

Reduction of mercury content on fluorescent lamps in the last 28 years (best available Technology)

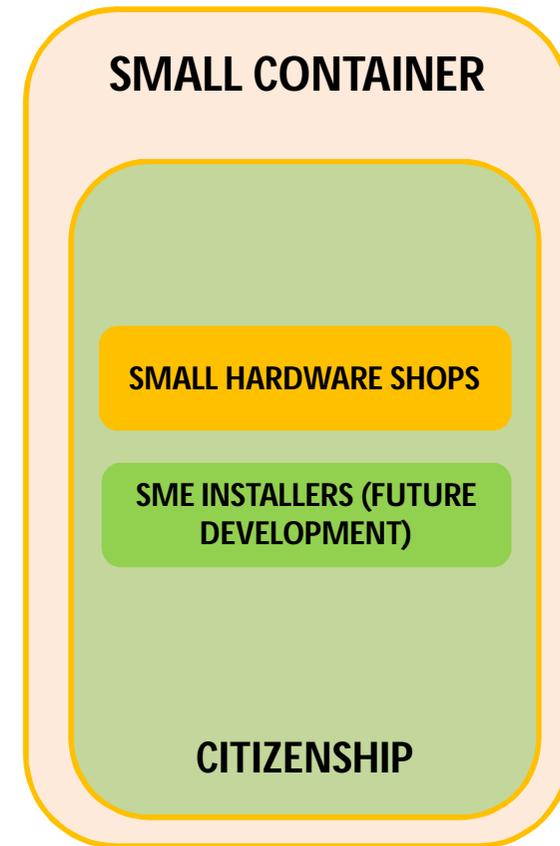
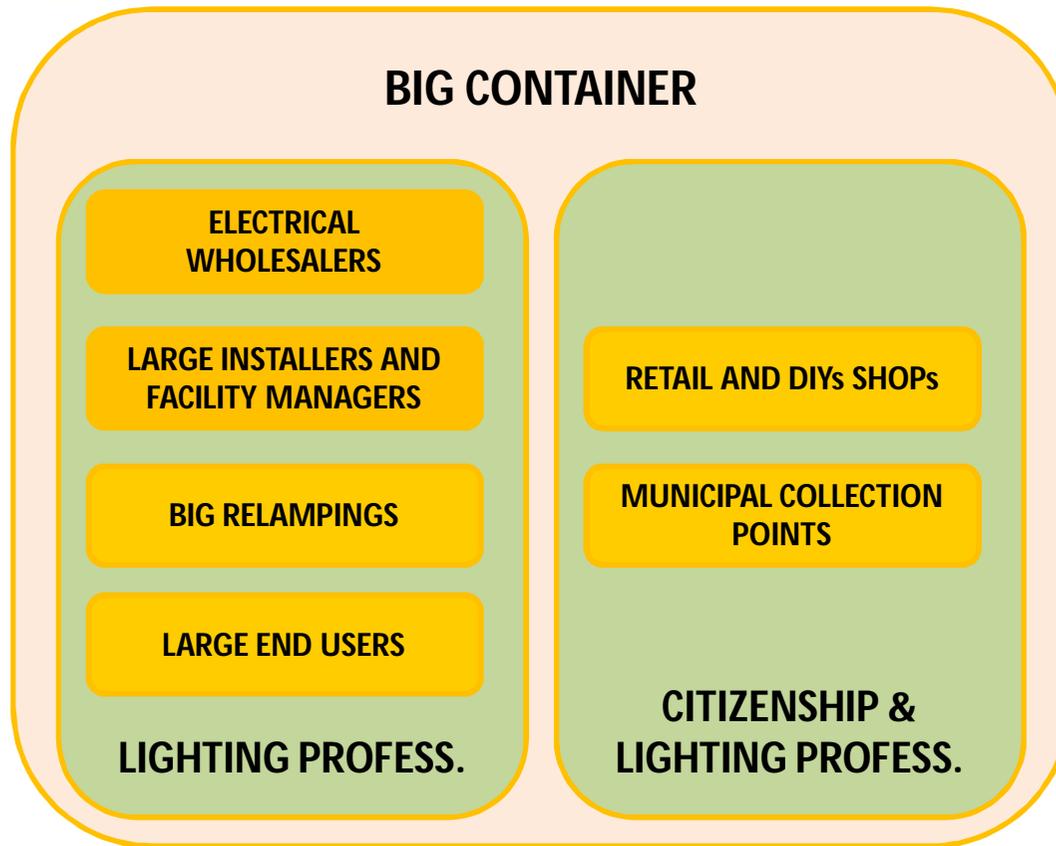


COLLECTION NETWORK STRATEGY PRINCIPLES

- ✓ Multichannel approach means to be close to the waste generation in a ecological and economical way
- ✓ Collection in big and small containers:
 - BIG: Cost efficiency where possible
 - SMALL: To have the container close to every citizen
- ✓ To develop special containers for special lamp types
- ✓ Reduce at maximum lamps breakage
- ✓ 99% country coverage service
- ✓ High customer satisfaction on collection points
- ✓ Special containers for lamps developed for logistic efficiency



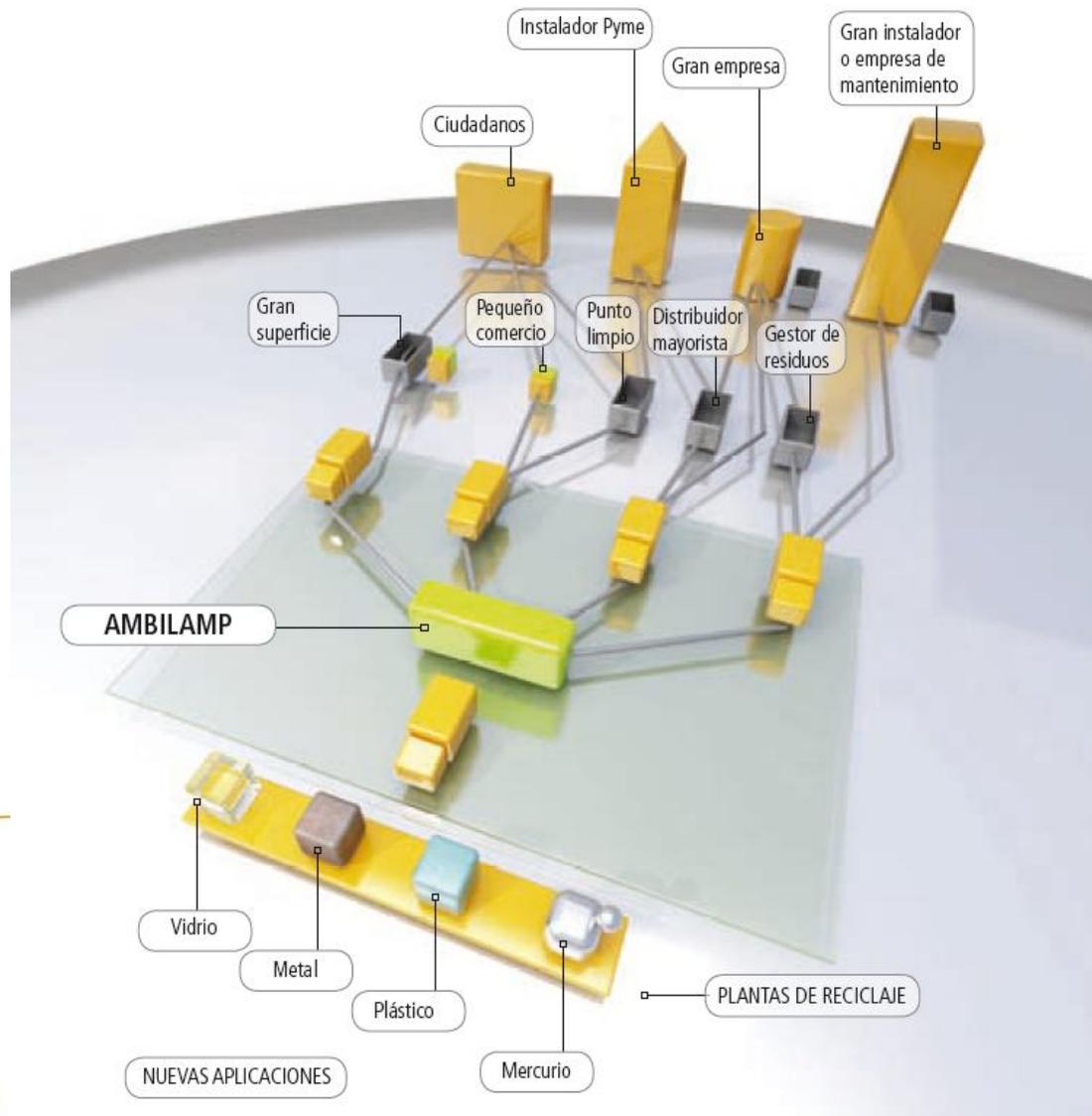
COLLECTION CHANNELS AND CONTAINERS



 Developed

 To be develop in 2013

TAKE BACK LOGISTIC MODEL



BIG CONTAINER FOR LAMPS

- ✓ Easy to handle
- ✓ Can be use outdoors
- ✓ Foldable and stackable
- ✓ Light and resistant
- ✓ Long-life materials (HDPE)
- ✓ Ready for trazability (RFID)
- ✓ Design for different type of lamps



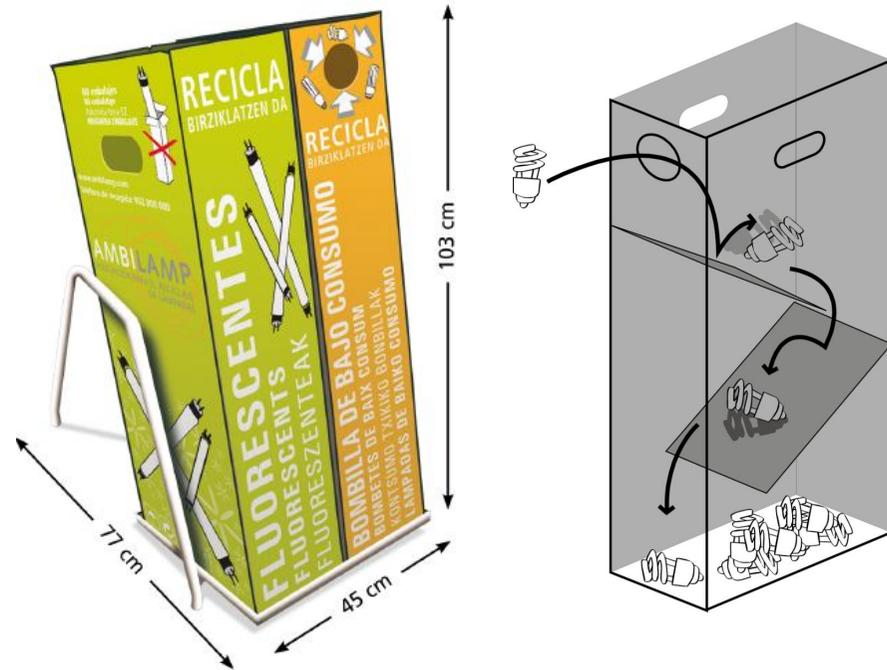
RFID Chip



2020 x 800 x 870 mm
Tare : 58 Kg

SMALL CONTAINER FOR LAMPS

- ✓ Economic
- ✓ Communication element
- ✓ Separates FL from CFL
- ✓ CFL anti-breakage system
- ✓ Foldable
- ✓ Efficiency capacity



OTHER SPECIFIC CONTAINERS FOR LAMPS



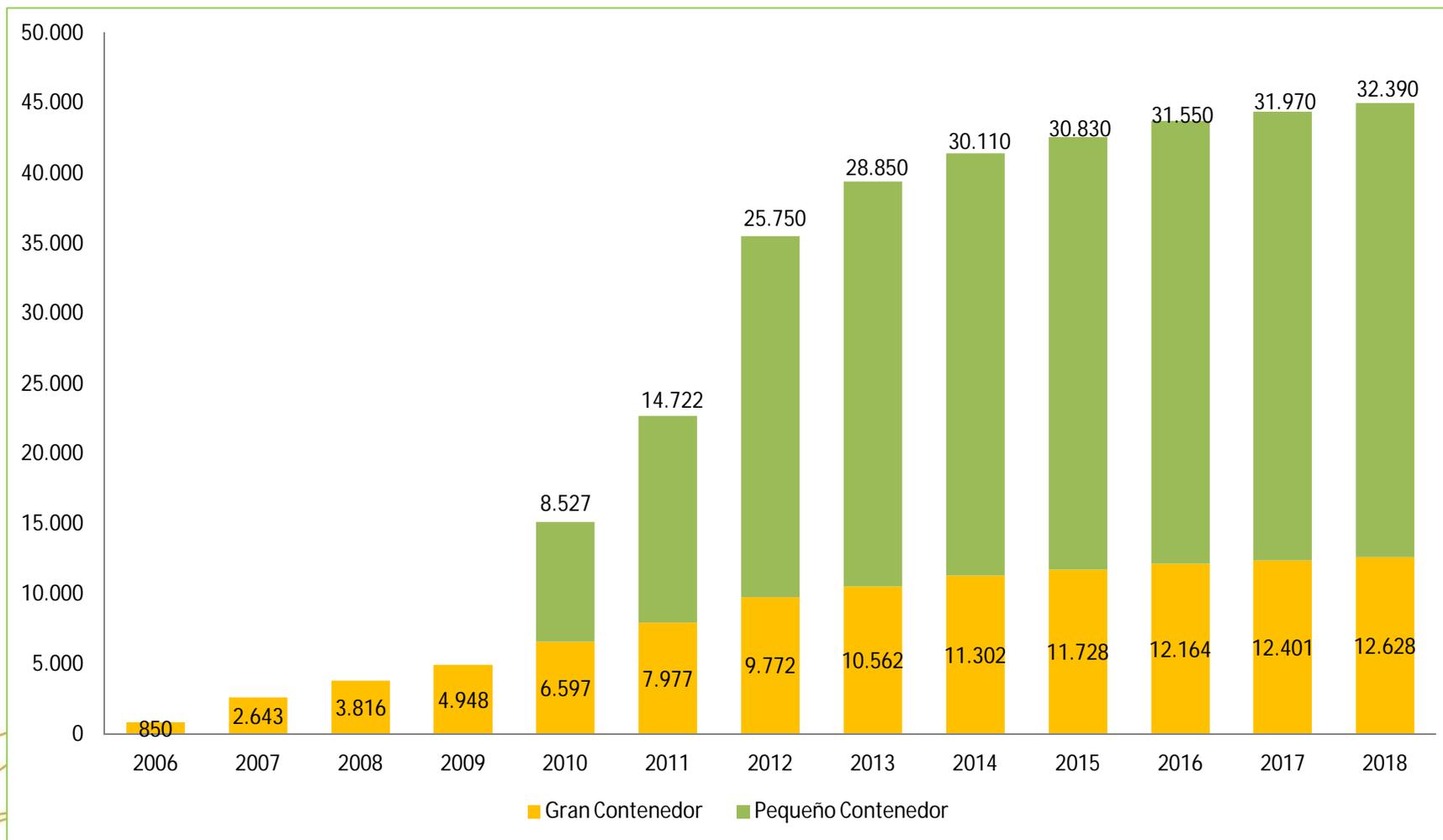
Container for fluorescent tubes > 2 meters length



HDPE Container for High Intensity Discharge (HID) lamps only



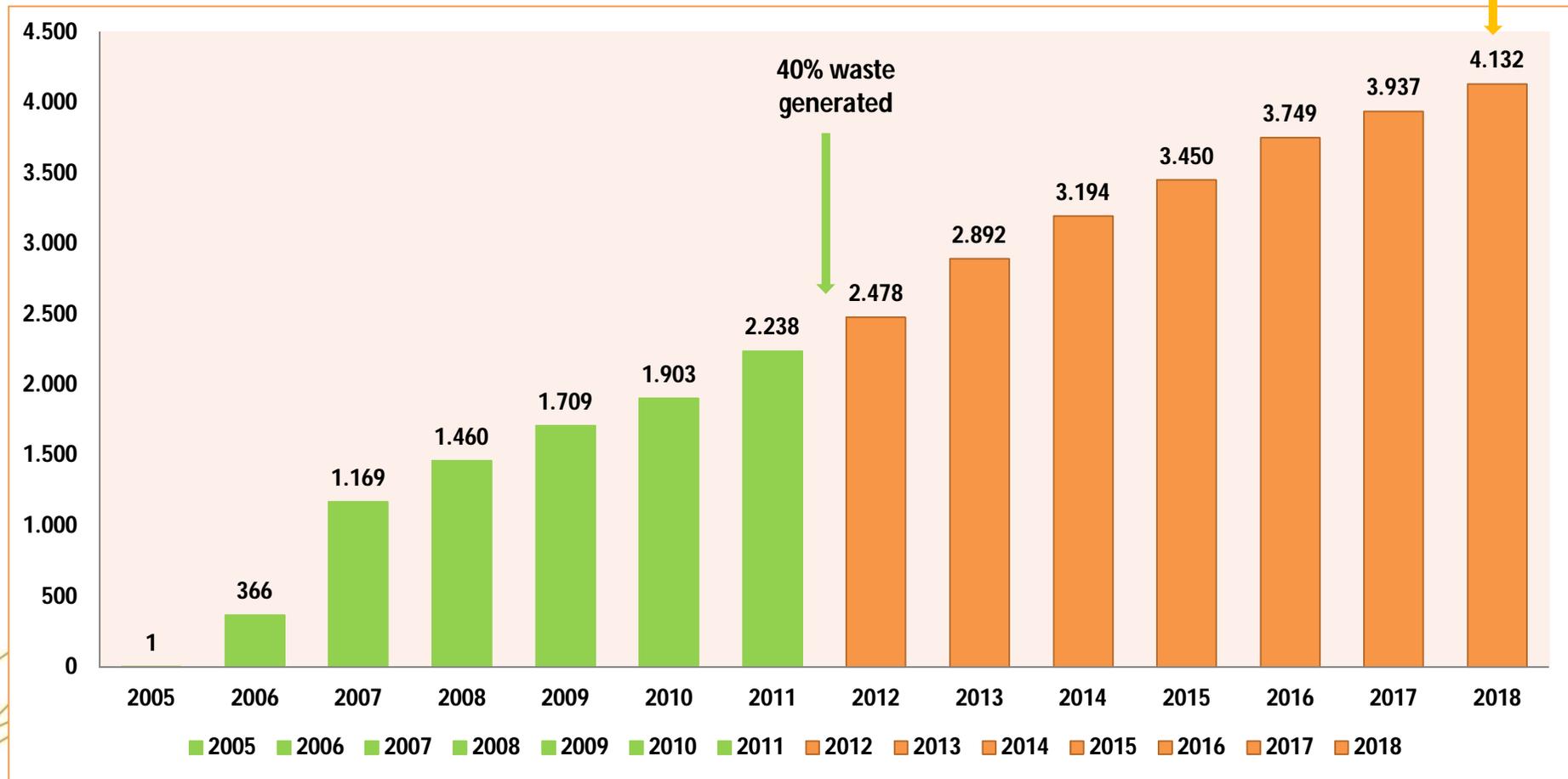
COLLECTION POINTS DEVELOPMENT



OPERATIONAL SCHEME – COLLECTION AND LOGISTIC MODEL

YEARLY FORECAST OF COLLECTED AND RECYCLED NET TONS

> 65% waste generated



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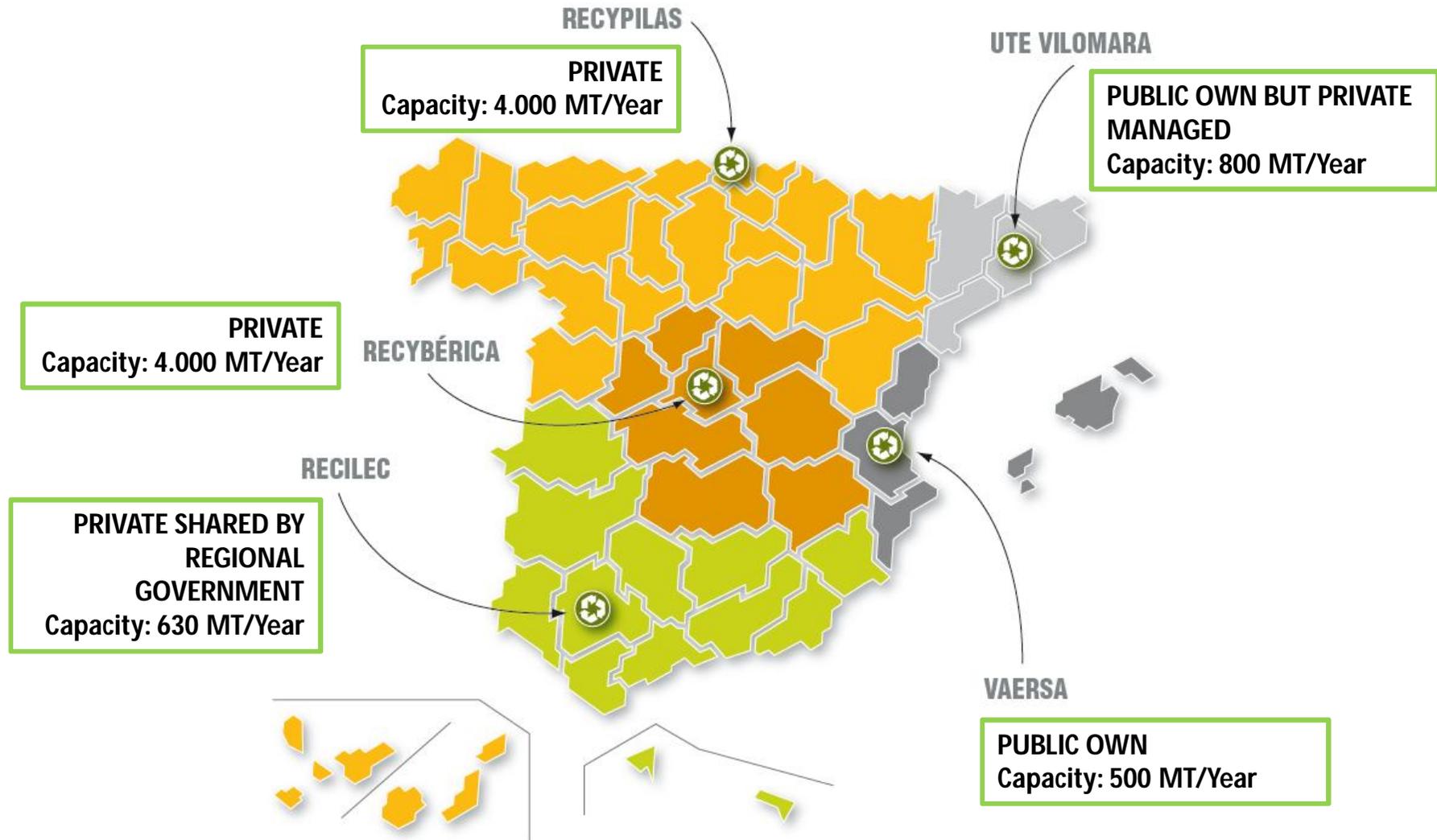
4. Financial sustainability

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OPERATIONAL SCHEME – RECYCLING PROCESS

RECYCLING PLANTS AND LOGISTIC SERVICE PROVIDERS

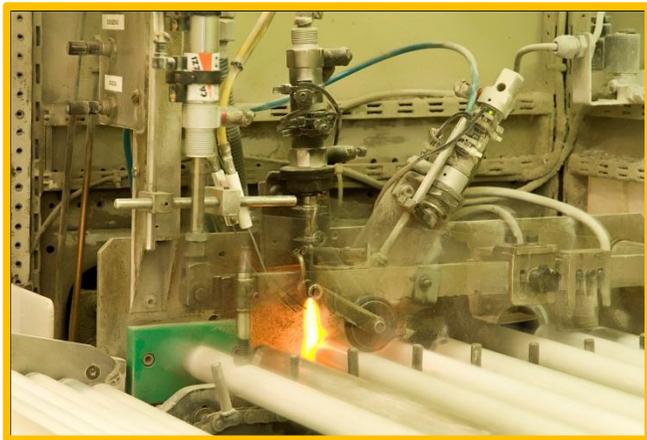


RECYCLING TECHNOLOGIES

FLUORESCENT LAMPS



FL and CFL Crusher



End cut technology

HID Lamps



HID Crusher

Hg Batch Distiller



RECYCLING PROCESS

- The mercury content together with other heavy metals present in discharge lamps make its necessary to manage this sort of waste with an authorise waste management company by using a responsible enviromental process.
- Process overview:



Storage
Handling and
Sorting of
lamps



De-pollution and
recovery of materials



Mercury Distillation

RECYCLING PROCESS



Handling and
Sorting



Cardboard and non WEEE materials



De-pollution and
recovery of materials



Glass



Metals



Fluorescent Powders



Mercury
Distillation



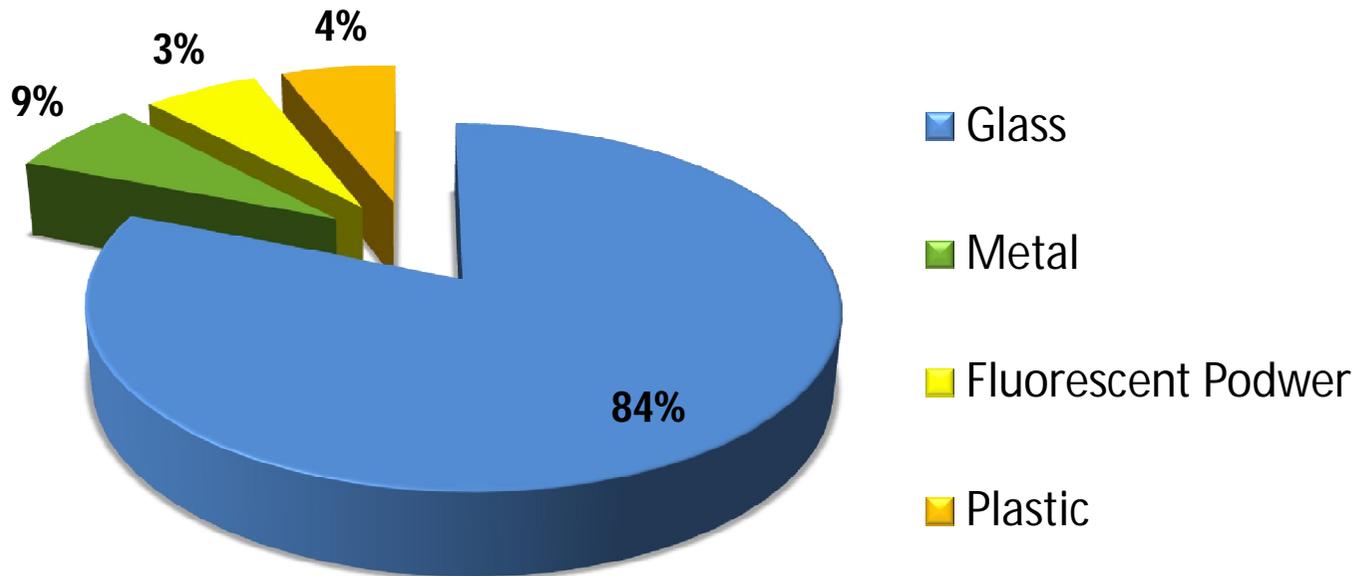
Liquid Mercury



Fluorescent powders without
Mercury

OPERATIONAL SCHEME – RECYCLING PROCESS

OUTPUT MATERIALS OF THE RECYCLING PROCESS

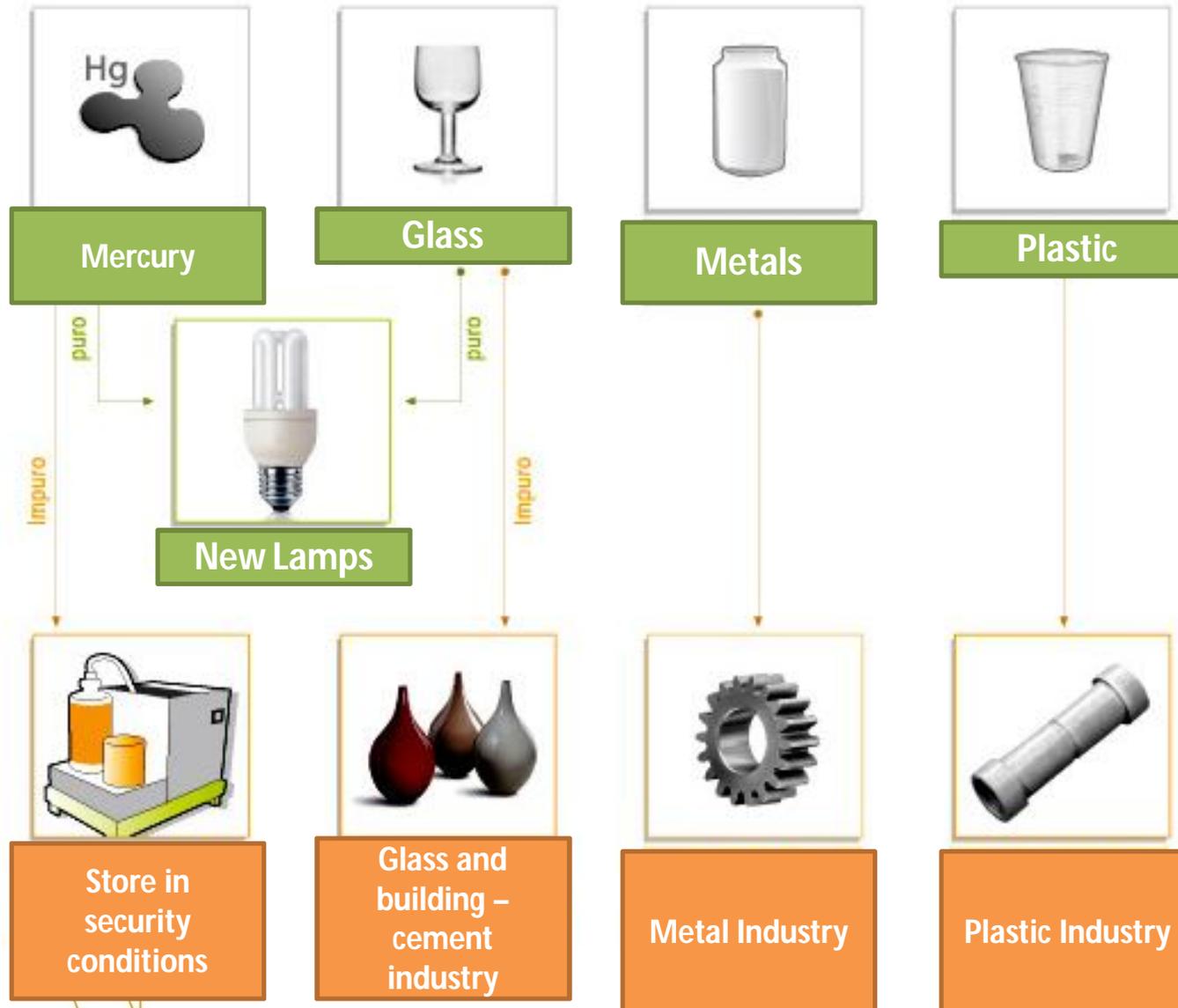


Fluorescent Powder: 3-4% of waste's weight
Rare earths: 15 - 20% on fluorescent powder's weight

	% Recycling and Recovery
RECYPILAS	89,84%
UTE VILOMARA	94,40%
VAERSA	91,02%
RECILEC	85,10%
Average	90,7%

OPERATIONAL SCHEME – RECYCLING PROCESS

OUTPUT MATERIALS OF THE TREATMENT PROCESS



DISTILLATION PROCESS



Fluorescent powders from lamps and other waste containing mercury such as button cells, dental amalgam are placed in the vacuum chamber of the distiller.

Heat is applied at high temperatures, causing the mercury to vaporize.

The organic particles carried by the gases are oxidized in the post combustion chamber, prior to entering the highly efficient cooling traps where mercury condenses into free flowing liquid mercury.

DISTILLATION PROCESS

Liquid mercury is then deposited in iron receptacle of 35 net Kgs of capacity.

This receptacles are then stored in fireproof cabinets before they were sent to **MAYASA** (Almadén) for its purification process before its commercialization till the year 2010 and afterwards for the testing of its stabilization process.



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OPERATIONAL SCHEME – INFORMATION AND AWARENESS – SOME EXAMPLES

RECYCLE LIGHT, RECYCLE LIFE EXHIBITION TOUR FOR INSTALLERS



Exhibition Tour for wholesalers and installers. 5 months through Spain, showing how to recycle lamps.

PROFESSIONAL ADVERTISING

Cada vez somos más, únete.



Empezamos siendo unos pocos, hoy ya somos muchos los instaladores profesionales eléctricos que confiamos en AMBILAMP para reciclar las bombillas de bajo consumo y las fluorescentes.

Únete a nosotros y pásalas a tu distribuidor habitual.

Conoce tu punto de recogida más cercano en www.ambilamp.es



Información y recogidas: 902 102 749



Por logística.

Por facilidad.

Por comodidad.

Por tu empresa.

Por el planeta.

Por todos.

No hay un buen motivo para reciclar. Hay muchos.

AMBILAMP pone a disposición de tu empresa un sistema cómodo y gratuito para recoger las fluorescentes y bombillas de bajo consumo fundidas.

Infórmate en el 902 102 749 y solicita uno de nuestros contenedores para tu empresa.

www.ambilamp.es



Información y recogidas: 902 102 749

RECYCLING SCHOOL TOUR – EDUCATIONAL PROGRAM



Mobile School

Train the Trainer

E-Learning



3 Objetivos

Para el docente:
• Impartir a los alumnos los conocimientos necesarios para comprender el reciclaje.
• Fomentar en los alumnos el interés por el medio ambiente.
• Promover el uso responsable de los recursos naturales.

Para el alumnado:
• Conocer el proceso de reciclaje.
• Comprender la importancia del reciclaje en el medio ambiente.
• Desarrollar habilidades de trabajo en equipo.

4 Descripción de la propuesta educativa

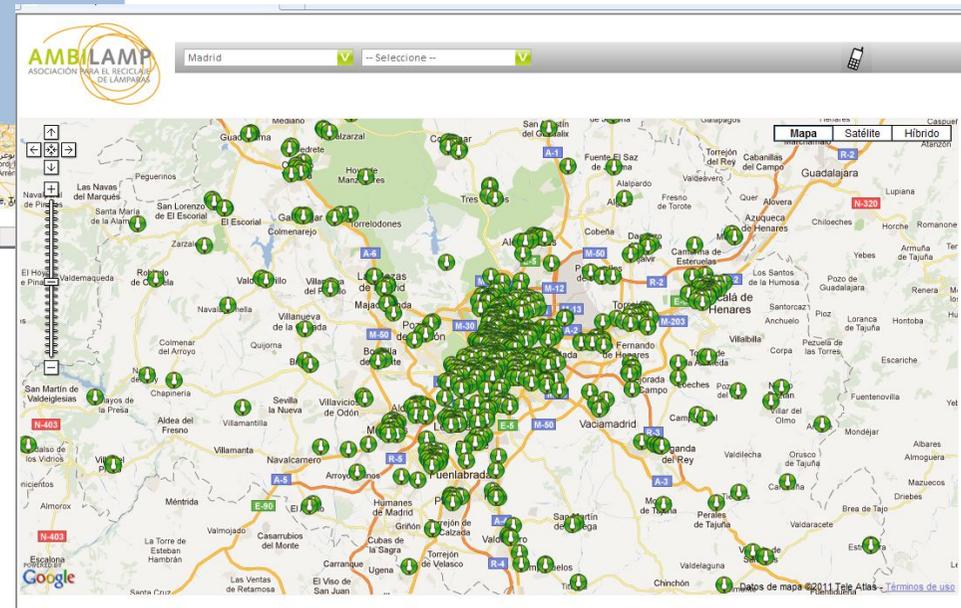
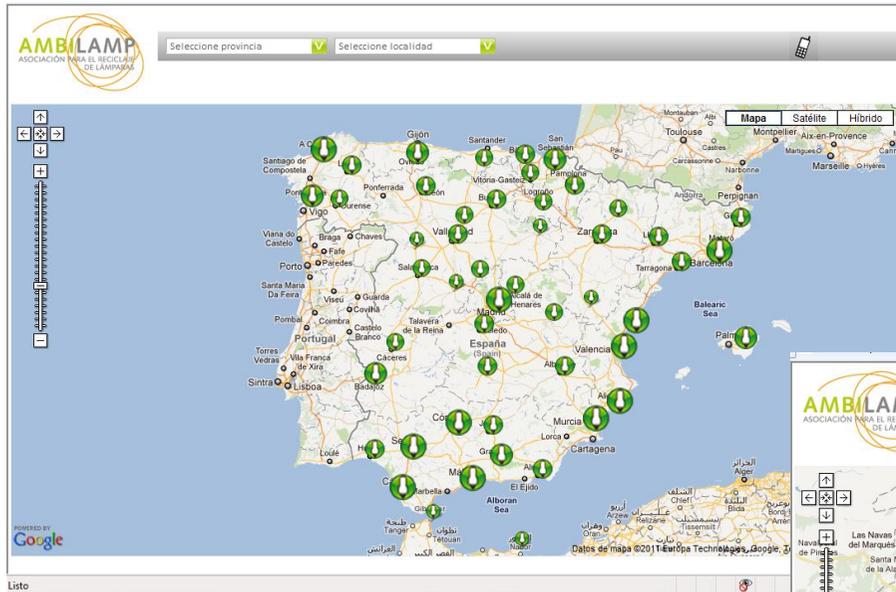
Esta propuesta educativa tiene como objetivo principal proporcionar a los alumnos conocimientos sobre el reciclaje y su importancia en el medio ambiente. Se trata de una actividad que se puede realizar en el aula o en el exterior, y que puede adaptarse a diferentes niveles educativos.

El programa de reciclaje de la escuela de reciclaje de la ciudad de Madrid, que se lleva a cabo desde el año 2005, tiene como objetivo principal proporcionar a los alumnos conocimientos sobre el reciclaje y su importancia en el medio ambiente. Se trata de una actividad que se puede realizar en el aula o en el exterior, y que puede adaptarse a diferentes niveles educativos.



OPERATIONAL SCHEME – INFORMATION AND CALL TO ACTION – SOME EXAMPLES

COLLECTION POINT DIRECTORY WITH GOOGLE MAPS



ALL SMALL AND BIG CONTAINER COLLECTION POINTS INCLUDED

OPERATIONAL SCHEME – INFORMATION AND CALL TO ACTION – SOME EXAMPLES

MASS MEDIA CAMPAIGN FOR CONSUMER

TV Spot 30''

COMPACT FLUORESCENT LAMP



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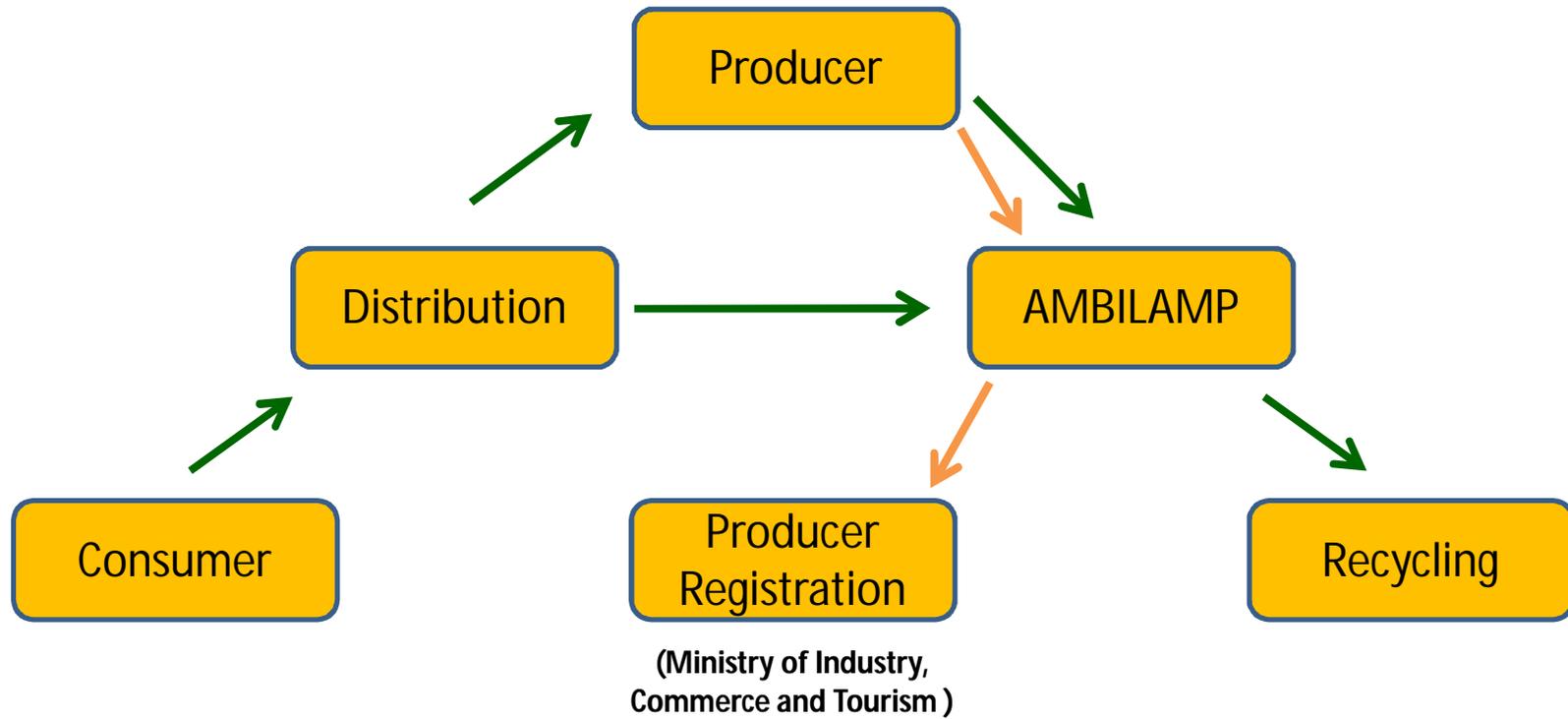
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FINANCIAL SUSTAINABILITY

FINANCIAL SCHEME



(Ministry of Industry,
Commerce and Tourism)

Financial flow



Declarations and information flow



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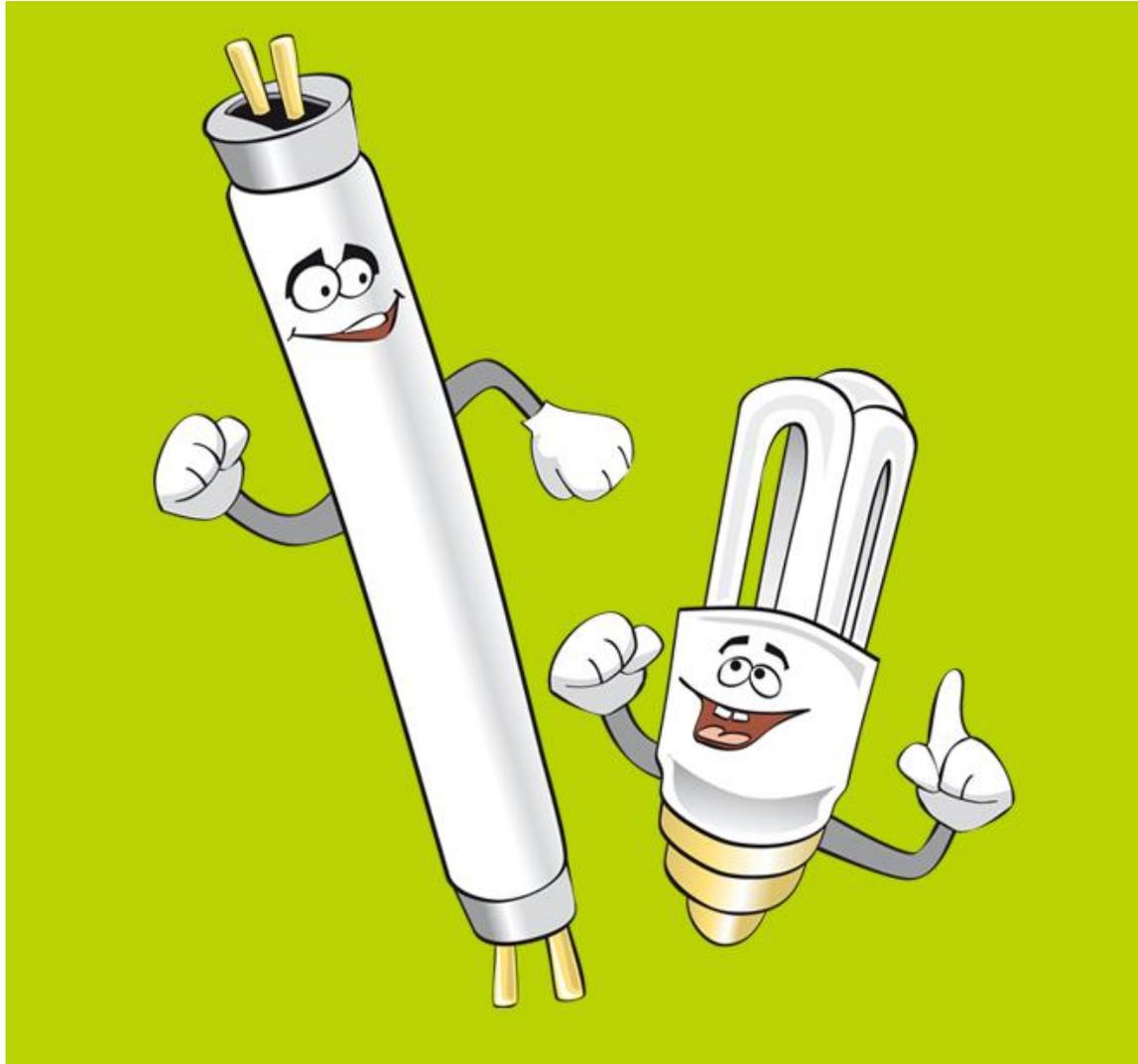
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KEY SUCCESS FACTORS

1. Vision
2. Stakeholders Service Perception
3. Internal Organization Control
4. Sustainable Financial Model with guaranty for future waste C&R - LEDs
5. Free Riders Persecution together with Government
6. Adequate marketing investments
7. Public administration, distribution and social agents implication
8. CRSO Specialization
9. Only one CRSO by country with all producers together
10. ADECUATE, CONSENSUATED AND THOUGHTFUL LEGISLATION



Thank you very much for your attention!!