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TACKLING INTERNATIONAL AIRLINE CATERING: THE LIFE ZERO CABIN WASTE PROJECT

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ZERO CABIN WASTE
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This Project is co-financed by the European Union through the LIFE Program

1. INTRODUCTION

4,43 billion kg of waste produced by passengers in a year (ACI, 2013)

3,1 billions of passengers worldwide in 2013 (Godson, 2014)

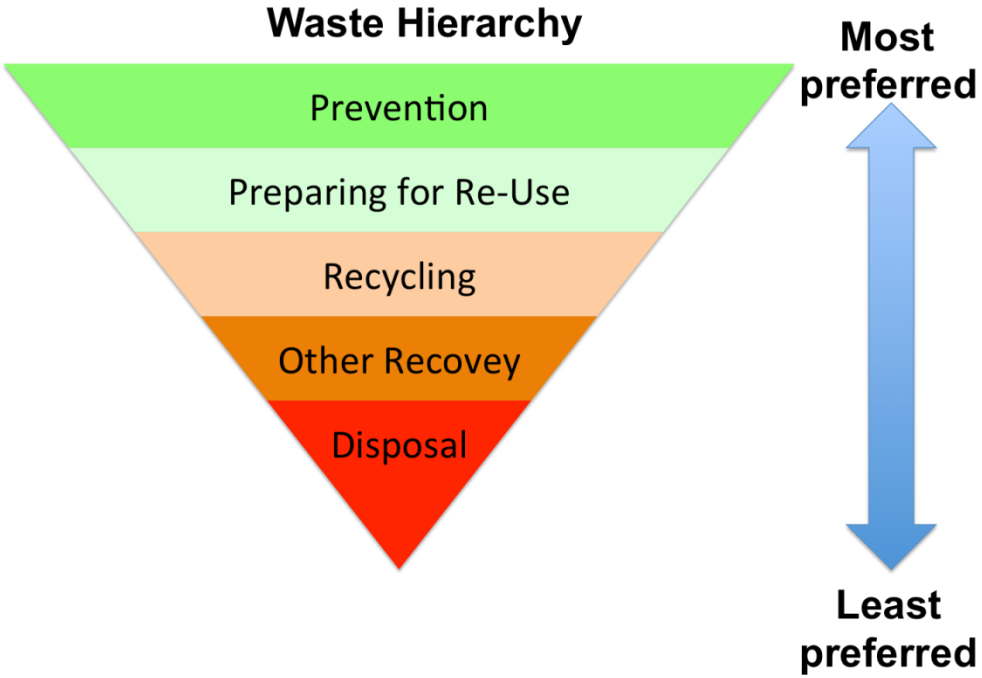
Nowadays:

- Most airlines and catering companies are recycling very little.
- The waste obtained is typically of low quality due to the multiple mixed waste fractions.

1. INTRODUCTION

In the past years companies has tried to tackle the cabin waste:

- ✓ Increasing public environmental consciousness.
- ✓ Progressive price increase in disposal rates



1. INTRODUCTION

Two different types of waste categories:

- **Category 1**: refers to catering waste that comes from outside the EU. (SANDACH) (European Parliament, 2009)

- **Category 3**: catering waste generated in national & EU flights.

This project addresses both waste categories, recycling the recoverables from both streams.

2. THE LIFE+ ZERO CABIN WASTE PROJECT

Current waste flow:

1. Landfilling is a cheap way to dispose of waste in Spain.

2. Food waste ~ 3% of total EU27 GHG emissions (Bio Intelligence Service, 2010)

- No recoverables separation on board
- Cat1 to landfill
- Organic matter to landfill

Future waste flow:

- ⇧ Recycling rates of recoverables
- Recycling organic matter
- Sterelization Cat1 organic matter
- Recoverables separation on board
- Compost Cat3 organic matter
- Biogas production

2. THE LIFE+ ZERO CABIN WASTE PROJECT

Objectives:

1. **Demonstrate** that with **good management practices, stakeholders' engagement** and thorough **coordination, cabin waste can be successfully tackled** -> separation on board, increase recycling and obtain better valorization.

2. **Prove** that **Cat. 1 waste** can be dealt with in a **more environmentally friendly way** without implying risks for **human or animal health** -> Create impact on current legislation and show incentives for policy change.

3. **Reduce** the **high carbon footprint** associated to the generation and inadequate **management of cabin waste** -> Decrease GHG emissions by avoiding landfill, monitor environmental impact through LCA.

4. **Replicate** using **standardized protocols**-> Demonstrate replication potential at Heathrow Airport-

2. THE LIFE+ ZERO CABIN WASTE PROJECT

Following actions constitute the backbone of the project:

1. Preparatory actions.
2. Implementation actions.
3. Monitoring of Technical and Environmental Progress.
4. Public awareness and dissemination of results.
5. Project evaluation and auditing.

2. THE LIFE+ ZERO CABIN WASTE PROJECT

Expected results :

Objective 1	Tackling catering waste
Reducing 5% of waste through minimisation measures such as the redesign of the menus and the use of lighter, re-usable cutlery.	
Recovering, after this reduction, 80% of the total cabin waste diverted from landfill (50% recoverables, 30% MSW 3 and 1) approx. 4,560t per year through the implementation of the main actions related to this objective.	
Disposal in landfill currently represents a cost for the owner of the waste. Proper separation and recycling (including energy recovery) increases waste purity and lowers cost of disposal which will create new jobs and business opportunities in the recycling sector.	

2. THE LIFE+ ZERO CABIN WASTE PROJECT

Expected results :

Objective 2	Resolving Cat. 1 waste
Treat a small fraction of Cat.1 with different methods to prove it innocuous for human and animal health.	
Scale the treatment of Cat.1 waste to industrial levels and measure its impact (LCA).	
Develop, in collaboration with national & EU relevant authorities, an integrated best practice guideline on catering waste management that would include the valorisation of this type of waste too..	

Expected results :

Objective 3	Carbon footprint
The expected results are related to the reduction of GHG emissions, estimated at 4.340t CO2 eq. per year .	

Objective 4	Replication
Upon a successful implementation the consortium members will initiate replication of the model in the UK.	

4. STATE OF THE ART AND MAN INNOVATIONS

We consider three important variables:

1. **Type of waste**. This project focuses on cabin waste understood as catering waste (organic and inorganic) plus newspapers and magazines. There are several companies that they are still struggling to do the same with the catering waste.

2. **Geographical factor**. In other continents, airlines and authorities are more open to tackle the issue of Cat. 1 waste. Contracts of some crews include the obligation to separate on board.

3. **The scale**. Some companies already recycle these waste flows but in a small percentage (8%).

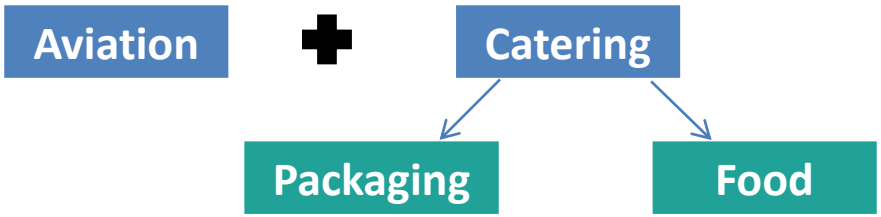
4. STATE OF THE ART AND MAN INNOVATIONS

Main innovations:

- Taking into account the three upper levels of the waste hierarchy pyramid.
- Dealing with the whole waste flow.
- Creation of a best practice code with a very high replicability potential.
- Propose an alternative method to manage category 1 waste which does not exist in Europe.
- Full scale implementation of the actions foreseen.

5. RESULTS AND DISCUSSIONS

- The State of the Art about LCA.



- The characterization of the waste generated in the aircraft.

87 flights-> National, European, Short International, Medium International and Long International

- Ecodesign guideline has been developed

Environmental Impact

Waste

6. CONCLUSIONS

1. The characterization study to plan an efficient and differentiated management and to quantify the level of improvement of the measures that are being implemented throughout the project.

2. The stage of use (airplane life) is the one with the greatest environmental impact. Making parts of the aircraft from lighter materials will save fuel.

3. No published study, airplane food service activity has been included as a further contributor to the environmental impact of aviation activity.

4. The manufacture of reusables produces more impact than those of a single use, but it can be offset by the number of uses of reusables ones and efficiency of washing process.

5. It will be crucial to take into account food origin so that, according to their associated environmental impact, increase the design of menus with lower carbon footprint.

http://www.cabinwaste.eu/en/home/

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