Waste Prevention Project of United Association of Solid Waste Management in Crete (ESDAK)

Δράσεις Πρόληψης Παραγωγής Αποβλήτων από τον EΣΔΑΚ στο πλαίσιο του “LIFE10ENV/GR/622, WASP Tool Development”

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LIFE10ENV/GR/622,
Development and Demonstration of a Waste Prevention Support Tool for Local Authorities – WASP Tool

OBJECTIVE
Investigation, demonstration and optimization of the waste prevention potential at the Local Authority level, in the Mediterranean area, in the different geographic and waste policy context of Greece and Cyprus.

MAIN EU POLICY TARGETED:
Development and Demonstration of a Waste Prevention Support Tool for Local Authorities – WASP Tool

**LOCATION:** Greece & Cyprus

**BUDGET:**
- Total amount: 1.804.081 €
- EE Co-funding: 49.68%

**IMPLEMENTORS:**
- Coordinating Beneficiary: Harokopio University
- Associated Beneficiaries: ESDAK, DEDISA, EPEM, ENVITECH, Municipality of Paralimni

**DURATION:** 01/10/2011 - 30/09/2014
Development and Demonstration of a Waste Prevention Support Tool for Local Authorities – WASP Tool

EXPECTED RESULTS

- Evaluation of the most efficient waste prevention activities
- Development of WASP Tool and 3 Waste Prevention Strategies
- Workshops on the use of the WASP Tool in Greece & Cyprus
- Diffusion of the results of the project in local communities
- Manuals, newsletters, website material, notice boards, publications in press, informative leaflets, scientific material
- European Week for Waste Reduction
Waste Prevention Project of United Association of Solid Waste Management in Crete (ESDAK)

Development and Demonstration of a Waste Prevention Support Tool for Local Authorities – WASP Tool

FIVE (5) SELECTED WASTE PREVENTION ACTIONS BY ESDAK

1. Home composting
2. Reduction of the plastic bag waste
3. Prevention of clothing wastes production
4. Food waste reduction campaign
5. Office waste prevention
1. Home Composting

Waste Prevention Project of United Association of Solid Waste Management in Crete (ESDAK)
1. Home Composting

- Determination of the households characteristics in order to organize an open call (Feb 2013)
- Selection of volunteers in cooperation with Minoistas and the Technical Assistant of ESDAK
- >350 applications
- 170 home composting bins were distributed in the general area of Heraklion (event at Jun 2013)
- Selection of 100 households as a “Main Group”
  Workshop, Leaflet-manual, Questionnaire
1. Home Composting
1. Home Composting

**Equipment**

- 170 home compost bins with lid, suitable for garden use (set directly on the ground) with a capacity of 250 L
- 110 metal pitchforks
- 110 electronic scales $\leq 8$ kg.
- 10 digital metallic thermometers
1. Home Composting

20-25 households failed to produce compost due to:

- Imbalanced watering (high or low moisture)
- Inappropriate composting materials (large quantities of lemon, oranges, etc)

Only 8 families out of 170 asked to be dismissed from the home composting project and returned the equipment!
## 1. Home Composting

**Qualitative characteristics of residues, compost (129 samples-100 bins)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>K13</th>
<th>K19</th>
<th>K54</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture (%)</td>
<td>29.5</td>
<td>74.2</td>
<td>51.8</td>
<td>48.6</td>
</tr>
<tr>
<td>pH</td>
<td>6.8</td>
<td>7.4</td>
<td>4.8</td>
<td>6.9</td>
</tr>
<tr>
<td>EC (mS/cm)</td>
<td>3.25</td>
<td>2.64</td>
<td>2.99</td>
<td>3.21</td>
</tr>
<tr>
<td>TOC (% dm)</td>
<td>29.6</td>
<td>45.0</td>
<td>41.4</td>
<td>36.5</td>
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<tr>
<td>TKN (% dm)</td>
<td>1.15</td>
<td>1.69</td>
<td>2.51</td>
<td>1.96</td>
</tr>
<tr>
<td>Total Coliforms (cfu/100 gr)</td>
<td>$2.8 \times 10^6$</td>
<td>$3.1 \times 10^6$</td>
<td>$2.2 \times 10^2$</td>
<td>$2.7 \times 10^5$</td>
</tr>
<tr>
<td>E. Coli (cfu 100 gr)</td>
<td>$6.8 \times 10^2$</td>
<td>$4.6 \times 10^1$</td>
<td>$5.7 \times 10^1$</td>
<td>$3.7 \times 10^2$</td>
</tr>
</tbody>
</table>
# Qualitative characteristics of compost

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean value of 12 samples (Main Group of 100)</th>
<th>Mean value of 4 samples (Blank Group of 70)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture (%)</td>
<td>41.6</td>
<td>44.3</td>
</tr>
<tr>
<td>pH</td>
<td>7.8</td>
<td>7.6</td>
</tr>
<tr>
<td>EC (mS/cm)</td>
<td>5.56</td>
<td>4.41</td>
</tr>
<tr>
<td>TOC (% dm)</td>
<td>27.2</td>
<td>25.9</td>
</tr>
<tr>
<td>TKN (% dm)</td>
<td>2.05</td>
<td>2.21</td>
</tr>
<tr>
<td>Total Coliforms (cfu /100 gr)</td>
<td>$1.9 \times 10^2$</td>
<td>$5.6 \times 10^2$</td>
</tr>
<tr>
<td>E. Coli (cfu/100 gr)</td>
<td>$5.3 \times 10^1$</td>
<td>$5.9 \times 10^1$</td>
</tr>
</tbody>
</table>
1. Home Composting

Result analysis of the Questionnaire (39 Questions)

- Mostly 4-member family
- Adult’s age: 35-55 years
- 57.5% has a domestic animal
- Aware of recycling and separation at source
- 35% has already composting at home
- Rarely buy products close to expiration date, even on offer
- Never buy perishable foods very close to Exp. date, i.e. dairy products
1. Home Composting

Result analysis of the Questionnaire (39 Questions)

- The daily Average waste diversion due to home composting is estimated to 100 gr/person.

- Between June 2013 and September 2014, in 170 households, more than 12,000 kg of food wastes of vegetable origin, were composted!
2. Reduction of plastic bag waste

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2. Reduction of plastic bag waste

In the city of Heraklion, Crete

- Development of 15,000 non-woven folding reusable bags for multiple uses bearing a relevant barcode.

- 2 partners supermarket chains «Chalkiadakis» and «Festos» agreed to provide 1% discount on the amount of purchases >30 €.

- Promotion and distribution of reusable shopping bags in various events in Heraklion (newsletters, articles in local press, local TV, radio).

- A brochure promoting the reusable shopping bags of ESDAK, pointing out the offered discount, was produced by ESDAK.

Collection of data provided by the super markets.
2. Reduction of plastic bag waste

March 2014
Centre of Heraklion
2. Reduction of plastic bag waste

Reusable bag “hits” in “CHALKIADAKIS” supermarkets
2. Reduction of plastic bag waste

Reusable bag “hits” in “FESTOS” supermarkets
2. Reduction of plastic bag waste

Tips

- 1 reusable bag = 2 supermarket plastic bags.
- Other uses of the reusable bag could not be recorded (other supermarkets, shops, etc).
- Promotion by supermarkets was more effective than the distribution open event.
Conclusions

- Between March 2014 and October 2014 more than 5,558 hits were recorded considering the limit of 30€ for 1% discount.
- At least 10,000 plastic bags were avoided = spar 1,650 €.
- Today reusable bag is used less, even there is still the 1% benefit for the citizens.
- The campaigns for public awareness should be in a more frequent and constant basis and focused inside the supermarkets.
3. Prevention of clothing wastes production
3. Prevention of clothing wastes production

In the city of Heraklion, Crete

- 5 years agreement: Municipality of Heraklion – ESDAK - RECYCOM with no economic cost for either the municipality or ESDAK.
- 101 red bins were placed in the city.
- Start at: March 2014.
- RECYCOM offers 100€/month in supermarket kinds to the Municipality’s Social Grocery.
- Brochure distribution during the awareness raising campaign (central square of the Municipality of Heraklion, March 2014).
- A relative newsletter was sent to the educational institutes of the town.
3. Prevention of clothing wastes production

Tips

- Textile bin capacity ≈ 100 kg
- Bin emptied ≈ once a month
- The collected textile are packed and temporarily stored in Heraklion
- Shipping to RECYCOM facilities in Athens for separation, occurs each 5 months
- Only 10 bins have been moved to new places

Bins installed in the entrance of supermarkets have been really effective!
3. Prevention of clothing wastes production

**Acceptable Items:**

- Clean clothing
- Paired shoes
- Purses, belts
- Household linens (towels, sheets, etc)

**Non Acceptable Items:**

- Dirty or wet textiles
- Rugs and carpeting
3. Prevention of clothing wastes production

Red bin collected streams 2014 (32.700 kg)

- Clothe wear, Footwear, linen a' class (slightly used) - 6.88%
- Clothe wear, Footwear, linen b' class (very used) - 21.41%
- Toys - 28.13%
- Clothe wear, Footwear, linen (non reusable, for recycling) - 30.89%
- Residual - 12.69%
3. Prevention of clothing wastes production

Red bin collection 2014-2015

- MAR-JUL 2014: 12,700 kg
- AUG-DEC 2014: 20,000 kg
- JAN-MAY 2015: 30,000 kg

Textile waste prevention ≈ 0.3 kg/person/yr
4. Food waste reduction campaign
5. Office waste prevention
5. Office waste prevention

A) PAPER

- Supply of new printers for making double-sided pages.
- Reuse of printed paper for keeping notes, printing two pages in one.
- Separate disposal of paper and newspapers (a second small bin was placed in each office).
- Cooperation with a paper collection and recycling company.
- Computer files instead of paper files when possible.
- E-mail instead of fax or printing.
5. Office waste prevention

A) OTHER OFFICE WASTES

- Donate old PC to primary schools.
- Recycling of toner cartridges.
- Reuse of other office stuff (clips, envelopes, lever arch files, etc).
- Encourage staff to use reusable coffee mugs, cloth towels instead of kitchen roles and paper napkins.
- Installation of a water filtration system instead of the use of table water (elimination of PET wastes).
5. Office waste prevention

ACHIEVEMENTS

10 employees saved:

- 10,000 paper pages/yr
- 9,500 plastic glasses/yr
- 55 kitchen roles/yr
- 250 PET bottles/yr (10L)
Links

✓ http://wasptool.hua.gr
✓ http://www.esdak.gr
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