# Waste prevention scenarios using a web-based tool for local authorities

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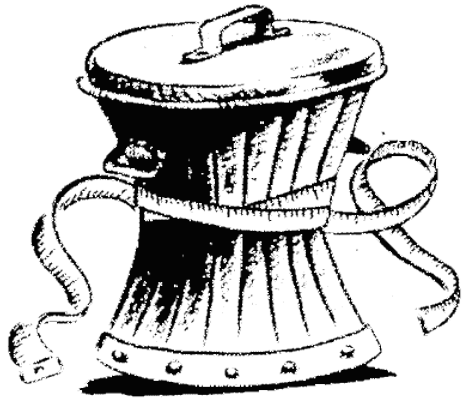
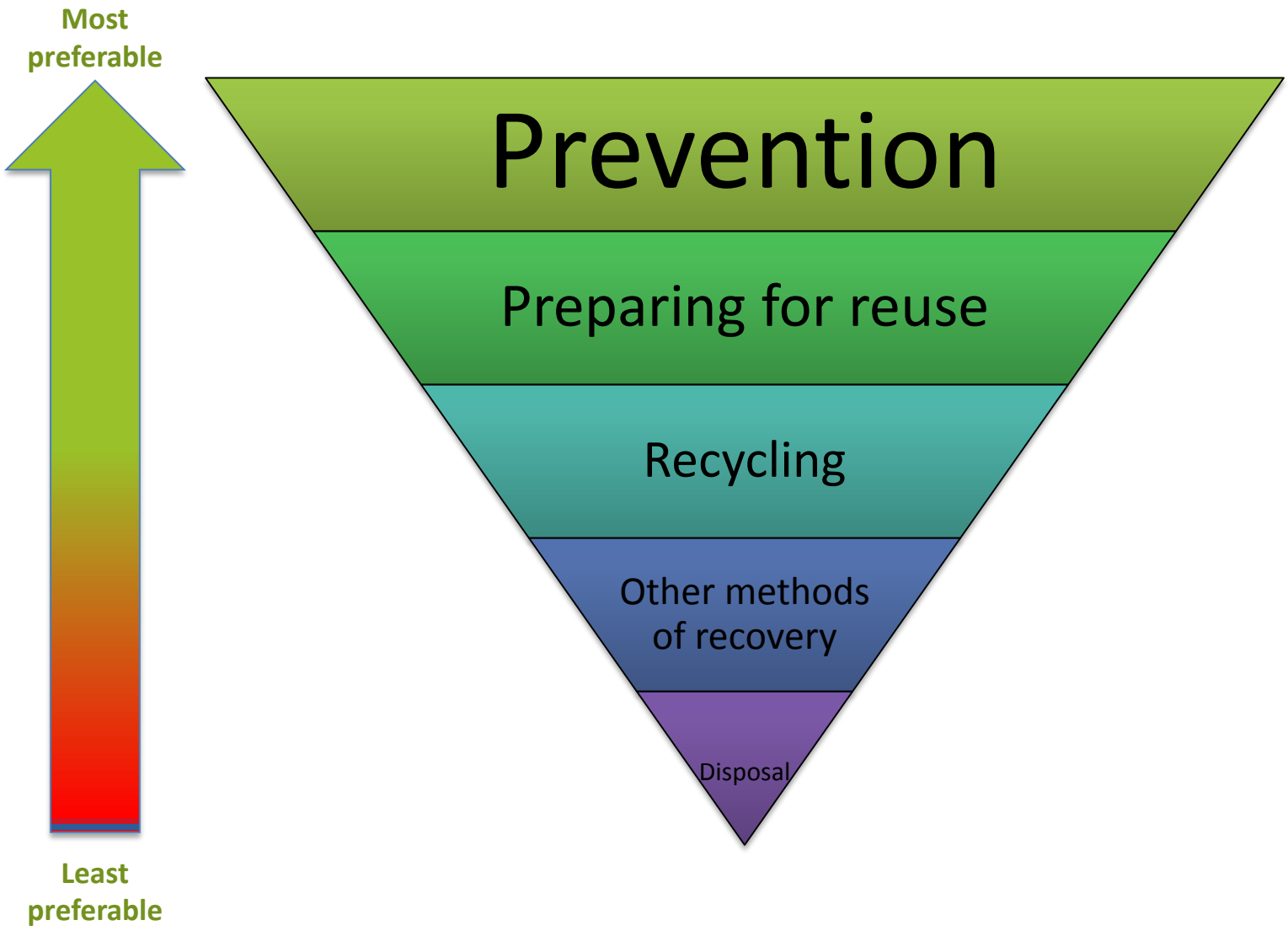
# Structure of the presentation

- Background: Waste prevention & web-based tools
- The project & the WASP-Tool application
- Waste prevention scenarios
- Conclusions




Most preferable
Prevention
Preparing for reuse
Recycling
Other methods of recovery
Disposal
Least preferable

According to the revised Waste Framework Directive, **waste prevention** embraces all the measures taken **before** a substance, material or product has become waste, that reduce the:

- the quantity of waste,
- the adverse impacts of the generated waste on environmental and human health, and
- the content of harmful substances in materials and products.

- Limitation of unnecessary consumption
- Design of products that generate less waste

Actions of strict avoidance

+

Forms of prevention through diversion of waste flows

→

WASTE PREVENTION

Reuse, repair, refurbishment

**BEFORE** they are discarded

## Monitoring and/or decision-support tools related to waste prevention

- *FENIX (LIFE08 ENV/E/135)*
- *Green Commerce – Herramienta autodiagnóstico (LIFE08 ENV/E/138)*
- *Household Waste Prevention Toolkit (WRAP, UK)*
- *Miniwaste (LIFE+ 2010-2012)*
- *Pre-waste (INTERREG IVC, 2010-2012)*
- *WAMPS (INTERREG IVB*
- *WASTE-C-CONTROL (LIFE09 ENV/GR/294)*

Indicatively

Web-based tools

WASP Tool

## *WRAP household waste prevention toolkit*

*Produced by WRAP*

*To help the user to develop or update a waste prevention plan*

*www.wrap.org.uk/content/household-waste-prevention-toolkit*


## *Mini Waste*

*Produced by the Miniwaste LIFE+ project*

*To help communities to assess and monitor the efficiency of strategies for biowaste prevention within their territory*

*www.miniwaste.eu/en/tool-box/miniwaste-tool.html*


## *PreWaste*

*Produced by the Pre-Waste project, INTERREG IVC*

*To assist Local Authorities monitor waste prevention actions through a diagnosis and monitoring tool*

*Webtool.prewaste.eu/Login/Login.aspx*

**The WASP Tool project**
*(LIFE 10 ENV/GR/622)*
WASP stands for **Was**te **P**revention

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

The project is co-funded
by the European Union LIFE+ programme

Duration: 01.10.2011 to 30.09.2014

Project location: Greece and Cyprus

Project partners:

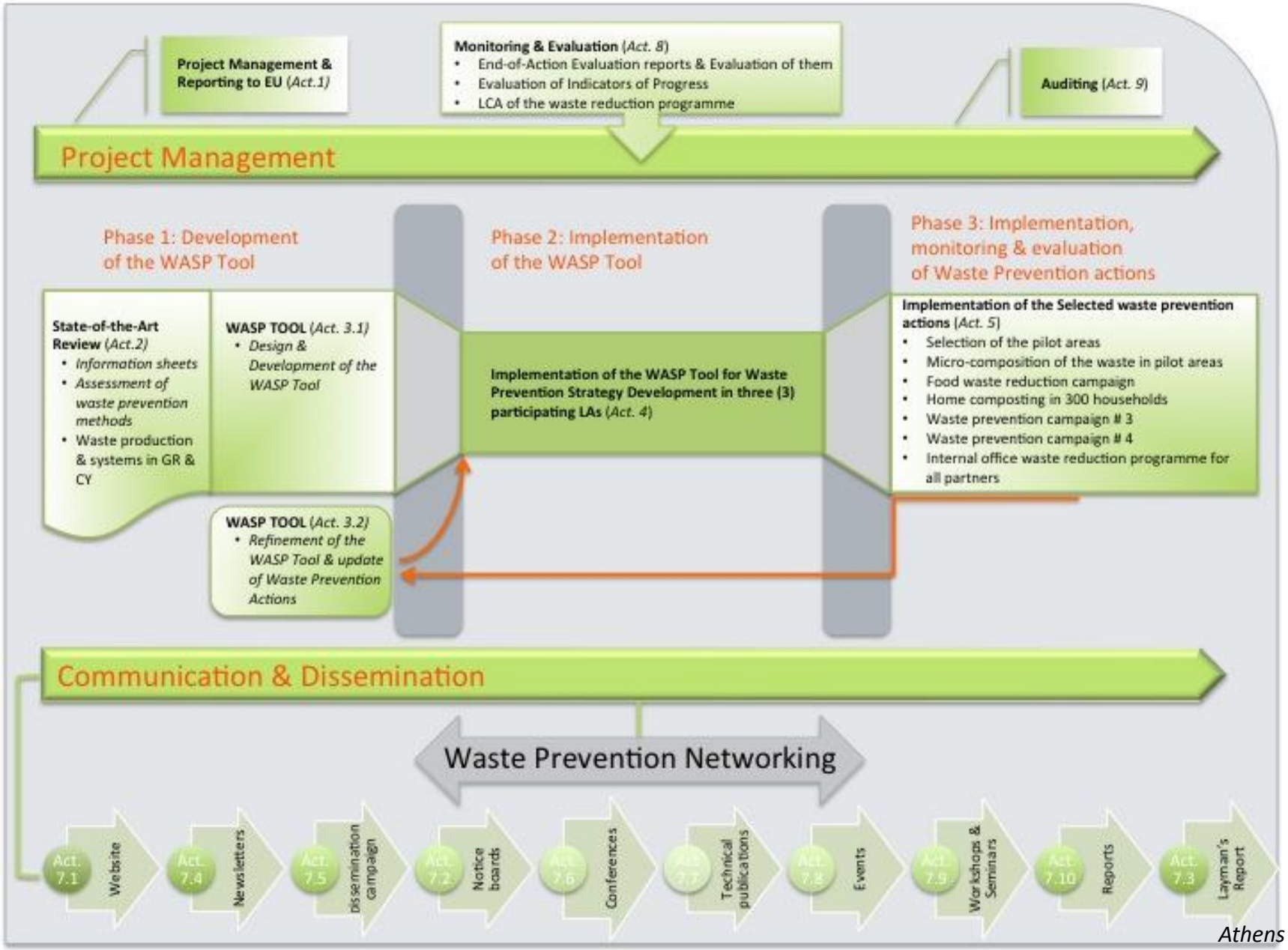
ΔΕΔΙΣΑ

εσδακ ενιαίος σύνδεσμος διαχείρισης απορριμμάτων Κρήτης

ΕΠΕΜ

ENVITECH

ΔΗΜΟΣ ΠΑΡΑΛΙΜΝΙΟΥ
PARALIMNI MUNICIPALITY


Project Management & Reporting to EU (Act.1)
Monitoring & Evaluation (Act. 8)
• End-of-Action Evaluation reports & Evaluation of them
• Evaluation of Indicators of Progress
• LCA of the waste reduction programme
Auditing (Act. 9)
Project Management
Phase 1: Development of the WASP Tool
Phase 2: Implementation of the WASP Tool
Phase 3: Implementation, monitoring & evaluation of Waste Prevention actions
State-of-the-Art Review (Act.2)
• Information sheets
• Assessment of waste prevention methods
• Waste production & systems in GR & CY
WASP TOOL (Act. 3.1)
• Design & Development of the WASP Tool
WASP TOOL (Act. 3.2)
• Refinement of the WASP Tool & update of Waste Prevention Actions
Implementation of the WASP Tool for Waste Prevention Strategy Development in three (3) participating LAs (Act. 4)
Implementation of the Selected waste prevention actions (Act. 5)
• Selection of the pilot areas
• Micro-composition of the waste in pilot areas
• Food waste reduction campaign
• Home composting in 300 households
• Waste prevention campaign # 3
• Waste prevention campaign # 4
• Internal office waste reduction programme for all partners
Communication & Dissemination
Waste Prevention Networking
Act. 7.1 Website
Act. 7.4 Newsletters
Act. 7.5 Dissemination campaign
Act. 7.2 Notice boards
Act. 7.6 Conferences
Act. 7.7 Technical publications
Act. 7.8 Events
Act. 7.9 Workshops & Seminars
Act. 7.10 Reports
Act. 7.3 Layman's Report

# WASP-Tool application

The Waste Prevention Decision Support Tool (WASP-Tool) is a web-based decision support tool designed to assist **Local Authorities** to select and implement the optimum waste prevention programmes for their local circumstances and prepare their Waste Prevention Strategies.

The WASP-Tool utilises the information and analysis from the extensive State-of-the-Art review and is developed in Greek to reflect Greek and Cypriot waste data, context and waste prevention potential, with selected information material available in English (for example, recipes of Mediterranean cuisine utilising food leftovers).

The tool is mainly developed by **Harokopio University**, using the input regarding current waste characteristics, management practices and local social, economic, and cultural conditions / habits from the other participating partners.

# Design and Development of the WASP Tool

*The WASP-Tool is a web-based decision support tool designed to facilitate the selection and the implementation of the optimum waste prevention scheme for the participating LAs*

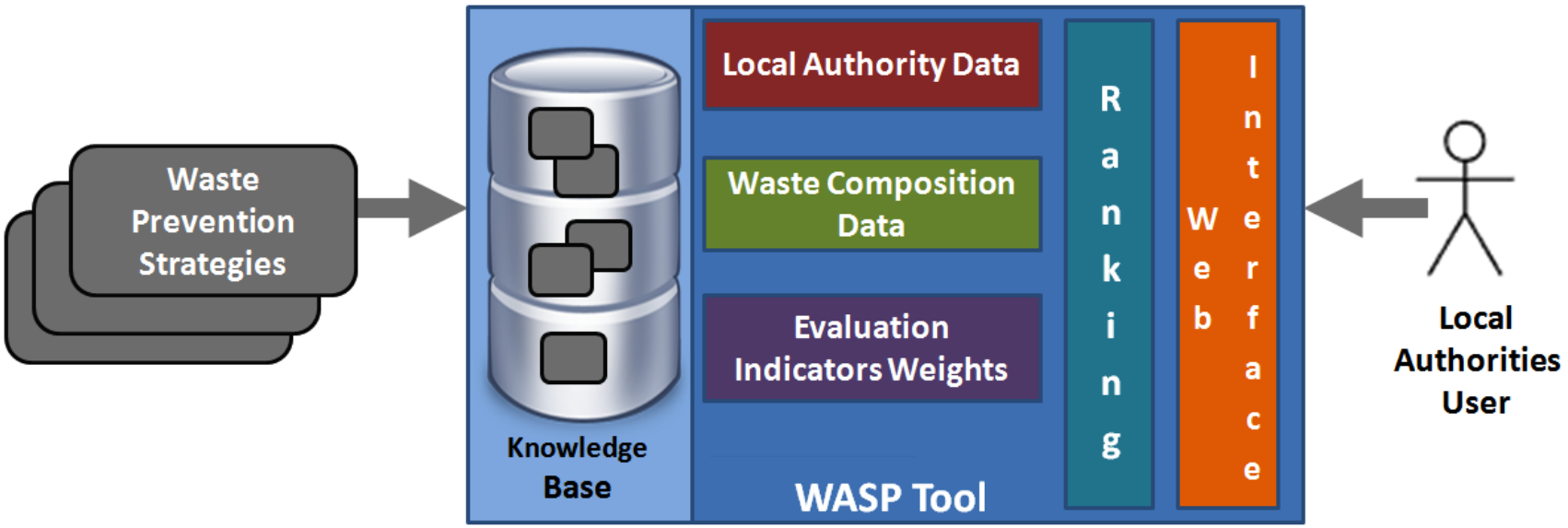
*The WASP-Tool is developed in two stages:*

- *design and development of the WASP-Tool, and*
- *refinement of the WASP-Tool and update of the Waste Prevention Strategies-WPS) of the Project's Technical Part.*

- *The first stage is completed while the second is was started in June 2014.*

# Design and Development of the WASP Tool

## Architecture of WASP Tool




To assist LA's to prepare and/or improve their waste prevention strategy

# Design and Development of the WASP Tool



## Indicators used in the WASP-Tool

- reduction of the produced waste quantity (tn/year)
- potential $CO_2$ reduction (kg/year)
- waste diverted from landfilling (tn/year)
- implementation cost (5-year in €)
- number of employment positions created
- implementation difficulty (scale 1-3)
- required citizen behavioural change (scale 1-3)
- appropriateness for application on a local level (scale 1-3)

The **target materials** (biowaste, metal, plastic etc) for each waste prevention strategy are indicated

## Actions

The knowledge base incorporated in WASP Tool stores data concerning the environmental impact of the following categories of waste prevention actions:

- Home composting
- Act against food waste generation
- Encouraging refillable and returnable packages
- Promoting reusable bags
- Reducing paper use in the office
- Reducing unwanted mail and advertising leaflets
- Promoting furniture repair
- Promoting WEEE prevention
- Donation/ repair of clothes and shoes

# Design and Development of WASP Tool



WASP Tool is designed for **non-expert users**; for this reason, optimal values for each step of the process are predefined in the system.

# The WASP-Tool in practice

- Biowaste
- Paper
- Metals
- Plastics
- Glass
- Other

The sum of the categories should sum up to 100.

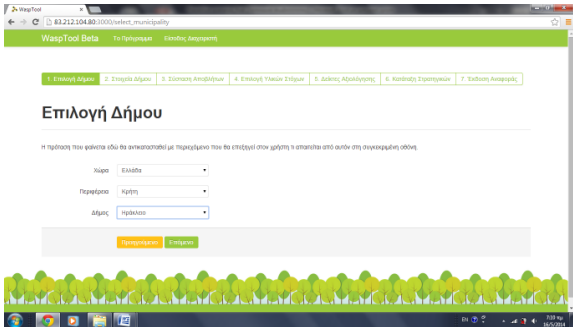
The WASP-Tool is hosted in the project's website: wasptool.hua.gr

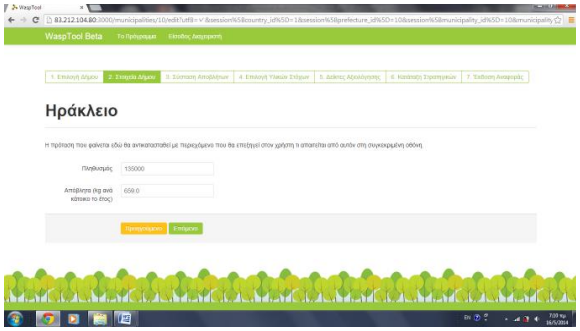
Enter the name of the country, prefecture and municipality

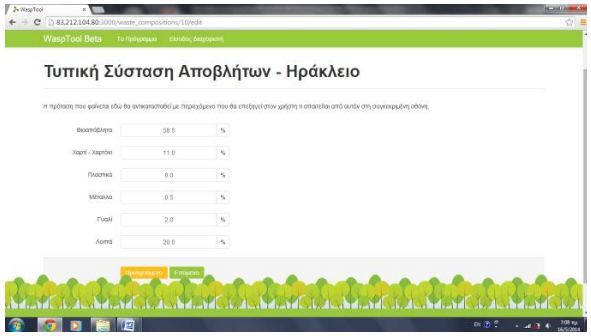
Enter the population and waste generation per capita

The breakdown of waste is introduced

Assignment of the relative weight for each indicator

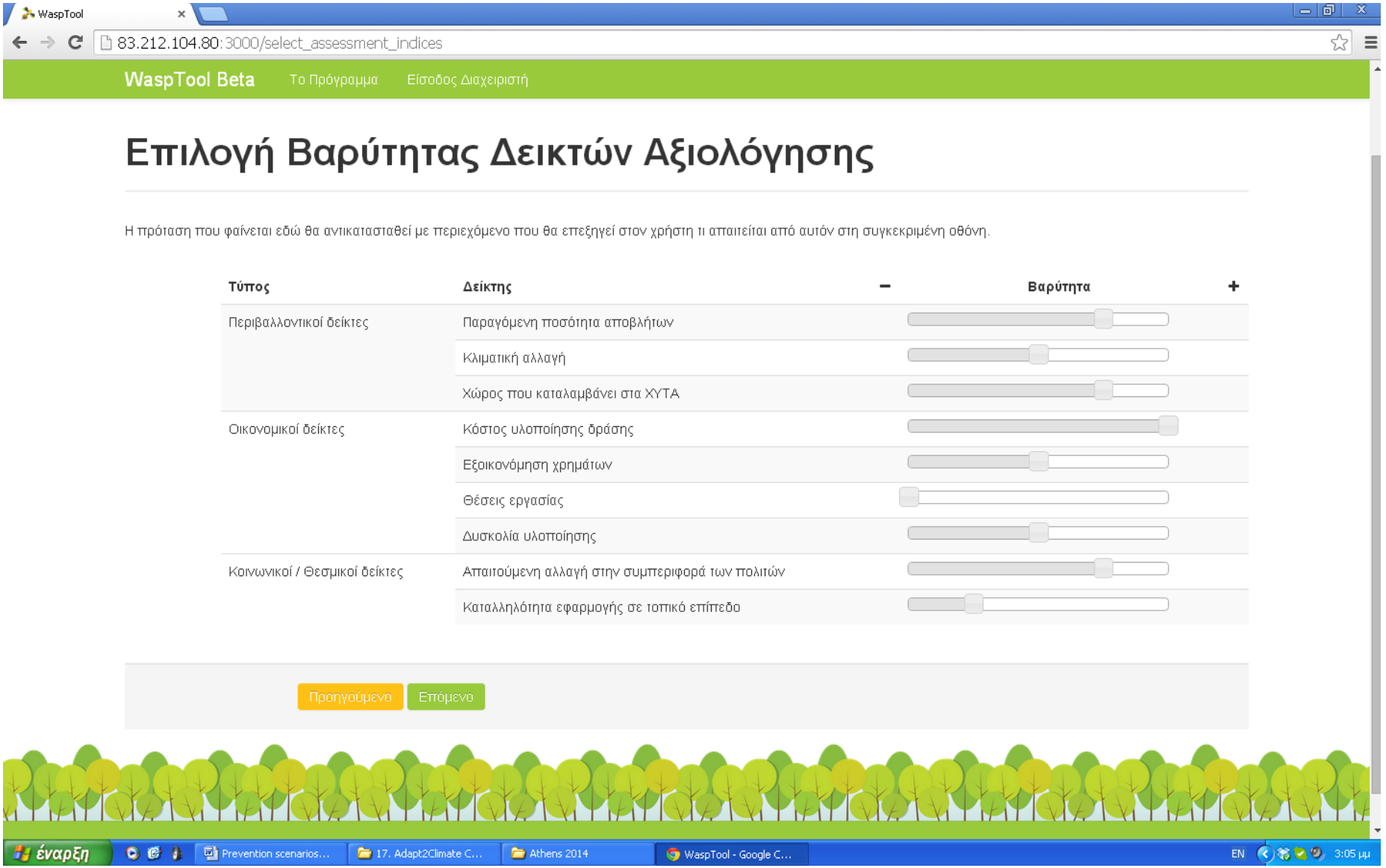


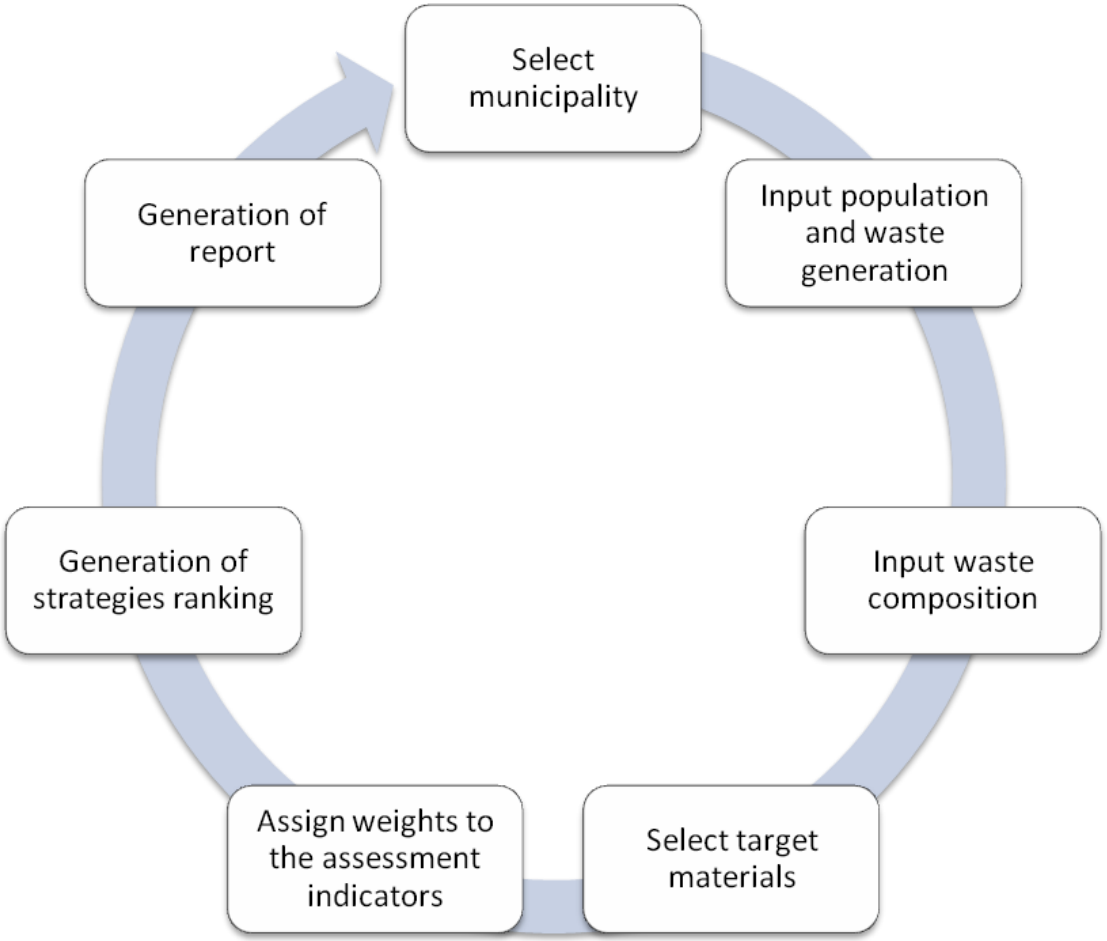



# Design and Development of WASP Tool

WASP-Tool



# Overview of the execution algorithm of the WASP- Tool

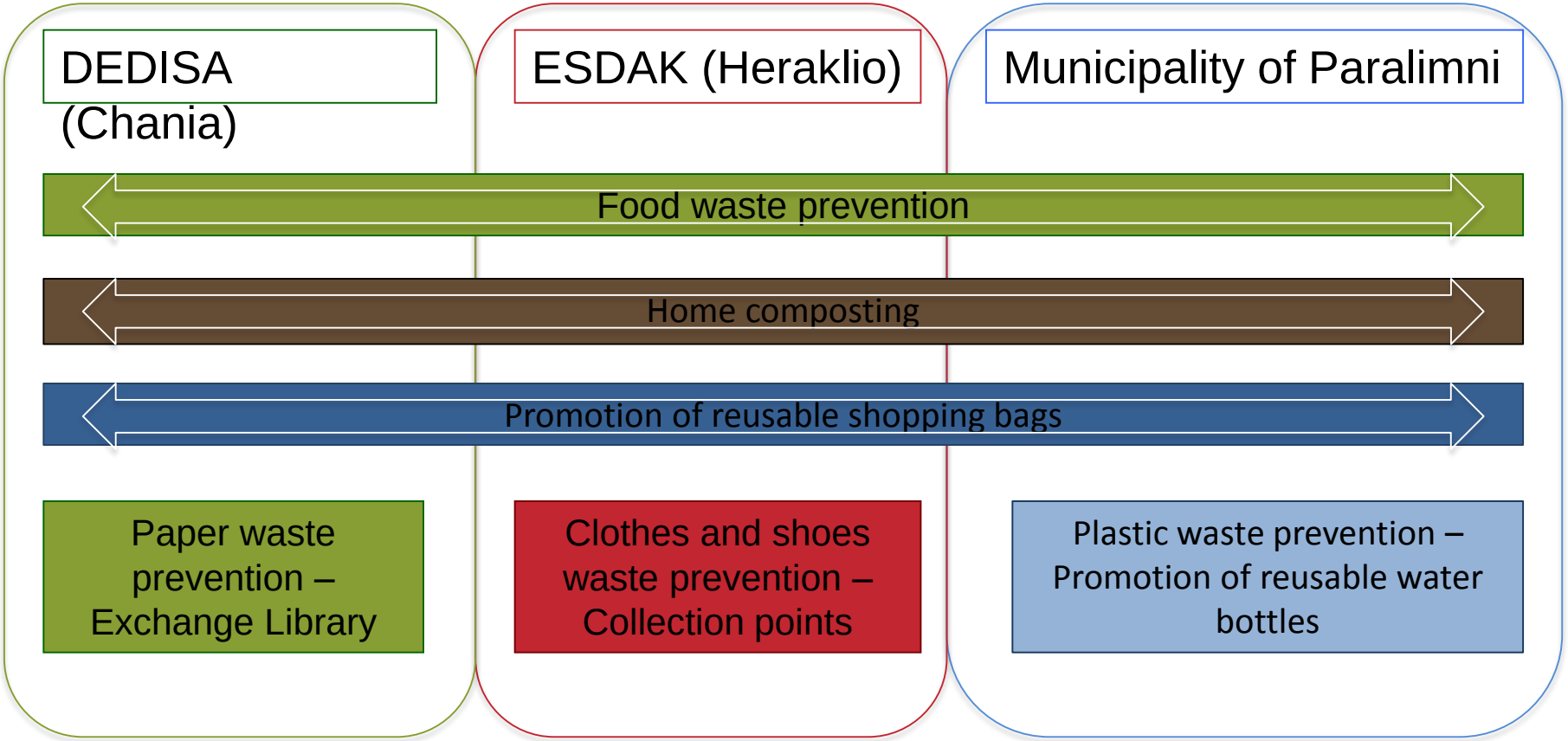


| STRATEGY TITLE | HOME COMPOSTING | | | | |
|---|---|---|---|---|---|
| STRATEGY TYPE | REDUCTION | | | | |
| TARGET MATERIAL | BIOWASTE (263 kg/cap.year food waste and garden) | | | | |
| TARGET GROUP | 167,800 residents | | | | |
| APPLICATION AREA TYPE | URBAN/RURAL | | | | |
| ACTION ASSESSMENT INDICATORS | Environmental indicators | WASTE GENERATED | BEFORE | tn/year | 44,200 |
| | | | AFTER | tn/year | 32,904 |
| | | CLIMATE CHANGE (Reduction potential of $CO_2$ eq.) | BEFORE | tn/year | - |
| | | | AFTER | tn/year | 3,928.9 |
| | | LANDFILL VOLUME | BEFORE | m3/year | 58,933 |
| | | | AFTER | m3/year | 43,872 |
| | | DIVERSION FROM LANDFILL | BEFORE | tn/year | - |
| | | | AFTER | tn/year | 11,296 |
| | Financial indicators | COST OF STRATEGY IMPLEMENTATION | AFTER | €/year | 3,859,469 |
| | | SAVINGS DUE TO LANDFILL DIVERSION | | €/year | 282,388 |
| | | JOBS CREATED | | Per year | 168 |
| | | DEGREE OF IMPLEMENTATION DIFFICULTY | AFTER | 1:High<br>2: Average<br>3:Low | 3 |
| | Social / Political indicators | % REQUIRED CHANGE IN CITIZENS' BEHAVIOUR | AFTER | 1:High (>70%)<br>2:Average (45-65)<br>3:Low (<40%) | 2 |
| | | FEASIBILITY OF APPLICATION AT THE LOCAL LEVEL | AFTER | 1: High<br>2: Average<br>3: Low | 1 |

# Implementation of the WASP-Tool in Crete (GR) and Paralimni (CY)

Implementation

## The Interventions



**WASP-Tool** is developed and implemented via identification and evaluation of different waste prevention activities using **Life-Cycle thinking** for municipalities.

Testing the utilisation of a waste prevention support tool in **two countries** that share many similarities and characteristics of the Mediterranean space, but still posing many differences, is of particular interest.

The toolkit can help produce or update a **waste prevention strategy** in other Mediterranean countries that face similar problems with their waste management.

Thank you
for your attention!

The WASP Tool project (LIFE10 ENV/GR/622) is co-funded by the European Union LIFE+ programme

**http://wasptool.hua.gr**

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