



Harokopio University



Food waste within households: a review on the generated quantities and potential for prevention

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Food wastage

Food loss

Food waste

Agricultural
production

Harvest

Processing

Distribution
and Retails

Restaurants
and Catering

Households

Food waste is
*“composed of raw or cooked food materials
and includes food loss, before,
during or after meal preparation in
the household,
as well as food discarded in the
process of manufacturing,
distribution, retail and food service
activities”*

(European Commission 2011)

Food waste is generated throughout the food
chain



Food loss in the field



Length



Diameter



C-Shape



S-Shape



Broken



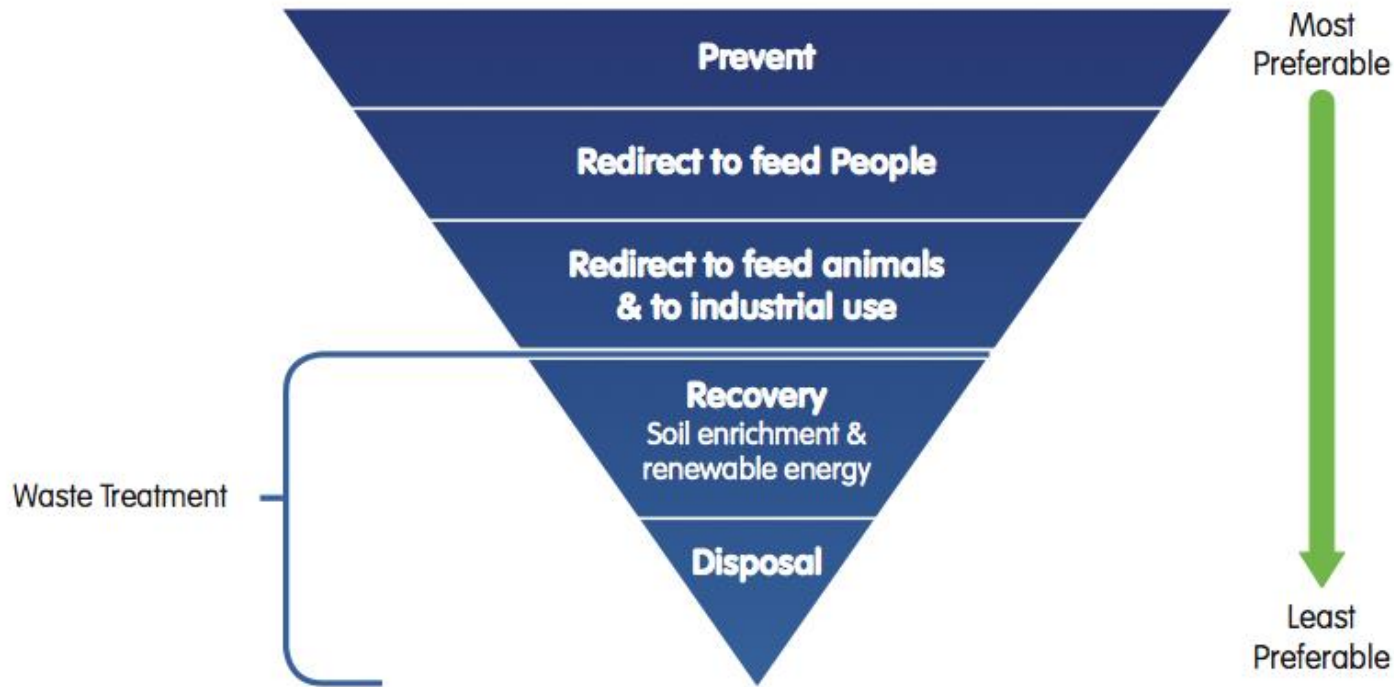


Since significant resources are required for food production, manufacturing, transportation, storage, retailing and preparation, **food waste is a waste of valuable resources with obvious economic and environmental implications.**

Moreover, food waste brings up **a moral issue**: reduction of the amount of food wasted may play an important role in combating global hunger.



Food waste hierarchy



Source: Food Drink Europe (Food Wastage Toolkit), based on existing food waste hierarchies)



About **1/3 (≈ 1.3 billion tonnes per year)** of the food for human consumption is wasted globally (FAO, 2011)

In Europe about **90 million tonnes** of food waste are generated annually

(agricultural food waste + fish discards are excluded)



Source: Love food Hate waste



Source: www.nrdc.org



Scale of the problem



The contribution of each sector differs substantially due to a range of reasons dependent on the socio-economic conditions of each country.

Developing countries generate as much food waste as industrialized ones.

- in developing countries, over 40% of food losses happen after harvest and during processing
- in industrialized countries, over 40% occurs at retail and consumer level.

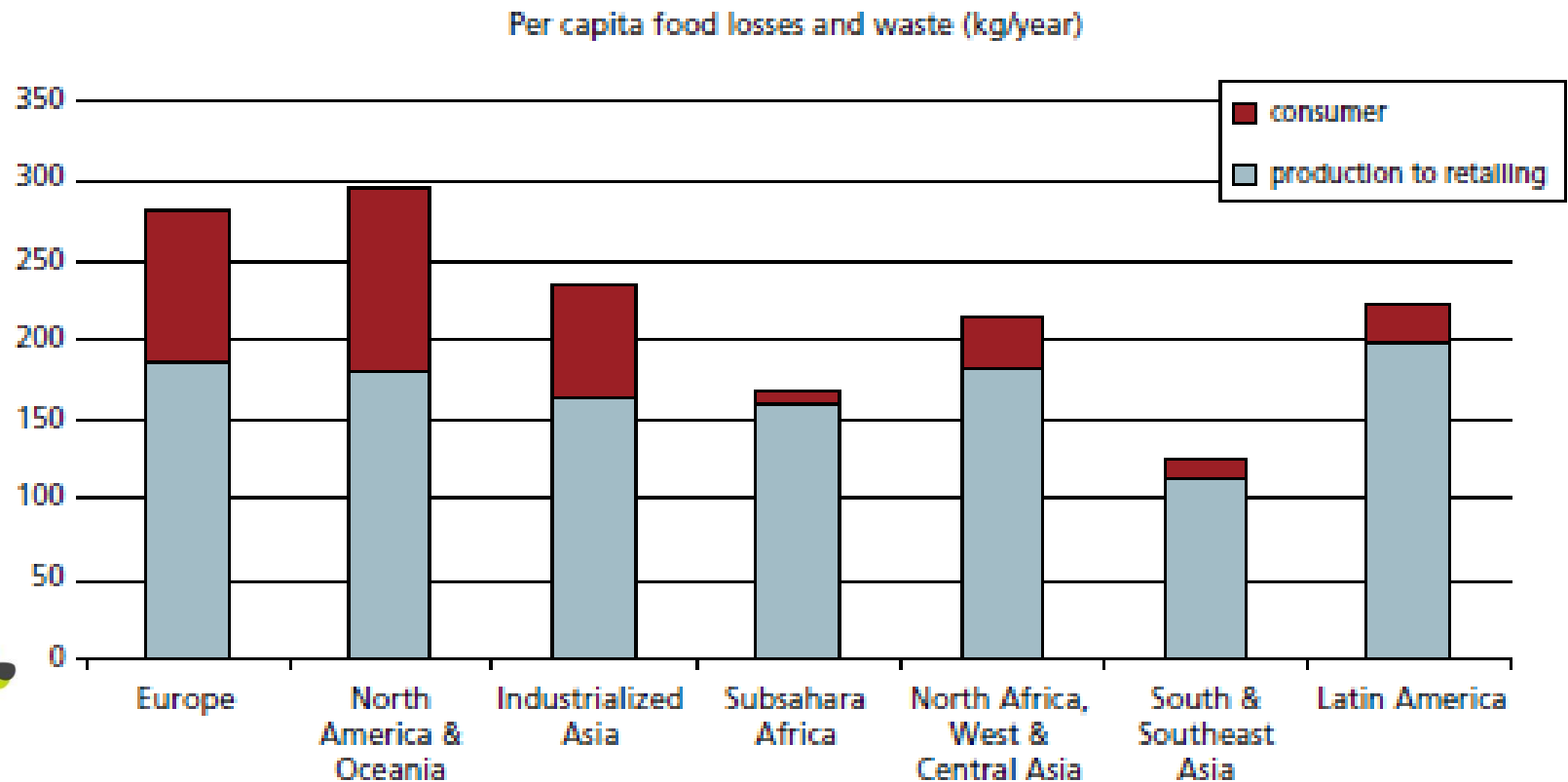
EC, 2011.





Food waste per stage

Figure 2. Per capita food losses and waste, at consumption and pre-consumptions stages, in different regions





Scale of the problem



(*) “Household Food and Drink Waste in the UK”, WRAP, 2009

Food Waste

Food waste at consumer level in industrialized countries (222 million tons) is almost as high as the total net food production in sub-Saharan Africa (230 million tons).

At least one-third of food produced for human consumption is lost or wasted globally, which amounts to about 1.3 billion tons per year.

12%

of food losses happen during the harvesting phase in developed countries

25%

of food losses happen during the pre-harvest phase in developing countries



Roughly one quarter of all the water that humans take from the planet goes into food that nobody eats

FARMING

TRANSPORTATION

10%

of the total U.S. energy budget is spent getting food from farm to fork

PRODUCTION



10%



5%



4%

10% of all grain products, 5% of all fish products and 4% of all meat products are lost at the processing and packaging stage

40%

of food losses in developing countries are a result of inadequate storage

25%

The post-harvest loss of rice in Asian countries commonly ranges from 10-25%



Globally it is estimated that approximately one-third of all fresh fruit and vegetables produced is lost before it reaches consumers.

PACKAGING

40%

of losses in industrialized countries occur at the retail and consumer level

RETAIL & CONSUMERS

3%

of food waste is currently recycled

40%

of landfill content comes from food waste

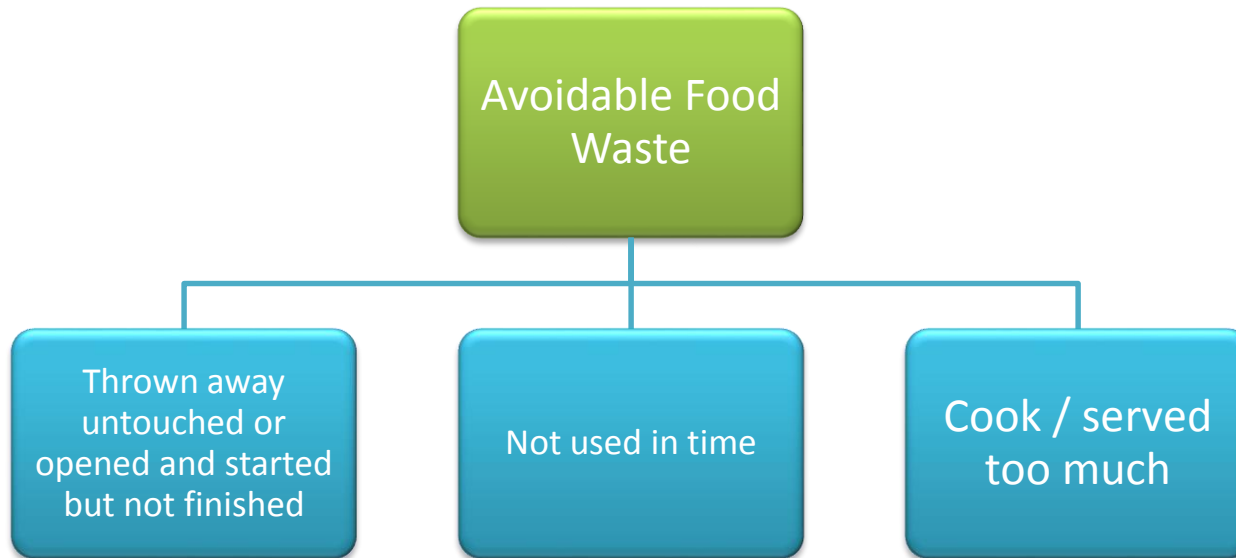
Causes of food waste

The reasons for food wastage are diverse and sector* specific

(*) farms, food industries, retailers, caterers, consumers



Causes of food waste – Consumers





Causes of food waste – Consumers

The main reasons are:

- Storage conditions (protection/packaging, fridge temperature, freezing, location)
- Large portions (pre-packed food, takeaway, traditional serving)
- Discarding of left-overs
- Discount offers

Star Rating	Temperature	Storage Time	
		Frozen Food	Ice Cream
*	-6°C	1 week	1 day
**	-12°C	4 weeks	1 week
***	-18°C	3 months	1 month
****	-18°C	Will freeze a specified quantity of fresh food from +25°C to -18°C in 24hrs without affecting the frozen food already stored	





Bad habits

- Lack of programming
 - Buying food / Storage / Cooking
- Buying large quantities
- Wrong way of storage
- «I don't eat leftovers»
- «I don't know what to do with leftovers»





Situational reasons

- Festive seasons
- Change of plans
- Accidents





Misconceptions in labelling

- Expiration date: June 10, 2014
 - What does it mean?
- Best used before: June 10, 2014
 - What does it mean?





Other factors

- Different meals for each member of the family due to different preferences
- Provision of alternative meals in order to avoid complaints





Also...

- Family structure
 - 2 out of 3 families with very young children report that food is wasted because of the children
- Lifestyle
- People over 65 years produce approx. 25% less food waste





Wrong attitudes

- 60% of the consumers do not consider food waste as a problem because food is **natural** and **biodegradable**!





Measures for food waste reduction

Donations: Retailers and food industries can donate food that otherwise would be discarded due to unprofitable prices, surpluses, and weakness to cover the marketable criteria.

Development of synergies: By establishing industrial symbioses and eco-industrial parks, one's firms waste can be served as resources to the others. One farm's food waste can be used as animal food.



Measures for food waste reduction

Updating the production chain: By adopting more efficient energy & material technologies, the production chain gets improved and generates less food waste.

Appropriate storage conditions: Ensuring optimal storage conditions, the edible life of a product can be prolonged.





Measures for food waste reduction

Awareness campaigns: The importance of food waste prevention must be spread to all. Consumers should be “trained” on smart shopping, using leftovers.

Clarification of current food data labels: A research on date labeling showed that 45-49% of consumers in UK misunderstand the meaning of the date labels “best before” and “use by”.



Food waste reduction intervention (WASP Tool project, 2011-2014) (1/2)

Aims at raising awareness on food waste prevention in the three participating municipalities, namely Chania (GR), Heraklio (GR) and Paralimni (CY).



The WASP Tool project

(LIFE 10 ENV/GR/622)

WASP stands for **W**aste **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



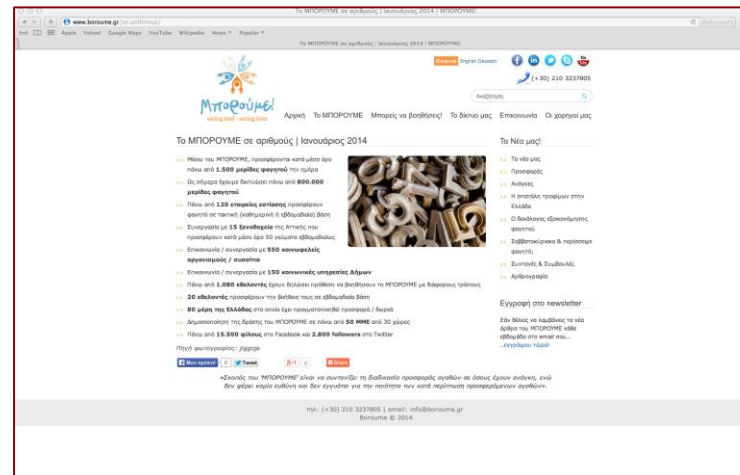
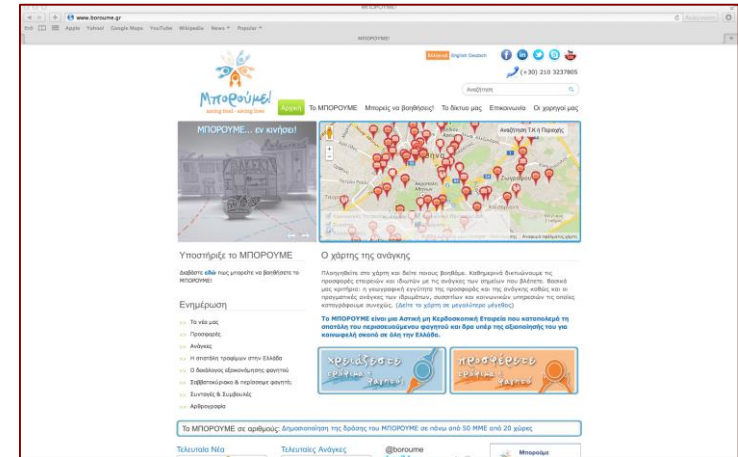
**Project
location:**
Greece and
Cyprus

Project partners:



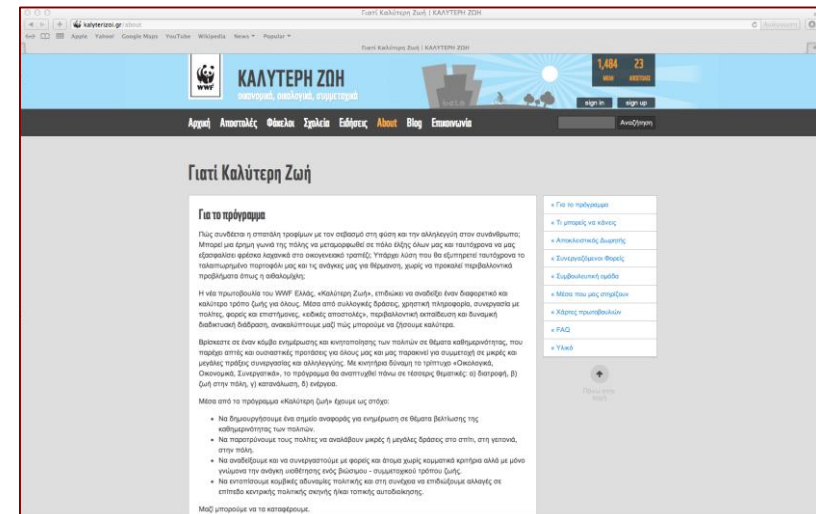
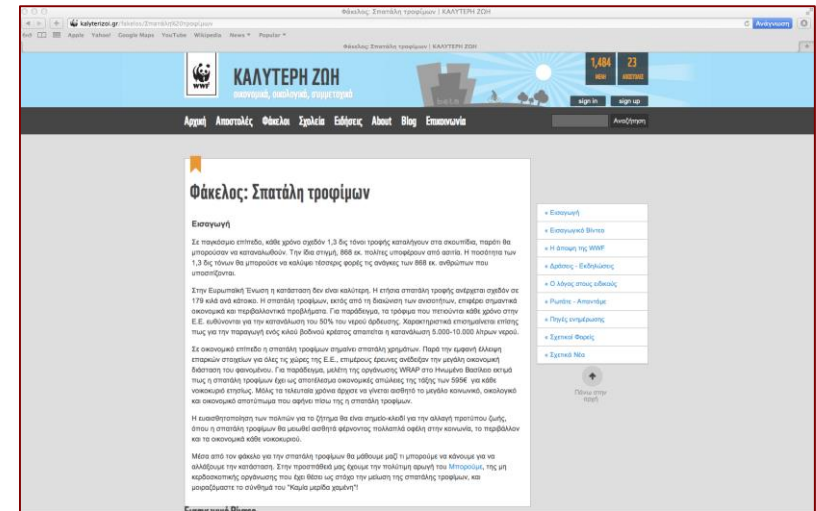
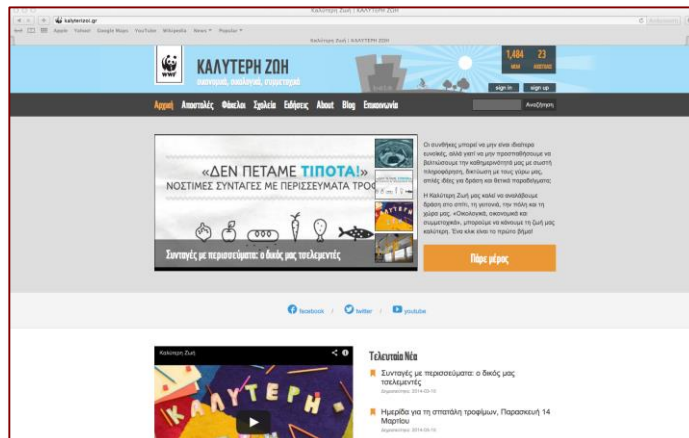
Μπορούμε! (WE CAN!, 2012)

- A non-for-profit organisation that reduce food waste by organizing the distribution of surplus food for charity throughout Greece
- Since its launch, it offers on average more than 1,500 portions of food per day through its network.



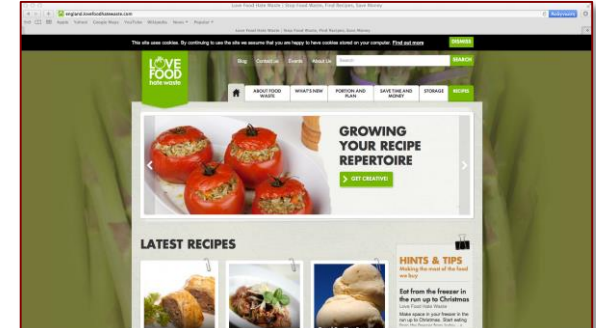
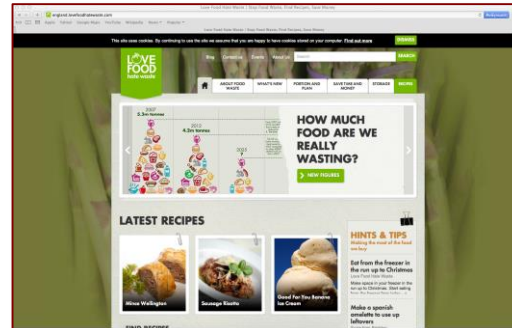
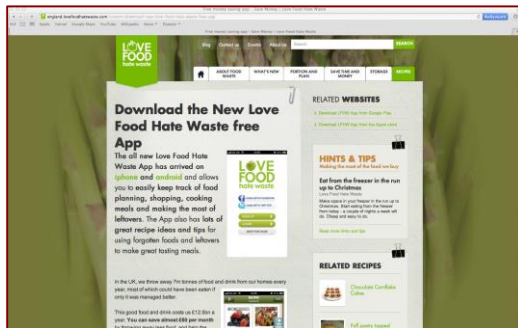
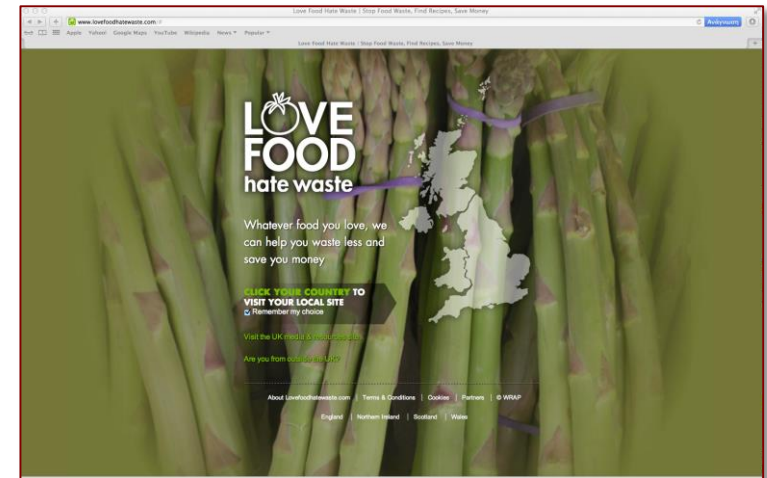
Καλύτερη ζωή (Better Life, 2013)

- An initiative of WWF Hellas, aiming at the rise of a better (environmentally friendly) day-life.
- The project will be evolved in four directions: 1.nutrition, 2.urban living, 3. consumption, 4. energy.



Love Food Hate Waste (WRAP, 2007)

- Aims at raising awareness of the need to reduce food waste and help consumers take action
- Was brought to us by WRAP, a not-for-profit organisation
- Over the first two years of its application in the UK, it contributed to the prevention of approximately **137,000 tonnes** of food waste.
- The focus point of the campaign is to provide simple, easily adoptable solutions, which will cause small changes in consumers' daily routine and lead to food waste prevention



Food waste reduction intervention (WASP Tool project, 2011-2014) (2/2)

Good practices

Aims at raising awareness on food waste prevention in the three participating municipalities, namely Chania (GR), Heraklio (GR) and Paralimni (CY).

- Leaflet
- Recipe book (cooking with leftovers)
- Open days – Campaigns of information and dissemination – Workshops on date labels, savvy storage, cooking methods
- Demonstration at schools – cooking with leftovers



Buon Samaritano (2005)

- Launched in 2005 by the municipality of Torino and Amiat
- It is a food redistribution programme, which ensures that uneaten but still edible meals from school canteens and super markets are collected and distributed to charity organisations
- It is estimated that approximately 150 kg of bread and 50 kg of fruit are recovered every day from school canteens. In 2008, the project is said to have recovered over 81,000 kg of food.



Réduisons nos déchets (ADEME, 2005)

- The awareness campaign “Réduisons nos Déchets” (Reducing our Waste) was developed by the ADEME, the French Environmental and Energy Management Agency, in order to provide information to households about waste generation and prevention. This campaign also participates and promotes the European Week for Waste Reduction initiative.





<http://wasptool.hua.gr>



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Thank you
for your attention!

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