



# FUSIONS

## Feasibility Study

Cr-EAT-ive Schools

22/04/2015

Reducing food waste through social innovation

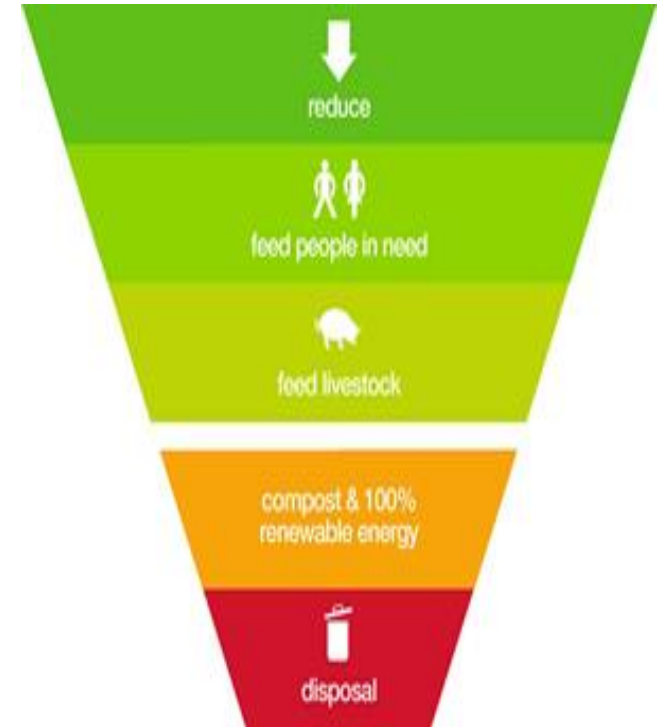
**ANATOLIKI**  
S.A.



# Objectives



- Raise awareness on food waste
- Enable behavior change towards food waste reduction
  - Kindergarten children and educators
  - Parents
  - Kindergarten canteen cooks
- Reduce food waste in
  - Households with pre-school children (aged 3-5 years old)



# Cr-EAT-ive Schools Proposal

**4** Local Authorities

**4** Municipal, 2 Private Kindergartens

**480** Children, 480 Families

**7** Kindergarten Heads

**25** Preschool Teachers

**30** Parents Participate in the pilot actions

**Duration: 04/2014-10/2015**

**Budget: 42.075 €**



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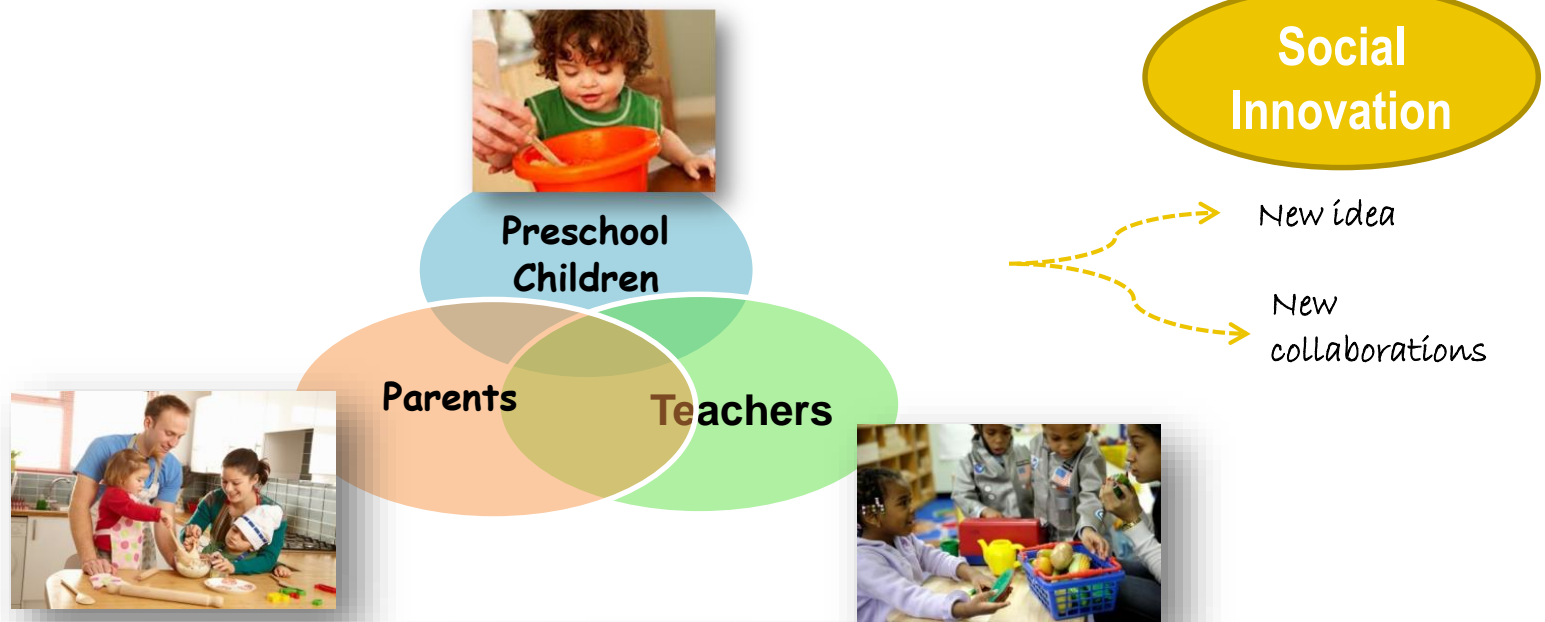


# Initial Idea-Facts

...households with children tend to waste more food than families with no children  
(source WRAP)

...Eating behaviors, often practiced throughout life, are developed in early life

...teachers in collaboration with parents have key role in establishing eating and environmental friendly behaviors



# Cr-EAT-ive School Methodology

The methodology.....*consultation with Kindergarten Heads of the proposed project planning*



**1<sup>st</sup>** STEP

1. Identify the most compatible way to integrate the “food waste reduction” theme to the curriculum and the educational procedure
2. Planning the projects actions (seminars, workshops) simultaneously with kindergarten's planned events to ensure the maximum participation of the parents.

*A review on the existing educational material has been preceded*



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# Cr-EAT-ive School Methodology

The methodology .....Development of a Pedagogical Guide to teachers and training of Preschool Teachers



**Pedagogical Guide to teachers**

## Contents

1. Objectives
2. Project Description
3. All about food waste
4. Methodology
5. 12 proposed actions/games with instructions
6. Methodological approach of Innovative board game



**Innovative game-Board game**

2<sup>nd</sup> STEP

## Seminar to Kindergarten Heads and preschool Teachers

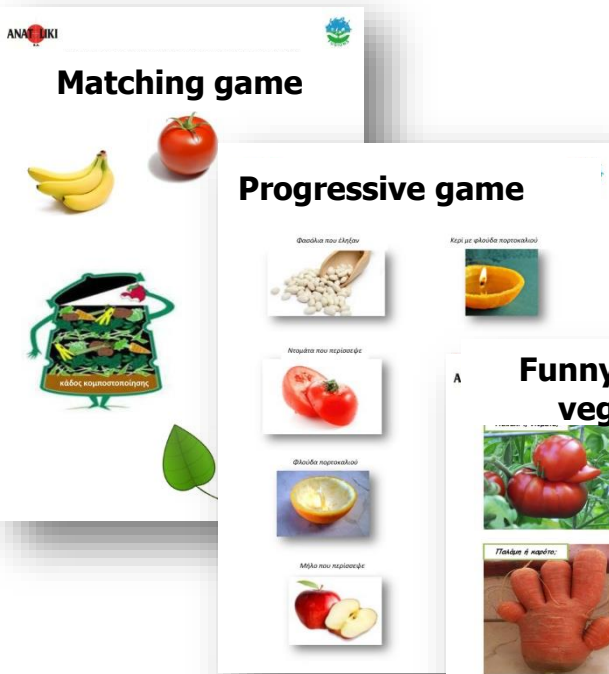


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# Cr-EAT-ive School Methodology

The methodology .....production of educational material



50 Guides  
50 Board Games  
500 Matching Games  
500 Progressive games  
500 Funny Fruit Game



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# Cr-EAT-ive School Methodology

The methodology .....*implementation in class*

*1<sup>st</sup> Result came up...*

***Children started pressuring their parents not to throw away food!!***



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# Cr-EAT-ive School Methodology

The methodology.....*selection of pilot parents\_completion of 1<sup>st</sup> Food Waste Diary*



Welcoming to parents

Presentation of Cr-EAT-ive  
Schools to parents

Selection of pilot parents

4<sup>th</sup> STEP

1. Selection of Pilot Parents
2. Distribution of FWD

**30 Pilot Parents  
in total**



Food Waste Diary



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# Cr-EAT-ive School Methodology

The methodology.....*seminars to parents*



## Presentation of the Guidelines at home



Οδηγός Μείωσης  
των Αποβλήτων  
Τροφίμων στο σπίτι



ΑΝΑΓΚΗ

ΔΕΚΕΜΒΡΙΟΣ 2014

**Guidelines for home**

## 5<sup>th</sup> STEP

- The Seminars to all parents implemented simultaneously with a kindergarten event in order to ensure maximum participation of parents- in some cases leftover recipes prepared and served by the children to their parents
- The Guidelines contains simple advices on how to reduce food waste at:

- Shopping and purchasing
- Storage
- Fridge
- Super market

And also leftover recipes, explanations on expiration dates and information about composting



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# Cr-EAT-ive School Methodology

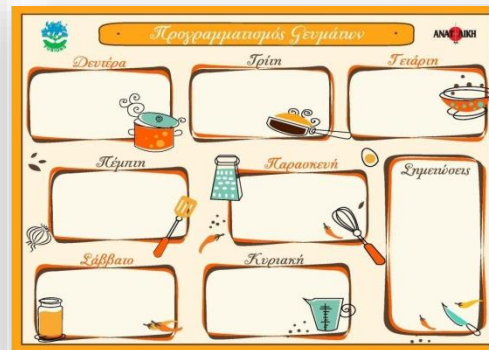
The methodology.....completion of the pilot action

- Completion of the 2<sup>nd</sup> FWD (20% less parents filled in the Diaries)
- Distribution of pilot action material to parents
- Interview with all pilot parents (Questionnaire\_WRAP) in order to identify **Behavioral Change**

6<sup>th</sup> STEP



Shopping  
list\_magnet



Meal Planner\_magnet



Cycle of fresh fruits

# Cr-EAT-ive School Methodology

The methodology.....*final event*

## 7<sup>th</sup> STEP



More than **1.000 parents** and their children participated in workshops "**Take the food in your hands**", organized by kindergartens and included activities and crafts with main ingredients fruits and vegetables not consumed because of their "ugly" appearance or because they were in surplus and legumes and nuts that had passed their expiry date.

A **famous chef** in collaboration with children and their parents offered a special fruitsalad.

The Central Market of Thessaloniki supplied the event with over **100kg fresh vegetables and fruits**, that otherwise would been wasted, either because they were in surplus, or due to "ugly" appearance such as crooked carrots, ugly tomatoes and eggplant with "character".



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# Cr-EAT-ive School Methodology

The methodology.....Training seminars to kindergarten canteens  
and Food waste qualitative assessment



## Kindergarten Canteens

1. Mpilleios Stegi
2. Municipality of Thermi Canteen

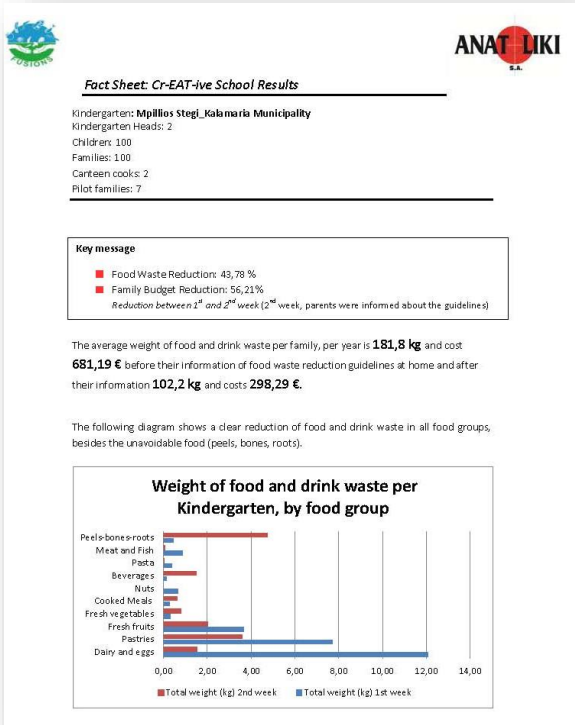
The specific aims of the qualitative assessment were to achieve a better understand of:

- The nature of food waste produced by Kindergartens (i.e. cooked or uncooked, whole or part consumed);
  - The types of food being wasted; and the point at which the waste arises (e.g. service waste from the kitchen, plate waste etc.).
  - Understand the range of reasons why food waste is produced in Kindergartens.
- Identify interventions

8<sup>th</sup> STEP

# Cr-EAT-ive School Methodology

The methodology.....Evaluation



## Fact Sheet 1<sup>st</sup> Kindergarten Food Waste Diary Questionnaires

- Key message
  - ✓ Food Waste Reduction
  - ✓ Family Budget Reduction
  - ✓ Reduction between 1<sup>st</sup> and 2<sup>nd</sup> week (2<sup>nd</sup> week, parents were informed about the guidelines)
  - ✓ average weight of food and drink waste per family, per year
  - ✓ average cost per family, per year

9<sup>th</sup> STEP

- Very organized effort, the two stages of provision of information gave enough time to reflect on possible ways to reduce food waste. At the same time the duration of the pilot wasn't long enough so as to lose interest on the topic.
- The diary helped me to have a real picture of what I actually waste
- The pilot duration was not enough to change my behavior. Parents need to keep on working on this on their own which is a challenge
- The material given to me was very comprehensive and helpful and something I can hold on to and try to implement from now on
- The material really helped me, I wish it was given to more people to implement at home
- The material had some new advice on how to minimize waste that I wasn't aware of but I knew and implemented most things anyhow
- The guide was a useful summary of advice for all kinds of food. More people should be given such guidance



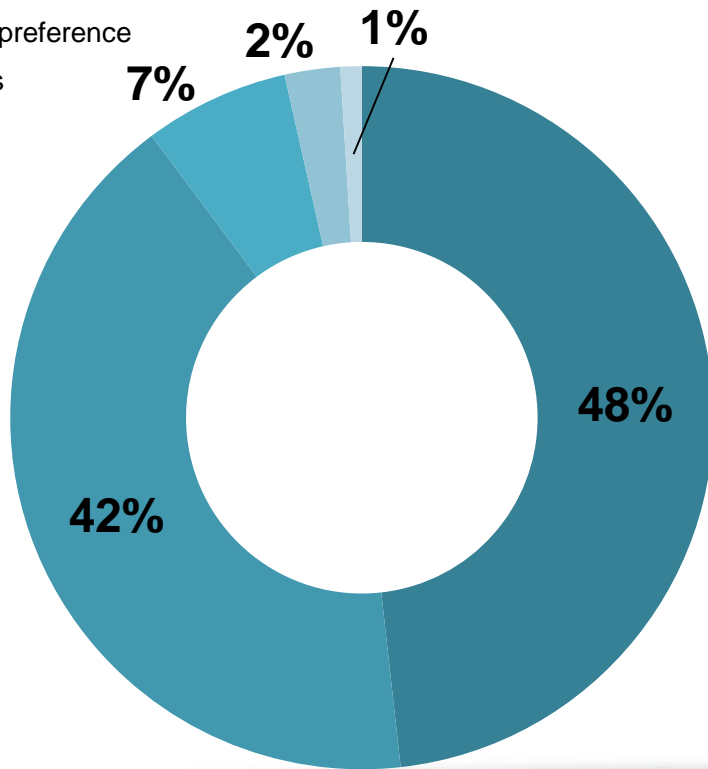
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# Quantitative and Qualitative Results

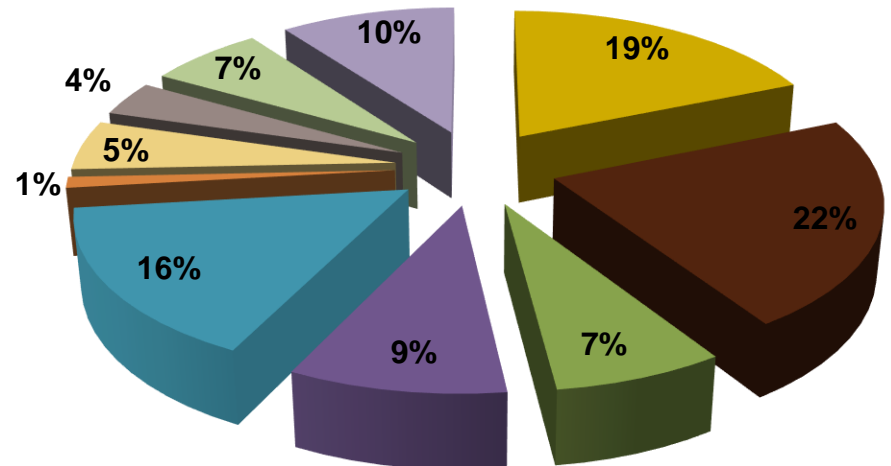
## Reasons of Disposal

- Prepared, cooked and served too much
- Went Bad
- past expiration date
- personal preference
- Accidents



## Percentage per food group thrown away

- Dairy and eggs
- Fresh fruits
- Cooked Meals
- Beverages
- Meat and Fish
- Pastries
- Fresh vegetables
- Nuts
- Pasta
- Peels-bones-roots



# Pilot Action Results



642 €/year

54 €/month

## Saved



..... 24 families

1.417 kg Food Waste per year

5.970 €/year

The reduction of waste that was achieved was mainly due to **changed behavior** towards shopping and cooking patterns

- ❖ Shopping according to weekly menus and shopping list
- ❖ Cooking smaller portions

Incentives towards reducing food waste:

1. Guilt parents felt towards wasting food
2. lack of food in other countries
3. Protecting the environment

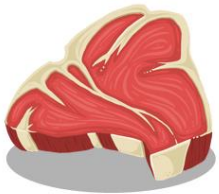
# Qualitative assessment of Kindergarten Canteens



**20%** cooked food ends up as food waste



Fruits are the most common food group that ends up as food waste. **30% of the total amount of fruit food waste is peels** which could be considered avoidable (use the peels to make sweets and marmalades).



**10% of the meat** (beef) consists of low quality of meat (fat and bones) which is discarded as not edible



Mainly food is being thrown away at **lunch**. In most cases children do not eat the food they don't like, and in some cases they are just affected by the preferences of other children

## The main reason of food being thrown away

**Variation in the number of children** due to sickness or other family reasons that causes surplus of food.

- The **family eating habits** that children tend to adopt that are difficult to change
- The **inflexibility of meal planning** due to lack of time and recourses
- Meals with undesired accompaniments** (rice, vegetables etc.) that cause plate waste.
- Food appearance** or a desire to get out and play.
- Lack of compost bins**
- Lack of training seminars** for canteen staff and good practices towards food waste reduction
- Situational reasons** which cannot predict “food is being served and not eaten”

# Lessons learned

- ✓ Children responded perfectly to the issue of food waste and they have start pressuring their parents to stop wasting food
- ✓ Good relationships formed with parents through the seminars
- ✓ Parents can support children at home and reinforce messages
- ✓ Kindergarten Heads can replicate the methodological procedure to other Kindergartens.
- ✓ Effective engagement of Kindergarten Heads
- ✓ Integration of the project to Kindergarten activities and timetable in order to create synergies and ensure the maximum participation
- ✓ Easy to use pilot action material
- ✓ Correlation with nutrition theme



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# Project Replication

There is a three scale replication project that could be identified after the completion of **Cr-EAT-ive School** Actions.

- ✓ **Other countries**
- ✓ **National Level**
- ✓ **Local Level**

**Other countries:** The replication of the project to other counties could be implemented through FUSIONS website with a short case study document and short overview guidance note on how to set up these types of projects. The core material of the project is translated into **EN**. The implementation needs the involvement of a project manager to coordinate start up activities.

- **National:** Information Letters to all Municipal Kindergarten Representatives including the core activities and the basic results of FS Cr-EAT-ive School, annexed by the short case study document and an overview of all the available guidelines for teachers and parents. Information events addressed to Representatives of the Municipal Departments responsible for Kindergartens could be a good opportunity to present Creative School Project's methodology and the produced material.
- **Local:** Support by Local Municipality in replication of the project by encouraging other kindergartens to be engaged. A seminar to all Kindergarten Heads and teachers of other kindergartens that are interested in implementing the project would be a useful first step, with a train-the-trainer approach.



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# Replication recommendations

1. A significant amount of project management time is needed in order to complete the necessary steps to ensure the Cr-EAT-ive programme is delivered to a sufficient standard.
2. It is important to have the municipalities committed to the project, to ensure access to kindergartens, to replicate the material further and as a possible funding a venue.
3. It is vital to have the kindergarten head teachers engaged in the programme and to provide them with flexibility to integrate it into their own curriculum; the level of project management needed to successfully implement and manage the programme;
4. It is important to disseminate food waste diaries to parents as not only a tool of measurement but as a tool of intervention;
5. There is significance in organizing a series of events alongside the delivery of the programme.
6. The cost of printing documents at kindergartens is a constraint. Whilst some of this may be covered through the replication budget, it is important that most of the outputs are made available online and can be printed as cheaply as possible



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# Policy Measures that will enhance the project

- Funding by Local municipality (or the Ministry of education) for printing costs of awareness materials
- Support by local municipalities in replication of the project by encouraging other kindergartens to be engaged
- Potential for local municipality to include the topic in curriculum for kindergartens
- Potential for Ministry of Education to include the topic in curriculum for primary schools
- Support from Ministry of Education to gain introduction to primary schools
- Canteen staff in both kindergartens and primary schools should be trained in methods and practices that could help reduce food waste at this level.
- Teachers should be encouraged to eat with children in order to disseminate by action the food waste prevention behaviors they are teaching.



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# Replication of the project

## ***Exhibition boost at Recycling Festival of Thessaloniki Municipality (12-14 May 2016)***

- *Municipalities*
- *Environmental Education Centers*
- *Aristotle University of Thessaloniki*
- *Primary Environmental Education Office (Ministry of Education, Research and Religious Affairs)*
- *Thessaloniki Young Women's Christian Association (YWCA)*
- *Social Cooperative Enterprises*



## **Local Municipal Solid Waste Management plans of Thermi and Thessaloniki Municipality**

**Priority Axis:** Solid Waste Prevention and Reuse

**Action:** Food Waste Prevention Program at Kindergartens (integration of Cr-EAT-ive Schools at the annual program)

## **European Early Childhood Education Research Association (EECERA) 26th Conference, 3 September 2016**

**Accepted Article ID-1380:** Don't waste food before you think" - Reducing food waste through social innovation

**Presentation by Eleni Timba, Kindergarten Head of Billeios Stegi (Kalamaria Municipality)**



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