

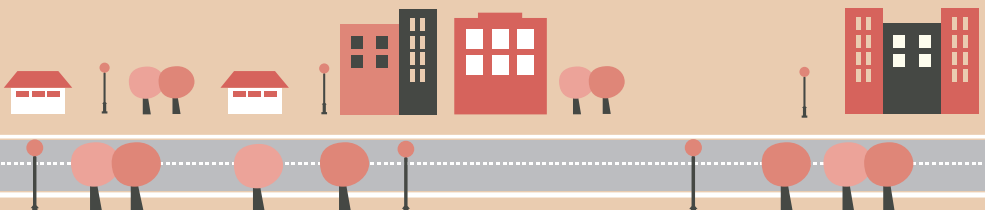
With the contribution of the LIFE financial instrument of the European Union



# LOWASTE

local waste market for second life products

LAYMAN'S REPORT





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# LOWASTE

## Local waste market for second life products

The LIFE+ LOWaste experiences in Ferrara represent a model of circular economy based on prevention, reuse and recycling of waste using public-private partnerships. Pilot studies formed the basis for the emergence of a genuine local green circular economy district. This district consists of waste operators, small reuse and recycling platforms, artisans and SMEs engaged in the development of materials and manufacturing.

The project was developed between 2011 and 2014 by the Municipality of Ferrara, by the social cooperative La Città Verde, by Impronta Etica, a network of Italian companies engaged in the promotion of Corporate Social Responsibility, by RREUSE, European network of social enterprises that operate in the recovery and recycling of waste and by the local utility HERA. The project was co-financed by the European Commission through the

LIFE+ fund.



*LOWaste partners.*

During the project it has been analyzed the supply chains for collection, recovery and disposal of waste in the territory of Ferrara identifying some fractions with

high added value potential but currently disposed or recovered with low added value.

Starting from this analysis were initiated several pilot projects that have allowed us to recover some waste fractions and activate the production processes on a local scale

Each pilot has created a circular chain of institutions and players able to realize the full cycle from production to marketing of the re-products on a local spatial scale (up to regional scale).

# THE PROJECT IN 4 STEPS

## STEP 1

Analysis of legislation (European, Italian and local), methods of waste management in Ferrara and involvement of local actors

*first 6 months  
of 2012*

## STEP 2

Launching of the pilot projects of the LOWaste District for reuse and recycling in Ferrara

*the third quarter  
of 2012 until the  
end of the project*

## STEP 3

Launch of LOWaste for action, the community of designers, makers, artisans, cooperatives and SMEs who design and implement the re-products

*November  
2013-February  
2014*

*on the  
whole*

## STEP 4

Communication and dissemination of the results of the project to consolidate the LOWaste District in Ferrara and encourage the creation of similar districts in other territories

# THE LOWASTE NUMBERS

## Involvement

**5** project partners (**1** public, **2** companies, **2** associations of companies)

**43** organizations involved in the LOWaste Panel

Organization of **3** Marketplace in Ferrara

**9** days of training with over **100** participants.



## LOWaste for action

**200** participants within the Facebook community;

**60** nominations announcement;

**40** participants selected for the co-design process;

**7** scalable projects proposed;

and **13** prototype of products.



*Some prototypes made by Lowaste for action co-design community*



*Some prototypes made by Bottega di Utilla*

## LOWaste pilot

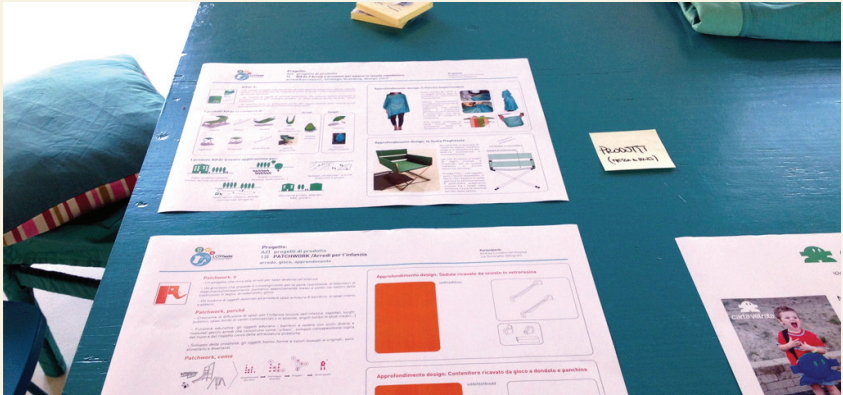
- 4** pilot startwile , aggregates from demolition , street furniture and play equipment , oils and food scraps);
- 2** feasibility studies (Center for preparation for reuse, plastic PET);
- 3** new recovery facilities authorized during the pilot;
- and **1** follow-up project (Waste Fab Lab) selected by the European award for social innovation.

## Networking

- 31** participants to the networking activities with other European projects on waste;
- 4** networking events organized;
- 18** promoters of the Regulatory change;
- 3** institutional auditions (Ministry of Environment, the Commission ANCI – CONAI, Atersir).

## WHAT IS A LOWASTE VALUE CHAIN?

- \* Circular: waste is the starting point for a new production.
- \* Local: interception of waste, recovery and transformation take place over a limited area
- \* Environmental and social benefits in the territory proven and measurable



Visual tables from LOWaste for Action co-design process

## THE LOWASTE FOR ACTION COMMUNITY

LOWaste for action has been a process of community engagement for the development of value chains based on local sustainable development starting from the materials recovered through the pilot projects. The aim was to build opportunities for partnerships among all actors that are part of the production chain (designers, artisans, manufacturers, sellers) and to start a pilot phase of the LOWaste district in Ferrara. After a call for the collection of expressions of interest, the co-design phase has been developed with two laboratory meetings and intensive remote work. The process was concluded with a public presentation of the results, but the community is still active, and the projects are moving forward!



## THE EXPERIMENTATION ON AGGREGATES IN FERRARA

The Municipality of Ferrara in January 2014 approved a Council Orientation relative to the inclusion of minimum environmental criteria in tender documents and technical requirements for the construction and maintenance of “green” roads. In the course of 2014 will be made 3 trials on road sections to be realized with recycled aggregates in order to promote as a practice this type of procurement.



*A shot from one of the LOWaste for Action workshops*

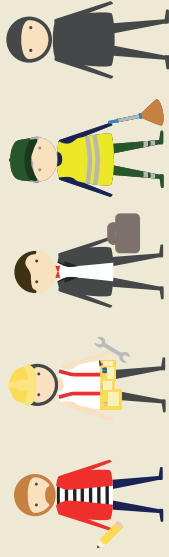
## TOWARD THE LOWASTE DISTRICT

To give continuity to the collaborations activated in Ferrara through the pilot tests, the Municipality, the project partners and some companies and organizations in the area have decided to define a stable agreement of cooperation enshrined in the signing of an official memorandum of understanding. Doing so the aim is to strengthen the supply chains already activated and encourage the emergence of new supply chains for recycling and reusing in order to create a real Lowaste district.

# LOWASTE

PHASES \* SUB-PHASES AND

COMMUNITY



COMMUNITY BUILDING

1

LOCAL PARTNERSHIP



\* MAPPING OF THE SUBJECTS



\* DEFINITION OF THE GOVERNANCE



\* FORMALIZATION OF THE AGREEMENT



2

START-UP OF THE LOWASTE VALUE CHAIN



\* IDENTIFICATION OF THE TARGET WASTE

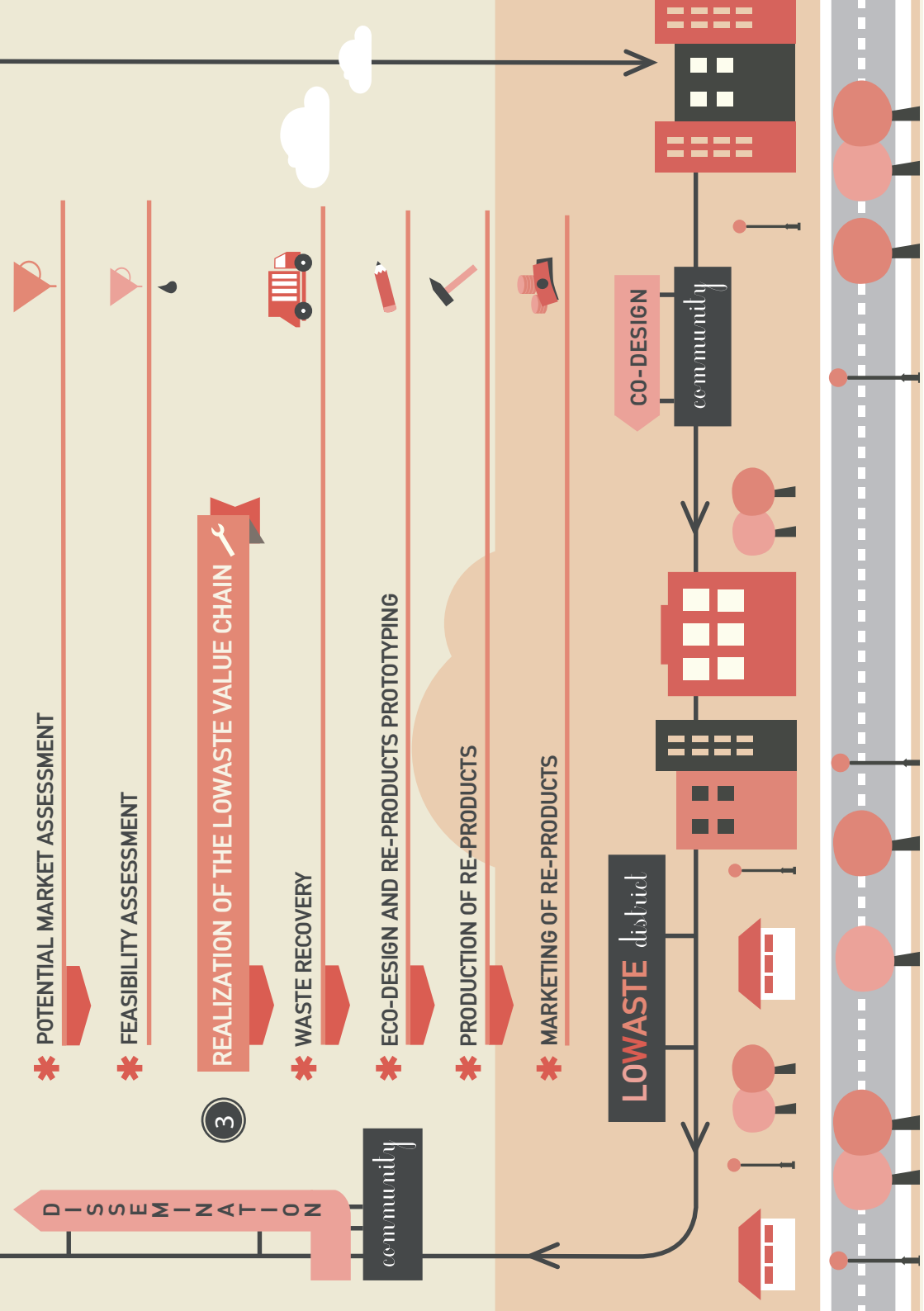


\* REGULATORY CONSTRAINTS ASSESSMENT



COMMUNITY

ENGAGEMENT



# THE LOWASTE PILOT PROJECT

STATE OF THE PILOT **COMPLETED**

## STARTING WASTE MATERIAL:

Textile from the operating room

## SUBJECTS INVOLVED:

Servizi Ospedalieri Spa, Social cooperative La Piccola Carovana, Social cooperative La Città Verde

## REPRODUCTS:

gadget for fairs

bags, cases and pouches

furniture (chairs and cushions)

technical clothing (sea and mountain)

## The number of the value chain

**32** projects identified and **24** prototyped;

**23** designers and makers involved in the design;

**90** tons per year of medical textile savable from disposal;

up to **67** tons of CO<sub>2</sub>eq saved for the non-disposal;

**90** tons of raw material avoided for the production of new products;

up to **2.159** tons of CO<sub>2</sub>eq saved using secondary raw materials

# AGGREGATES FROM BUILDING DEMOLITION

STATE OF THE PILOT

COMPLETED

## STARTING WASTE MATERIAL:

Materials resulting from the demolition and construction of buildings

## SUBJECTS INVOLVED:

Various Construction Companies, Social cooperative la Città Verde

## REPRODUCTS:

road foundations

fills

panels for cladding facades

## The number of the value chain

**2** projects and **1** prototype of cladding panel

**1** project for communication, training and awareness creation related to specific targets

**1** project for the creation of an information platform for the supply of recycled aggregates

**11** designers and makers involved in the design

**1** pilot test made by the Municipality of Ferrara: **1,5** km of roads made amounting to **4.090** cubic meters of aggregates

**11.200** tons of potential recycled aggregates per year

up to **107** tonnes of CO<sub>2</sub>eq avoided preventing landfill

up to **486** tonnes of CO<sub>2</sub>eq avoided by not using aggregates produced in quarries.

## STREET FURNITURE AND PLAY EQUIPMENT

STATE OF THE PILOT **COMPLETED**

### STARTING WASTE MATERIAL:

Street furniture and playground equipment

### SUBJECTS INVOLVED:

Social cooperative la Città Verde, Ferrara Municipality

### REPRODUCTS:

Refurbished furniture

*The numbers of the value chain*

up to **90** tons per year of reconditioned furniture

up to **67** tons of CO<sub>2</sub>eq saved for the non-disposal

**1** project for the realization of children's furniture

LOWaste Marketplace furniture made with recovered materials

**9** designers and makers involved in the design

**90** tons of raw material not used for the production of new products

## OILS AND FOOD SCRAPS

STATE OF THE PILOT **COMPLETED**

### STARTING WASTE MATERIAL:

Food scraps and cooking oils from fairs/festivals

### SUBJECTS INVOLVED:

Social cooperative la Città Verde, school canteens and organizers of fairs and festivals

### REPRODUCTS:

Compost, biodiesel, glycerin

## The numbers of the value chain

**1** experimental project of community composting machine found within the territory and chosen as a case study for the development of the supply chain;

**30** tons of food waste avoided per year and **4.500** kg of compost produced in the case study identified;

**1** feasibility study for the construction of a local supply chain in Ferrara, which intercepts the waste coming from schools and canteens up to **91** tons per year of food waste composted with a single large machine

up to **1,4** tons per year of CO<sub>2</sub>eq avoided due to non-disposal of the waste, with one large compost machine.

## THE REUSE CENTER

- \* **NEED:** to include in the circuit of goods all those objects still useful that for several reasons end up as waste
- \* **INNOVATION:** beyond the logic of the collection/recycling center (which collect only waste) and the second hand market (which collect only goods) in order to create a center with two streams: the goods that are still useful that business and individuals want to get rid of them; still recoverable waste from the collection center.
- \* **ACTIVITIES:** cleaning, disinfection, preparation for reuse and transformation

# THE LOWASTE RESULTS

LOWaste has created a network of individuals, businesses, recovery facilities and know-how able to develop and create a real district of green and circular economy based on waste.

The experiments made in Ferrara allowed to verify the applicability of the theoretical model that was designed with LOWaste. The pilot projects activated and the community that has been created represent the basic conditions for the development and the expansion of the experimental phase supported by the LIFE program to other sectors, by aggregating and increasing the number of actors involved.

The main findings can be summarized as follow:

- \* The verification that it is effectively possible to activate short circular chains for recycle and reuse, even in absence of public funding or subsidies;
- \* A public-private partnership approach between all actors (institutional and not), which allowed the creation of synergies and cooperation between subjects with conflicting or divergent views (eg. utilities, agencies, social cooperation, etc. ) ;
- \* The possibility to intercept additional fractions of waste (even if with limited volumes) that are not considered by the traditional industrial sectors;
- \* Active participation of stakeholders, particularly low-profit, interested in different ways to play a role in the supply chain (designers, makers, cooperatives, associations, SMEs).



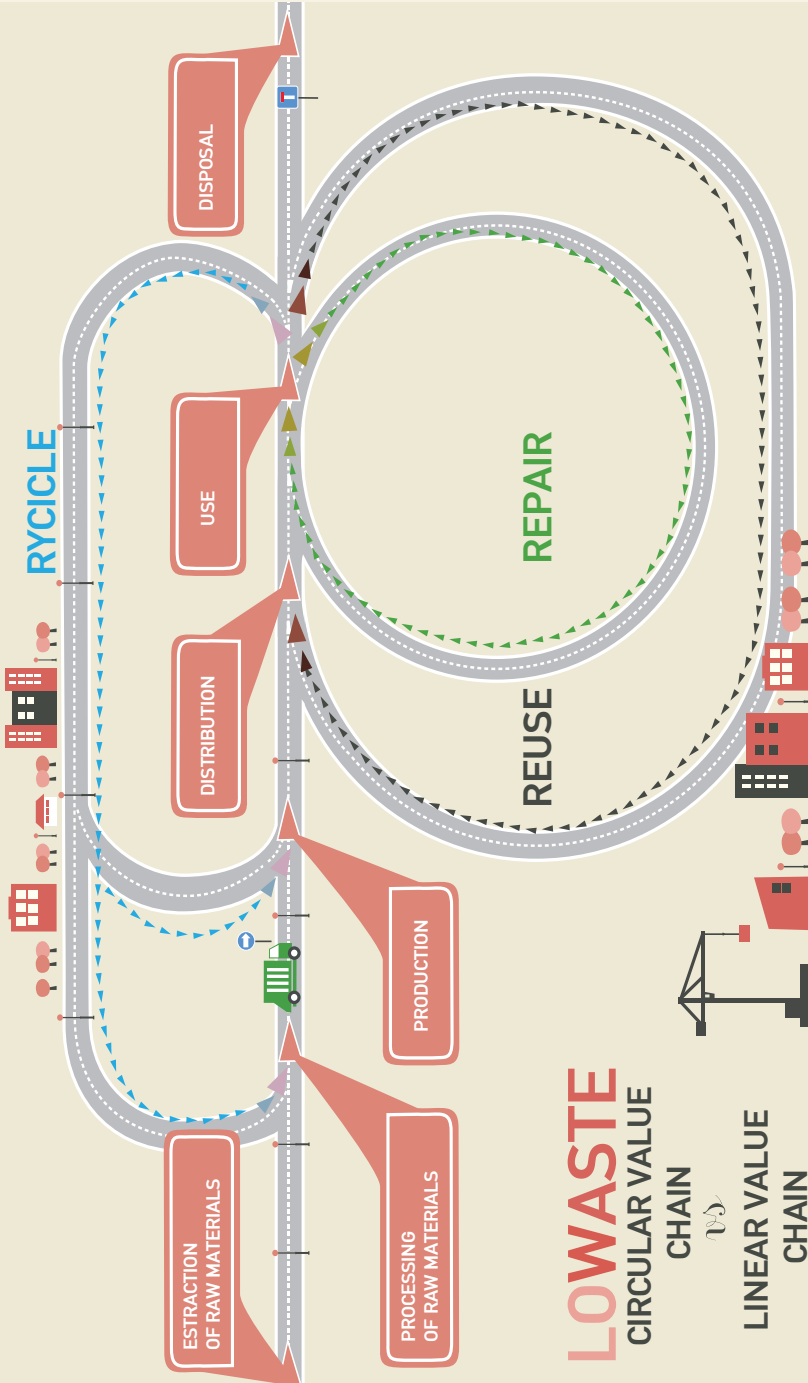
# CIRCULAR ECONOMY

The current economic model is based on processes defined as manufacture-use-dispose, which involves a large consumption of energy and raw materials and the production of large quantities of waste. The limitations of this economic system is that until now has not taken into account the interaction with the environment, which are:

- \* many of the resources used are not renewable,
- \* renewables resources are used with an excessive intensity in relation to the environmental system playback capability,
- \* waste and pollutants are produced in excess with respect to the absorption capacity of the environmental system.

Hence, the need to move from this linear model to a circular one, in which the waste of each stage of the process become the source of a subsequent production process: in this model it has to be considered as (secondary) raw material for the production of other goods.

Perfectly cyclical economy is based on a set of general principles, including: “waste is nourishment” (which means that you can always recycle and reuse a certain material); energy must always be clean and made from renewable sources; prices must reflect real costs, including environmental costs; production systems should always be “smart” (various resources, including waste, should always be used at the right time of the production chain).



**LOW WASTE**  
CIRCULAR VALUE  
CHAIN

LINEAR VALUE  
CHAIN

**ARTWORK AND LAYOUT**

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