

The reuse map

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Abstract

The reuse map® is an online database for reuse in design and building industry in Europe.

The website, *thereusemap.com*, has been tested in Malta since 2010 and it is currently operative, as a non-profit, independent organization and registered trademark.

Main aim of the project is to promote reuse in Design and Construction sector to address the issue of waste prevention, one of the next challenges in EU legislation. In the Construction field actions taken can be very effective because of the impact of the Industry, and because of the opportunity to enhance, through reuse, principles of Eco-design, intended as the best strategy to prevent waste, at different scales.

The reuse map® provides a game-like, user-friendly interface: it empowers people to create their own geography of reuse, and pick their materials closer to site in the European context. At the same time the map acts as an indicator of materials flow and aims at fostering closer interaction between Public Institutions and citizens.

KEYWORDS: reuse, waste prevention, eco-design.

Introduction

The reuse map® (*thereusemap.com*) is an online database for reuse in design and building industry, a tool conceived to tackle one of the next challenges in EU: waste prevention.

Key aims of the project are:

- Promoting creativity of people, by creating a dismissed materials palette for the building industry;
- Raising awareness about the use of land, by displaying on Google maps building and demolition activities;
- Prevention of waste: 32% of the overall production of waste in Europe comes from construction and demolition operations;
- Supporting sustainable import-export of reclaimed construction materials.

I started thinking about *the reuse map* while working as an architect in Malta. Dealing with contractors, I started realizing the huge flow of materials required for landscaping operations. Because Malta is a tiny island, most of the stone needed would be quarried abroad and then shipped, with higher impacts on environment and costs. To me this appeared as an environmental and economic disaster. Without adequate infrastructure to make sustainability into a reality, the architect, who would begin his/her work with the greenest intentions, could only put design into practice by means of quarrying new materials, shipping from a faraway country and sending to landfill a considerable amount of demolition waste.

Sometimes materials found on site cannot be reused even though they are in good conditions, because of a radical change of purpose of the area, for instance. Finding another suitable destination before sending it to a landfill should be easier than it actually is today.

The reuse map aims at making reuse easily accessible, by providing a tool to save time and resources, always limited during design operations, and keeping good materials away from landfills. *The reuse map* began as a research project funded by Embassy of Italy and supported by University of Malta, in 2010. Since then it has been tested in Malta and it is currently

operative, as a non-profit organization and registered trademark ; it was presented with the European Week for Waste Reduction Award in 2011.

Reuse practices and market

The concept of *reuse* dates back to the beginning of architecture. Today, the need for measures to be taken about reuse has been assessed by EU authorities, and reuse becomes a priority because it is one of the lowest impact actions that can be taken to save resources.

Recycling alone is not enough, since it involves further processing and thus additional use of resources. The practice of reusing objects is encouraged by ethics of sustainability and by our contemporary aesthetics, channelled through the world of art.

If reuse is an ancient practice, if it is ethically desirable and in fashion...why is it not yet an everyday reality?

There are some main obstacles to reuse in the design and construction world, such as:

- limited time for sourcing dismissed materials;
- need for availability of those materials at the very concept stage, and difficulty in implementing use of non-standard reclaimed items in advanced phases of the design;
- need for adequate storage during the time demolition waste is made available for reuse. If there is no time, no storage, nor people wanting it for other purposes, it will inevitably go to landfills.

The brief overview of reuse practices in our times given below highlights solutions and unresolved issues regarding reuse in the construction field. Responses are related to their specific geographical and social context; *the reuse map* builds upon those main issues, with a strategy tailored for the contemporary European design industry.

Designing with reclaimed materials: strategies across the globe

Reclaimed materials warehouses

Architectural practices that have adopted a philosophy of reuse, most of the time build their own reclaimed materials library, which obviously is not available to other industry specialists. The Australian 6 Degrees Architects is such a company. The architects own their personal warehouse, where most of the materials used for their new projects are stored.

The main advantage of this model is the total freedom given to the architect to work with dismissed materials, from the concept stage. It eliminates the gap between design and realization, as the architects have easy access to the materials to study and incorporate them in the design. This also keeps down costs by reducing transport needs and using second-hand materials, obtained for free or at a low price.

However, being so demanding in terms of space, this model is not easily reproducible.

Online networks

In the USA virtual networks for reuse are slowly spreading, to speed up circulation of reclaimed materials and reduce storage times.

Sometimes the service is provided by Public Authorities as a policy to promote reuse (for example, lists of deconstruction companies). Often this is left to private companies; most of the times, it has a strong social connotation and is run by non profit organizations.

- One of the most popular networks in USA, spreading fast in UK and in Europe, is the Freecycle Network™, made up of 4,934 groups with 8,351,017 members around the world. It is based on the free exchange of items within local communities and it is run by volunteers

and sponsored by some big companies, such as Nokia. The organization is based on the free circulation of mostly household items. Circulation of goods is restricted to a local scale to guarantee a better control, and for environmental reasons.

- EPA (United States Environmental Protection Agency) provides on its website a Building Materials Deconstruction & Reuse Map for the Pacific Southwest. This interactive map helps homeowners and builders to find organizations that sell salvaged building materials for reuse in their own building projects. Once the facility is found, people interested can contact directly the locations for specific information on services. Building and property owners, builders, renovators, homeowners, planners, and architects can use the information to find potential deconstruction or building materials service providers. Professionals from the economic development, environmental, or green jobs industries may use the map to find opportunities for deconstruction or reuse facility siting or expansion.

Services provided by the EPA map are in some aspects similar to those proposed for the reuse map. However, whereas the EPA map is showing a list of deconstruction businesses on behalf of a governmental organization, the reuse map is intended to be open to people's direct action.

Aim of *the reuse map*® project is to get Institutions to participate as a structure supporting it, in a constant and open communication with citizens.

Social enterprises

In Europe, organizations promoting reuse are mostly focusing on its social potential. Reuse, repairing and recycling bring back products to the market at affordable prices, primarily for low income groups. By creating a demand for additional work to sort and repair/reinvent objects, these activities create job opportunities and foster social inclusion for disadvantaged people.

- *RREUSE* is one of the European networks of social enterprises: it created jobs for 42,000 people, with the help of 120,000 volunteers across 10 Member States. Members of the organization are national and regional social economy networks that combine both social and environmental objectives and give them equal emphasis. *RREUSE* mission statement identifies the organization's scope in promoting a development model based on "environmental protection, social equity and economic viability".

- *Res-sources*, with 4,000 employees, is a similar network of social enterprises in Belgium. Social economy enterprises dealing with reuse and recycling collected more than 90,000 tons of waste in 2006. *Res-sources* processed 140,000 tons of waste, recycling 100,000 tons and reusing 40,000 tons of timber and compost, building materials, textiles, furniture and electric appliances.

- *RUSZ* is an Austrian network for repairing and upgrading of white goods. Most of the products we tend to consider as obsolete can actually be brought back to the market; volunteers and employees in the organization can upgrade washing machines from class C to class A, for instance.

Adjusting reuse practices to the EU market: the reuse map®, a scalable concept for local communities in the European context

European design practices often cannot afford warehouse storage facilities, because of costs and limited spaces. In the field of reuse, European potential consists in availability of a network, language, laws going in the same direction. What is yet to provide is the right “engine” to make it work.

The reuse map® aims at connecting all those strengths of the EU design industry, enhancing sustainable import-export, optimizing time of storage (by making products available on a bigger scale), making everything happen from the concept stage, when it is most needed.

Social enterprises and organizations can make use of this tool to implement their policies: *the reuse map* is a scalable concept for local communities in an European network.



Figure 1. The reuse map® website interface.

Main actors and beneficial players

From potential waste to resources: *the reuse map*® helps to organize and access our dismissed materials in Europe.

the reuse map®

BENEFICIAL PLAYERS

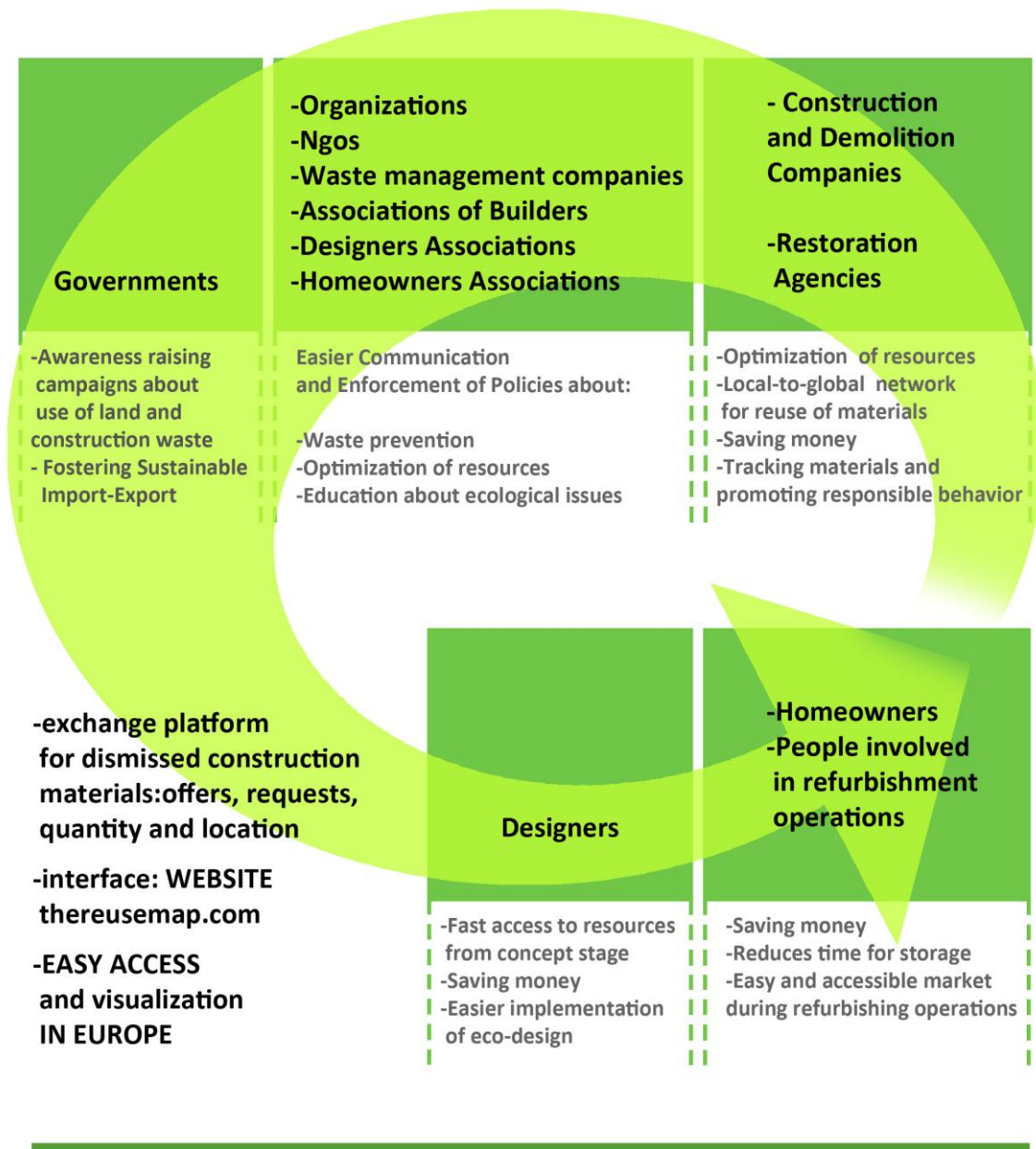


Figure 2. Stakeholders map

HOW DOES IT WORK?

Everyone can upload on *thereusemap.com* reclaimed materials on offer or materials requests oriented to design, architecture and construction, thus mobilizing all those hidden resources in construction industry on European level-and lessen impact of working sites.

The building industry is responsible for the 32% of total waste produced in Europe (EEA 2010); this means that investing in reuse operations could really make a difference.

Public organizations, construction industry operators and private citizens are all potential customers and beneficial players within this reuse network.

The reuse map® provides a game-like interface: people can easily create their own geography of reuse, and pick their materials closer to site in the European context. Users will also determine on which basis the exchange will take place, either by trading goods or exchanging it, or giving it away for free, thus saving on landfill fees.

At the same time, the map acts as an indicator of materials flow and allows closer interaction between Public Institutions and private citizens.

Website Policy

The reuse map® will accept in its database any items whose exchange is not harmful or prohibited in any way, and that can be reused for any design purpose. Definition of *design purposes* includes works of art, retrofitting, ordinary maintenance of buildings, architectural design at the concept stage.

A practical example of how the website can be used: if a construction company is going to do some landscaping works, they will most probably need to demolish the existing paving, whether it is in good conditions or not, and buy new paving materials. By using the website, they could make demolition materials available for other projects and take materials needed from somewhere else.

At a smaller scale, refurbishing operations can widely make use of reclaimed materials available on the website. At the same time, while renovating, companies need to get rid of many materials and furniture that could this way easily find a second life.

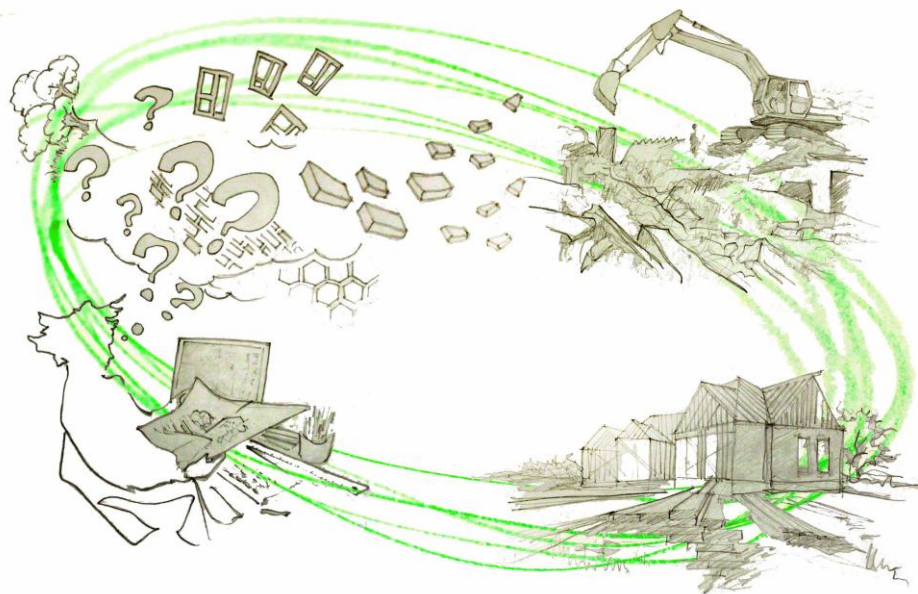


Figure 3. The website is conceived to allow closer interaction between designer's, builders and homeowners.

Offers and requests

By filling out a contact form on *thereusemap.com* people can indicate the items they want to get rid of. This will be displayed on the map by an icon: stones, windows, furniture, etc. Depending on their storage possibilities, people can also choose a period of time during which the items will be seen as available on the map.

Who cannot find wanted items on the map can similarly place a request, again showing location and desired quantity of materials; a question mark icon, with a description of the request, will show on the map for the chosen lapse of time.

the reuse map® is the online database for reuse in design and building industry.
Our aim is to promote creativity of people and raise awareness about the use of land, by displaying on Google Maps building and demolition activities.
Post a material listing or a material request to our database and create a sustainable market for Construction & Demolition Waste.

Home >> OFFER / REQUEST

the reuse map

- home
- about
- database
- additions archive
- press
- contact us

Please post your offer/request using the form here below.
Your post will be visible on the map showing: items, quantity and location.

Post: ☐ Offer ☒ Request

Category: ☐ Construction Materials ☐ Furniture ☐ Landscaping ☐ Other

Quantity:

Price:

Location:

Name & Surname:

Email:

Your contact will be visible only to the administrator and to the person replying to your post.

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Figure 4. How to upload offers and requests: the reuse map® contact form.

The reuse map®: background strategy

Displaying location and quantity of materials is crucial not only to the success of exchange of items, because it will make easier on a local basis without restricting range of choice on European territory. It will also act as an awareness-raising tool and as an indicator of materials flow.

This will give designers full control and freedom regarding their choice. They will really be able to choose if it is more important to get a certain material or replace it with another one that is cheaper or closer to site. Tracking the products on the map could influence the import-export aspect which is a key economic factor of the construction process, as well as environmental impact and emissions.

There is an economic advantage for all the parties involved: for those who save money on buying new materials, for those saving on landfill fees, and -eventually- for environmental and economic policies of institutions supporting the project.

Companies and institutions may have an interest in supporting the project, not only because it could promote import-export in an environmentally sensitive way; but also because displaying items on *the reuse map* is actually an easily accessible and reliable documentation of what is usually difficult to communicate: reduction of impact on quarrying of new materials, and reduction of waste.

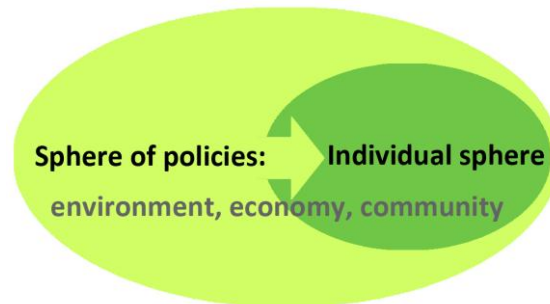


Figure 5. Aim of the project is to foster mutual influence of the social and the individual sphere, thus promoting the recovery of materials in the building industry.

Legal definition of Reuse, challenges and opportunities

Waste prevention is the next challenge addressed by European legislation in matter of management of the environment.

The European point of view about reuse and waste prevention in the construction sector can be summarized in the following main points:

- waste prevention compliance becomes the highest priority in legislation and policy: Directive 2008/98/EC (Brussels Institute for Management of the Environment, 2010).

Article 4 of the Directive establishes a five-level waste hierarchy, at the top of which is prevention. The Directive states that “waste prevention programs, including particular quantified targets, must be adopted”, and “measures in favor of reuse are essential”;

- “32 % of Europe’s total waste, is closely related to economic activity in the construction sector. However, construction and demolition waste is relevant because of its large quantity. (European Environment Agency, European State of the environment report No 5/2010);
- 70% is the target set for re-use, recycling and recovery of non-hazardous construction and demolition waste, to be met by 2020, according to the new Waste Framework Directive (EC, 2008).

Reuse is an operation that affects lifespan of goods. Directive 2008/98/EC provides a legal definition of reuse which places it indisputably within the *sphere of prevention*; it is still controversial in which cases it can be applied to waste. Attention must be paid to the legal and health issues related to reuse, and this is one of the reasons why reuse is not yet everyday practice.

For the European State of the Environment report No 5/2010 (European Environment Agency), reuse is not a waste treatment operation.

The definition in the Waste Framework directive (2008, p. 8) clearly states:

“reuse means any operation by which products or components that are not waste are used again for the same purpose for which they were conceived. It is an operation to postpone the entry of the product in the post-consumer waste phase.”

A distinction must be made between *reuse* and *preparing for reuse*:

- *reuse* is a prevention activity, acting on non-wastes and situated on top of the waste treatment hierarchy;
- *preparing for reuse* is an action on waste or on products that have already entered the waste phase, to lift them again out of this phase and prolong their lifespan (Reichel, 2010).

The Waste Framework Directive explicitly mentions products to be “used again for the same purpose for which they were conceived”. How to consider then, from a legal point of view, reuse of products that are not designed to be reused, or reuse of products for a purpose they were not originally developed for?

The European Environment Bureau states that if a product is used for a not initially intended purpose, it could be considered reuse, provided that there are no other environmental consequences generated by this action.

In *Analysis of the evolution of waste reduction and the scope of waste prevention* concepts of *reuse* and *preparing for reuse* (European Commission DG Environment, 2010, p.71) are clarified as follows:

“As long as a product is still a product (which has been prevented from becoming waste), anyone is allowed to put it to any use that it is fit for and that is not in conflict with other laws (even growing flowers in a washing machine, if one likes to).”

Under previous authorization of owners and if products are not prohibited or hazardous to health, everything can be reused, even what is already waste, thus including materials streams from Waste Services companies, for instance. This way a huge amount of resources can be saved, especially in the building industry, by participation of Institutions, NGOs and private citizens.

The reuse map could provide the framework to track and coordinate all these operations, offering everyone the chance to find out what in this field is being done.



Figure 6. Building a network of active users of the map –a community- to enhance waste prevention is one of the key aspects of the reuse map.

Potential of contemporary aesthetics to leverage individual action: reuse as sampling

Reusing dismissed materials is not just a matter of social responsibility, although campaigns in favour of sustainability often use our sense of guilt as leverage (Žižek, 2008).

Reuse is a practice that we first experience as kids, as we start playing with anything that is not necessarily designed as a toy. Reuse primarily revolves around creativity.

It is for designers what *sampling* is in music, part of our contemporary aesthetic identity.

The reuse map® is about collective creativity.

By allowing the designer to incorporate sampling in the design process, *the reuse map®* belongs to a place closer to art projects based on soundmaps, for instance, than to other products from the waste prevention field.

An example of soundmap is *Soundcities.com* by the UK artist Stanza, an online open source database of city sounds and field recordings. The website allows the audience as creative user to remix hundreds of samples recorded from around the world on various soundmaps, available on an online sounds archive. Because it focuses on direct manipulation by the user, *sampling* is a democratic, distinctive element of our contemporary aesthetics- in a way that is well described by the artist Robin Rimbaud, AKA Scanner (CM 48, 2011, p.22):

“Sampling the world around me became part of my language, the same way a playwright like Harold Pinter would sit in cafés and note down the conversations of people around him. The use of radio scanner—where I picked up these indiscriminate voices and conversations from the ether, like people chatting on their mobile phones- was a way to incorporate the real world into my music, sampling it and then introducing it into the darker, more abstract sonic landscapes I was composing”.

Similarly, by using the exchange platform *the reuse map®*, people have access to materials with their exact location in space, and they can use it for a new project like a musician picking up voices from Tokyo or Stockholm to create something new.

Geographic placement on the map gives evidence of how our network is not at all immaterial, abstract- in the same way voices and noises belong to real people and places. This is meant to help creating awareness and intertwining pathways of culture: through an individual action (putting data into a network) it is actually possible to achieve a big change. By tracking all the data, prolonging life of unwanted goods, building cooperation between Governments, NGOs and citizens for our collective imagination, the reuse map could become a powerful tool for Eco-design.

Eco-Design

Eco-design is the most effective waste prevention strategy (European Commission DG Environment , 2010) for the following reasons:

- Eco-design solves problems at the concept stage;
- Eco-design is technological innovation;
- Eco-design is waste prevention at design stage.

Eco-design is about sustainable growth and optimization of available resources at all scales, from concept stage. It begins in the individual sphere, where a *designer*, a person with needs who's actively seeking for the best solution, operates. Because it appeals to all of us, eco-design is so powerful and yet so difficult to be enforced.

Eco-design requires the right tools and a responsible attitude from those who were in the past called “consumers” and who are now going to operate the change. There is a shift in role from “consumers” to “gamers”: from someone whose only role is to be fed, to the one feeding the system and changing it by direct action.

Contemporary aesthetics based on sampling can turn our perception of collective responsibility into great individual potential; the right tools can turn this potential into action. *The reuse map®*, choosing the Design and Construction sector as action field for an European reuse network, would maximize combination and mutual influence of two factors: *Eco-design* and *waste prevention*, in a field where implementation of reuse strategies is very much needed and effective, because of its considerable environmental and economic impact.

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