Alma Mater Studiorum – Università di Bologna
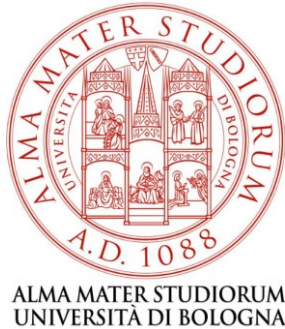
CHANCES.
PRACTICES, SPACES AND BUILDINGS IN CITIES' TRANSFORMATION.

Curator: Prof. Arch. Annalisa Trentin

International Conference, 24th October 2019

CHANCES was an international conference that aimed to explore, from a multidisciplinary perspective, the fragile but continuous urban transformation through the effective contribution of culture, nature and technology.

The conference wanted to provide a deeper understanding of urban transformations' research and practices, focusing on the use, re-use, design, renovation and innovative governance and management of public spaces, urban commons and buildings.

The organizing committee believes that these thoughts will largely contribute to shape and increase sustainable design, construction and planning in constant cities' transformation.

The selected contributions were built on reflections and studies concerning current or historical approaches that are changing or drastically changed the cities we lived in.

The Conference has been organised by the PhD in Architecture and Design Cultures -

Department of Architecture - University of Bologna

/ SCIENTIFIC COMMITTEE

The scientific committee is composed by the editor in chief of SCIRES-IT and the members of

the academic board of the Phd in Architecture and Design Cultures of the department of

Architecture of the Alma Mater Studiorum - University of Bologna.

Info: https://phd.unibo.it/architettura/en/people

/ ORGANISING COMMITTEE

XXXIII PhD cycle, Architecture and design cultures.

Lorenzo Badini, Anna Bonora, Ilaria Cattabriga, Giorgio Dall'Osso, Claudia De Luca, Eleonora Fantini, Caterina Morganti, Karilene Rochink Costa, Elena Vai, Francesco Volta.

Indice

Track 1 / DESIGN AND PRACTICES

Waste as a Commons: Shared Practices of Materials Reuse for the Design of the Built Environment

Francesca Zanotto*, Marco Zanini**

* Ph.D. Arch, independent researcher, teaching assistant at Politecnico di Milano, RE-sign b corp startup co-founder – Milano, Italy.

** Ms. Arch, architectural designer at Studio Associato Brusa Pasquè (VA), teaching assistant at Politecnico di Milano, RE-sign b corp startup co-founder – Varese, Italy.

Abstract

Technological progress and the diffusion of waste separation arisen in the last decades have made possible the acknowledgement of the inherent potentialities of urban solid waste in environmental and economic terms. Waste is gaining a primary role in the spatial, social, economic and cultural metabolism of the city; in the framework of the renewed attention recently devoted to the topic of the urban commons, the definition by Bollier stating that a commons arises «whenever a given community decides that it wishes to manage a resource in a collective manner, with a special regard for equitable access, use and sustainability» (2007) is assumed as a premise to affirm that waste is part of the urban commons, as increasingly at the center of formal and informal urban practices rely on it as a common resource. Architects, designers, urban activists as Assemble, Rural Studio, Rebiennale have already proven the potential of material waste coming from construction sites, spatial renovations and demolitions to pursue a communal shaping process of an inclusive and sustainable urban environment. Many small-scale urban regeneration projects are based on the shared experience of materials reuse, as the ongoing renovation of Mulini di Gurone (VA) in the project of Casamatta Circuar Hub managed by environmental association Legambiente. Mentioned case studies are conducted from a critical position not accepting the status quo of citizens as customers (Streeck, 2012), employing waste as a tool to outline common spaces, intended as physical urban spaces and relational spaces designed according to shared values.

Keywords

Material waste, commons, urban design, architectural design

1. Introduction

In the short story *La poubelle agréée*, written in Paris between 1974 and 1976, Italo Calvino describes the act to move the domestic trash bin in the public street, where sanitary workers will collect its content, as the first step of a social pact, the «first gear of a chain made of decisive operations for the common cohabitation» (1992). Calvino states the undeniable publicness of trash, as far as produced in the privacy of the domestic environment.

After decades of capitalism, in Europe as well as in most countries around the world, waste produced by overconsumption is more and more a common concern. At the same time, the last five decades after the industrialization on large scale and the post-war economic boom have get European citizens acquainted with the view of trash; moreover, the technological progress and the diffusion of waste separation arisen at different pace around Europe have been making the relationship with waste closer and clearer. Since private citizens were called to take responsibility for their own waste and to deal in the private household with one part of the public urban waste disposal chain, waste has been progressively handled with less repulsion. Divided into categories according to the nature of the components, its composition is known, and its handling is performed with a new awareness, opening some cracks in the removal and discomfort around waste identified by Kevin Lynch (1991) in the subtle and disturbing connections among death, aging, decay, consumption, eating and discharging, cleanness and filth.

Together with the rising awareness of the global resource scarcity and the consequent efforts to devise new systems to manage natural stocks, the contemporary intimacy with waste has enabled a better knowledge around discarded goods, materials

and resources, unveiling on one hand the environment threat they represent when out of control and acknowledging, on the other, the inherent potentialities of waste in environmental and economic terms, reevaluating consumption forms and paces.

In this framework, new production and consumption paradigms as Circular Economy are raising, presented as a flexible framework recognizing mutual relations among global issues and proposing to address them as a whole. The main idea behind the circular model is to employ waste as a resource, using the value retained in waste within production processes in order to close resource cycles and optimize materials, products and procedures (Ellen MacArthur Foundation, 2015), making them more efficient. The waste to be employed "as a resource" according to the circular paradigm is both tangible and intangible: it includes the discarded material output of processes as well as wasteful uses of products and inefficiencies leaving much space for optimization. Under this perspective, Circular Economy and similar paradigm often encompass urban practices already performed freely and spontaneously in the built environment: rooted customs never formalized, contemporary or repurposed traditional uses, subtle changes of habits deeply embedded in local contexts, most of the time implying the sharing of goods and the involvement of a community. These formal and informal urban practices rely on waste as a common resource.

2. Waste as a Commons

At different paces, the reuse of waste is gaining a primary role in the spatial, social, economic and cultural metabolism of the city. A disruptive change was introduced by the rise of sharing economy and the idea to exploit inefficiencies and redundancies, as those widely diffused in the organization of contemporary city: the average European car is parked 92 percent of the time and the average European office is used only 35–50 percent of the time, even during working hours (Ellen MacArthur Foundation, 2015). Sharing economy has unveiled the potentialities inherent in underused goods producing innovative patterns of use relying extensively on these solutions. These new patterns redefine the relationship among citizens and consumption: sharing physical assets lowers, defers or erases the need to own specific items exclusively

and increases the awareness in terms of use of material resources.

This optimization orientation interests waste and unwanted resources as well. Beside traditional customs as the exchange of secondhand goods as vehicles and furniture, many innovative urban practices are rising. These practices recognize the economic, social and environmental value retained in waste as a useful tool for the definition of a more sustainable and more inclusive urban environment. Waste is sometimes employed as a tool for unofficial forms of welfare, seeing for example Berliners leaving on purpose their empty bottles and cans on windowsills and bins' edges to allow those in needs to collect them and obtain the deposit for the empty container (*pfand*) or ticket crossers, leaving their valid public transport hourly ticket at the stop after their journey, letting others use it again. Groups as ReFoodgees (Praticò, 2019), a European network made of European citizens, refugees and asylum seekers, work in markets to recover and redistribute unsold and overripe fruits and vegetables before they are thrown away, making the weekly market a place of support, inclusion and work for those in social and economic vulnerability. Again, waste represents a weapon of communal self-affirmation against an established order, bringing the natural, social and economic global ecosystem towards collapse: in Repair Cafés, citizens learn to repair their broken electric appliances to fight the imposed planned obsolescence with the simplest of the practices; countless apps, online communities and groups have the sole purpose to put people in contact to exchange unwanted goods, for economic necessity, environmental awareness or for the value they see in prolong the life of still efficient items.

These practices are often moving in grey, unregulated areas or explicitly working against set rules, with light violations committed in the name of free use of waste, a resource that, as commonly created and not explicitly reclaimed by anybody, can be commonly managed. In the framework of the renewed attention recently devoted to the topic, waste can be considered part of the urban commons, based on the definition by Bollier stating that a commons arises «whenever a given community decides that it wishes to manage a resource in a collective manner, with a special regard for equitable access, use and sustainability» (2007). More and more citizens are among those «popular intellectuals» (Illich, 1983) reclaiming the right to

self-determination outside a top-down capitalistic logic seeing «citizens as customers» (Streeck, 2012) and seeing in waste a common resource to commonly manage for the common good, moving «on the periphery of conventional politics» (Bollier, 2007). Their activity is laying the groundwork for a new politics, physiologically in line with current conditions, building alternative consumption paths and shaping the relational spaces of urban environment in accordance with these needs.

3. Construction Waste and Shared Practices of Material Reuse

Material waste coming from construction sites, spatial renovations and demolitions has a great potential as common resource for the shaping of an inclusive and sustainable urban environment. These resources employed within communal process led by architects, designers, urban activists, proving how the value retained in waste can trigger regeneration processes of urban spaces as well as orient from scratch development procedures. The British collective Assemble, from a position between design and activism, develops projects widely relying on the use of poor and often waste materials and self-construction. This approach aims to reconnect with ancestral building craft and, at the same time, perform an act of resistance against «the reduction of architecture to a "rentable" commodity» (Zaera-Polo, 2016) through the close engagement with the communities they work within and their involvement in the design and building process. For the workshop and performance space OTOProjects, realized in Dalton in 2013, they employed demolition rubble found on the site as main construction material to realize a single, monolithic volume for experiential and educational performance (Assemble, 2013). The project was built by six local volunteers, working with the collective for the local development.

The Venetian group Rebiennale conducts an interesting collaboration with Venice Biennale's curators, working to reemploy discarded materials coming from Art and Architecture exhibitions in participative process of urban regeneration of the local contexts. In 2016, during the XV Architecture Biennale *Reporting from the Front*, they collaborated

with the architects from Rural Studio (Aravena, 2016), the design studio led by teachers and consultants at Auburn University, in the West of Alabama, developing, together with groups of students, projects devoted to local communities in need, stressing the social responsibility of architecture through sustainable, zero-mileage architectures, with upcycled materials, designed according to local inspiration. In cooperation with housing Venetian activists, Rebiennale elaborated specific material and furniture requests for the renewal of an Asc – Assemblea Sociale per la Casa's dwelling in the neighborhood Casette: particle boards, insulating panels, bed bases. Rural Studio provided the materials through their exhibition funding; before delivering these materials to the refurbishment project, the architects employed them to realize their installation to the Architecture exhibition, *The Theater of the useFULL*. The realized installation was conceived to be totally reusable, producing no waste, designed together with local actors committed for social purposes and devoted to the immediate need of the Venetian context.

The reuse of material waste is sometimes at the basis of urban development processes. In the Netherlands, Circular Economy is employed as development strategy on several testing grounds, where creative entrepreneurs are employing building waste as construction material within the process of designing innovative neighborhoods: Buiksloterham[1] neighborhood in Amsterdam and Hof van Cartesius village in Utrecht constitute case studies of urban spaces build around the idea of sharing resources for a sustainable form of urban living and this idea is put into practice in the very design of dwelling and common spaces, designed and constructed sharing tools, time and knowledge and employing waste as a common resource to build «alternative kinds of growth» (Russo, 2014).

4. Casamatta Circular Hub

Many small-scale urban regeneration projects are based on the shared experience of materials reuse, as the ongoing renovation project of Mulini di Gurone (VA) driven by the project *Casamatta Circular Hub*, managed by environmental association

---

[1] In relation to Buiksloterham neighborhood, see Zanotto, F. (2018). Circular Economy and the Built Environment: Zelfbouw in Amsterdam. Addressing Resource Scarcity through Architecture. In *EURAU18 Alicante: Retroactive Research: Congress Proceedings* (pp. 351-355). Alicante: Escuela Politécnica Superior Alicante University.

Fig. 1: Aerial photography of Mulini di Gurone (VA), 2017.

Legambiente Varese. Casamatta's spaces are part of Mulini di Gurone, a village inscribed in a circular dam built in 2009 to protect the historical settlement from the overflows of Olona river. Mulini di Gurone has been at the center of Legambiente Varese's interest since 1994, when the association, together with some citizens, began a civil action against a paint factory guilty of polluting groundwater in the nearby Malnate, two years before.

The court condemned the industry and defined a compensation to Legambiente and the group of citizens, who decided to invest the money on the care for their territory, choosing to focus on the precious area of Mulini di Gurone. The environmental equilibrium of the naturalistic area around Gurone was periodically destroyed by the frequent, uncontrolled overflows of Olona river and historical settlement was threatened with being delocalized by the very plan to build a system of dams to manage river's overflows, which would have involved the flooding of the hamlet. Gurone's residents firmly opposed to this plan, then expanded with the construction of a circular dam around the settlement, built in 2009 (Fig. 1 and 2).

After the building of the dam, Legambiente Varese bought the building of Casamatta (Fig. 3) with the idea to turn it in a hostel and a space of environmental and ecological education. The project revealed to be financially unsustainable and in 2012 Legambiente decided to make of Casamatta an objective of the association, to be developed with minimum resources throughout time, keeping the initial purposes: realize an accommodation and educational facility, pursued according to the association's philosophy. With this goal, in the next years the renovation process of Casamatta's spaces has been following specific principles: the main idea is to build minimum devices to make the space usable, employing waste materials.

In the spring of 2017, the first construction moment took place. Within a public event, the local community was called to participate in a self-construction workshop at Casamatta held in two parts. The first part was aimed to build furniture for Casamatta with discarded wood donated by artisans and a partner company producing wooden houses. The process was led by an architect that acted as a facilitator of a process involving stakeholders and

Fig. 2: View of Mulini di Gurone (VA), surrounded by the circular dam, 2017.

people with no specific backgrounds, interested in being part of the common construction of a place catalyzing shared values. At first, participants experienced an education moment: main notions about circular economy and a collective image on the topic of material reuse was shaped by lectures from architects and professionals. The second step was in preparation of the design phase: a communal check of available material was carried on collecting information about the resources to be used in the process. Then, the design phase proceeded with roundtables involving participants and architects, designers, carpenters, blacksmiths and makers, commonly designing furniture on paper constantly checking conditions, sizes and features of the available materials to adjust the design to the actual situation and negotiate with other tables the use of resources. Once the design felt adjusted, the construction phase started, supervised by involved professionals. During this first phase, a table with attached seats, stools, chairs and a container bench were constructed by participants, the first

Fig. 3: The entrance of Casamatta

Fig. 4: A moment of the communal process for the construction of furniture for Casamatta

equipment to furnish Casamatta and make its space usable for community events devoted to the knowledge and care for the territory.

The second part of the construction process was aimed to build a communal oven, in the same point where the original oven was (then demolished). The idea to build a communal oven in Camatta was aimed to realize a facility open to the public, able to trigger, through the sharing of food and cooking activity, inclusive social processes that could activate Gurone's urban spaces.

The construction of the oven started with a preliminary design outlined by Legambiente, exposed to local community for a certain amount of time, in order to collect feedbacks. In the meanwhile, the necessary materials to construct the oven where spontaneously offered by the involved community: refractory bricks were the sole materials that were purchased. The beams came from demolished parts of Casamatta, while the Marseillais tiles and the trusses for the covering came from acquaintances, who donated them after a private dismantling. After the construction, conducted again through a communal process led by an architect and involving part of the local community, the oven that has been built is totally different from the one that was outlined before the process: the project changed on the basis of the materials which become available in the local context. At the beginning, the design for the oven did not involve a marble slab that was donated during the process and was employed to realize the cooking basis of the oven.

The refurbishing project is now involving an architecture firm, which is preparing a SCIA – *Segnalazione Certificata di Inizio Attività*, the official

document to notify to the municipality the start of a building process. The firm is now working to understand how to proceed with the refurbishment of Casamatta experimenting with reused materials for the building renewal in accordance with construction laws: the mandatory *Energetic Report*, referring to former law 10/1991, requires to verify the measures adopted in the refurbishment project to contain energetic consumption and to certify the performances of the building and the plants. To use reclaimed materials for a building renewal means not being able to satisfy these requests: these materials have most of the time uncertain origins or they have been produced in different historical moments under different regulations; their previous usages may have altered their features; they are not guaranteed and certified by manufacturers.

Fig. 5: One of the chairs built with reclaimed wood during the communal process at Casamatta

Fig. 6: The communal oven built at Casamatta

5. Conclusions

The illustrated case study unveils potentialities and criticalities in the common use of waste materials for the design of the built environment. A first remark relates to the process: when aimed to the effective construction of a structure, building components or piece of furniture, the involvement of an architect and a designer in the process appears to enhance the efficiency of the whole work. In this kind of procedures, the architect assumes a programmer role: as defined by Carlo Ratti (2014), he or she becomes a "choral architect", catalyzing the different scales of the project and acting as an editor, taking top-down decisions thanks to their competences, in a curatorial role. A second remark is about the normative conflict raised by the employment of reclaimed materials in refurbishment projects of buildings: the difficulty to certify reused materials, with no clear provenience and performances, constitutes an important barrier to the extensive reuse of material waste in the construction sector. The challenge of this practice is to obtain the practicability without satisfying the previous requirement of certification. A possibility to overcome this problem could be rely to post factum evaluations, certifying the performance of a building refurbished employing reclaimed materials once the work would have already been realized. This possibility exposes designers, builders and owners to the risk to not obtain the required certification. This barrier could be easily overcome in the future by the implementation of specific tools, as the material passport suggested by the Dutch architect Thomas Rau: this tool would collect all data about a material and would allow to catalog them with the objective of «preservation, reuse and also saving on costs, whereby reducing and, finally, eliminating waste» (Rau in Totaro, 2017). A third remark relates to the effectiveness of the employment of waste as a resource in the communal shaping of the built environment: the illustrated case study demonstrates as waste can be an effective tool to outline common spaces[2], intended as physical urban spaces and relational spaces designed according to shared values.

Fig. 7: The storage of reclaimed materials at Casamatta

Fig. 8: A piece of furniture commonly designed and constructed at Casamatta

---

[2] In relation to this see the definition of common spaces given by Stavrides (2015): «common spaces are those spaces produced by people in their effort to establish a common world that houses, supports and expresses the community they participate in».

REFERENCES

Aravena, A., ed. (2016). *Reporting from the Front. Biennale Architettura 2016*. Venezia: Marsilio.

Assemble (2013). OTOprojects. Retrieved from https://assemblestudio.co.uk/projects/oto-projects

Bollier, D. (2007). A New Politics of the Commons. *Renewal*, 15, 1-7.

Calvino, I. (1992). La Poubelle Agréée. In M. Barenghi, B. Falcetto (Ed.), *Romanzi e Racconti* (pp. 59-79). Milano: Mondadori.

Ellen MacArthur Foundation (2015). Growth Within: a Circular Economy Vision for a Competitive Europe. Ellen MacArthur Foundation. Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/publications/EllenMacArthurFoundation_Growth-Within_July15.pdf

Illich, I. (1983). Silence is a Commons. *The CoEvolution Quarterly*, Winter 1983, 1-6.

Lynch, K. (1991). *Wasting Away*. San Francisco: Sierra Club Books.

Praticò, R. (2019). Non si butta via niente: così a Roma si recuperano gli avanzi del mercato. *Repubblica*. Retrieved from https://video.repubblica.it/mondo-solidale/non-si-butta-via-niente-cosi-a-roma-si-recuperano-gli-avanzi-del-mercato/339737/340327?ref=RHPPRT-BS-I0-C4-P1-S1.4-T1

Ratti, C. (2014). *Architettura Open Source: Verso una Progettazione Aperta*. Torino: Einaudi.

Russo. M., ed. (2014). *Urbanistica per una diversa crescita. Progettare il territorio contemporaneo. Una discussion della Società italiana degli urbanisti*. Roma: Donzelli Editore.

Stavrides, S. (2015). Common Space as Threshold Space: Urban Commoning in Struggles to Re-appropriate Public Space. *Footprint*, 16, 9-20.

Streeck, W. (2012). Citizens as Customers. Considerations on the New Politics of Consumption. *New Left Review*, 76, 24-47.

Totaro, A. I. (2017). Closing the Circle is Just One Option. Interview with Thomas Rau and Sabine Oberhuber. *Renewablematter*, 16, 18-22.

Zaera-Polo, A. (2016). Well Into the 21st Century. The Architectures of Post-Capitalism? *El Croquis*, 187, 252-287.

Zanotto, F. (2018). Circular Economy and the Built Environment: Zelfbouw in Amsterdam. Addressing Resource Scarcity through Architecture. In *EURAU18 Alicante: Retroactive Research: Congress Proceedings* (pp. 351-355). Alicante: Escuela Politécnica Superior Alicante University.