

# GENEROUS CITIES: COMMONS-BASED HANDLING OF EXCESS MATERIALS

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## INTRODUCTION: EXCESS

A common way to describe the contemporary globalised world is that it is organised chiefly around industrial production. That point of view, although insufficient to provide a deep understanding of the many economic, political and social dynamics at play, is prevalent in the public opinion. The mere fact that it has uncritical wide adoption by the media and the general public has many consequences. Crucially, it makes it all but inevitable to accept that the global economy depends on an increasing extraction of raw materials, their transformation into products, and the distribution of such products to consumers. Contemporary industrial production is, after all, usually structured in such a way that multiple materials are extracted from nature – often in parts of the world distant from one another – and transformed into products through the use of labour, energy and applied knowledge.

That mode of organisation impacts the entire supply chain, but its final section is particularly problematic. It would make sense to assume that the products of industrial production would better stay in use for as long as possible, lest the investment – labour, energy, and knowledge – disappear altogether when products are discarded, or at best recycled. In other words, the resources invested into manufacturing are literally wasted at the end of the product life cycle. The so-called linear mode of industrial production <sup>1</sup> generates increasing volumes of objects that can not be reincorporated into production processes. Such excess materials are largely wasted, despite often still being potentially valuable. Recent policies attempting to increase the rate of recyclable materials' collection address this situation partly, but they cause other sorts of undesirable effects, as will be discussed in this thesis.

Another implication of describing society solely in terms of industrial production is the promotion of a worldview – and consequentially a culture – based on commercialisation and competition, which lacks a holistic perspective of the social and environmental impacts of economic activity, and in particular its negative externalities. Alternatives to address the impacts of industrial production have taken the shape of systemic approaches such as cradle-to-cradle (C2C) <sup>2</sup>, circular economy <sup>3</sup>, and

doughnut economy <sup>4</sup>. All those takes offer a well-structured narrative and recommendations about production and consumption, material lifecycles and economic systems. There are however contradictions in how – or if – those frameworks sufficiently address cultural and symbolic aspects of waste and attempt to find concrete solutions under that perspective.

Relying exclusively on market-based mechanisms limits the potential transformative effects of such proposals. Profit-oriented corporations have historically been incentivised to adopt questionable practices to increase their margins. And that happens not only regarding source materials. Whenever possible in legal terms and acceptable by public opinion – or invisible from it —, such organisations will:

- Increase prices as much as possible, occasionally making use of sophisticated techniques to manipulate consumers' perception in terms of style and identity. That allows them to make their products be seen as more valuable than the competitors' – even in the cases where they are objectively the same.
- Reduce wages and working conditions to the bare minimum established by legal or class-based workers' rights regulations, often relocating their industrial plants to parts of the world where labour is cheaper, or less protected.
- Employ materials from unethical provenance – sometimes relying on child labour, environmentally questionable extraction and processing of materials, poor workers' protections, or even sourcing materials from conflict and war-thorn areas, as well as engaging with corrupt actors.
- Ignore the long-term impacts of their products once they are not in use any more – sometimes actively promoting planned obsolescence and/or concealing known information about the low repairability or the high toxicity of their products <sup>5</sup>.

I argue that society can truthfully seek novel and holistic ways to address the impacts of excess materials, but profit-oriented corporations should not be the only actors involved. A coalition of stakeholders representative of the many forces at play must be forged. Unfortunately, we must accept that waste production is inevitable for the foreseeable future.

My doctoral investigation centred on how localities can cope with excess materials under a conceptual framing of reuse – through repairs, upcycling, or re-circulation. This specific research focus was based on two elements. The first, my hands-on involvement in the past with community initiatives promoting the reuse of materials. I build on experiences reusing discarded electronic equipment in the MetaReciclagem network – active in Brazil between 2003 and 2012. The second factor in deciding on this particular research topic is the scarce literature I found connecting inclusive urbanism, digital equality and environmental issues. Particularly in discussions about smart cities, there seems to be no awareness of the rich scholarship, for instance, on Lefebvre's concept of *Right to the City* <sup>6</sup> and its implications in how policy is designed and implemented. Equally absent are approaches to handling waste in urban contexts that go beyond logistics and discuss impact and benefits to local communities and society.

## WASTE AND CITIES

The entirety of my research journey, from arriving in the UK in 2019 to the moment I finished reviewing my thesis in Berlin in 2024, followed an explicit goal. That is, going beyond merely deploying technologies, rather discussing how to pursue a better future for cities and their populations. My thematic choice for that investigation was to focus on local systems to promote the reuse of excess materials – broken, unfit, unused, discarded objects – in contemporary cities and regions.

Regarding cities, discussion about the reuse of materials is often affiliated with the field of waste management. There are, however, problematic points in such a thematic association. The first question is the extent to which public understanding of waste has gradually been reduced to the attempt only to increase the volume of recyclable materials collected and processed by municipal services. The dominance of a top-down view of recycling as the end goal of waste management leads to distortions that must be addressed. The second problematic point, perhaps of a more conceptual nature, is that accepting to define things out of use as waste conditions society's perception and expectations about such materials. To that point, not even the well-known formulation 'waste is matter out of place' is sufficient. The theme ought to be challenged from a perspective that considers power dynamics and conformity to a consumerist society <sup>7</sup>.

In my research, I adopt an alternative take: addressing excess materials in cities and regions through collaborative practices of reuse. In so doing, I shift the focus: from an increasingly automated collection of materials that should disappear from the public eye as soon as possible, to an ongoing effort to identify and expose the potential value of discarded materials, and actualise that value with (and to the benefit of) local agents.

Instead of top-down waste management, the focus of my work can thus be better framed as creating systems for commons-based waste prevention. That is the perspective I apply to my experiments with digital technologies and modes of organising. I depart from the incremental improvement often seen in smart city initiatives: instead of deploying sensors and data collection tools to improve objective control by entities of centralised power, my research experiments with the opposite: the collective generation and governance of data to rebalance power relations <sup>8</sup>. I sustain that any solutions – technological or otherwise – in that context should be co-designed with knowledgeable stakeholders to ensure that relevance, trust, privacy and long-term dependability are incorporated by default. A chief concern is to ensure that those social groups already involved in reusing materials are not marginalised by future developments <sup>9</sup>. Instead, I want to leverage the capacity of such groups – small businesses, community initiatives or individuals – by exploring what would be a labour point of view <sup>10</sup> in the reuse of materials.

It may be obvious nowadays, but it is always important to make it explicit: recycling is not the only solution for solid urban waste. In fact, there are many cases where recycling is unsustainable, too impactful or downright impractical <sup>11</sup>. Recycling has acquired a positive cultural value over the last decades, embodying a growing concern for the future of the planet. But objectively, it is an industrial process whose goal is to collect materials that are not in use, and transform them back as much as possible into raw materials that will feed other industrial processes <sup>12</sup>. There are accounts depicting the public acceptance of recycling as being engineered precisely to distract attention from the ill effects of the industrial use of plastics <sup>13</sup>. The requirements for that system to work properly are very high. First, there must be a steady influx of recyclable materials, preferably already cleaned and sorted according to type and quality. There must be an industrial plant with the proper equipment, methodologies, workforce, sources of energy, social responsibility measures, and environmental licences. Finally, there must be an active market willing to buy recycled materials.

Influx, processing, output. Even taken in broad terms, there are many weak points in that design <sup>14</sup>. When one tries to consider other aspects, this fractal setting gains even more complexity. For instance, the logistical challenges to collecting recyclables and redistributing recycled materials are already high, even if one does not factor in the cost and environmental impact of transporting things within the city – from neighbourhoods to sorting facilities, to recycling plants, then on to retail and finally to manufacturers willing to use the recycled materials for their production. Furthermore, even that image is based on the reality of a contemporary western/northern city with ideal transportation means, a population aware of the benefits of properly sorting recyclables, and an industrial sector in need of materials. Most cities and urban areas in the world can not be portrayed that way, which complicates the situation even more.

My take is obviously not to altogether replace waste management and recycling with reuse. Those practices need to handle the greater part of waste, today and in the foreseeable future. My research, however, aims at reshaping the imagination about excess to promote community-based reuse of materials alongside conventional waste management structures.

## **DESIGNING POST-CONSUMPTION FLOWS**

It is disheartening to realise that despite a recent increase in public awareness to issues of sustainability and climate change, the imagination around product design is still very much focused only on everything that happens before a product is purchased. Granted, there have been important changes over the recent decades, as users increasingly moved centre stage of the design process, which brought real-world use scenarios to the fore. There are also excellent alternatives currently under development that offer more sustainable sourcing of raw materials. However, there is little thought about what happens once the products start to fail, or are kept unused for any other reason. Of

course, manufacturers are increasingly pressured by the public and policymakers to enable easier reparability and recyclability of their products, as proposed by the *Right to Repair* movement <sup>15</sup>.

Nevertheless, at any given second, virtually every city and town in the world is discarding high volumes of materials. A considerable part of those materials should not need to end up in recycling or incineration, or piled in landfills. Potential value is literally being wasted everywhere. The solution for that is not merely logistical. There are political issues to be unveiled, as well as cultural ones. Waste has deep connections with inequality <sup>16</sup>. My thesis aims to significantly contribute to that discussion, starting with a reconnection of goods and products with the local and regional contexts in which they are used.

The first time I read about ‘bioregions’ was in the writings of John Thackara <sup>17</sup>. It is a perspective that asks one to think in a systemic way that integrates city, rural areas and nature. It provides a powerful way to expose assumptions often kept under the radar, especially to acknowledge externalities. Even though the themes around repair, reuse and waste are not related to a rural or a natural setting in obvious ways, it is still useful to think on a scale wider than only the city to understand how matter flows and is transformed within it.

Bruno Latour <sup>18</sup> uses the image of ‘black boxes’ to describe mechanisms whose internal functionality is opaque within a system. Such conceptual objects are only expected to receive inputs and, from them, provide outputs efficiently. One may argue that opening up black boxes and making them transparent reduces the overall performance of the system. On the other hand, it is only possible to have a clear picture once we look into the black boxes, expose the assumptions they are based in, and include more people in defining how they operate. The usual depiction of waste management systems is full of black boxes. My research tries to intentionally open up some of them.

## BEYOND CIRCULARITY

The vision of a circular economy is central to any contemporary discussion about waste and reuse. Nonetheless, my research is not completely aligned with that perspective. One of the many interesting questions I was asked shortly after moving to Dundee came from Professor Jon Rogers, Principal Investigator of the OpenDoTT programme. How about, he asked me, you thought of shapes other than a circle? Once I let that sink in, I began to understand what my main problem with the circular economy was. We can, inspired by the cradle-to-cradle concept <sup>19</sup>, accept that ‘waste equals food’, or in other words, that the residues of industrial production could be seen as nutrients that can be fed back to the system. The second step would then be creating ways to ensure that the nutrients are efficiently identified, sorted, cleaned and transformed back into food. It is, however, important to ask what sort of creature we are feeding with those nutrients. In other words, should a more circular

economy be used to provide frictionless nutrient flows to an industrial sector that has proved time and again that its only goal is to reproduce itself infinitely with no respect for nature and humankind?

My take differs in shape, if not in substance. Instead of nutrients, I like to think of discarded materials as potential value, or potential wealth. In 2016, I spent some weeks in Nantes, France. I was there invited by a local arts organisation to explore the scenario of circular economy projects in the region. The most valuable thing I learnt then was about the *agents valoristes*, in the original. It is an actual professional role: the person whose job is to evaluate what parts of discarded or donated materials can be either sold, repaired, or transformed. It reminded me of those TV shows of antique traders going to small towns to find potential acquisitions for their businesses. There is situated knowledge, skills and sensibility in that to be understood and put to use. The image of the *valoriste* was a constant inspiration for my research.

One of my favourite authors of near-future fiction is Cory Doctorow. I often say that most people read the wrong *Makers* book. Unlike Chris Anderson's title that focuses on a 'new industrial revolution' [20](#), the one written by Doctorow [21](#) is a story of a group of creative engineers in a warehouse in Florida repurposing the excesses of industrial production. One of them says: 'the world is full of capacious, capable, disposable junk and it cries out to be used again'. A good *valoriste* can likewise see beyond the intrinsic characteristics of things, and envision how they can be dynamically reconfigured in different situations. For instance, an unrepairable object considered worthless for its original use could become valuable for an artist looking for particular material characteristics for an artwork.

If society is to cope with the vast amounts of waste being generated every day, the skills of the *valoristes* should be recognised and disseminated. Once that happens, we may see flows of matter not necessarily returning circularly to further fuel the industrial sector, but instead being absorbed and generating social value within cities and community centres, workshops, social enterprises and nonprofits. By treating waste as potential wealth, it is possible to design abundant systems that fight social and economic inequalities by combining the skills and labour of *valoristes*, repair and crafts professionals, amateur upcyclers and other groups active in the reuse of materials.

These initiatives can collect materials from their surroundings, identify the potential value in them, and make sure that that value is reverted to people and organisations in the vicinity. They can occasionally exchange materials with other initiatives in the neighbourhood or beyond it. Only afterwards the materials are to be sent back to the final disposal – recycling first, incineration or landfill when there is no alternative. Taken as a whole, such a system would hardly take the shape of a circle.

My PhD research focused on designing alternative approaches to excess materials. I have entertained the idea of creating technological solutions – sensors, equipment, online resources – to help identify and sort reusable materials, allowing more people to become networked *valoristes*, so to speak. I thought of using blockchain and online ledgers to track the lifecycle of particular objects, as some projects are already doing. I envisioned a future where I would get together with people developing apps for waste pickers in developing countries and see how my research could help. Or to develop concepts for city-based (or, better yet, bioregional) centres for the transformation of idle materials. I wanted to find ways to escape the seldom-challenged idea that only local governments and privately owned corporations should be in charge of all the processes related to waste in cities. What other ways could local societies propose to make good use of those potentially valuable materials?

## NOTES

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