

AMSTERDAM CIRCULAR

Design & Development:
Municipality of Amsterdam

Year:
2020

Location:
Amsterdam, The Netherlands

More info:
<https://www.amsterdam.nl/en/policy/sustainability/circular-economy/>

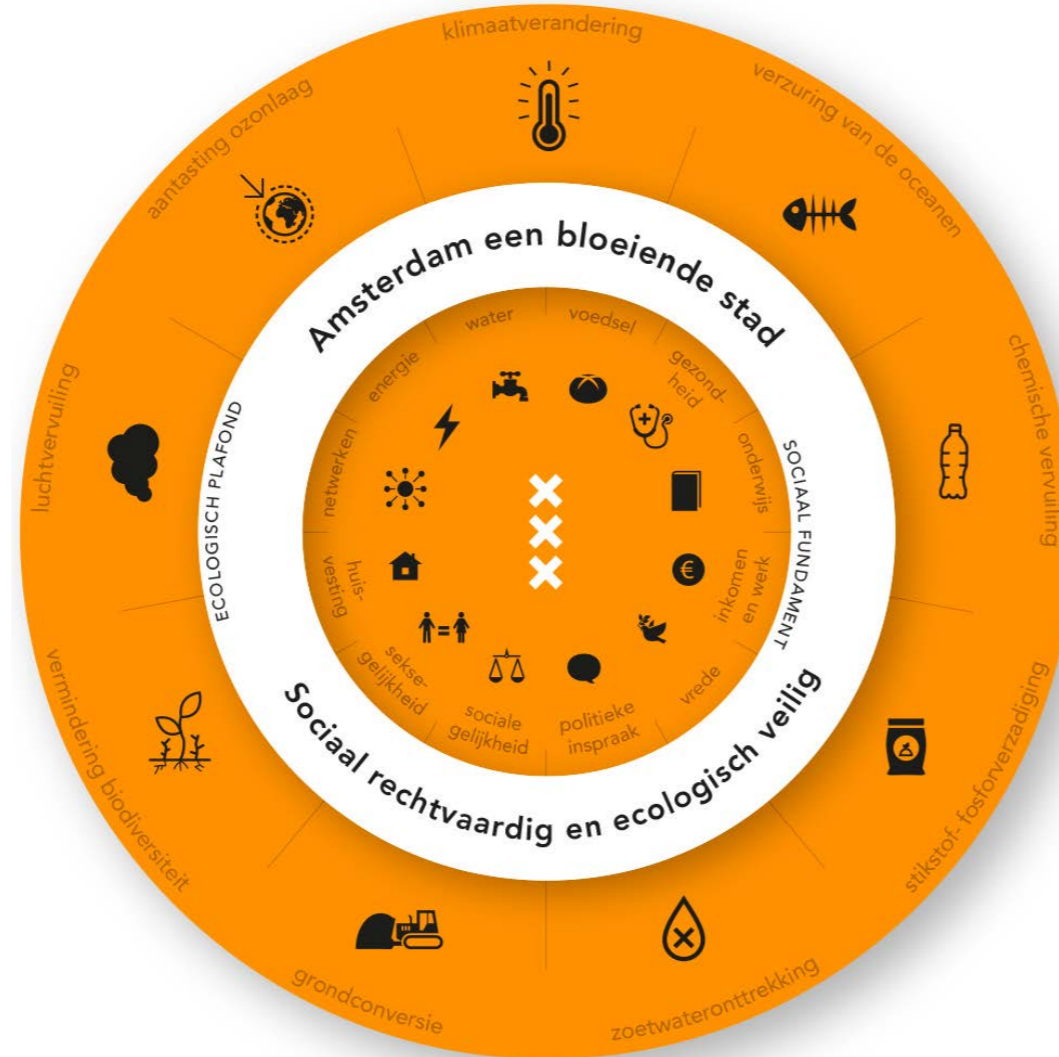
Scales:
City

Resources:
Biological Materials, Technical Materials

Design Approaches:
Regenerative Design

R-Strategies:
Reduce, Reuse, Recycle

Aspects:
Management, Resource Flows, Stakeholders



The Amsterdam Circular Strategy aims to become a front-runner in the circular transition. The city aims to both significantly reduce its environmental footprint and limit new raw material use by 2030 and become a fully circular city by 2050. The 2020-2025 strategic plan sets a roadmap for each value chain that shapes the circular economy: food and waste streams, consumer goods and the built environment. Some notable elements of the strategy include making it easier for residents to consume regional products, boosting infrastructure for sharing

platforms; and ensuring by 2025, 50% of all building refurbishment and maintenance operations follow the principles of circular construction. Moreover, the city will map out various material flows, from entry to processing, to understand resource movement in the city and preserve valuable raw materials.

To learn more about the six dimensions framework visit www.circularityforeducators.com

1. Conceptualization of Circularity

What is the circular idea, theory and approach behind this project? What is the aim and purpose of it?

The Municipality of Amsterdam has a strong economy that continues to bring prosperity. However, there is a significant drawback: this prosperity is at the detriment of the environment, by using resources as if there were an unlimited supply. To address this issue, the general conceptualisation of the Amsterdam Circular framework aims at living with our planet through a holistic approach; however, it focuses on three main pillars: innovation, regeneration and cohesion.

The Municipality of Amsterdam sees the local economy from a new perspective and shifts the focus on how locals produce, process, and consume. The municipality aims to significantly reduce Amsterdam's environmental footprint and make the city thrive. Two main goals are to reduce the use of primary raw materials by 2030 and become 100% circular by the year 2050.

Achieving this goal is challenging. From an urban planning perspective, it demands the change of our built environment towards new clean and smart technologies, and new business models that fit a circular economy. It also demands the adoption of digital tools, platforms and start-ups to understand our built environment differently, such as BIM, Madaster, and urban mining tools.

Lastly The Amsterdam Circular Strategy concept is rooted in [the model of a City's doughnut](#) developed by the British economist Kate Raworth. The doughnut model describes how societies and businesses can contribute to economic development while respecting the planet's and society's limits.

This model shows a lower limit to prosperity to offer a socially equitable existence to the inhabitants of a city or country. A just economic activity can guarantee problems such as hunger, scarcity, and inequality will not occur. These boundaries form the inside of the doughnut.

However, there is also an upper limit to prosperity: the boundaries of our planet.

After all, we cannot emit unlimited CO₂ or deplete oceans. Crossing these planetary boundaries leads to problems such as climate change, loss of biodiversity, ocean acidification and freshwater shortages. These boundaries form the outside of the doughnut.

2. The Sectoral Dimension

On which economic areas is the circularity focusing? What kind of system, supply chain, and flows is the project addressing?

The vision, set out in the Amsterdam Circular Strategy 2020-2025, focuses on three sectoral dimensions, providing the starting point for innovation. Each dimension is characterised by three or four main ambitions. In all cases, the first ambition focuses on interventions at the beginning of the value chain, the second is about use, and the third is concerned with how to make the most of waste streams.

Food and organic waste

- Increase the consumption of local/ regional products, better adapt regional food production to local needs and stimulate circular and urban agriculture.

- Increase the consumption towards plant-based protein diets.

- Reduce food waste at the consumption level by 50% by 2030.

- Improve the collection and processing of organic waste streams from residential, touristic and business areas, with a particular focus on kitchen and garden waste.

Consumer goods

- By 2030, reducing overall consumption of consumer goods by 20% and implementing 100% circular procurement, starting with consumables and furnishing the city's necessities.

- Reducing the environmental impact of the textiles, electronics and furniture goods, by reusing, repairing or otherwise upcycling.

- Ensuring a good infrastructure for sharing platforms, second-hand shops, online marketplaces and repair services.

Built environment

- From 2022 onwards, the new urban

development and public space designs are based on circular criteria, including the use of sustainable materials and the possibility of assigning different functions.

- From 2023, Amsterdam construction companies use circular criteria as the standard when working on buildings and in public spaces through procurement and the tendering process for land allocation, among other things.

- By 2025, 50% of the renovations and building maintenance activities in Amsterdam will follow the principles of circular construction, including for social and private housing stock, public real estate and schools.

In the case of Amsterdam, the above-mentioned sectoral dimensions are the most important value chains in terms of economic and ecological impact. Reports state that a third of the city's food is wasted; the use of consumer goods is responsible for a substantial ecological footprint; and 40% of all waste produced in the city is related to the built environment.

3. Sustainability Framework & Transition Concepts

What is the context of the project? What is the socio-economic, legal, and political structure established to develop the project?

Amsterdam Circular Strategy adopts the doughnut economy as a strategic framework and policymaking tool to support the design and implementation of the strategic plan.

The doughnut vision is inspired by British economist Kate Raworth's [Doughnut Economics](#) model. The model describes how societies and businesses can contribute to economic development while respecting our planet's and society's limits. It receives this name because it is visually represented by two discs that resemble the shape of a doughnut: the one in the centre is the social foundation, which includes fundamental rights, and the outer ring is the ecological limits, which cannot be exceeded if we are to ensure the prosperity of humanity. In the middle would be the space where society can progress if the planet's boundaries are respected. Both circumferences coincide with the United Nations [Sustainable Development Goals](#)

(SDGs).

The doughnut vision proposes a change of economic model to respond to humanity's primary challenge of eradicating global poverty through the planet's limited natural resources. This paradigm shift proposes moving from an economic model of constant growth measured by Gross Domestic Product (GDP) to an economy of prosperity that depends on human and natural well-being. The Doughnut approach provides a way for the Municipality of Amsterdam to understand their total resource consumption and inform strategies – such as Amsterdam's Circular Strategy – to bring this within the safe and just space of the doughnut and support its implementation.

The Municipality of Amsterdam partnered with the Amsterdam Donut Coalitie (Amsterdam Doughnut Coalition), a grassroots network of around 300 local people and 40 organisations based in the Netherlands. The different steps on how the coalition was formed are available [here](#). However, the main aim of the coalition was to foster a network and an online platform inspired by the Doughnut Economics approach of change agents, connecting government, corporates, academia, SMEs, startups, commons and communities. Each member should have a priority in ensuring that all doughnut-inspired action effectively adds up to the systemic change in achieving circularity.

The Amsterdam framework inspired by Doughnut Economics was created by downscaling the global concept and turning it into a tool for transformative and co-creative thinking at the city level.

The tool studies the city through four lenses – local, global, social, and ecological – which together provide new perspectives on what it means for a city to thrive in the 21st Century. It supports stakeholders in exploring the relationship between social goals, ecological impacts, local aspirations and global responsibilities. It also helps to connect diverse city actors with differing interests and concerns through a common framework.

4. The Social Dimension

Is this project bottom-up or top-down in its approach, and what role do local inhabitants, stakeholders, and circular

innovators play? Does it have a flagship / pioneering character for others? Does this project view people as consumers, users, or pro-sumers in the context of a circular economy? Does it have a pioneering role, with impact beyond its region?

The Amsterdam framework in reducing the city's resource consumption through the 'doughnut' approach is a collaborative effort between the municipality, businesses and residents. Reaching circularity at the city level will require achieving not only a fair extraction, consumption and use of resources but also working on the societal dimension of circularity. In particular, Amsterdam's circular framework strives for:

A fairer society: by purchasing services instead of owning products, consequently, products are accessible to everyone, now and in the future.

A resilient society: by being less dependent on imported raw materials such as phosphate and rare metals, we become more self-reliant and, therefore, better protected from influences that can negatively affect the import of raw materials.

A healthier world: reducing emissions of toxic substances during production, use, and disposal reduces damage to nature and health.

A more efficient economy: reclaiming raw materials and products locally as much as possible leads to new activity with less waste. This creates jobs in various sectors, such as the repair and processing industry.

Until today the ambitious plan of the Amsterdam Circular Strategy combines a top-down and bottom-up approach. It requires collaboration with private and non-profit stakeholders. In 2023 the Doughnut coalition comprises 40 businesses, research institutes and non-profits which are already using the Doughnut concept (in less than 5 years over 200 private partners have also been invited to input their thoughts into the process). Moreover, the city encouraged bottom-up initiatives, from workshops and festivals such as *'Doughnut Deals'* and *'We Make the City 2020'*. The *'Doughnut Deals'*, invented in the neighbourhood of Bijlmer in 2019, recognise community-based projects that help create social and ecological benefits locally, without negative impact globally.

5. The Territorial & Spatial Dimension

What is the scale of the project? Are urban planning policies design strategies cross scale? If yes, how and which flows are involved? What is the role of space and territory in this circular project?

The plan focuses on the city scale and its relationships at the regional level, although several ongoing initiatives included in the Amsterdam Circular 2020-2025 strategic plan are at the neighbourhood and port scales. Adopting the economies of scale approach, the framework identified different (optimal) territorial scales according to the different sectoral dimensions.

For the food and organic waste dimension, the scale observed is the Amsterdam Metropolitan Area. Large quantities of organic waste streams are imported into the Amsterdam Metropolitan Area (AMA) from the provinces of Overijssel, Zuid-Holland, Flevoland and Groningen. A significant proportion is exported to Noord-Holland. Between 2013 and 2018 more waste was imported into Amsterdam than is exported to other areas. The City of Amsterdam produces more organic waste streams than the rest of the AMA, although there is a limited exchange between the two. Organic waste streams produced in the AMA (but outside the city) are not processed in Amsterdam but in different provinces and processed there, while the majority of the organic waste streams produced in Amsterdam (> 80%) are also biologically processed in Amsterdam, for example through composting.

The AMA territory, as well as the entire country, have been considered for the analysis of the consumer good sectoral dimension. In fact, more than 50% of the consumer goods waste processed in Amsterdam is produced outside the AMA. In particular, approximately 20% of all exported waste streams of consumer goods from the AMA are incinerated elsewhere in the rest of the Netherlands, while the city of Amsterdam incinerates waste imported from abroad.

Lastly, for the Built Environment sectoral dimension the AMA was also considered as the region of analysis. The largest quantities of construction and demolition waste (CDW)

are imported into the AMA from Zuid-Holland, Gelderland, Noord-Holland and Noord-Brabant, while a significant proportion is exported to Utrecht. More CDW is imported into the AMA than is exported to other areas, which gives Amsterdam an important waste processing role for CDW of waste streams.

6. Assessment & Monitoring

How are strategies and policies monitored and evaluated? How is the qualitative and quantitative success of a project evaluated?

The City of Amsterdam developed a monitor to measure whether reducing the use of primary raw materials and becoming 100% circular is feasible. The monitor tool comprises five parts:

- **Input indicators:** to measure the incoming materials. The input indicators are based on the life cycle analysis of used materials in product groups with the largest carbon footprint.

- **Throughput indicators:** this refers to the way materials are used and comprises the predicted reduction of CO₂ emissions based on circular projects in the three value chains.

- **Indicators for waste collection by public authorities:** to measure the public authority's performance in waste collection (e.g. separating waste and collecting bulk waste).

- **Indicators for the waste treatment processes of regional industries:** these are general industrial waste streams broken down by value chain and processing form.

- **Indicators for the social foundation:** that provide insight into the general welfare of a society, such as housing, income and wealth inequality and health.

By focusing on three primary value chains (Food & Organic Waste Streams, Consumer Goods and the Built Environment), the monitor examines the usage of materials and the cycles they pass through. Moreover, it focuses on social aspects such as health, education and equality. As such, the monitor is in keeping with the city's ambition of improving the welfare of all its citizens.

As the image below indicates, the monitor provides guidelines for developing indicators



when no data is available. However, at this moment, only limited data is available on the current assessment of the results of the Amsterdam Circular Plan.

Colophon

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References & further reading:

Municipality of Amsterdam. (n.d.). *Policy: Circular Economy*. <https://www.amsterdam.nl/en/policy/sustainability/circular-economy/>

Municipality of Amsterdam. (n.d.). *Implementation Agenda Circular Economy*. <https://assets.amsterdam.nl/publish/pages/1043702/implementation-agenda-circular.pdf>