

# Circularity and the city

The biggest sustainability challenges to urban areas can be split into three groups, all of which can be alleviated by circular thinking.

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## Climate change

CLIMATE CHANGE AFFECTS CITIES IN A NUMBER OF WAYS ...



Temperature increases



Sea level rises



Higher precipitation



More extreme weather events

... BUT CITIES THEMSELVES ARE MAJOR CONTRIBUTORS.

**78%** Urban areas consume **78%** of the world's energy

**60%** Cities produce **60%** of greenhouse gas emissions

(These figures are significantly higher if consumption-based emissions are taken into account)

IN NEW YORK, THE EFFECTS ARE ALREADY BEING FELT ...<sup>8</sup>

**2.4°F** Average annual temperature up **2.4°F** since 1970

Sea levels along New York's coast have risen by more than a foot since 1900

Seasons starting earlier, bird and fish populations migrating north

Rising (and more unpredictable) precipitation state-wide

... WHILE CIRCULAR THINKING COULD BRING MANY BENEFITS.

Significantly higher productivity per unit of carbon; lower emissions



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## Waste and resource use

WASTE AND RESOURCE USE IS ANOTHER MAJOR CHALLENGE ...

**50%** In some developing countries, managing and collecting waste can consume **50%** of municipal budgets<sup>9</sup>

**\$375 billion** Annual global cost of managing solid waste is expected to reach **\$375bn** by 2025<sup>10</sup>

... IN WHICH CITIES PLAY A BIG ROLE.

Quantity of materials consumed in the world's cities will **more than double by 2050**

**1990: 14%** of the world's population lived in cities  
**2050: Expected to rise to 66%**

Due to their size and concentration, cities have a significant environmental footprint<sup>11</sup>

**2012: Cities generate 1.3bn** metric tons of solid waste  
**2025: Expected to hit 2.2bn** metric tons

NEW YORK FACES MANY CHALLENGES ...

**\$2.3 billion** Spending on residential and commercial garbage disposal in New York City in 2014

**76%** of **3.8m** metric tons of solid waste collected each year goes to landfill

... THAT CIRCULARITY CAN HELP ADDRESS.

Circular thinking can cut waste by **60%** and reduce air, water and noise pollution, as well as land lost to waste management facilities or infrastructure



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## Rising inequality

FINALLY, INEQUALITY IS A BLIGHT ON CITIES ...

Influx of people puts pressure on resources and jobs and widens income inequality

The COVID-19 crisis has been particularly felt by New Yorkers on lower incomes with little job security and financial independence who have as a result been more exposed to the virus. This has disproportionately affected Black and Latino populations<sup>12</sup>

Higher income inequality is linked to higher rates of infant mortality, incarceration, mental health disorders and obesity<sup>13</sup>

... AND NEW YORK IS NO EXCEPTION.<sup>14</sup>



**2006-2014:** Median income for top 50% of earners grew **14.8%**

**2006-2014:** Median income for bottom 50% of earners fell **13%**

ONCE AGAIN, CIRCULARITY CAN BE PART OF THE SOLUTION.

Higher productivity and job creation lead to improvements in wellbeing, social inclusion, skills development, income and expenditure, with the provision of skills training and workforce development



8 <https://www.dec.ny.gov/energy/94702.html>

9 Wilkinson, R., and Pickett, K., *The Spirit Level: Why more equal societies almost always do better* (2009)

10 <https://www.politico.com/magazine/story/2017/06/30/biggest-challenge-american-cities-policy-experts-215308>

11 World Economic Forum, white paper, *Circular Economy in Cities* (2018)

12 <https://anhd.org/blog/frontline-communities-hit-hardest-covid-19>

13 Wilkinson, R., and Pickett, K., *The Spirit Level: Why more equal societies almost always do better* (2009)

14 <https://ibo.nyc.ny.us/cgi-park2/2017/04/how-has-the-distribution-of-income-in-new-york-city-changed-since-2006/>