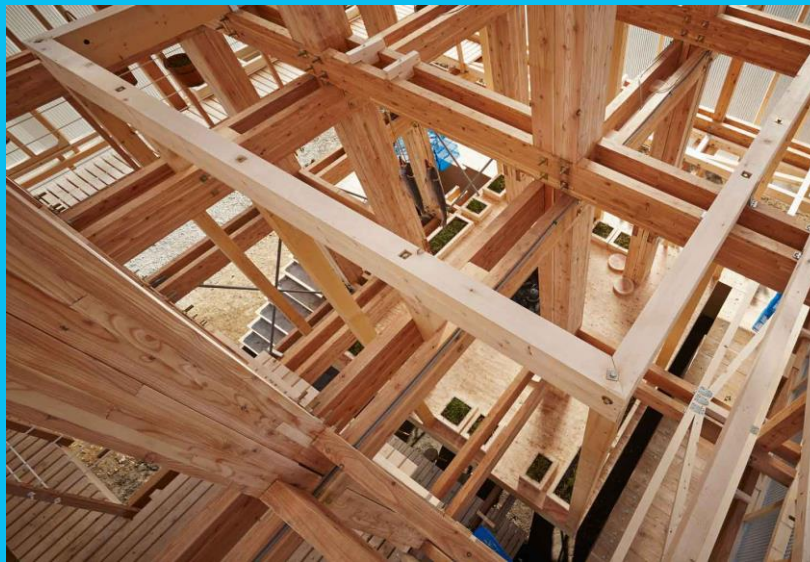


November 2022

# C40 Cities Clean Construction Programme and Oslo case study

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# The C40 Cities Network

Chair of C40  
Mayor of  
London  
Sadiq Khan

96  
Cities

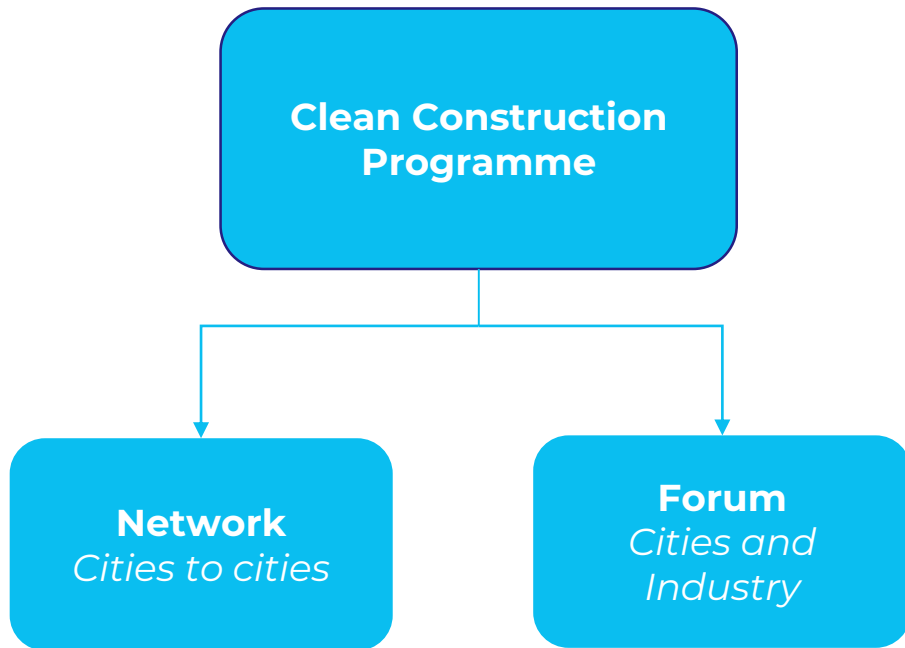
27%  
of Global Economy

800+  
Million people

**AFRICA:** ABIDJAN – ACCRA – ADDIS ABABA – CAPE TOWN – DAKAR – DAR ES SALAAM – DURBAN (ETHEKWINI) – EKURHULENI – FREETOWN – JOHANNESBURG – LAGOS – NAIROBI – TSHWANE | **CENTRAL EAST ASIA:** BEIJING – CHENGDU – DALIAN – FUZHOU – GUANGZHOU – HANGZHOU – HONG KONG – NANJING – SHANGHAI – SHENZHEN – QINGDAO – WUHAN – ZHENJIANG | **EAST, SOUTHEAST ASIA & OCEANIA:** AUCKLAND – BANGKOK – HANOI – HO CHI MINH CITY – JAKARTA – KUALA LUMPUR – MELBOURNE – QUEZON CITY – SEOUL – SINGAPORE – SYDNEY – TOKYO – YOKOHAMA | **EUROPE:** AMSTERDAM – ATHENS – BARCELONA – BERLIN – COPENHAGEN – HEIDELBERG – ISTANBUL – LISBON – LONDON – MADRID – MILAN – MOSCOW – OSLO – PARIS – ROME – ROTTERDAM – STOCKHOLM – TEL AVIV – VENICE – WARSAW | **LATIN AMERICA:** BOGOTÁ – BUENOS AIRES – CURITIBA – GUADALAJARA – LIMA – MEDELLÍN – MEXICO CITY – RIO DE JANEIRO – SALVADOR – SÃO PAULO – SANTIAGO – QUITO | **NORTH AMERICA:** AUSTIN – BOSTON – CHICAGO – HOUSTON – LOS ANGELES – MIAMI – MONTRÉAL – NEW ORLEANS – NEW YORK – PHILADELPHIA – PHOENIX – PORTLAND – SAN FRANCISCO – SEATTLE – TORONTO – VANCOUVER – WASHINGTON DC | **SOUTH & WEST ASIA:** AMMAN – BENGALURU – CHENNAI – DELHI – DHAKA – DUBAI – KARACHI – KOLKATA – MUMBAI

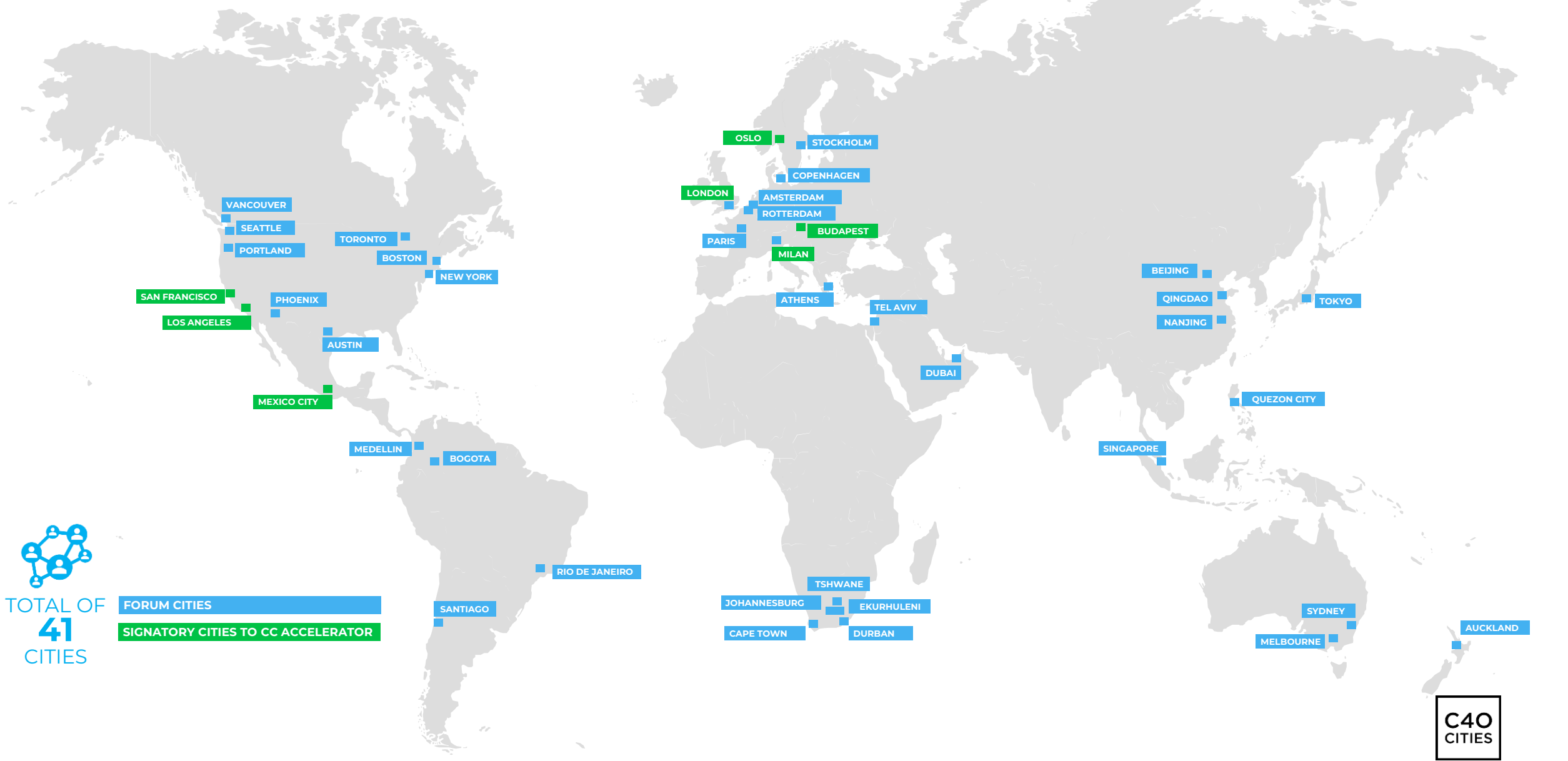
C40  
CITIES

# Programme Structure





# C40 Clean Construction Cities (2022)

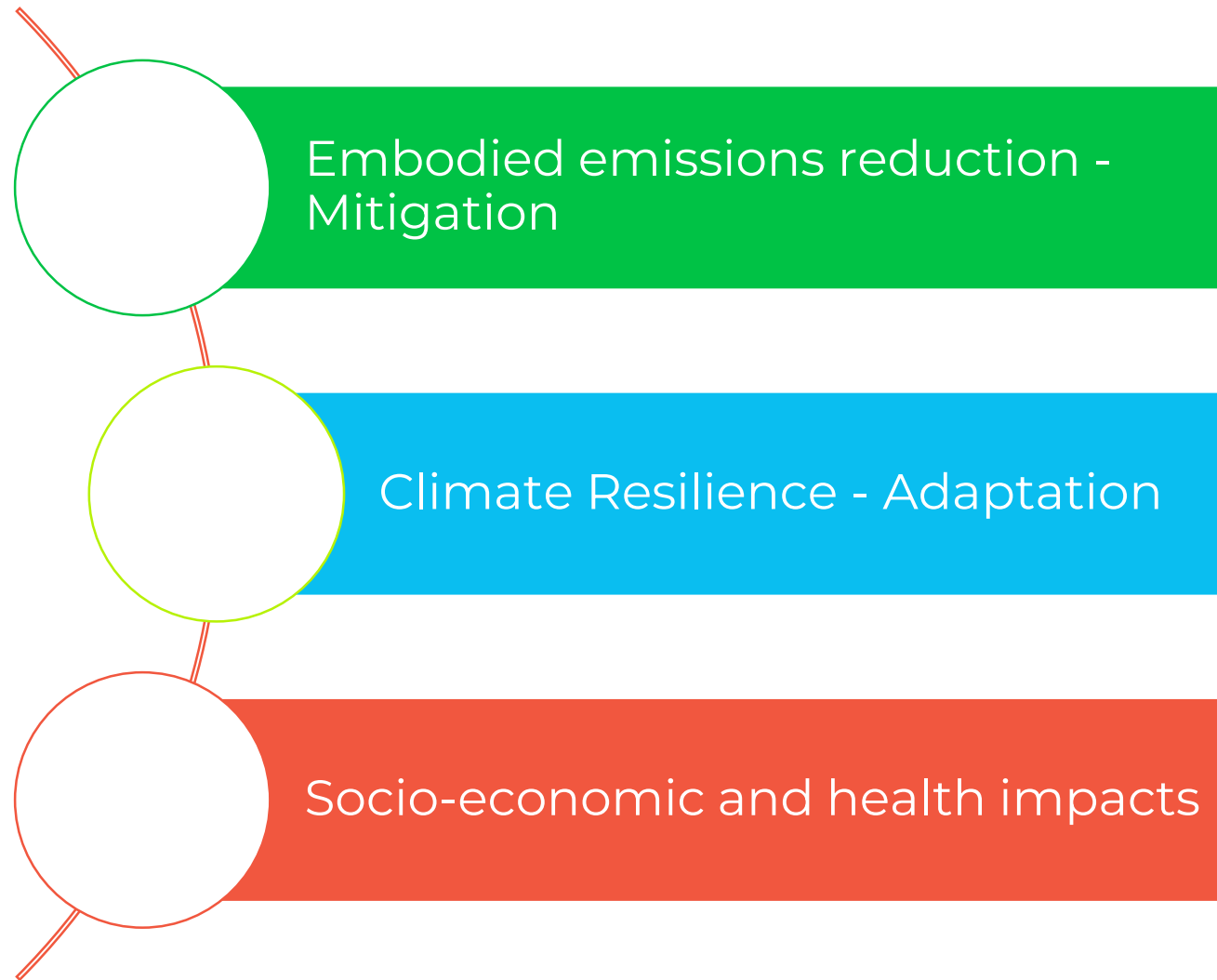


TOTAL OF  
**41**  
CITIES

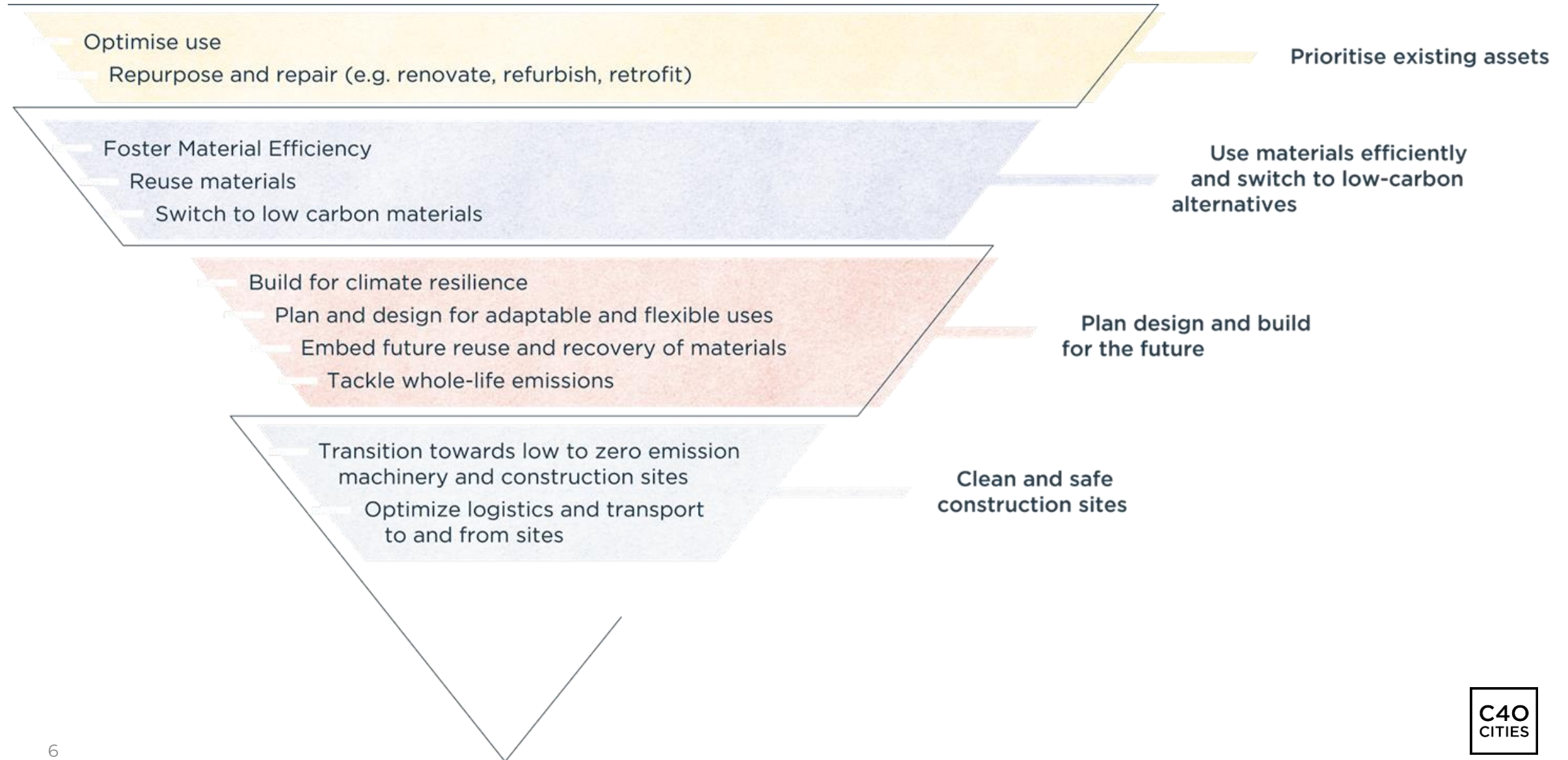
FORUM CITIES  
SIGNATORY CITIES TO CC ACCELERATOR

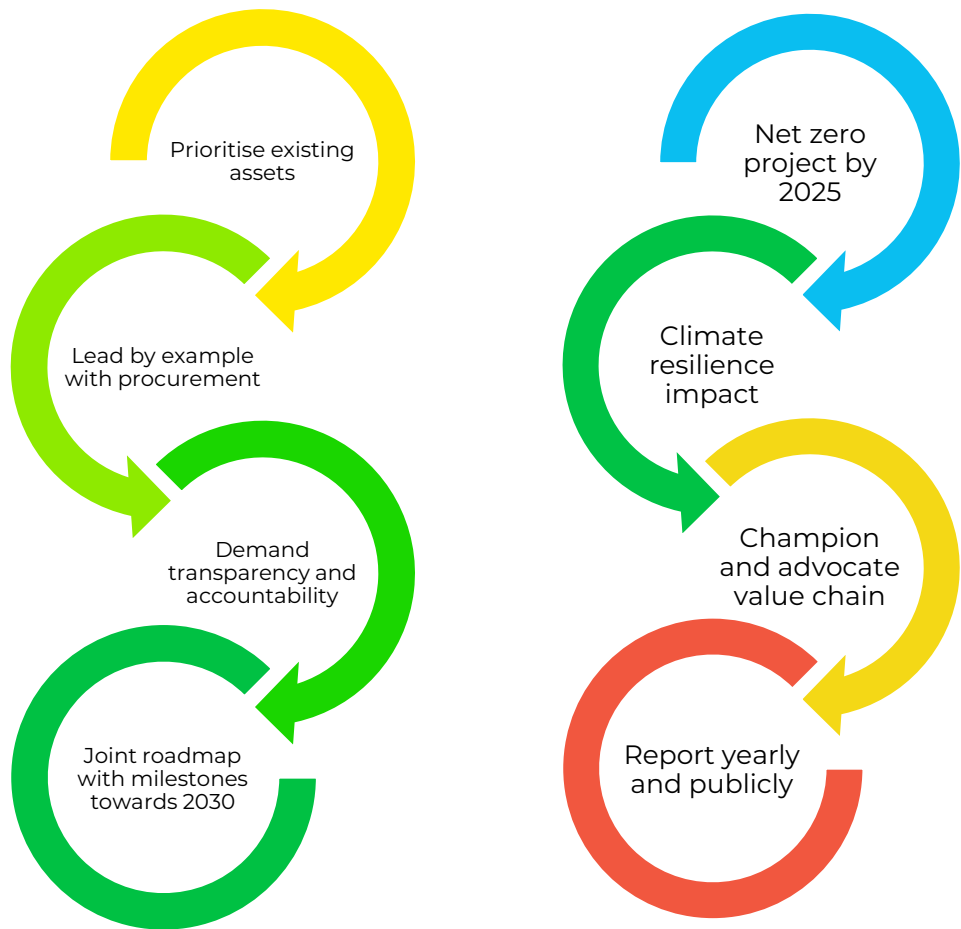


# Clean Construction programme: 3 pillars



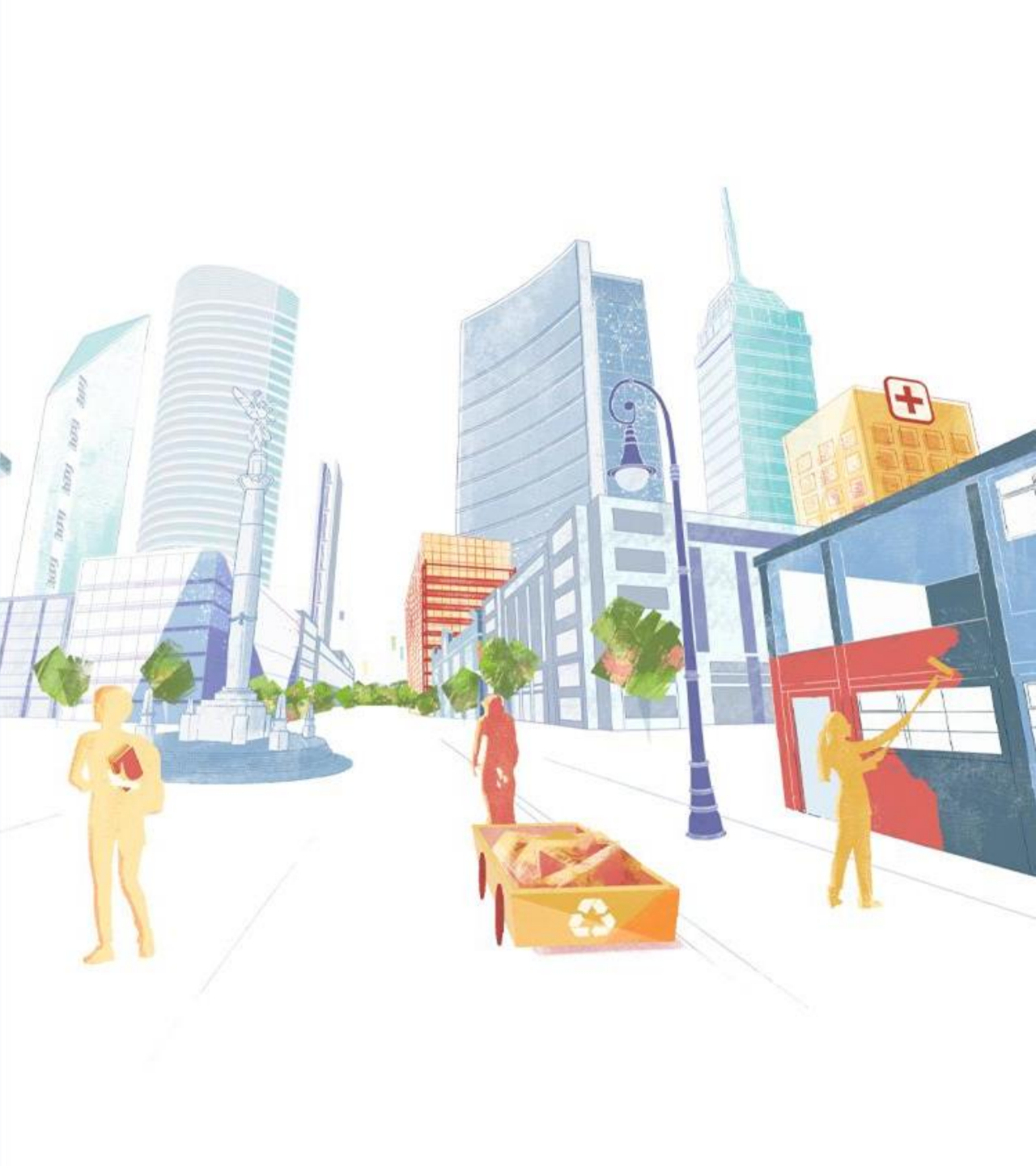
# The clean construction hierarchy: the framework





## Clean Construction Accelerator: Mayoral leadership

- Signatory Mayors commit to **8 tangible actions**
- By doing so, share of responsibilities in reaching three **collective** goals for the sector:
  - **Require zero emission construction sites city-wide by 2030, where available**
  - Reduce embodied emissions by at least 50% for all new buildings and major retrofits by 2030
  - Reduce embodied emissions by at least 50% of all infrastructure projects by 2030
- Launched in November 2020 – 7 initial signatories
- MoU with Buildings and Woodworkers International, a global union endorsing the declaration
- Clean Construction Action Coalition (launched at COP26) 11 large companies from manufacturers and architects to constructors all bringing actions aligned to those of cities



# Resources on C40 Knowledge Hub

## Research

In Focus– Buildings and Infrastructure consumption emissions

## Policy brief

Why cities need to address the construction sector's hidden emissions

## How to guide

How to reduce embodied emissions in municipal construction and lead by example

How to reduce embodied emissions in private and residential buildings

How to start deconstruction and stop demolishing your city's buildings

## Case studies and City profile

Making the case for Clean Construction series: **Toronto, Mexico City** and **Milan** published - **Ekurhuleni** and **Quezon City** upcoming

Clean Construction in practice: case studies from Reinventing Cities

Developing an Embodied Carbon Policy Reduction Calculator: case study from **Austin, New York** and **Portland** on a city-level tool to measure embodied carbon reduction potential of different policies, co-developed with the University of Washington (CLF)

How **Oslo** is driving a transition to Clean Construction

## Clean Construction Policy explorer

Interactive map in 5 languages documenting strategies, policies and actions adopted by cities

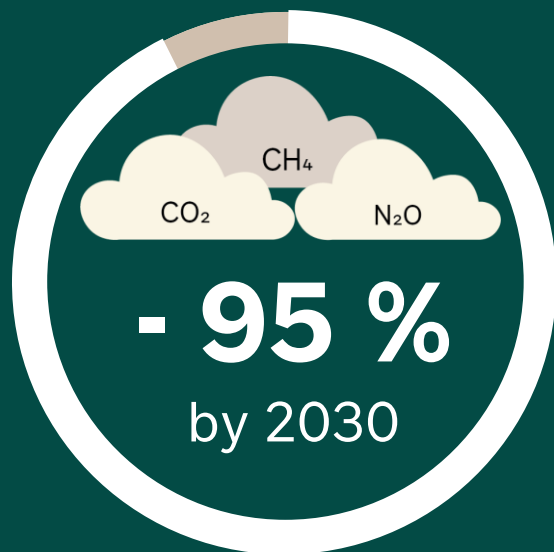




# CLEAN CONSTRUCTION POLICIES IN OSLO



# Climate strategy



## Direct emissions

Oslo's greenhouse gas emissions in 2030 will be reduced by 95 % compared to 2009, and by 52 % by 2023



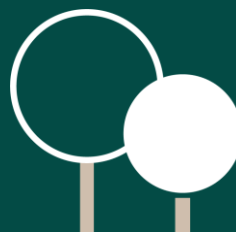
## Climate resilience

Oslo's capacity to withstand climate change will be strengthened towards 2030, and the city will be developed so that it is prepared for the changes projected by 2100



## Energy

Oslo's total energy consumption in 2030 will be reduced by 10 % compared to 2009



## Forests and land use

Oslo's natural environment will be managed in such a way that natural carbon storage in vegetation and soil are protected and the greenhouse gas removal in forests and other vegetation increases by 2030



## Indirect/emodied emissions

Oslo's contribution to greenhouse gas emissions generated outside the municipality will be substantially lower in 2030 than in 2020



Oslo

# Three sectors representing almost 90 percent of direct emissions (scope 1) in Oslo



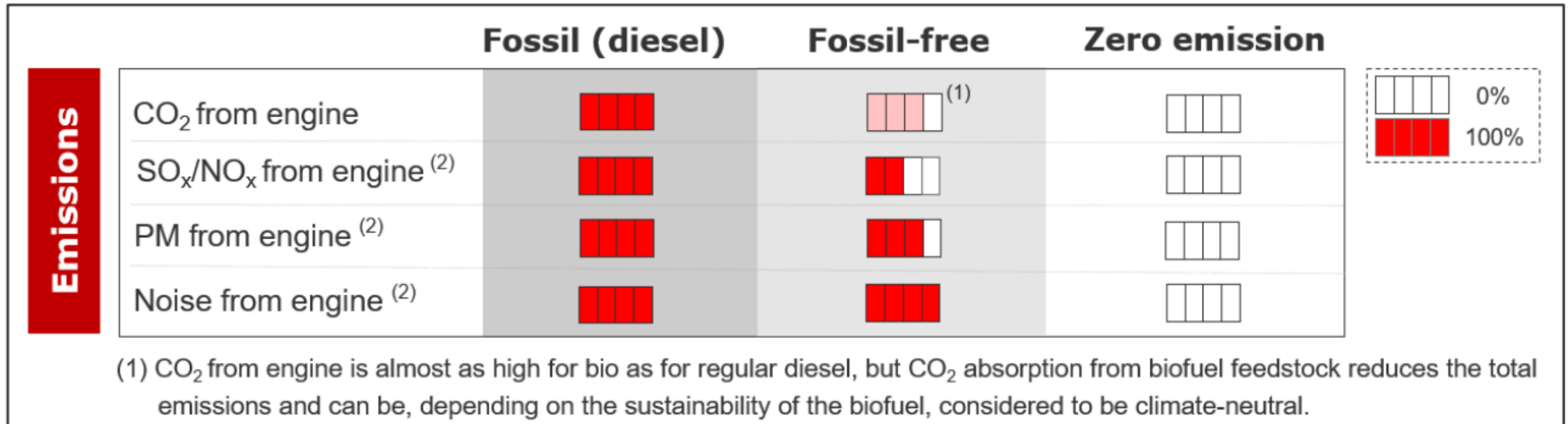
**And emissions from building materials is one of the largest sources of indirect emissions in the city**

# CONSTRUCTION SITES





# FOSSIL-FREE vs ZERO EMISSION TECHNOLOGIES





# Climate Action Plan - Construction Sites

- ▶ Building and construction activities in Oslo will be fossil-free and thereafter emission-free by 2030
- ▶ All municipal construction sites shall be zero emission by 2025



# Opportunities

- Air quality
- Less noise
- Working environment
- No direct GHG emissions

# Challenges

- New roles
  - Responsibilities: charging, scheduling
- Electricity supply
  - Slow process with grid owner
  - New process for all parties involved
- Cost
- Availability of machinery and vehicles







**2016**

Oslo requesting fossil-free construction site

**2017**

Municipal construction projects fossil-free

**2018**

C40 Clean Construction Forum & Big Buyers Initiative

**2019**

Common tender criteria & pilot project in Olav Vs gt

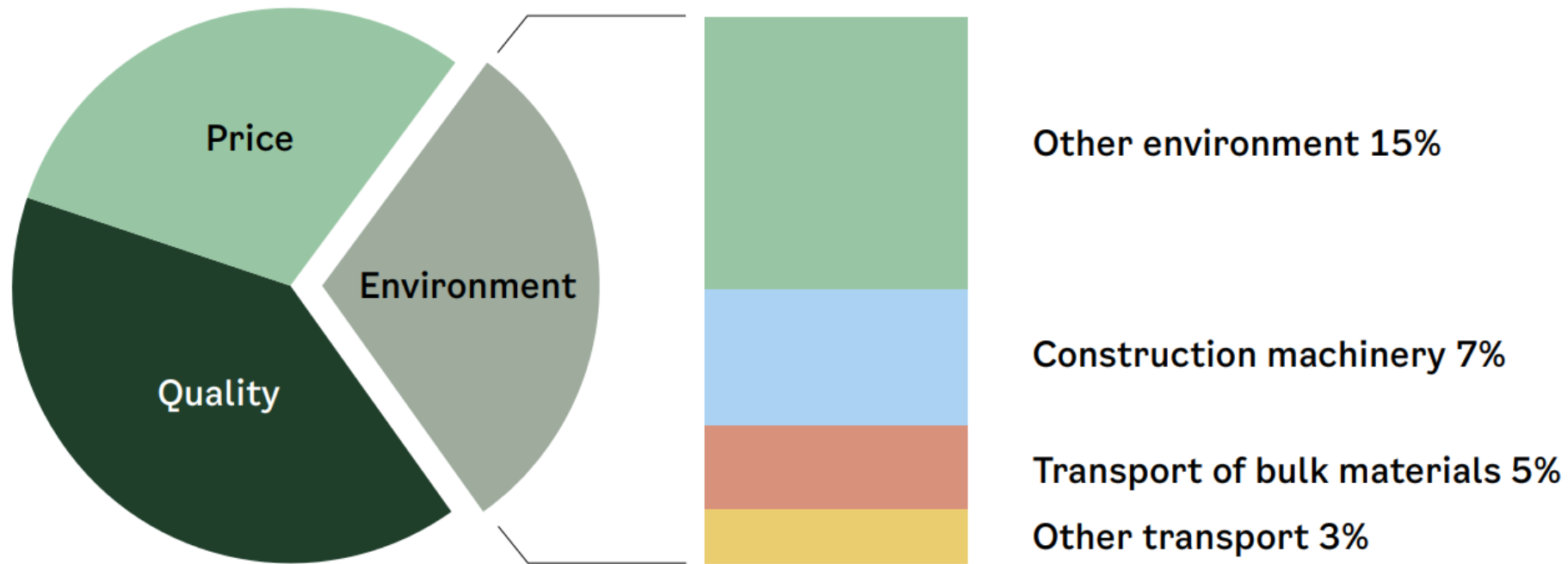
**2020**

Zoning permit requirements



# Procurement Strategy in Oslo

Tender competition criteria municipal projects



Oslo

# Results in 2021

- Zero emission construction equipment represented 48 percent of all equipment used in municipal construction works (schools, kindergardens, nursing homes, road-, water and sewage infrastructure, etc)
- 99 percent emissions reduction combined, when biofuels are included

Key numbers		
Electricity consumption	7 532 146	kWh
Avoided diesel	2 510 715	liters
Emissions avoided through electrification	6779	tonn CO2
Biofuel consumption (HVO 100)	2 644 093	liter
Emissions avoided with sustainable biofuels	7060	tonn CO2
Total reductions	13 839	tonn CO2



## Online resources:

Perspectives on zero emission construction sites

<https://www.klimaoslo.no/wp-content/uploads/sites/88/2019/06/Perspectives-on-zero-emission-construction.pdf>

The making of zero-emission construction sites

<https://www.klimaoslo.no/2022/01/12/zero-emission-construction-sites-with-electrical-machines/>

Impact assessment of zero emission construction sites in Oslo

<https://www.klimaoslo.no/wp-content/uploads/sites/88/2022/05/Impact-assessment-of-zero-emission-building-processes-in-Oslo.pdf>

Tender criteria municipal construction sites - Oslo

[https://procuraplus.org/fileadmin/user\\_upload/participants/City\\_of\\_Oslo\\_-\\_Requirements\\_Zero\\_Emission\\_Construction\\_Sites.pdf](https://procuraplus.org/fileadmin/user_upload/participants/City_of_Oslo_-_Requirements_Zero_Emission_Construction_Sites.pdf)





**Thank you**

