

# Towards Planetary Cities?

Experiences from the Carbon-Negative  
Helsinki Process

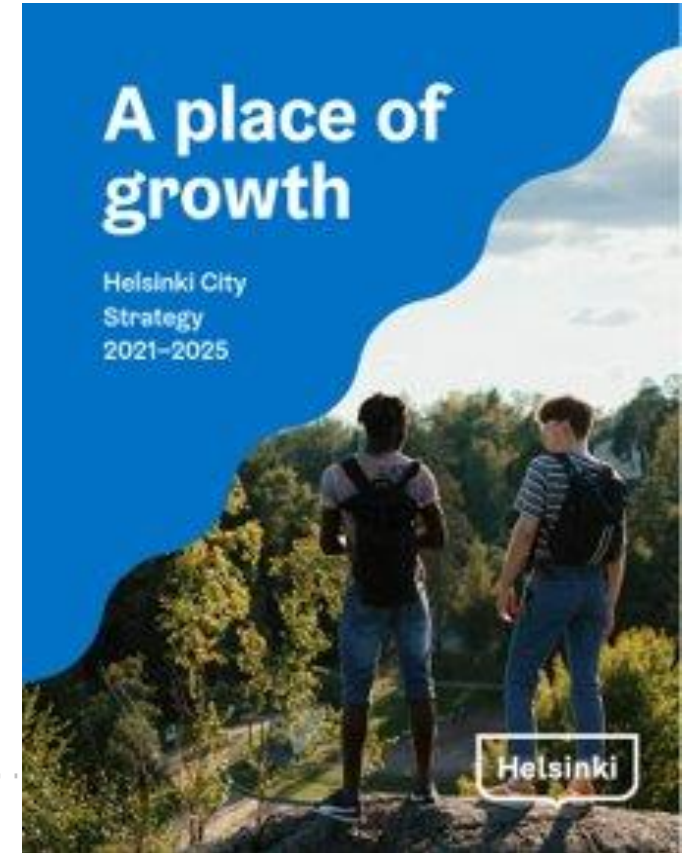
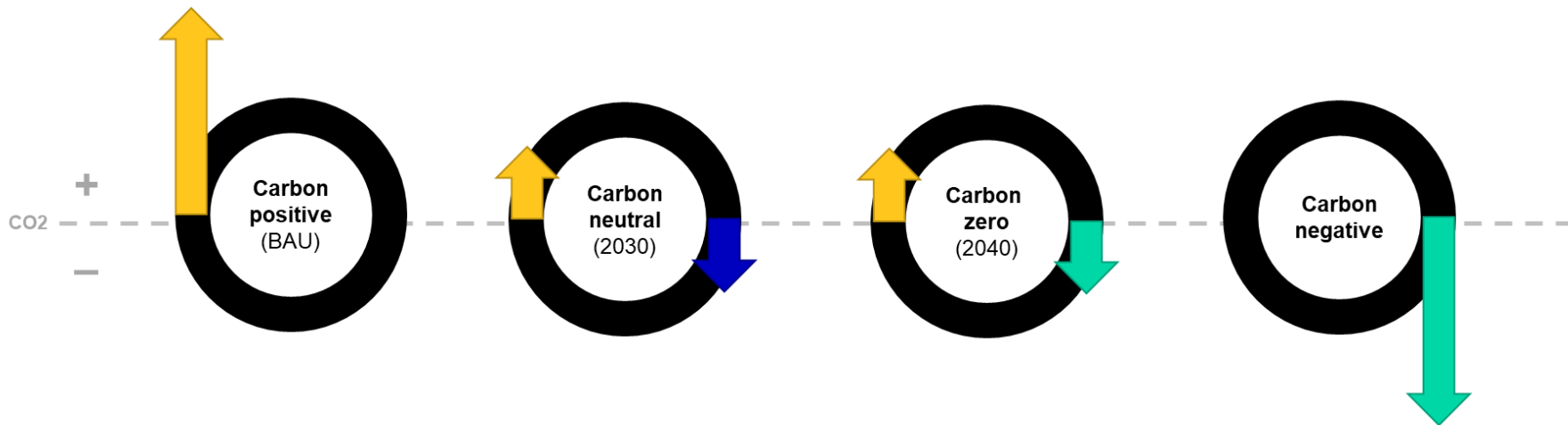
MARUF23 4.10.2023

*Susa Eräranta*

Helsinki

# Helsinki City Strategy 2021–2025

"We will move our deadline for achieving **carbon neutrality** up five years to 2030 and renew our Carbon-neutral Helsinki Action Plan with measures to reduce construction and traffic emissions, in addition to other changes that are seen as necessary and feasible. [...] A goal to attain **carbon zero** status by 2040 will also be set, and we will map out a series of scenarios for achieving this milestone. Helsinki will also start planning for a **carbon-negative future**".



[Link.](#)

# From reducing emissions for low-carbon to absorbing emissions for regeneration

Helsinki

*In translation...  
Still available  
only in Finnish*

## Helsingin kaupungin päästöjen BAU- skenaario vuoteen 2050

Raportti

Atte Supponen  
Terhi Tikkanen-Lindström  
Pasi Mäkeläpuro  
Susanna Eräpää  
Kaisa Raata Koskinen

Helsinki

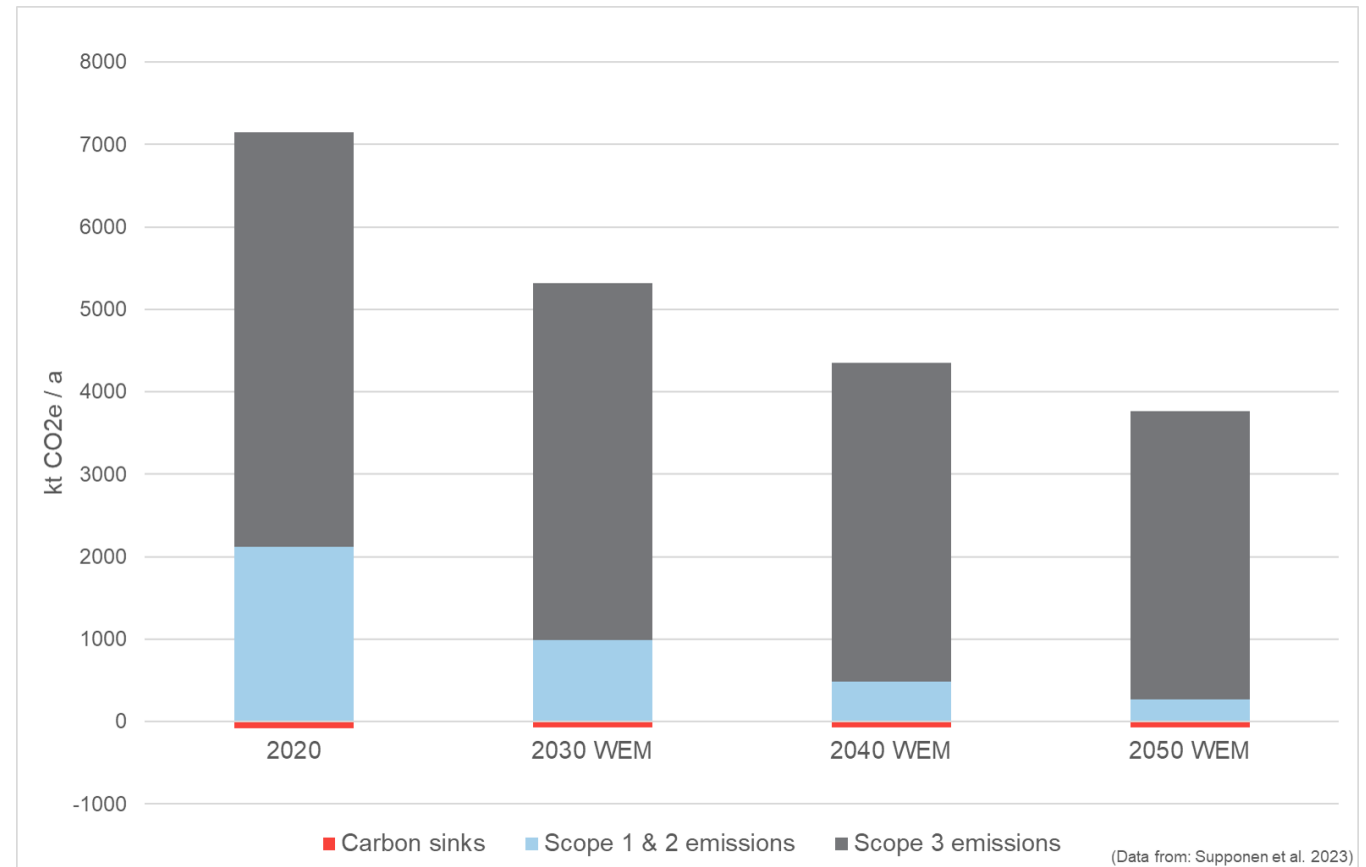
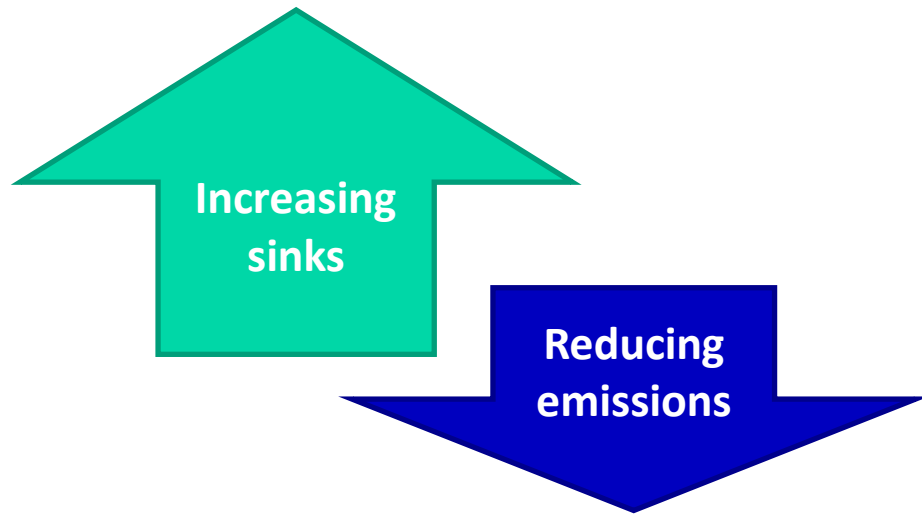
# Emissions scenarios (WEM) until 2050 for the city of Helsinki

Now ~10 000k CO<sub>2</sub>/a/person

2040 WEM ~5 000k CO<sub>2</sub>/a/person

HOWEVER!

Carbon sinks (possible emissions) / individual  
= less than 100k CO<sub>2</sub>/a



Helsinki

**It's not solely a carbon  
question, though...  
Moving towards  
planetary  
planning  
practice**

Helsinki

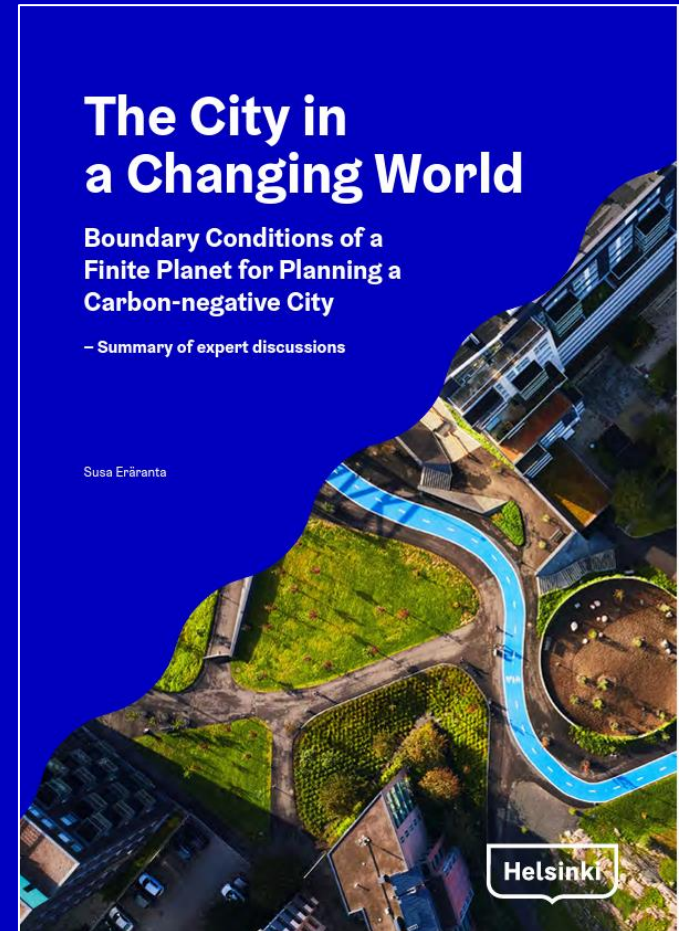
**The City in  
a Changing World**

**Boundary Conditions of a  
Finite Planet for Planning a  
Carbon-negative City**

– Summary of expert discussions

Susa Eräranta

Helsinki



# Planetary boundary conditions



1. The **emissions reduction need** is critical and emission-intensive solutions where the caused emissions exceed the reduction/ sequestration potential must be avoided.
2. Solutions cannot be based only on new technology that has not yet been invented or is based on critical **raw materials**, but must also work in a world with scarce resources and rely strongly on existing infrastructure.
3. Solutions must not accelerate **biodiversity loss**. The preservation of vegetative land area and renewal of lost vegetative land area must be ensured. From climate perspective, strengthening of the carbon sequestration potential and adaptation must be particularly emphasized.
4. Solutions that accelerate **heating** and the urban heat island phenomenon must be avoided. The passive resilience of the habitat must be ensured with regard to aspects such as overheating.
5. Due to increasing **precipitation**, the increase in permeable surfaces must be ensured. The city must prepare for an increasing stormwater flood risk especially with regard to critical infrastructure.
6. Preparation for increasing storm damage with regard to infrastructure and nature alike must be ensured due to changes in **windiness**.
7. Increasing sea water flood risks must be prepared for due to **rises in sea level**.

		BC1	BC2	BC3	BC4	BC5	BC6	BC7
Scales of analysis	Impact/ Effectiveness	--- / +++	--- / +++	--- / +++	--- / +++	--- / +++	--- / +++	--- / +++
	Means	--- / +++	--- / +++	--- / +++	--- / +++	--- / +++	--- / +++	--- / +++

# Assessing the impacts through a just foundation

– Not only current residents and other actors, but intergenerational and multi-species as well

Helsinki

*Still available  
only in Finnish*

## Monilajinen kaupunki

Oikeudenmukaisuusnäkökulmia  
hiilinegatiivisen kaupungin  
planetaariseen suunnitteluun

– Yhteenveto asiantuntijakeskusteluista

Susa Eräranta

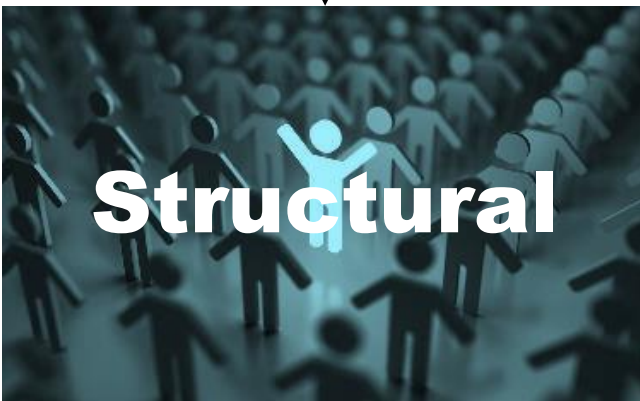
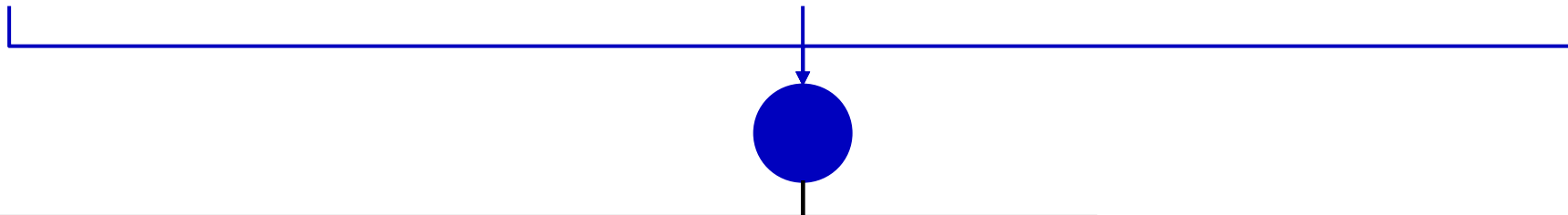
Helsinki

# Justice in a planetary city

**Distributive justice**

**Procedural justice**

**Recognitional justice**



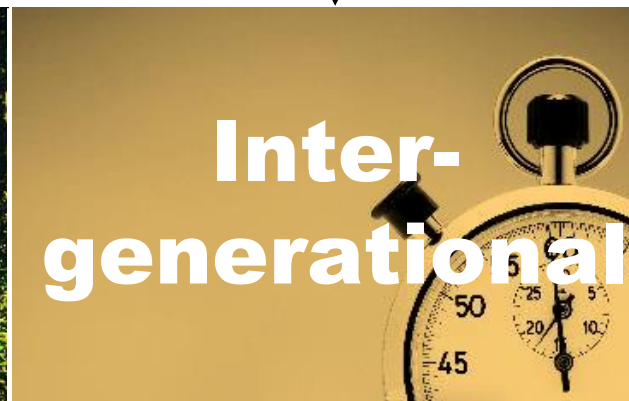
**Structural**

Acknowledging the perspective of diverse actors also outside the current network and administrative structures.



**Multi-species**

Acknowledging the perspective of other species, ecosystems and habitats.



**Inter-generational**

Acknowledging the perspective of future generation/s.



**Spatial**

Acknowledging the perspective of various areas (hyper local, local, regional, global).



**To succeed in this, changes are required in current planning. The carbon negative city of the future is already being planned every day.**

Helsinki

*Still available  
only in Finnish*

**Kohti  
hiilinegatiivista  
kaupunkia**

– Yhteenveto asiantuntijakyselystä

Susa Eräranta



Helsinki

# So what would this mean for mobility and its planning?

Helsinki

*Still available  
only in Finnish*

**Kohti  
hiilinegatiivista  
kaupunkia**

– Yhteenveto asiantuntijakyselystä

Susa Eräranta



Helsinki

**Emissions reductions**



e.g. reducing unit emissions and kilometrage of transportation.

+

**Material limitations**



e.g. re-allocating the use of already existing infrastructure to meet the needs of sustainable and active mobility.

+

**Precipitation**



e.g., increasing the amount of permeable ground and greeneries.

+

**Warming**



Increasing shading in streetscape.

+

**Biodiversity loss**

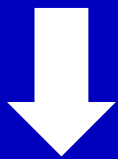


Protecting existing blue-green structure and their resilience in changing climate.

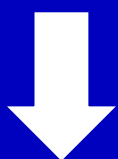


***Infill building within existing infrastructures in areas of good accessibility. Supporting nearby life by mixed, walkable and bikeable (active mobility) urban structure. The meaning of nearby life and services increases.***

**10 000k** (now)



**5 000k** (2040 WEM)



**Helsinki 1 000k** (sinks)

**The final question: Are we ready and bold enough to imagine good life in a planetary city with these boundary conditions?**

# Thank you!

Let's turn this  
into a dialogue!

Helsinki