

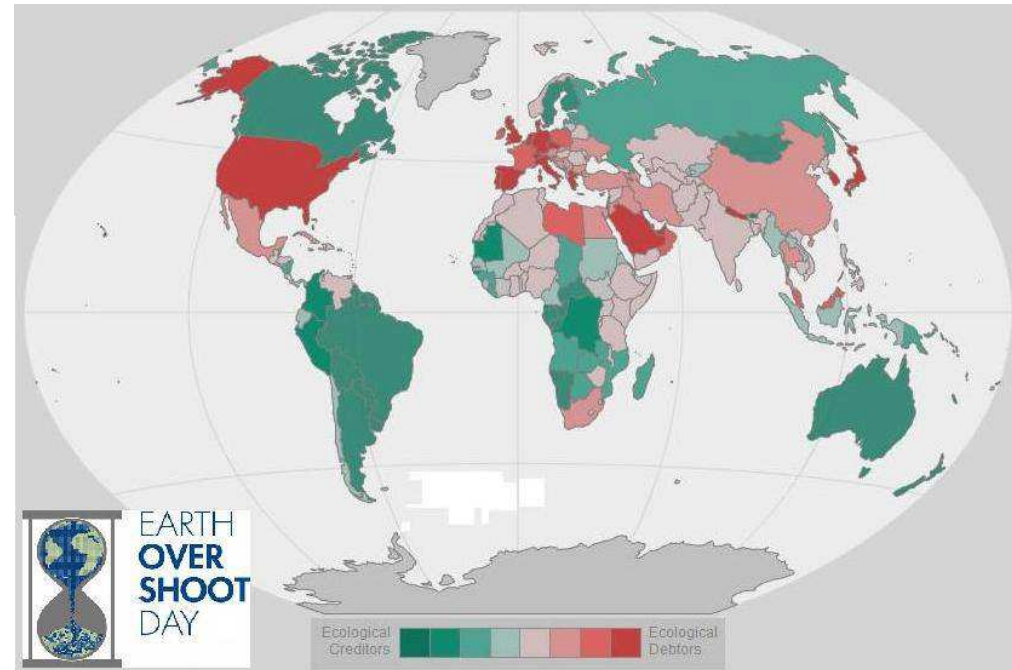
Urban Equilibrium: *Designed to coexist*

Andrea Stocchero and Jeff Seadon



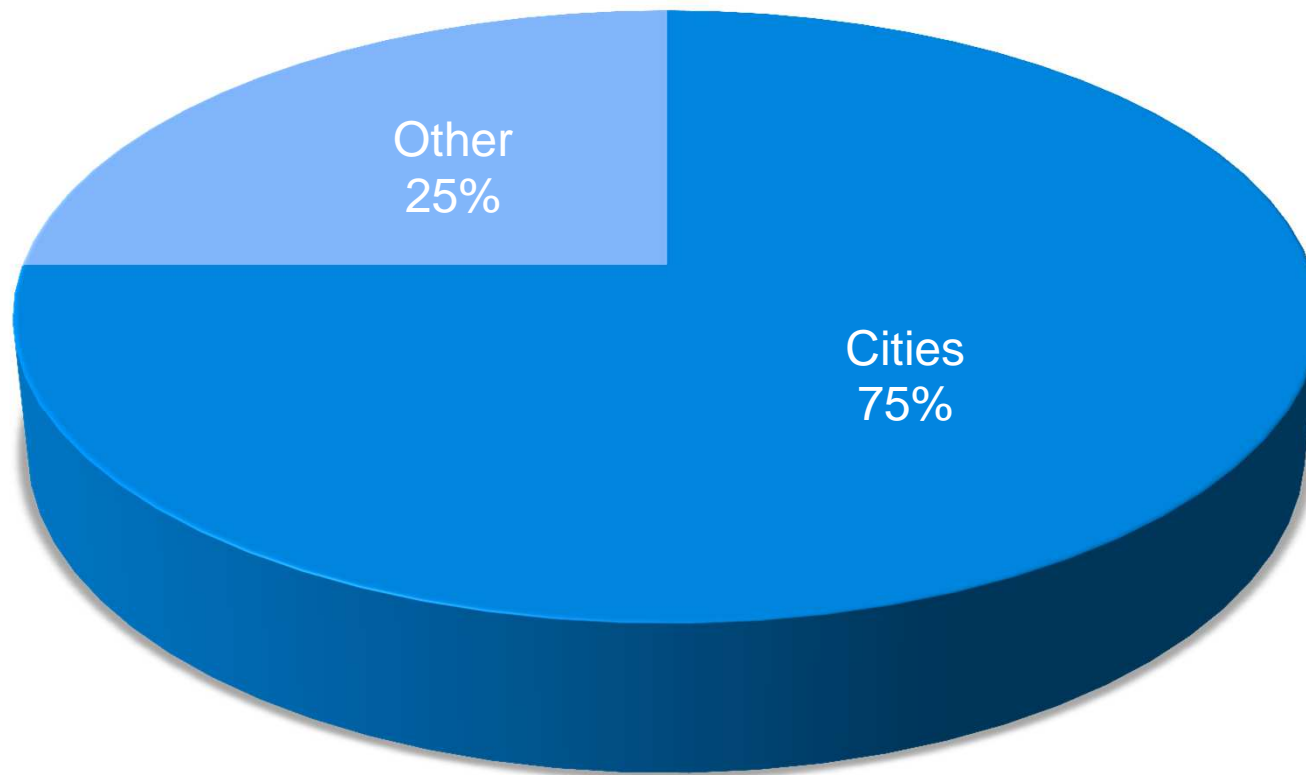
August 19 2014...

- 2005: October 20
- 1995: November 21
- 1985: December 7

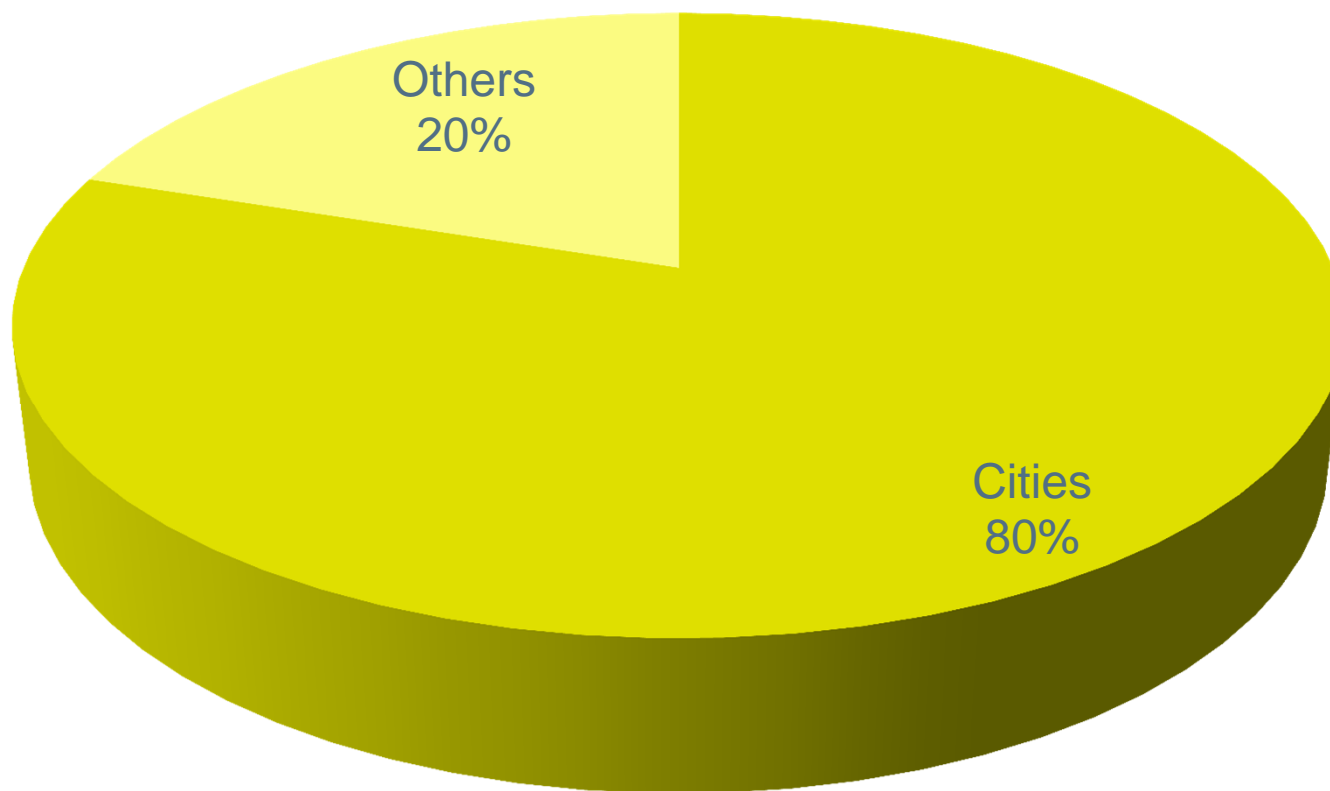


EARTH OVERSHOOT DAY

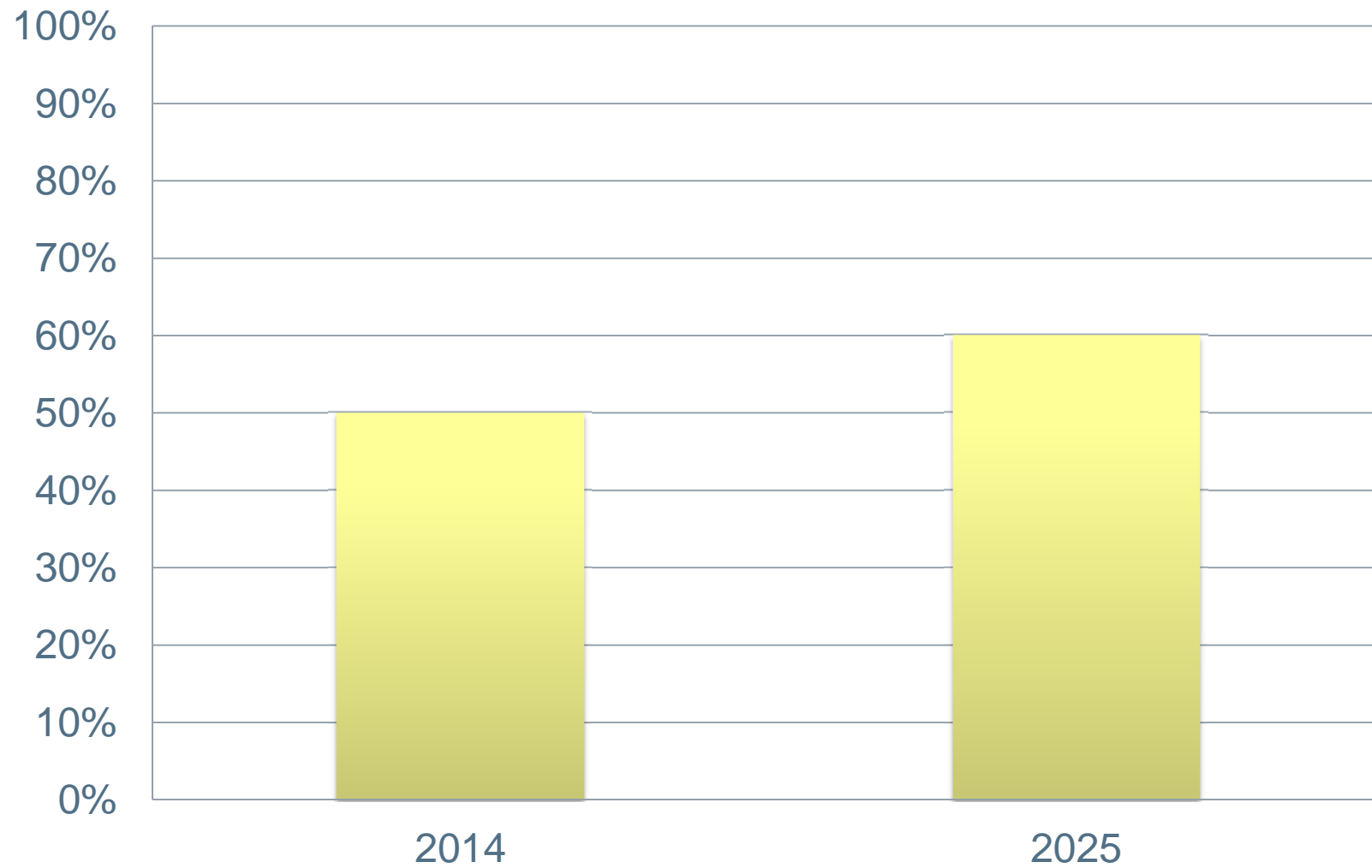
Energy Consumption



Greenhouse Gas Emissions



City Living



Urban Equilibrium



Urban Equilibrium

In the built environment, the structures that define an urban environment act as a balancing agent for the greenhouse gas emissions of the urban area; therefore the buildings act like carbon sinks

Core Values

- Kaitiakitanga
 - humanity and the environment were designed to co-exist;
 - strive for equilibrium in the belief it is an essential precursor to achieving sustainability

Components

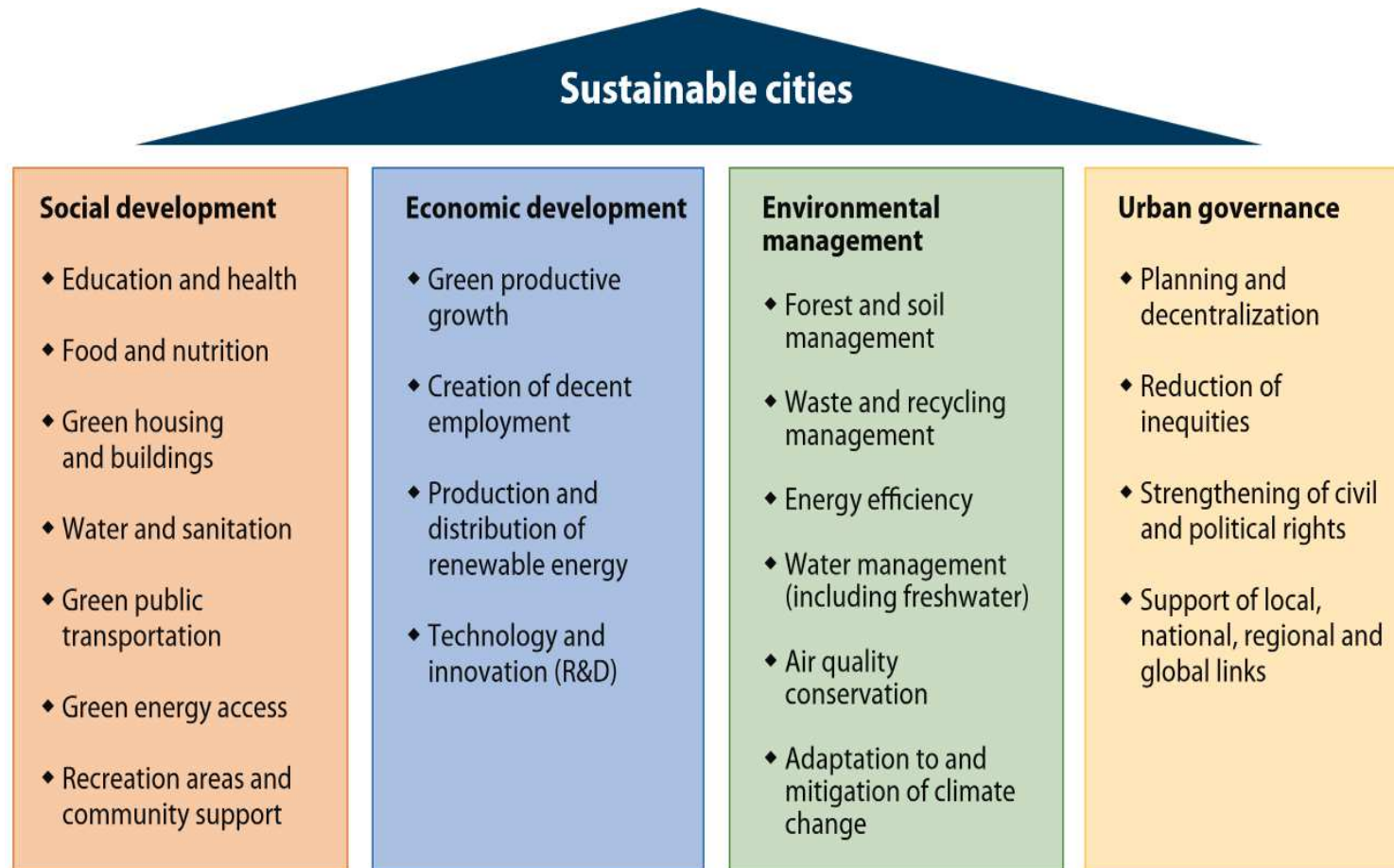
Urban Equilibrium =



Sequestration optimisation
+ Storage maximisation
+ Emission minimisation



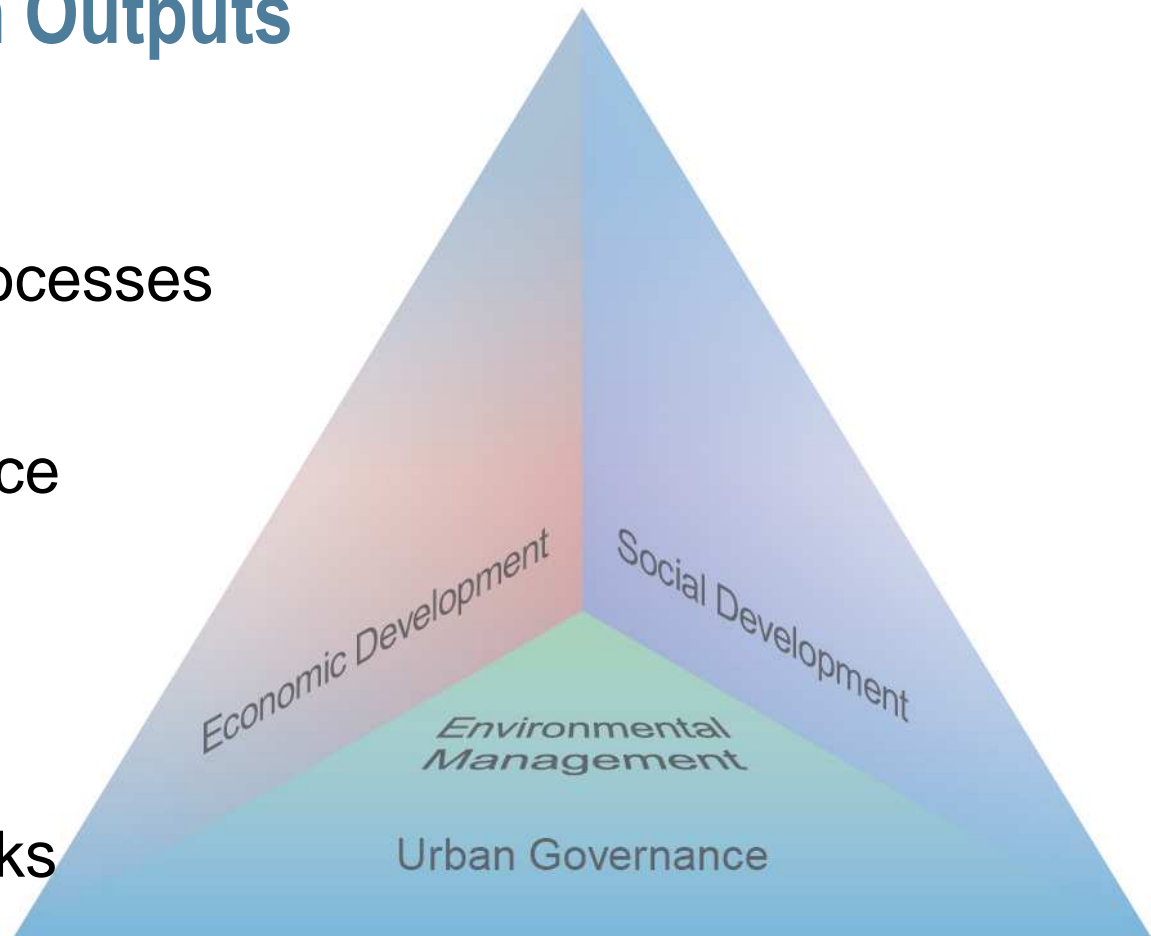
United Nations Department of Economic and Social Affairs





Urban Equilibrium Outputs

- Construction
 - sequence of processes
- Processes
 - time and patience
- Defects
 - rectified
- Completion
 - all building blocks
- Symmetry
 - stability





CASE STUDY: AUCKLAND

Why Auckland?

Vision:

Become the world's most liveable city



Challenges:

Population growth

2.2 – 2.5 million

Climate Change

40% GHG reduction



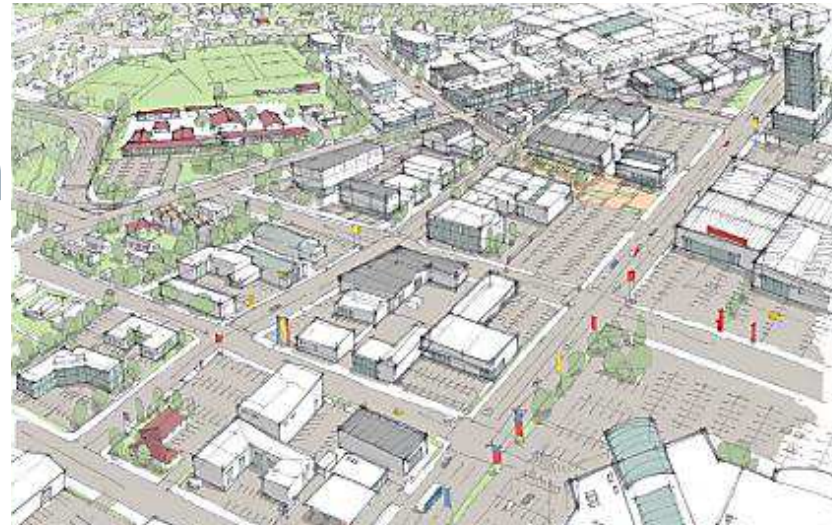
Forecasted annual urban growth

Dwellings units 13,000

Office area 98,933m²

Retail area 60,000m²

Education & health 53,000m²



The Auckland Plan

Urban development



Quality and attractive

Compact and dense

Mixed-use

Energy efficient



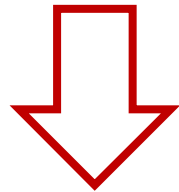
Source: Patrick Clifford Architectus
dunedinstadium.wordpress.com

SCION 
forests • products • innovation

Urban Equilibrium

Solid timber building potential

**Sequestration optimisation
+
Storage maximisation
+
Emission minimisation**

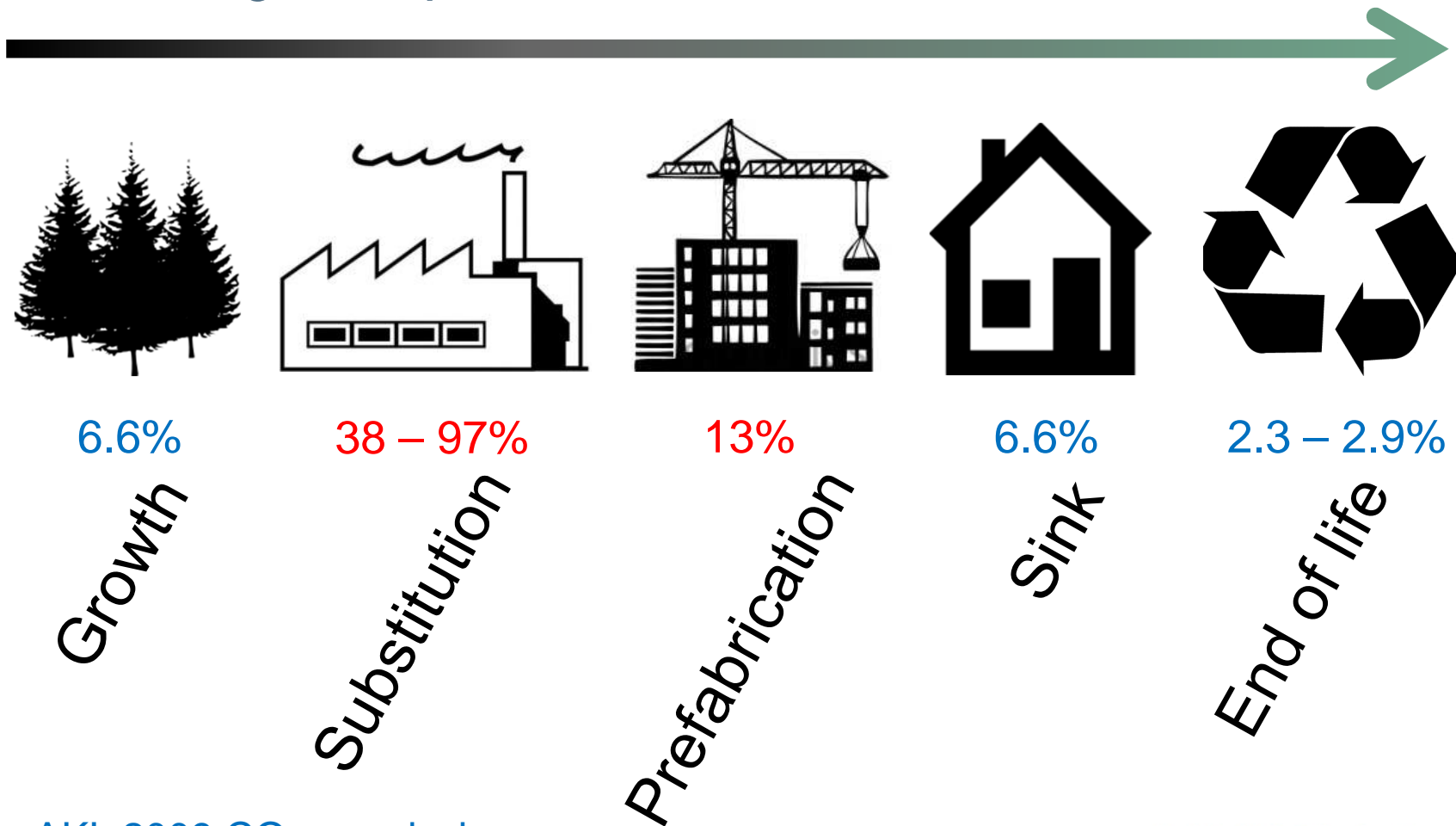


**Innovative solid timber
building technologies**



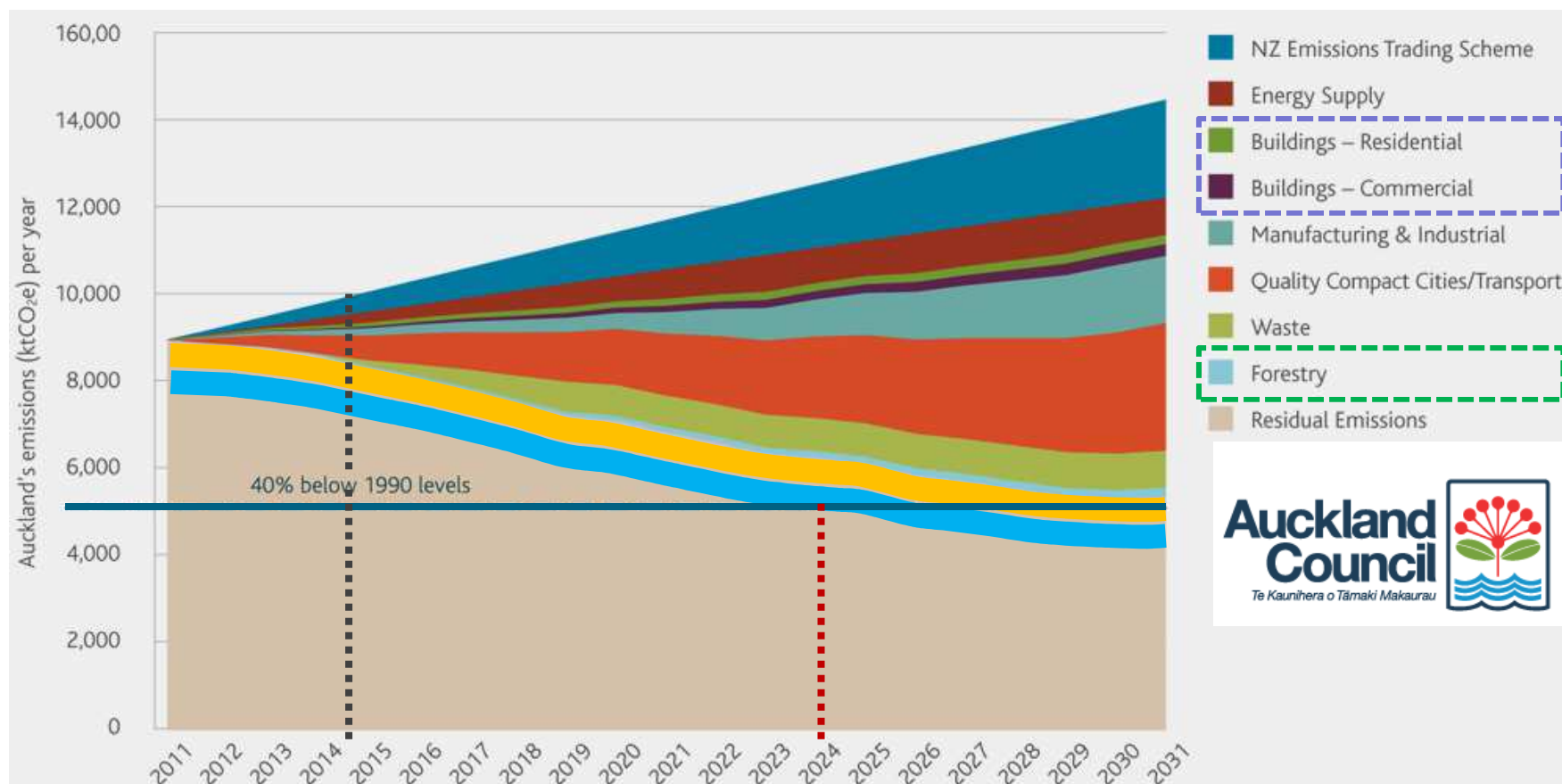
Solid timber building potential

GHG mitigation potential



AKL 2009 CO₂-e emissions
BAU scenario

Auckland GHG potential reduction



Additional benefits

- High energy performance
- Carbon Zero design strategies
- Structural performance
- Building safety
- Design efficiency
- Construction efficiency
- Lifetime affordability
- Health/indoor environmental comfort





NEXT STEPS

Manifesto

1. Balance with coexistence
2. Redundant without stewardship
3. Reduce human impact on environment
4. Strive for equilibrium for sustainability
5. Integration of triple bottom line & governance
6. Adapts for resilience
7. Promotes initiatives for systemic balance
8. Explores possibilities to offset carbon emissions
9. Synergises buildings, community & environment
10. Buildings in symbiosis with urban system

Implementation

1. Adopt a policy that Kawerau will embrace Urban Equilibrium.
2. Determine the current state of Urban Equilibrium in Kawerau
3. Set SMART goals for Kawerau to reach Urban Equilibrium
4. Develop an Urban Equilibrium framework for all new development in Kawerau.
5. Implement the framework.
6. Monitor, adjust and report.