



# Achieving net zero status in South Africa

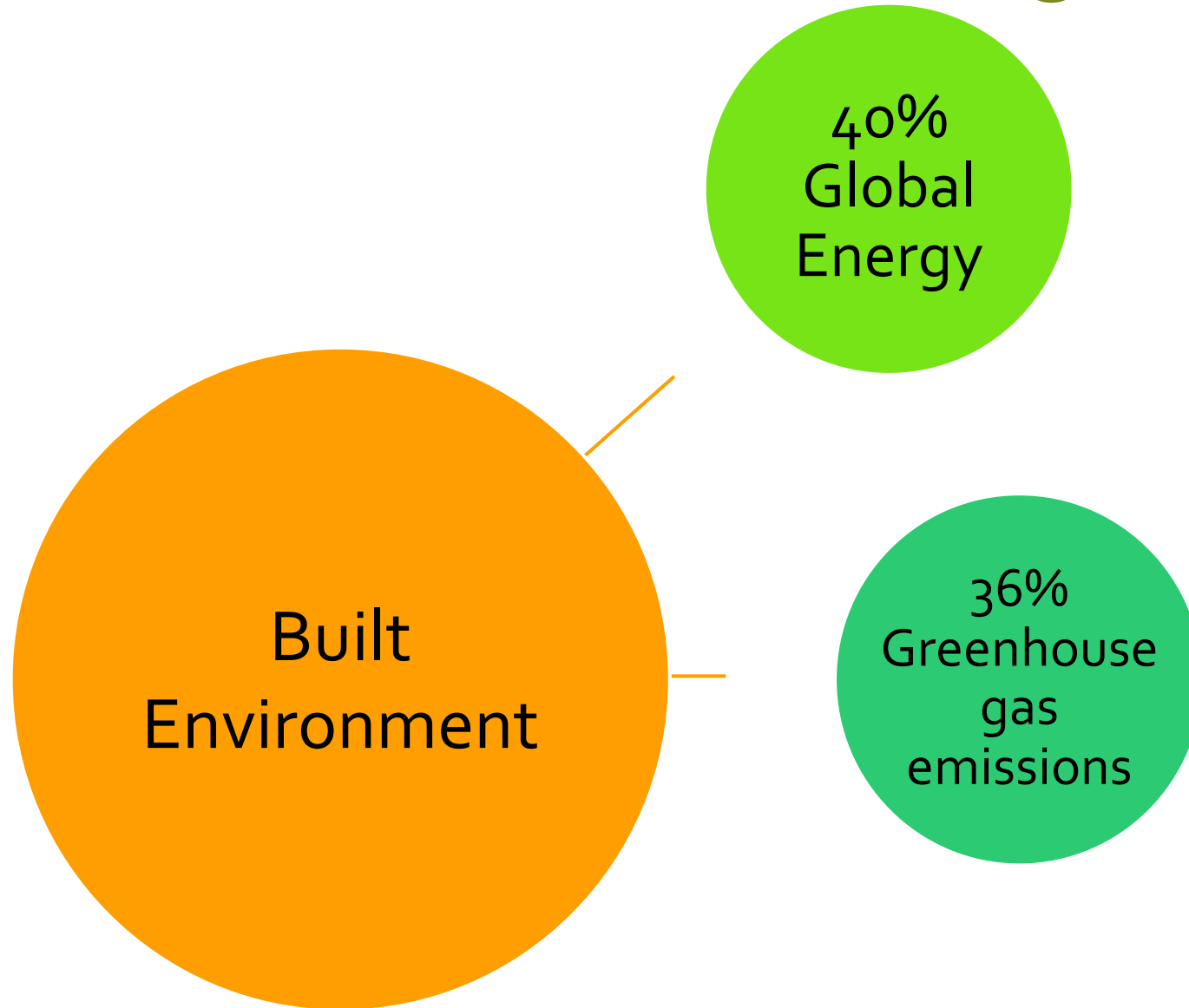
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**Author**

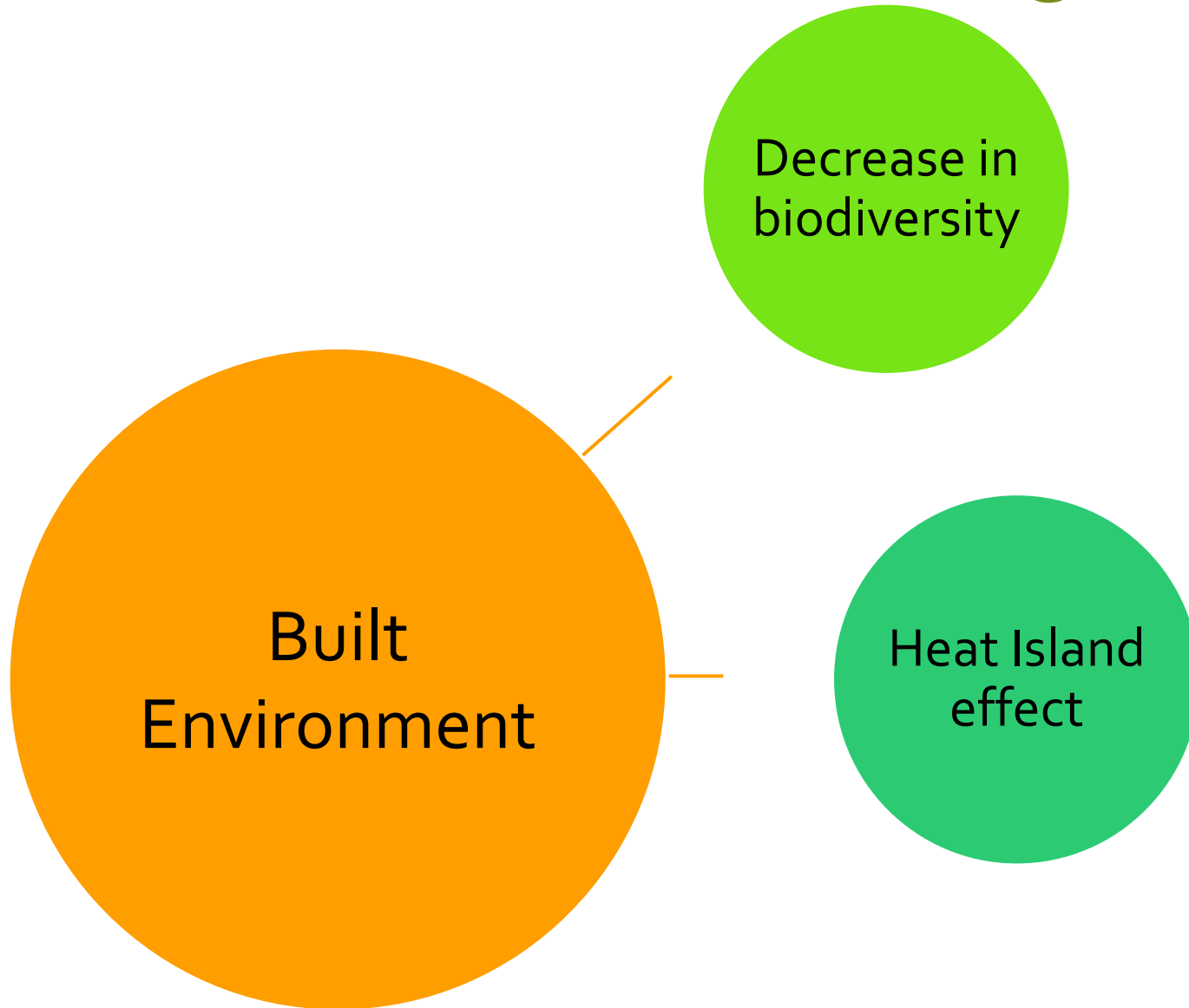
Rolien Terblanche

School of Construction, Economics and Management, University of Witwatersrand – South Africa

# Introduction and Background



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## South Africa's most polluted cities

1

Johannesburg: One of the most polluted cities in the world

2

Pretoria

3

Cape Town

4

Durban

# Introduction and Background

Internationally: Urbanisation = high rises, inward compacting and or outward expansion

Africa: Urbanisation = uncontrolled spatial expansion, known as urban sprawl.

# Introduction and Background

**Urban Sprawl:**

Unsustainable land use

Converts agricultural land into urban development

Sustainability is thus very important: Net Zero Blds

# Aim and Objectives

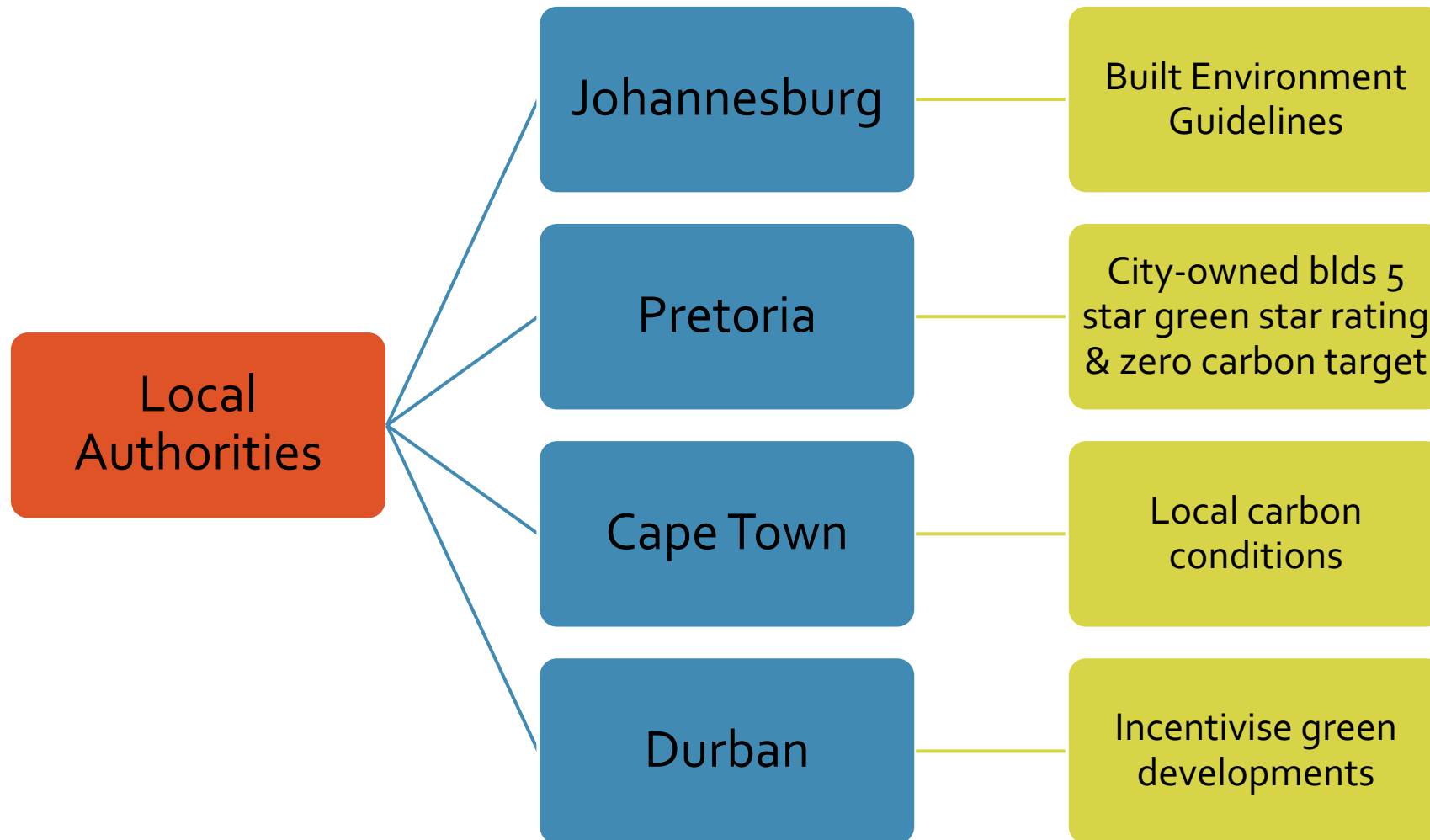
- **The objectives:**
  - Define net zero developments
  - Determine the status quo of net zero developments in South Africa
  - Determine the involvement of building regulations
  - Determine the difficulties that South Africans face with the implementation thereof
- **The aim** is to understand how developments in South Africa can reach net zero status.

## Regulations in SA

- Net Zero Developments: How does it feature in SA
- National Building Regulations does not support it.
- Local authorities in South Africa can introduce their own by-laws



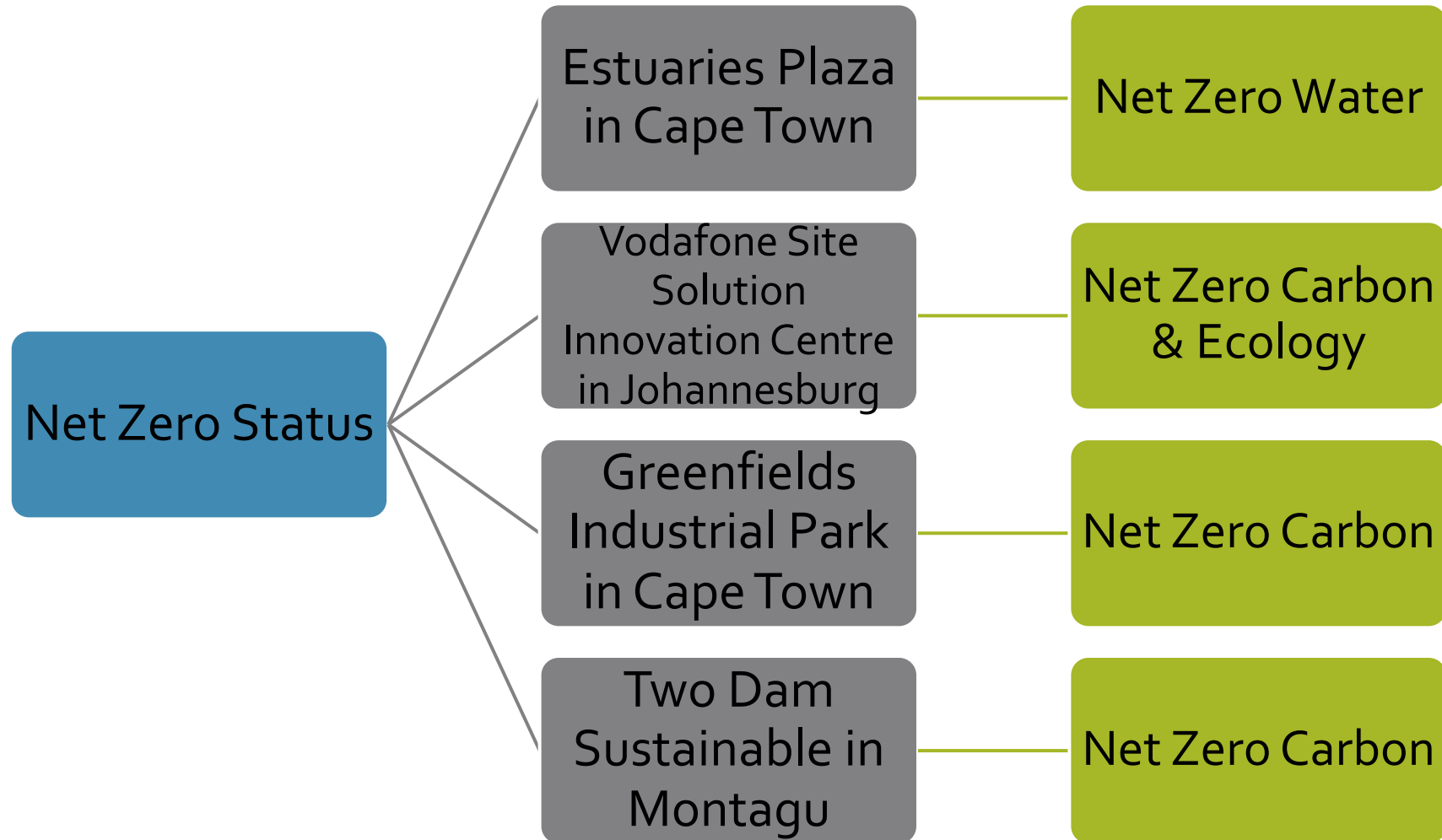
# Regulations in SA



# Green Building Council SA

- The aim of the GBCSA is to develop **green building solutions** and to drive the revolution of the South African developing industry towards **sustainability**.
- Certified the first **four** buildings in South Africa under its Net Zero Pilot Certification scheme in **October 2017**

# Green Building Council SA



# Definitions

## Net Zero Carbon

- A building that is highly energy-efficient, and the remaining energy use is from renewable energy, preferably on-site but also off-site where absolutely necessary, so that there are zero net carbon emissions on an annual basis.

## Net Zero Water

- A building that is designed, constructed and operated to greatly reduce total water consumption, and then use harvested, recycled and reused water such that the amounts of water consumed is the same as the amounts of water that is produced.

# Definitions

## Net Zero Waste

- A building that reduces, reuses, and recovers its waste streams to convert them to valuable resources with zero solid waste sent to landfills over the course of the year.

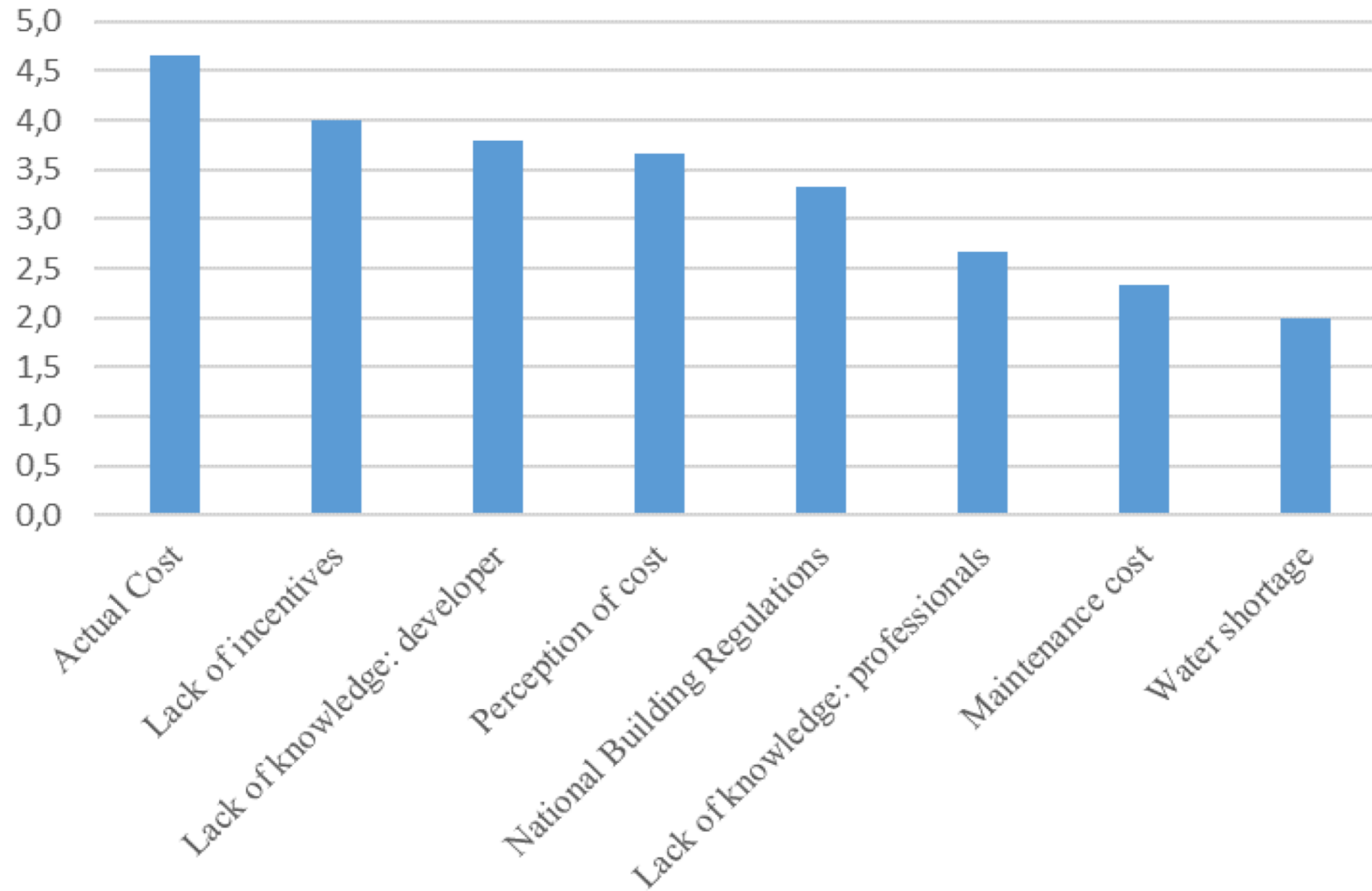
## Net Zero Ecology

- A building that does not reduce the ecological value of the site during development for Greenfield sites.

# Global Net Zero Definitions

- The definitions as given by Europe, United States, Brazil and the Green Building Council SA all comes down to buildings that are **energy efficient** and that uses **renewable energy resources**, where the energy used by the building does not exceed the energy generated by the renewable resources.
- The GBCSA however have four categories: Carbon, water, waste and ecology.
- Where carbon has been addressed in other countries

## Barriers to the development of net zero buildings in South Africa.



# Barriers VS Solutions

Cost - Incentives

National Building regulations -  
updated

Knowledge gap – Education

Maintenance – Keep in mind with  
initial installation



# Limitations

- **Pilot study** – 5 Semi structured interviews. It is recommended that more interviews or semi-structured questionnaires are gathered for an in depth and comprehensive conclusion.
- The **lack of previous research** done on net zero buildings in South Africa

# Further research

- Further research on the **premium costs** of net zero carbon, water, waste and ecology in South Africa should be done.
- Future research could also focus on South African **credit institutions**, fund companies and insurance companies which can possibly acknowledge net zero building developments for sustainable financing instruments, sustainable fund management or insurance offers and support their development with incentives.

*Thank You*