



a world class African city

The value of ecosystems in THE CITY OF JOHANNESBURG

How nature supports a healthy, prosperous city

An ecosystem services approach highlights the benefits and importance of Johannesburg's urban ecosystems for the well-being of its citizens. Economic valuation of these ecosystems shows cost savings and revenue opportunities associated with investment in urban nature.

This assessment provides the foundation for building an investment case for planning and developing with nature in the City.



TREES

Benefits

- Trees absorb CO₂ – reducing carbon-based pollutants and climate change impacts.
- Trap polluting particles and chemicals, decreasing air pollution.
- Provide cooling shade, reducing heat-related health impacts.
- Intercept rainfall, leading to a reduction in flooding and erosion.
- Provide habitat for many species.

The carbon stored in Johannesburg's urban forests is worth about

R1 BILLION

in avoided damage costs due to climate change impacts, e.g. increased flooding.

GREEN OPEN SPACES

Benefits

- Green open spaces provide places to exercise and relax, improving physical and mental health and well-being.
- Enhance social ties and interaction among urban citizens.
- Provide reserves for urban wildlife, maintaining biodiversity.
- Buffer wind and noise pollution, and contribute to air purification.
- Help slow down surface water and absorb, store and filter water, reducing stress on drainage systems.

Urban green open space contributes about

R37.5 BILLION

to Johannesburg's residential property value (2019).

AQUATIC ECOSYSTEMS

Benefits

- Aquatic ecosystems transport and biodegrade organic waste, ensure flows during dry periods, and supply fish, reeds and other goods, including water itself.
- Provide habitats for water birds and other aquatic life.
- Provide recreation opportunities like swimming and fishing.
- Wetlands slow down floods and enhance water quality.
- Act as ecological corridors, connecting different areas to support the functioning of ecosystems.
- Cool local temperatures through evaporative effects, absorbing and displacing heat.

Southern African wetlands are valued at between

\$159 and \$40 440

/ha/yr for tourism value, and

\$28.35 and \$5 423

/ha/yr for ecosystem services (2009).

URBAN FOOD SYSTEMS

Benefits

- Urban food systems reduce poverty and social inequality, and improve food security.
- Support local food production and provide an important source of livelihoods.
- Regulate water flows, organic waste flows, and facilitate pollination.
- Reconnect people with land and nature, enhance social cohesion, and contribute to healthier diets.

Urban agriculture supports livelihoods and the local economy. In 2015, urban agriculture in the City of Johannesburg supplied

7.8%

of all projected income.

EMBEDDED GREENERY

Benefits

- Embedded greenery, such as green roofs and vertical gardens, reduces greenhouse gas emissions, contributing to mitigating climate change impacts.
- Provides multiple benefits including improved air quality, better insulated buildings, job creation, reducing urban heat, stormwater management, increased property values, and reducing stress.

As an example, if 20% of buildings in Washington DC had green roofs, they could store approx.

958 MILLION LITRES

of rainwater in an average year.

GRASSLANDS AND BUSHVELD

Benefits

- Grasslands and bushveld are scenic areas, which can contribute to enhancing property values.
- Are important areas for conserving many threatened plant species, and they are an important source of medicinal plants.
- Grasslands reduce floods, facilitate water purification, and support pollination.
- Provide recreational activities, such as exercise and wildlife viewing, often with significant tourism value.

Grasslands and bushveld areas could save the City of Johannesburg in the order of

R1.8 BILLION

in terms of capital expenditure by storing and slowing water, and so reducing flood risk.