

Singapore, a City in a Garden



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Unique characteristics of Singapore

- Singapore is a city-state
- Singapore is a small island
- Singapore has high native biodiversity

The beginning of the Garden City programme

16 June 1963



Garden City strategies

1960s to 1990s

- Green & Clean Singapore
- Roadside tree planting
- Provide parks and open spaces
- Park Connector Network
- Legislation – Parks and Trees Act

Roadside tree planting



Planting in



A **diversity of parks**
that cater to all



Pasir Ris Park



Bukit Batok
Town Park

A **diversity of parks**
that cater to all



Telok Blangah Hill Park



East Coast Park



Fort Canning Park



Our Park Connector Network (PCN)

In the next few years, the Park Connector Network will comprise seven loops, linking various parks and nature sites in Singapore. It offers a wide choice of landscape and distances to enjoy around the island. More information can be found at <http://www.nparks.gov.sg/pcn>



- Eastern Coastal Loop
 - Western Adventure Loop
 - Northern Explorer Loop
 - North Eastern Riverine Loop
 - Kallang-Serangoon Loop
 - Southern Ridges Loop
 - Siglap-Kallang Basin Loop
 - Linkage
 - Parks & Nature Reservoirs
- Try It Now
- Coming Soon



Legislation

Parks and Trees Act

An Act to provide for the planting, maintenance and conservation of trees and plants within national parks, nature reserves, tree conservation areas, heritage road green buffers and other specified areas.

National parks and nature reserves are set aside for the following purposes:

- (a) The propagation, protection and conservation of the trees, plants, animals and other organisms of Singapore;
- (b) The study, research and preservation of objects and places of aesthetic, historical or scientific interest;
- (c) The study, research and dissemination of knowledge in botany, horticulture, biotechnology, or natural and local history; and
- (d) Recreational and educational use by the public.

Singapore's rich native biodiversity

- 2145 native vascular plant species
- 364 bird species
- 98 reptile species
- 66 freshwater fish species
- 301 butterfly species
- 127 dragonfly species
- more than 400 spider species
- 35 true mangrove tree species
- 12 seagrass species
- 255 hard coral species
- 50 sea anemone species



Chek Jawa story





Labrador Nature Reserve



Sungai Buloh Wetland Reserve



Central Catchment Nature Reserve



Bukit Timah Nature Reserve



Artist Impression of the Eco-Link

PROJECT NEEDS

Linking two high points on opposite slopes, the Eco-Link will be developed and planted to encourage exchange of plant and animal genetic materials between the two nature reserves. Animals, birds and insects will be able to move freely within the vegetated areas along the bridge, and travel between the two reserves. This will also mean that plant species can successfully propagate by way of pollination and dispersal agents. There will be a proposed walking/hiking trail for visitors to appreciate and enjoy the natures.

Thrusts of the **City in a Garden**

- **Establish world-class gardens**
- **Rejuvenate urban parks and enliven our streetscape**
- **Optimise urban spaces for greenery and recreation**
- **Enrich biodiversity in our urban environment**
- **Enhance competencies of our landscape and horticultural industry**
- **Engage and inspire communities to co-create a greener Singapore**

Thrust 1 | Establish world-class gardens



Thrust 1

Establish world-class gardens



Thrust 2 | Rejuvenate urban parks and enliven our streetscape



Thrust 3

Optimise urban spaces for greenery and recreation



Thrust 3 | Optimise urban spaces for greenery and recreation



Thrust 4 | **Enrich biodiversity in our urban environment**



Thrust 4 | **Enrich biodiversity in our urban environment**



Thrust 5 | Enhance competencies of our landscape and horticultural industry



Thrust 6

Engage and inspire communities to co-create a greener Singapore



Thrust 6 | Engage and inspire communities to co-create a greener Singapore





Comprehensive Marine Biodiversity Survey



Coastal Protection and Mangrove Enhancement Project in Pulau Tekong



Singapore's **National Biodiversity Strategy and Action Plan** | Conserving Our Biodiversity

- **Strategy 1:** Safeguard Our Biodiversity
- **Strategy 2:** Consider Biodiversity Issues in Policy and Decision-making
- **Strategy 3:** Improve Knowledge of Our Biodiversity and the Natural Environment
- **Strategy 4:** Enhance Education and Public Awareness
- **Strategy 5:** Strengthen Partnerships with All Stakeholders and Promote International Collaboration

Projects under **NBSAP**



The Singapore Index on Cities' Biodiversity (**SI**) is a **CBD-led collaboration** with the Global Partnership on Local and Sub-National Action for Biodiversity

www.cbd.int/authorities

Development of the **SI**

- Objectives of the **SI**:
 - To assist national governments and local authorities in **benchmarking their biodiversity conservation efforts** in the urban context
 - **Evaluate progress** in reducing the rate of biodiversity loss in urban ecosystems
- Pre-conditions of the **SI**:
 - a self-assessment tool
 - easy to apply
 - scientifically credible
 - objective and fair

3RD EXPERT WORKSHOP ON THE DEVELOPMENT OF THE CITY BIODIVERSITY INDEX



11 – 13 Oct 2011 . FORT CANNING CENTRE . SINGAPORE



Convention on
Biological Diversity





BRUCE CLARKSON
University of Houston

Indicators | Native Biodiversity in the City

- Ind. 1: Proportion of Natural Areas in City
- Ind. 2: Connectivity Measures or Ecological Networks to Counter Fragmentation
- Ind. 3: Native Biodiversity in Built-Up Areas
- Ind. 4: Change in Number of Native Species (Vascular Plants)
- Ind. 5: Change in Number of Native Species (Birds)
- Ind. 6: Change in Number of Native Species (Butterflies)
- Ind. 7 & 8: Changes in Numbers of Native Species (any 2 taxonomic groups of choice)
- Ind. 9: Proportion of Protected Natural Areas
- Ind. 10: Proportion of Invasive Alien Species (as Opposed to Native Species)

Indicators | Ecosystem Services of Biodiversity

- Ind. 11: Regulation of Quantity of Water Through Permeable Areas
- Ind. 12: Climate Regulation: Carbon Storage and Cooling Effect of Vegetation
- Ind. 13: Recreational Service
- Ind. 14: Educational Service

Indicators | Governance and Management of Biodiversity

- Ind. 15: Budget Allocated to Biodiversity
- Ind. 16: Number of Biodiversity Projects Implemented by the City Annually
- Ind. 17: Existence of Local Biodiversity Strategy and Action Plan
- Ind. 18 - 19: Institutional Capacity
- Ind. 20 - 21: Participation and Partnership
- Ind. 22 - 23: Education and Awareness

Over **50** cities
are applying the **SI**

Curitiba (Brazil)
Edmonton (Canada)
Montreal (Canada)
Hamilton (New Zealand)
Paris (France)
Nagoya (Japan)
Brussels Capital Region (Belgium)
Tallinn (Estonia)
Frankfurt (Germany)
Bandung (Indonesia)
Waitakere City (New Zealand)
Bangkok (Thailand)
Chiang Mai (Thailand)
Krabi (Thailand)
Phuket (Thailand)
London (United Kingdom)
Joondalup (Australia)
Phnom Penh (Cambodia)
Siem Reap (Cambodia)
Ottawa (Canada)

> **300 European cities participating in the
European Capitals of Biodiversity Competition**
(from five countries – France, Germany, Hungary,
Spain and Slovakia)
Singapore

Padang (Indonesia)
Pekanbaru (Indonesia)
Vientiane (Lao PDR)
Xayaboury (Lao PDR)
Sibu (Malaysia)
Kuantan (Malaysia)
Iloilo City (Philippines)
Puerto Princesa City (Philippines)
Quezon City (Philippines)
Ourense (Spain)
Montpelier (USA)
Hyderabad (India)
Kings County (USA)
Danang (Viet Nam)
Hanoi (Viet Nam)
Helsinki (Sweden)
Stockholm (Sweden)
Heping District, Shenyang (China)
Amsterdam (Netherlands)
Barcelona (Spain)
Visakhapatnam (India)
Jerusalem (Israel)
New Orleans (USA)
Calgary (Canada)
Guatemala City (Guatemala)

Multi-faceted Applications

- As a diagnostic, planning and decision-making tool
- As the biodiversity component of broader indices/frameworks
- Good practices for sustainable development
- Guidelines on how to enhance native biodiversity
- Basis for calculation of economic value of biodiversity and ecosystem services
- Capacity-building in biodiversity conservation for cities

A photograph of a squirrel splashing in water. The squirrel is wet and has its paws tucked up towards its chest. Water droplets are flying everywhere around it, creating a dynamic and energetic scene. The background is a blurred green, suggesting a natural outdoor setting.

Thank You

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