WORLD GREEN BUILDING COUNCIL

From buildings to townships to cities,

Greening our environment

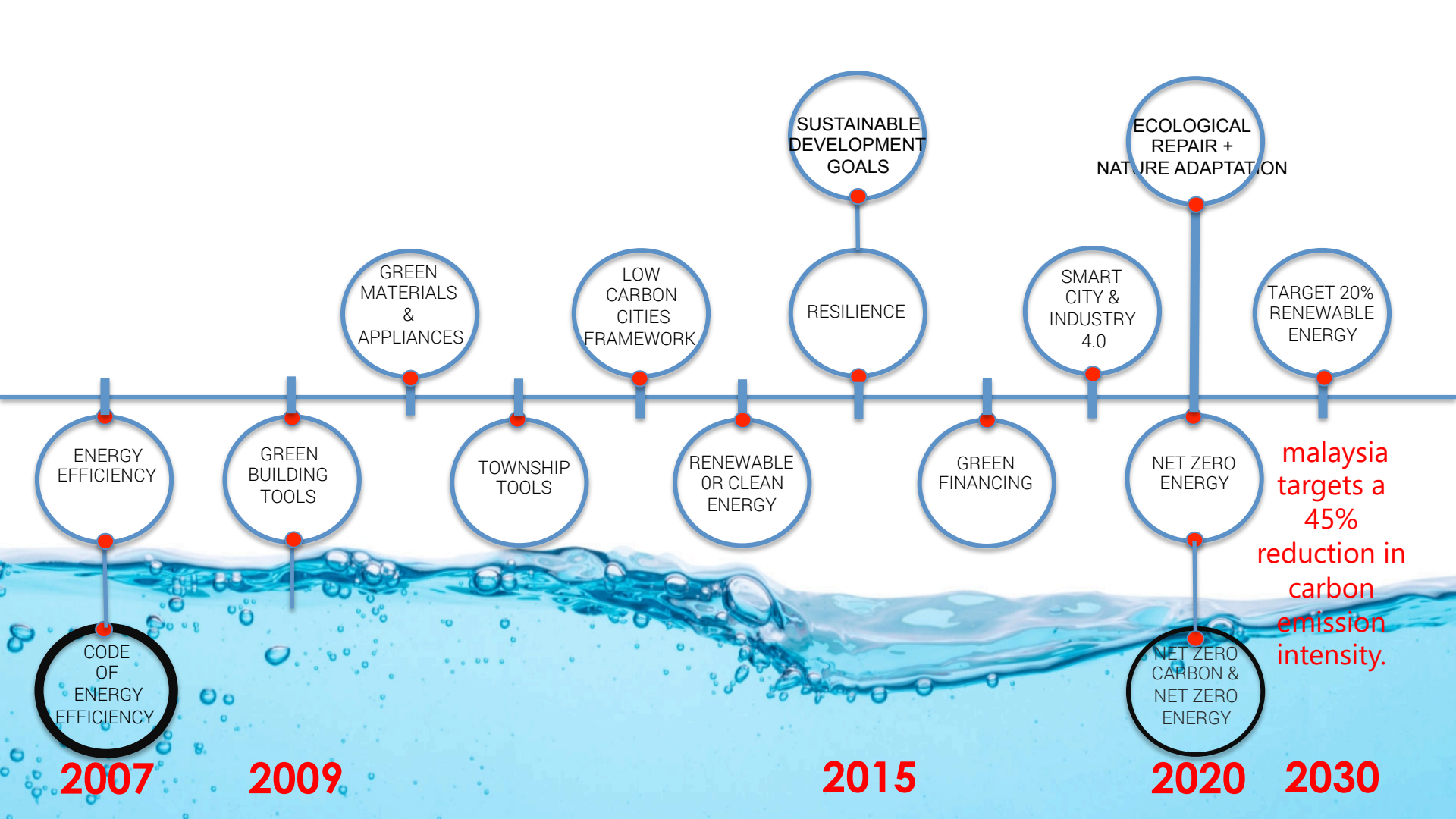
Normal Baharu Bandar Rendah Karbon siri 6.0

From buildings to townships to cities,

Greening our environment

Ar Serina Hijjas malaysia Green Building Council (malaysiaGBC)

Council Member - Session 2020-2021


ENERGY EFFICIENCY
GREEN BUILDING TOOLS
GREEN MATERIALS & APPLIANCES
TOWNSHIP TOOLS
LOW CARBON CITIES FRAMEWORK
RENEWABLE 0R CLEAN ENERGY
SUSTAINABLE DEVELOPMENT GOALS
RESILIENCE
GREEN FINANCING
SMART CITY & INDUSTRY 4.0
ECOLOGICAL REPAIR + NATURE ADAPTATION
NET ZERO ENERGY
TARGET 20% RENEWABLE ENERGY
CODE OF ENERGY EFFICIENCY
NET ZERO CARBON & NET ZERO ENERGY
2007
2009
2015
2020
2030
malaysia targets a 45% reduction in carbon emission intensity.

- Base (BAU) Buildings BEI 250,
- MS1525 BEI 200-220,
- Certified Buildings BEI 180-200,20% energy reduction
- Silver Buildings BEI 150, 20- 35% energy reduction
- Gold Buildings BEI 120, 35-45% energy reduction
- Platinum Buildings BEI 90, 45-60% energy reduction
- 150 million sqft of projects going Green in Malaysia after 6 years

Adopt Building measures MS 1525 Energy Efficiency , Green Building Index & Municipality New Green Incentives

existing townships

new townships

Business & Innovation
Building & Resources
Transportation & Connectivity
Community Planning & Design
Ecology & Environment
Climate, Water & Energy
25 townships going green

Communities Level : Green Neighbourhood Guidelines
GreenBuildingIndex Township rating tool

- Introduce City wide 4R waste management, with reduction being the fourth R
- City wide Public transportation on greener fuel option
- Set comfort indoor temperature for all government buildings at 24 degree
- Linking higher Plot ratios to increased openspace ratio
- & Green building certification under Best Planning Practices
- National Planning guide on Green Neighbourhoods
- Consider Green Plot ratio

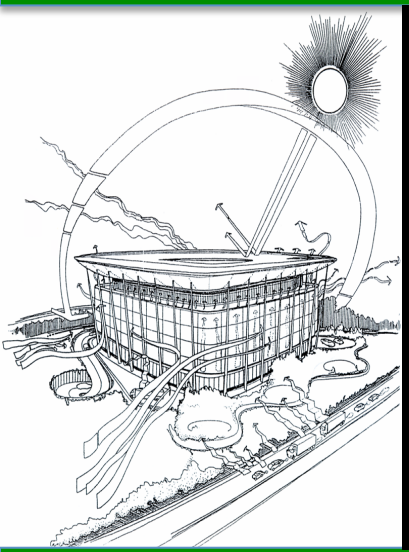
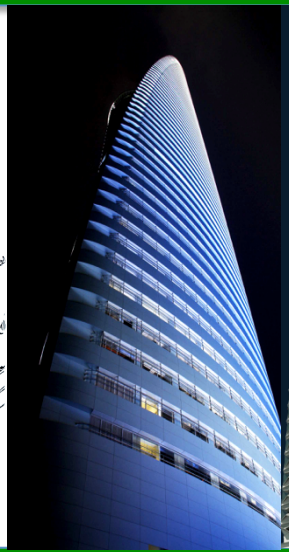
Local Level : Green Neighbourhoods Guidelines
Municipality New Best Planning Practice

- Development of a road map for 40% reduction of carbon emission intensity
- National Landscape Policy at least 30% Urban development areas as green areas
- Current recycling rate is about 5 to10% as most of the waste (95%) still ends up in landfills
- Future KL- Singapore High Speed rail
- Increase public transportation networks Klang Valley with KVMRT
- Move to develop national Hybrid Car

National Level : Low Carbon Cities Framework

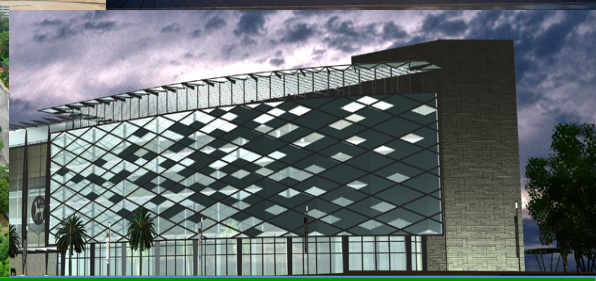
GREENING MALAYSIA

building towards sustainability

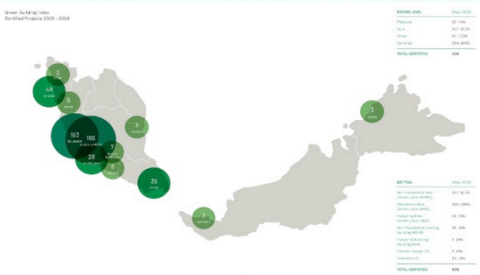


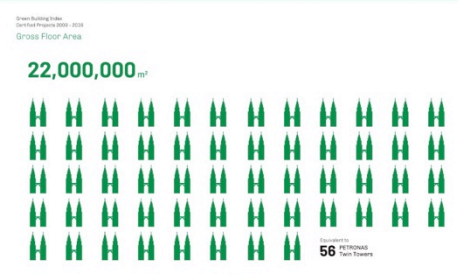
MALAYSIA PAVILION

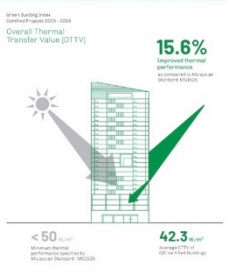


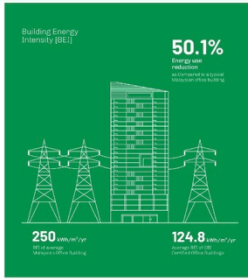
GREEN 500

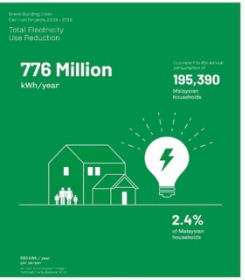
Green Building Index Certified Projects 2009 - 2019

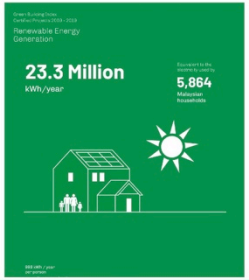


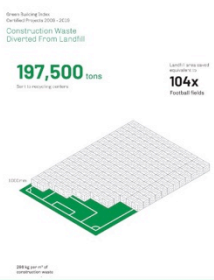


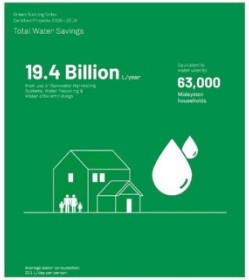


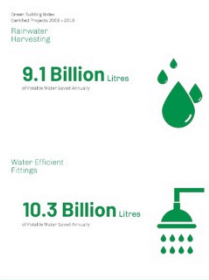












Green Building Index
Certified Projects 2009 - 2019

CO_2 Reduction

1,118,000
tons CO_2/year

Equivalent to carbon sequestered by

5,324
km^2 of Forest

Equals a Forest

22x
Land area of Kuala Lumpur

Equivalent to removing

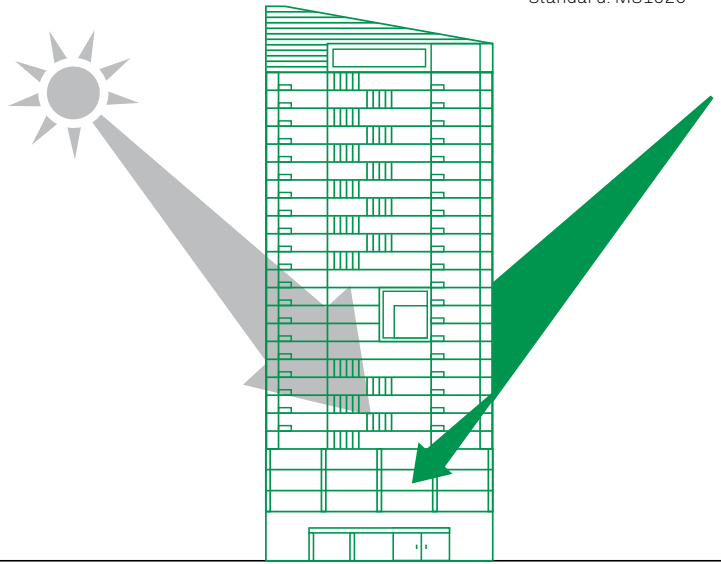
243,000
Cars from the road

21%
of cars registered in Selangor

Green Building Index
Certified Projects 2009 - 2019

Overall Thermal Transfer Value [OTTV]

15.6%
Improved thermal performance
as compared to Malaysian Standard: MS1525

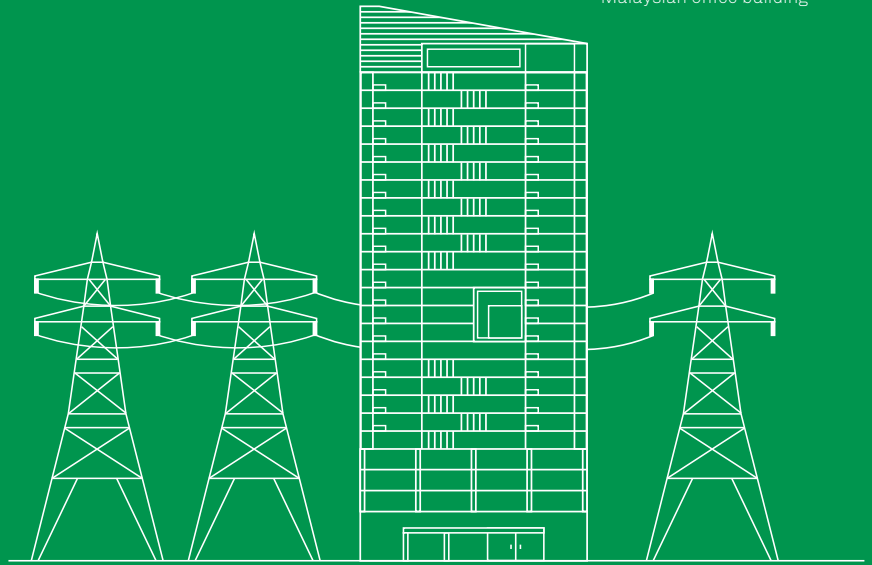


< 50 W/m²
Minimum thermal performance specified by Malaysian Standard : MS1525

42.3 W/m²
Average OTTV of GBI certified Buildings

Building Energy Intensity [BEI]

50.1%
Energy use reduction
as Compared to a typical Malaysian office building



250 kWh/m²/yr
BEI of average Malaysian Office Building

124.8 kWh/m²/yr
Average BEI of GBI Certified Office Buildings

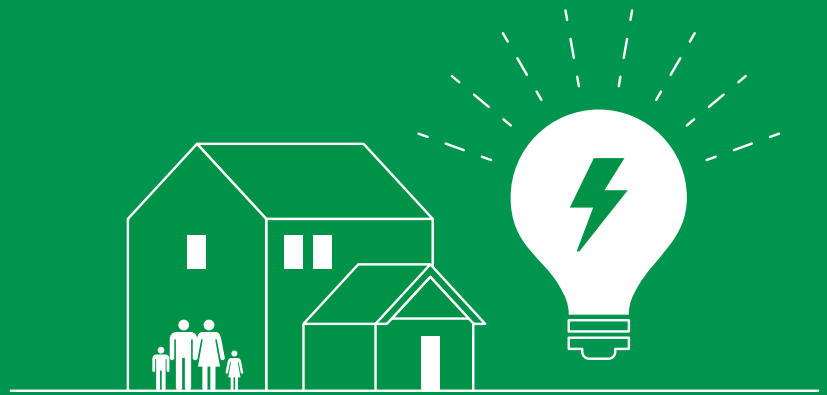
Green Building Index
Certified Projects 2009 - 2019

Total Electricity Use Reduction

776 Million
kWh/year

Equivalent to the annual consumption of

195,390
Malaysian households

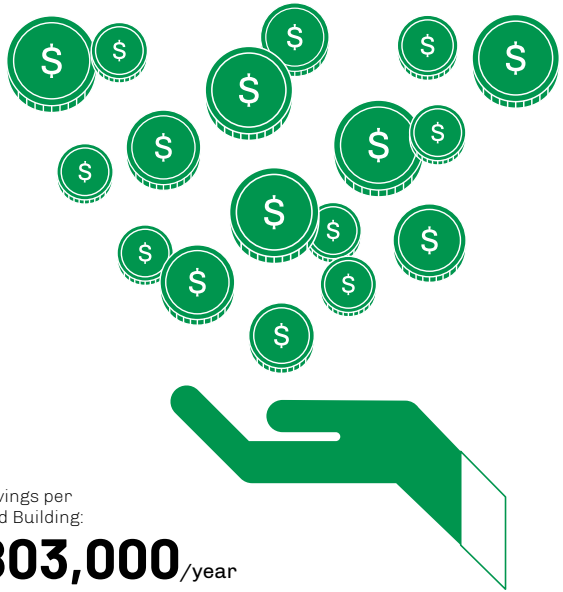


2.4%
of Malaysian households

Green Building Index
Certified Projects 2009 - 2019

Total Energy Cost Savings

RM388 Million /year



Average savings per GBI Certified Building:

RM803,000/year

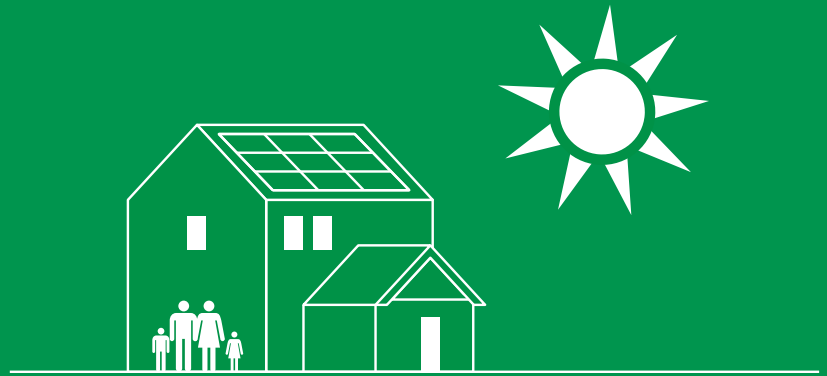
Green Building Index
Certified Projects 2009 - 2019

Renewable Energy Generation

23.3 Million
kWh/year

Equivalent to the electricity used by

5,864
Malaysian households



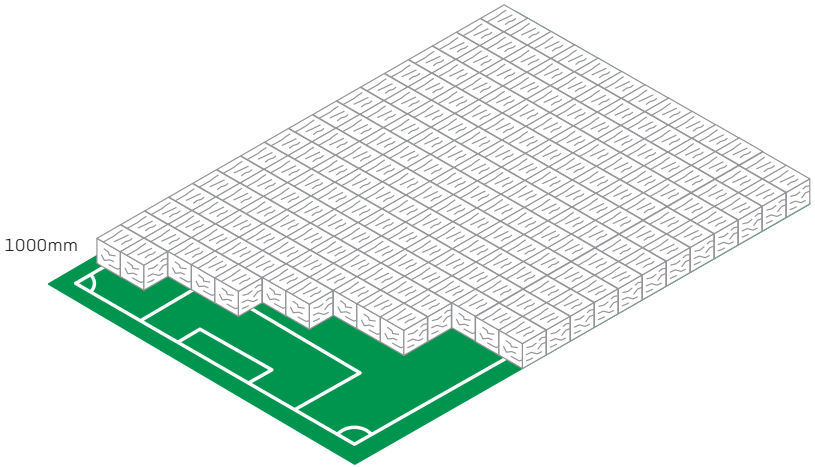
Green Building Index
Certified Projects 2009 - 2019

Construction Waste Diverted From Landfill

197,500 tons
Sent to recycling centers

Landfill area saved equivalent to

104x
Football fields



Green Building Index
Certified Projects 2009 - 2019

Total Water Savings

19.4 Billion L/year

from use of Rainwater Harvesting Systems, Water Recycling & Water-Efficient Fittings

Equivalent to water used by

63,000

Malaysian households

Green Building Index
Certified Projects 2009 - 2019

Rainwater Harvesting

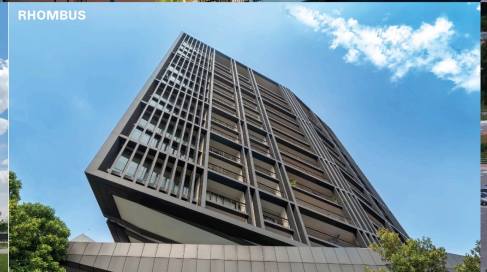
9.1 Billion Litres

of Potable Water Saved Annually

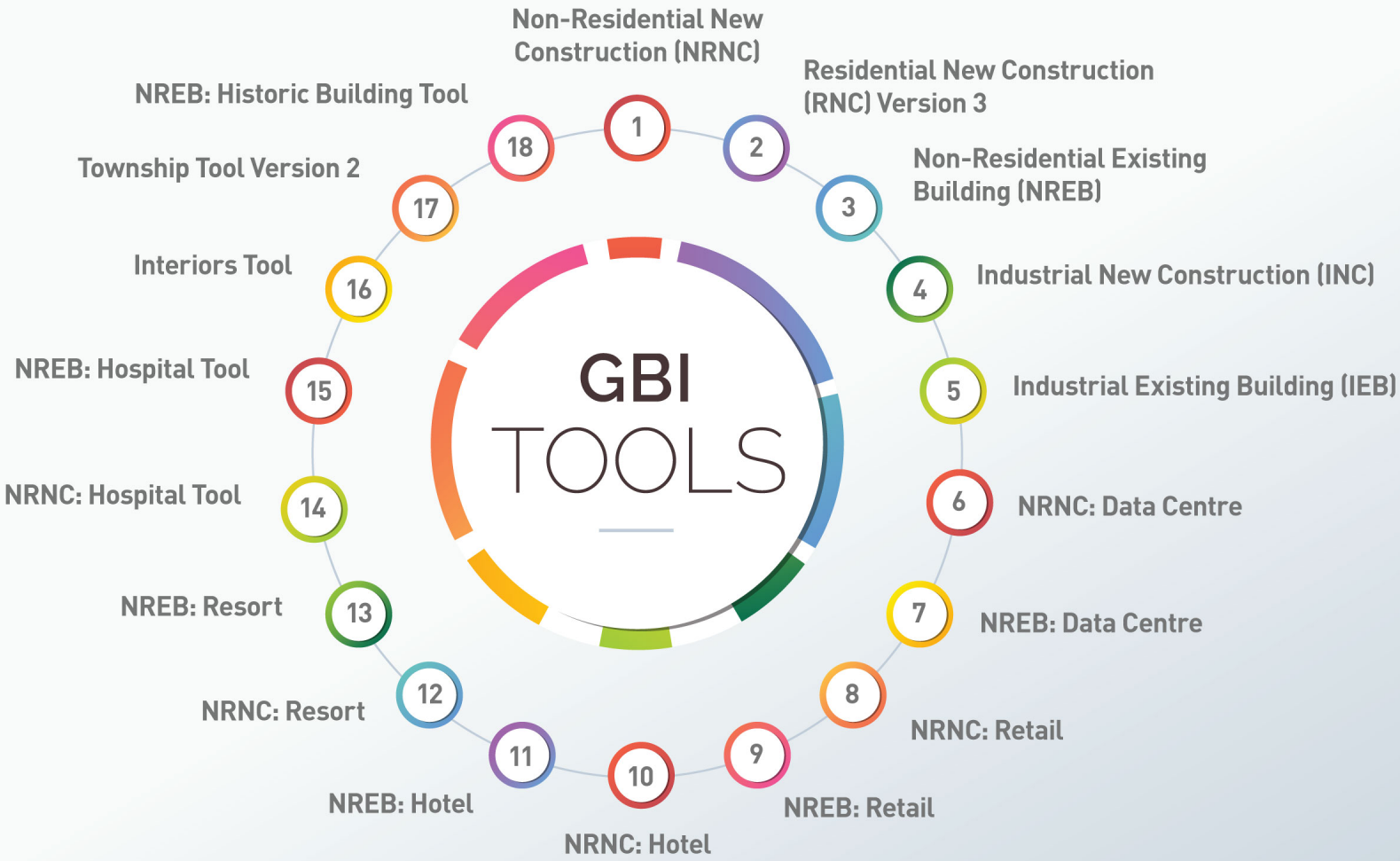
Water Efficient Fittings

10.3 Billion Litres

of Potable Water Saved Annually

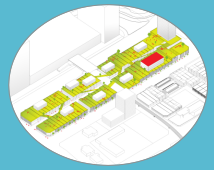


greenbuildingindex

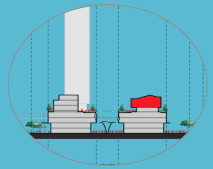

GBI
TOOLS
1
Non-Residential New Construction (NRNC)
2
Residential New Construction (RNC) Version 3
3
Non-Residential Existing Building (NREB)
4
Industrial New Construction (INC)
5
Industrial Existing Building (IEB)
6
NRNC: Data Centre
7
NREB: Data Centre
8
NRNC: Retail
9
NREB: Retail
10
NRNC: Hotel
11
NREB: Hotel
12
NRNC: Resort
13
NREB: Resort
14
NRNC: Hospital Tool
15
NREB: Hospital Tool
16
Interiors Tool
17
Township Tool Version 2
18
NREB: Historic Building Tool

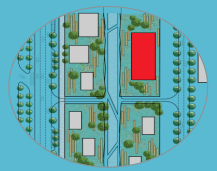













A Green Township considers a more holistic planning approach, creating better linkages between communities, environment and buildings.

TOWNSHIP TOOL

VERSION **2.0**

6 Core criteria for the delivery of Sustainable Township in Malaysia

1 Climate, Energy & Water

Sustainable Townships are balanced in their ongoing production and consumption of energy and water

They aim for zero net carbon emissions – by maximising passive design principles, minimising the impact of heat island effect, minimising energy consumption, adopting onsite energy generation, utilising renewable energy technologies such as co-generation and micro-generation.

They are water neutral – through the reduction of mains water consumption, rainwater harvesting and greywater recycling.

2 Ecology & Environment

Sustainable Townships respect their surrounding environment and native ecological systems

They are sensitive to the needs of the local ecology & biodiversity and aims to preserve and enhance the ecological value of the natural environment.

They assist in stabilising land – subsidence by reducing the impact of flooding and erosion.

3 Community Planning & Design

Sustainable Townships are planned and designed for the benefit of the community

They are created using an integrated approach to master planning and best practice urban design principles emphasising people priority and greenspaces.

Such goals help create a strong sense of place for communities – resulting in more livable and diverse neighbourhoods.

4 Transportation & Connectivity

Sustainable Townships are well-connected places that have a broad range of transportation options

They have excellent accessibility, connectivity and are well linked to surrounding districts.

They make good use of existing transport links and make priority and provision for future services – such as rail, bus and cycling networks.

5 Building & Resources

Sustainable Townships have a lower impact on resources – by applying the 'more from less' principle

They emphasise the need to minimise the use of highly resource intensive materials by using a life cycle approach.

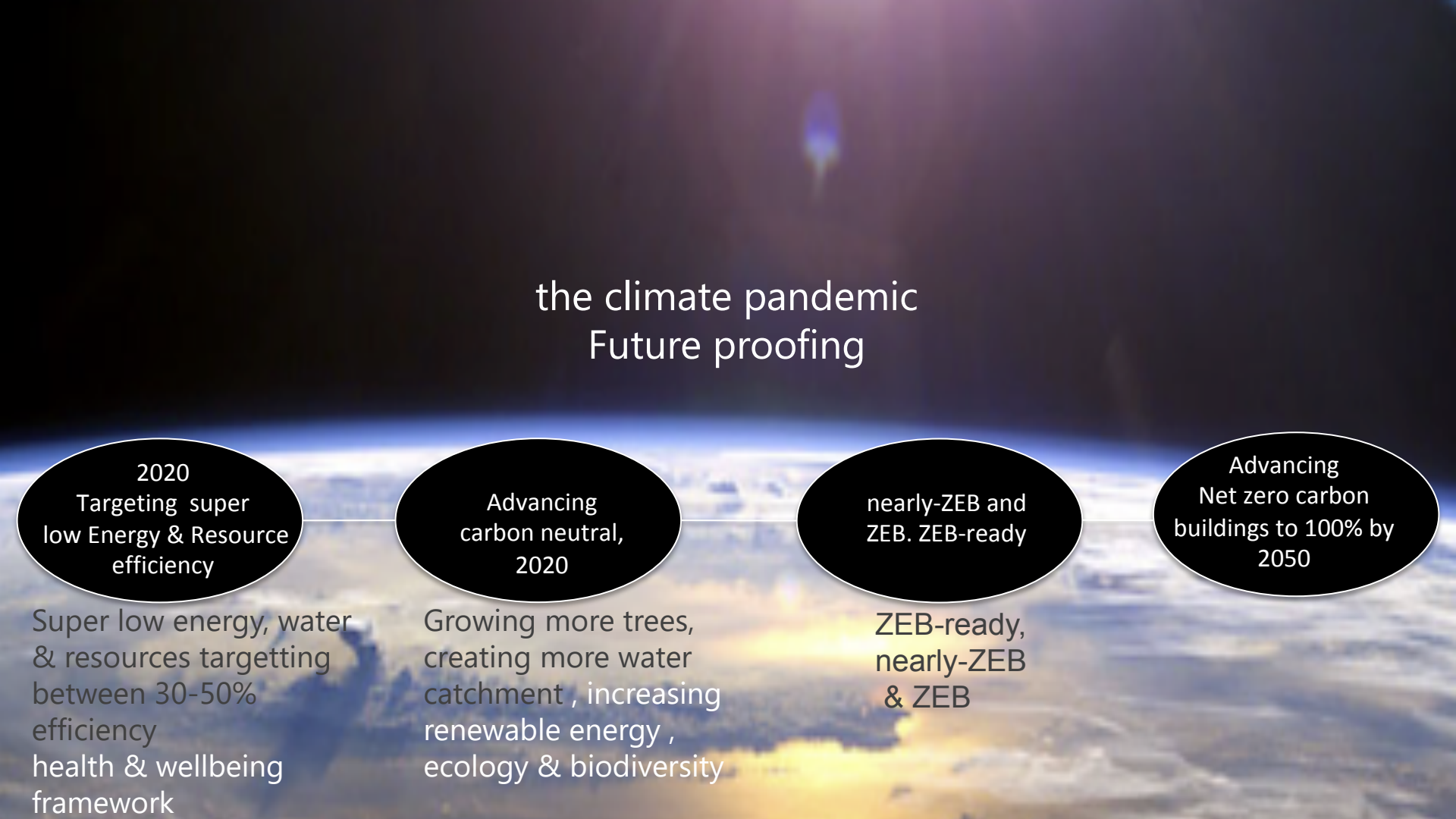
They make effective use of local materials and resources for the construction of new communities.

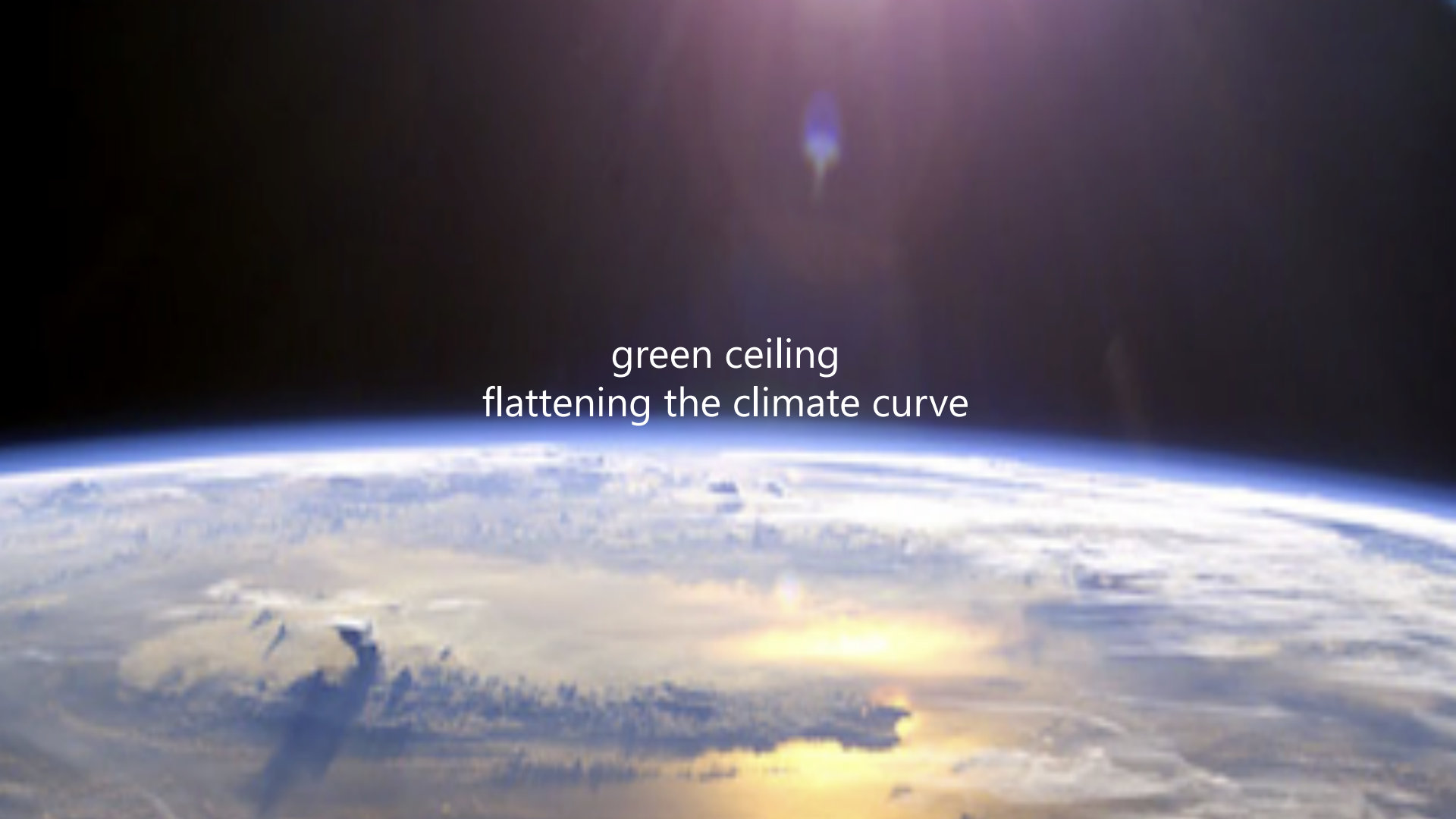
6 Business & Innovation

Sustainable Townships are tailored to respond to local needs in creating business and employment whilst incorporating innovative solutions

They provide employment opportunities for its residents to work closer to their homes and schools. They provide avenues for businesses to form and florish.

They demonstrate best practices through the implementation of innovative technologies and solutions at many different levels of the township.


the climate pandemic
Future proofing
2020
Targeting super low Energy & Resource efficiency
Advancing carbon neutral, 2020
nearly-ZEB and ZEB. ZEB-ready
Advancing
Net zero carbon buildings to 100% by 2050
Super low energy, water & resources targetting between 30-50% efficiency
health & wellbeing framework
Growing more trees, creating more water catchment , increasing renewable energy , ecology & biodiversity
ZEB-ready, nearly-ZEB & ZEB


green ceiling
flattening the climate curve