

PUTRAJAYA LOW CARBON GREEN CITY INITIATIVES REPORT



PERBADANAN PUTRAJAYA

Putrajaya Low Carbon Green City Initiatives Report

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1.0 CITY PLANNING AND BUILDING





1.0 CITY PLANNING AND BUILDING

1.1 Inventory of Putrajaya Greenhouse Gas Emissions 2013

Since year 2010, Putrajaya Corporation had inventorised greenhouse gas (GHG) emissions at Putrajaya. This is a way to measure the achievement of green city initiatives that had been implemented.

In year 2013, GHG emissions rate at Putrajaya was measured by the following seven sectors:

- i. Government buildings.
- ii. Commercial buildings.
- iii. Public amenities and utilities buildings.
- iv. Residential.
- v. Passenger transport.
- vi. Freight transport.
- vii. Solid waste.

The total carbon emissions in year 2013 was 1,316ktCO₂eq compared to 1,120ktCO₂eq in year 2012. This was caused by a few factors such as the increase in completed building floor spaces, number of population and workers. Per capita emissions were recorded as 13.2tCO₂eq.

Chart 1.1 summarises the 2013 GHG emissions rate as compared to the base year 2007 and year target year 2025.

The result of inventory showed that carbon emissions was highest in the building sector, 72% (953 ktCO₂eq), followed by transportation sector at 24% (312ktCO₂eq) and solid waste, 4% (51ktCO₂eq).

Chart 1.1: GHG Emissions Comparison

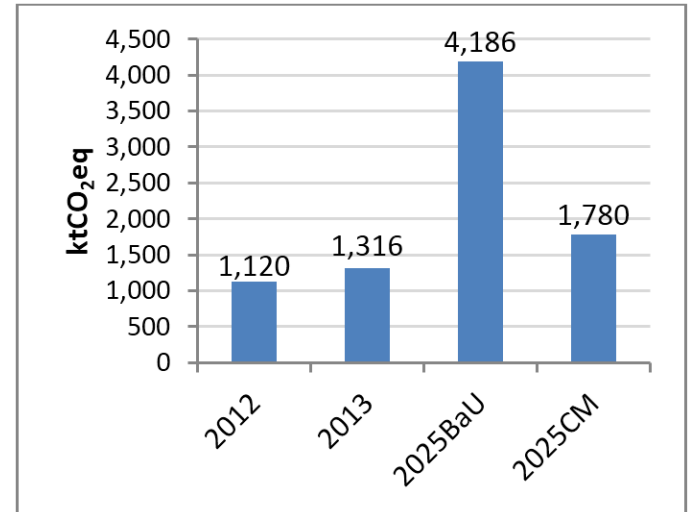
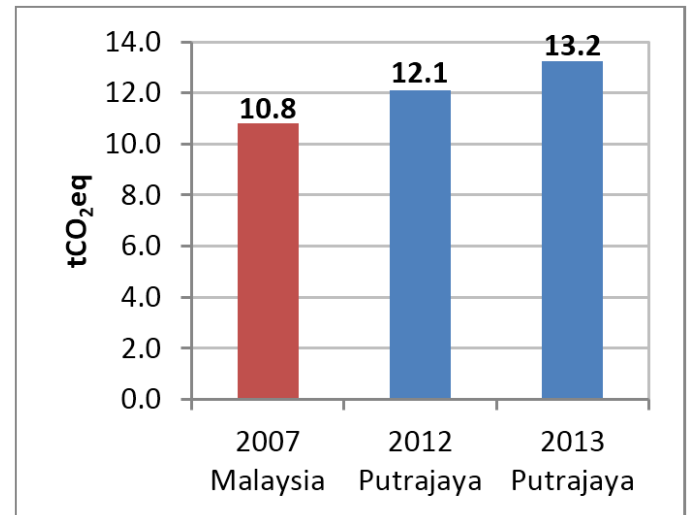


Chart 1.2: GHG Emissions Per Capita





The similar trend was observed in year 2012 and continued into 2013. It was closely related to the ongoing construction of various government office complexes, commercial premises and residential during this time.

The highest source of GHG emissions is from the use of electricity, which is 58% (785ktCO₂eq). This is followed by petroleum, 22% (288ktCO₂eq) and natural gas, 16% (214ktCO₂eq). This finding showed that Putrajaya's energy resources are still largely dependable on non-renewable energy.

Chart 1.3: GHG Emissions by Three Scopes

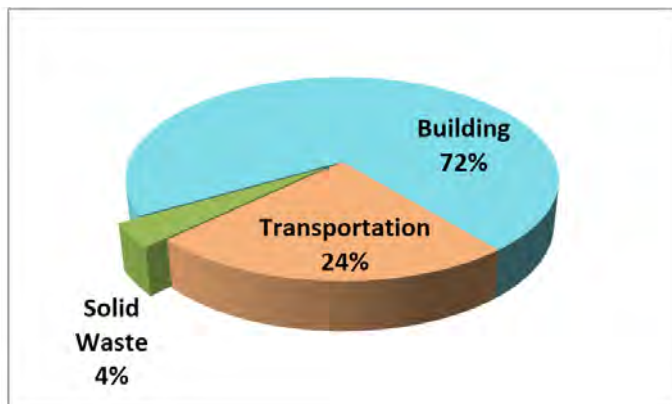


Chart 1.4: GHG Emissions by Sources

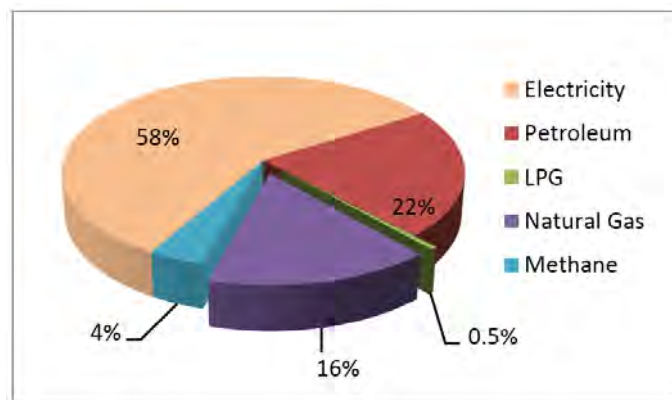


Table 1.1: Comparison of GHG Emissions by Seven Sectors

Sector	2012	2013	2025BaU	2025CM
Residential	59	79	266	150
Government Buildings	461	600	363	139
Commercial Buildings	207	240	1435	769
Public amenities and Utilities	21	34	240	112
Passenger transport	316	305	1314	368
Freight transport	7	7	156	89
Solid Waste	49	51	414	189
Total Emissions	1,120	1,316	4,186	1,815
Carbon Sink				35
Net Emissions	1,120	1,316	4,186	1,780

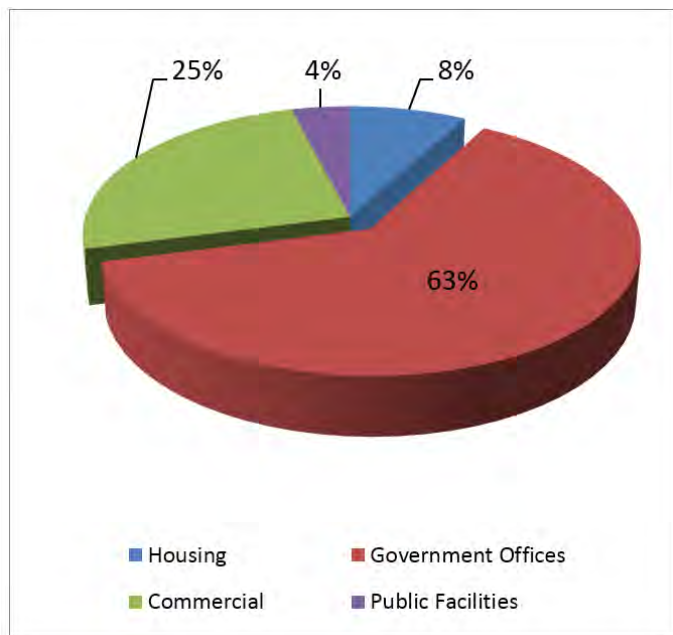
i. Carbon Emissions from Building Sector

Building sector remained as the sector with highest consumption of energy. The distribution of floor area by building use type are residential, 46%; government buildings, 34%; commercial buildings, 7% and public amenities and utilities (13%).

63% of the carbon emitted in the building sector is coming from the government buildings. Followed by 25% from the commercial buildings.



Chart 1.5: CO₂ Emissions from Building Sector



ii. Carbon Emissions from Transportation Sector

Transportation is the second highest sector that uses energy in Putrajaya. The increased in population and workers had generated more trips. This scenario is supported by the recorded number of incoming and out-going vehicles in Putrajaya.

The main contributor of carbon emissions in the transportation sector is the consumption of petroleum, at 92%. This showed the use of low carbon vehicles in Putrajaya is still not popular, especially among private vehicle owners.

Chart 1.6: Building Sector CO₂ Emissions by Source

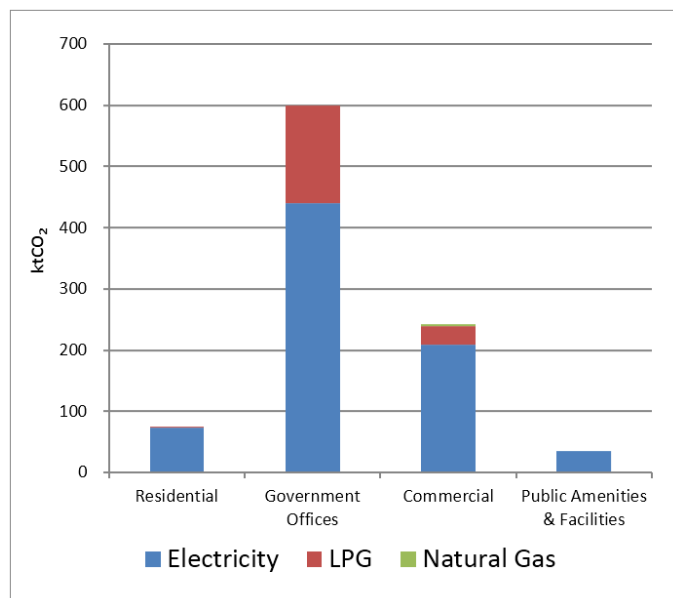


Chart 1.7: In/Out Persons Comparison

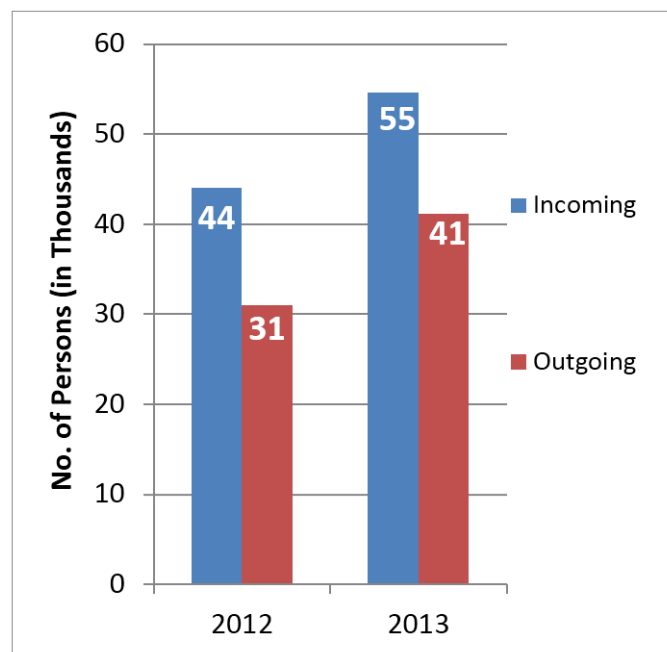




Chart 1.8: CO₂ Emissions from Transportation Sector

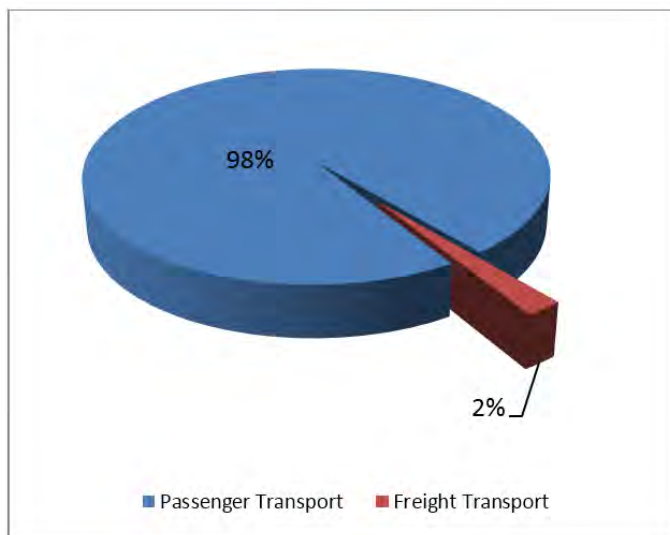
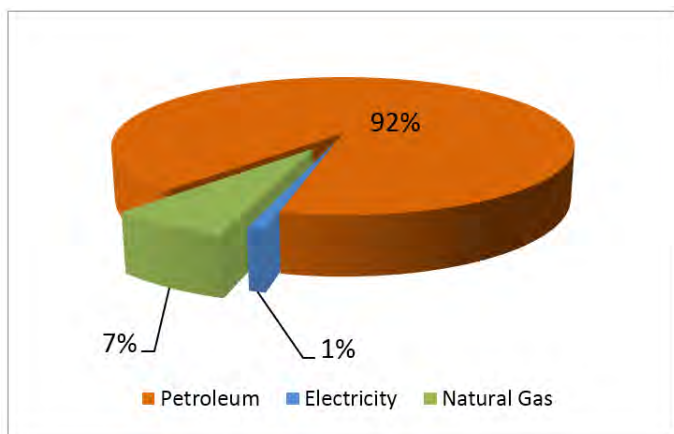


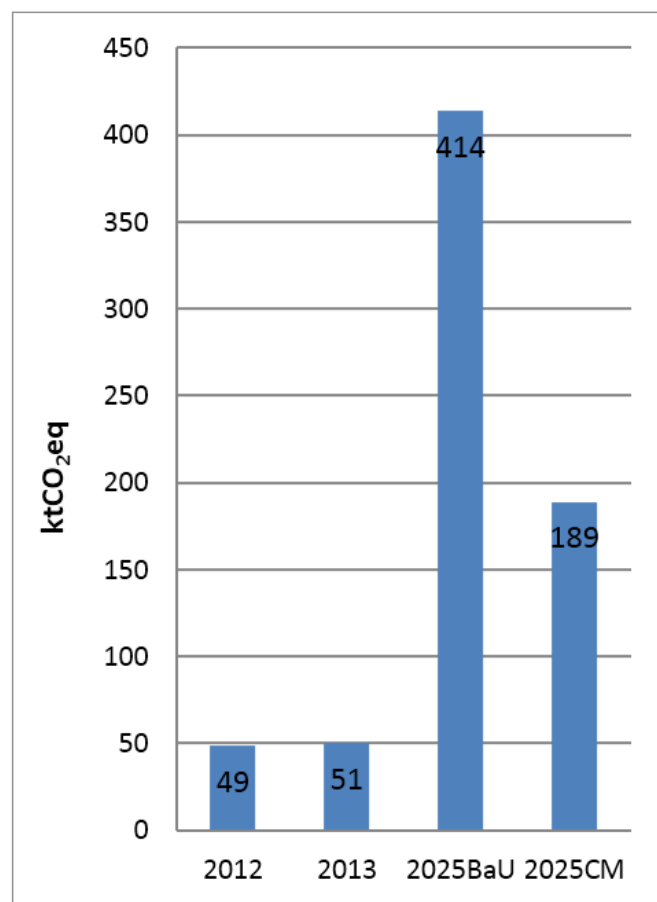
Chart 1.9: Transportation Sector CO₂ Emissions by Source



iii. Carbon Emissions in Solid Waste Sector

In the solid waste sector, the result of year 2013 inventory indicated slight increase in the GHG emissions from year 2012's level, which is from 49ktCO₂eq to 51ktCO₂eq.

Chart 1.10: GHG Emissions Comparison for Waste Sector





1.2 Green Building Design and Certification

In the building sector, initiatives to build green building and retrofit existing building into green building have been given great emphasis, as a measure to reduce carbon emission. Up to year 2014, seven buildings had obtained green building certification and 13 more are in the planning and building stages. These new buildings are expected to be certified once completed.

Table 1.2: List of Certified Green Buildings in Putrajaya

Building	Green Building Certification
i. Energy Commission	GBI rating PLATINUM (NRNC), 2011 BCA Green Mark Award PLATINUM (New Buildings).
ii. Ministry of Energy, Green Technology and Water (KeTTHA)	GBI rating SILVER (NRNC), 2011.
iii. Office Tower at Plot Z10, Precinct 1.	GBI provisional rating CERTIFIED (NRNC), 2011.
iv. 3 Star Hotel at Plot Z10, Precinct 1.	GBI provisional rating CERTIFIED (NRNC), 2011.
v. Perdana Putra	GBI rating PLATINUM (NREB), 2012.
vi. Menara PJH	GBI rating GOLD (NRNC), 2014.
vii. City Campus in Putrajaya	GBI provisional rating CERTIFIED (NRNC), 2013.

Source: Green Building Index Sdn Bhd

Table 1.3: List of Buildings at the Planning or Construction Stage to Obtain Green Building Certificate

Building	Green Building Certification
i. Government Building Block F1.	GBI rating GOLD (NRNC), 2013.
ii. Government Building Block F2.	GBI rating GOLD (NRNC), 2013.
iii. Government Building Block F3.	GBI rating GOLD (NRNC), 2013.
iv. Government Building Block F4.	GBI rating GOLD (NRNC), 2013.
v. Government Building Block F5.	GBI rating GOLD (NRNC), 2013.
vi. Government Building Block F6.	GBI rating GOLD (NRNC), 2013.
vii. Government Building Block F7.	GBI rating GOLD (NRNC), 2013.
viii. Government Building Block F8.	GBI rating GOLD (NRNC), 2013.
ix. Government Building Block F9.	GBI rating GOLD (NRNC), 2013.
x. Government Building Block F10.	GBI rating GOLD (NRNC), 2013.
xi. Government Building Block F11.	GBI rating GOLD (NRNC), 2013.
xii. Lot 2C5 Putrajaya	GBI rating SILVER (NRNC), 2014.
xiii. 23 unit of bungalows, Parcel 6, Precinct 16, Putrajaya (Messrs Senandung Budiman Sdn. Bhd.)	GBI provisional rating CERTIFIED (NRNC), 2014.

Source: Green Building Index Sdn Bhd

Reference: NRNC-(Non-Residential New Construction)
NREB-(Non-Residential Existing Building)
RNC-(Residential New Construction)



3 Star Hotel at Plot Z10



Government Complex Block F1



Office Tower at Plot Z10



Government Complex Block F5



1.3 Regulatory Framework

i. The Architecture and Building Inspectorate (BSIB) Division under the City Planning Department, has undertaken two initiatives to promote the adoption of green building features. The initiatives are as follows:

- a) The enforcement of legal provisions 38A and 38B, under the Uniform Building By-laws (Selangor) 1986 (Amendment 2012) for Energy Efficiency, on all applications to erect building.
- b) Impose the installation of rain water harvesting system (SPAH) as one of the conditions to gain approval for the erection of building, under the provision of by-laws 115, Uniform Building By-laws (Selangor) 1986. This is to be used for flushing and irrigation purpose of detached and semi-detached houses in Putrajaya.

ii. A method to monitor the implementation of SPAH has been introduced. The monitoring is carried out before the issuance of certificate of compliance and completion (CCC). This is to ensure the proposed and approved SPAH for every development is implemented and able to function well.

1.4 Study and Standards

i. Putrajaya is currently preparing the Green Building Regulations and Specification for Putrajaya, which will facilitate swift implementation of green building development at its area.

This programme is carried out jointly with institutions expert in this field such as:

- Malaysia Green Building Confederation (MGBC).
- Faculty of Architecture and Environment Design, International Islamic University Malaysia (UIA).
- Petaling Jaya City Council.
- Malaysia Standard Department.



1.5 Forum

i Putrajaya Low Carbon Green City Forum 2014

Putrajaya Corporation had organised Putrajaya Low Carbon Green City Forum on 12 March 2014, at Dewan Seri Melati, Kompleks Perbadanan Putrajaya. The theme of this forum was about ways and people's role in saving electricity. Changes can be achieved with better understanding of how electricity can be used efficiently, without compromising the comfort of existing life.

Three speakers were invited to this forum and the topics are as follows:

- a) Review of Electricity Tariff by Mdm. Catherine Ridu, Senior Division Secretary of Ministry of Energy, Green Technology and Water (KeTTHA).
- b) The Role of People and Steps to Save Electricity Use by Mdm. Hafiza Yob, Regulatory Officer, Energy Commission.
- c) Low Carbon House Precinct 14 by Mr. Steve Anthony Lojuntin, Putrajaya Precinct 14 residents' representative.



First speaker – Mdm. Catherine Ridu



Second speaker – Mdm. Hafiza Yob

Forum opening speech by Y.Bhg Dato' Omairi bin Hashim, Vice President City Planning, Putrajaya Corporation.



First speaker – Mr. Steve Anthony Lojuntin



A total of 163 participants attended the forum. There were 11 representatives from the developer, 12 secondary school students, 10 primary school pupils, 26 resident associations representatives, 15 government and private agencies' officers and 89 participants from Putrajaya Corporation.



Brochures distributed at the forum.



Residents' representative of Precinct 14 Putrajaya at the Q&A session.



Participants attending the Putrajaya Low Carbon Green City Forum 2014.



ii. Light and Motion Putrajaya (LAMPU) 2014

Putrajaya Corporation had organised a forum to disseminate knowledge on green building at the Light and Motion Putrajaya (LAMPU) 2014 event. The forum which was known as FORUM LAMPU 2014 was held on 12 December 2014, with the theme “Enhancing Architecture via Innovative Lighting”. The topics presented in this forum included:

- a. MS1525: Energy Efficient (EE) Lighting - A Practical Guide to Sustainable Lighting and Night Sky Pollution and Urban Planning.
- b. Technical Product and Way Forward Lighting for Putrajaya in Terms of Energy Saving, Tourism and Safe City.





1.6 Training

Hands-on Training Session for the Application of Building Consumption Input System (BCiS)

Putrajaya Corporation had organised Building Consumption Input System (BCiS) Hands-on Training Session on 19 June 2014, at Dewan Seri Melati, Putrajaya Corporation Complex.

The training aimed to increase awareness on saving and reducing electricity consumption at schools in Putrajaya. A new award category - Energy Efficient School Award was added to the existing Sustainable Schools Award 2014 (ASL2014), given under the Local Agenda 21 Putrajaya programme. One of the criteria to participate in this award is that school must submit monthly electricity usage record in the Building Consumption Input System (BCiS).

A guest speaker from Sustainable Energy Development Authority Malaysia (SEDA) had given talks on 'Measures to Save Electricity at School' and another from Malaysia Green Technology Corporation (MGTC) had conducted hands-on training session on the application of BCiS. All these are geared toward early preparation for schools to participate in ASL 2014.



Speaker from SEDA, Mr. Ishamuddin bin Mazlan presenting short and long term steps to save and reduce electricity consumption.



The opening of training session by Hjh. Salmah binti Salman, Director of Sustainable Development Division, Putrajaya Corporation.



Speaker from MGTC, Mr. Muhammad Fendi bin Mustapa, trainer for BCiS.



Training session conducted by trainer from MGTC and Putrajaya Green City Section.



Representatives from 12 primary schools and 11 secondary schools in Putrajaya attending the training session.



Participants giving feed backs and share their experiences on electricity saving programme at their respective schools.



Notes:



2.0 INTEGRATING NATURE INTO THE URBAN FABRIC





2.0 INTEGRATING NATURE INTO THE URBAN FABRIC

2.1 Pilot Project on Trees Inventory and Management System

The Pilot Project on Trees Inventory and Management System (SIPP) developed by the Forest Research Institute Malaysia (FRIM) for Putrajaya Corporation, started on 15 August 2011 and completed on 14 August 2013. The purpose of SIPP is to map and inventoried trees in Putrajaya.

2,000 trees need to be inventoried and mapped in order to migrate from manual procedure to electronic method. Once the basic trees inventory and management system of SIPP is ready, it will be used to record and map out at least 650,000 trees planted in Putrajaya. By the end of year 2013, the system is expected to be function fully and effectively.



Updating inventory data and conducting tree health checks in Putrajaya.



SIPP Workshop held at FRIM on 10 September 2013, aimed to train for the use and implementation of SIPP.



Conducting health and condition checking on trees at Putrajaya using tools by German technology



2.2 Tree and Hibiscus Planting Campaign at Putrajaya

During the tree and hibiscus planting campaign period from January to December 2013, 4,032 trees and 1,905 hibiscus plants had been planted at Putrajaya. The programmes undertaken by the government and private agencies include:

i Government Agencies:

- a. Putrajaya Green Finger Programme by Putrajaya Corporation, Putrajaya Holdings Sdn. Bhd. and Anak Warisan Alam Foundation (YAWA) on 19 October 2013 where 207 forest trees were planted.
- b. Putrajaya Corporate Social Responsibilities (CSR) Module for Green Earth Awareness Programme undertaken by Putrajaya Secondary School P8(1). It was conducted on 18 October 2013 and 14 rambutan trees were planted.



Putrajaya Corporate Social Responsibilities (CSR) Module carried out at Putrajaya Secondary School P8(1).

ii. Developer (Putrajaya Holding Sdn. Bhd.):

- a. PPAM1 Project – the planting of 1,847 trees for shade and 39 hibiscus trees at new public housing areas PPAM1 at Precinct 11, 14, 15 and 16. Also the planting of trees at new commercial areas and green spaces.



Trees planted at new commercial areas, Precinct 8, 8C1.



Trees planted for shades and greening of spaces sponsored by Putrajaya Holdings Sdn. Bhd. at the connecting parks and drainage reserve, Precinct 8.



2.3 Green Finger Programme

This programme is conducted under the Working Committee for Landscape and Environment Development, LA21 Putrajaya. It involved other partners such as Putrajaya Holdings Sdn. Bhd. (PHSB) and Anak Warisan Alam Foundation (YAWA) through Corporate Social Responsibilities (CSR) programme.

The purpose of this programme was to promote and spread awareness among local communities, especially children and youth, on issues and knowledge related to the environment. Putrajaya Corporation wished to instil the love of nature and environment among the young, so that when they grew up, they will be sensitive towards the various impact on environment and support sustainable development.

Numerous activities under the Green Finger Programme had been carried out by Putrajaya Botanical Garden – one of the metropolitan parks most rich in tropical tree species:

i Botanical Plant Study, Taman Botani

This activity provided the chance for students to understand more closely the character of each collected seed types, methods of breeding and seedling. Students were taught on the types of seedling medium and ways to care for the seeds that had been sown. The planting of tree seeds were conducted in groups through hands-on training.



Facilitator from the Taman Botani explaining to students the Nadir Tree – a type of tree species that can be commercialised.



The activity involved the collection of seeds at the beginning up until seedling in plastic bags (polibag).



Presentation by group about the trees that they had learnt at the Taman Botani



Students identifying the types of tree found at the Taman Botani during the programme.

ii. Botanical Discovery - 'Walk n Hunt' Taman Botani

The aim of this programme was to create new experience and for children to explore the secrets of nature. At the same time, encourage interest towards forest and its life.

iii. Seedling Activity

This activity intended to channel knowledge, information and training to students and teachers, about ways to conduct seedling. The participants also had the chance to know the types of plants suitable to be seeded in plastic bag.





2.4 Putrajaya Urban Farming Programme

The Putrajaya Urban Farming Programme was first introduced by the Parks and Landscape Department in January 2014.

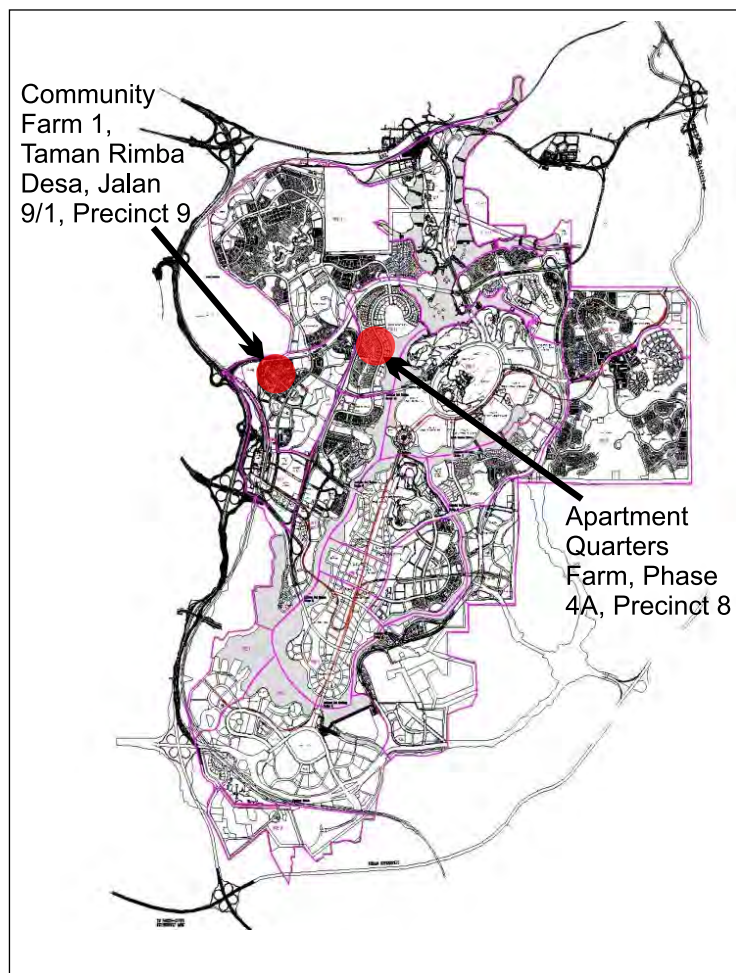
The main objective of this programme is to restructure the management of farms through community farming approach and 'farming credit system', where seed money will be allocated to build structures and other needs to support technology farming. This way is to ensure farming activities create opportunity for farmers while producing more systematic, beautiful and sustainable farm land.

Besides the objective above, Putrajaya has also not confined only to planting trees and hibiscus, but has step up effort to introduce farming by utilising the existing green spaces around neighbourhood areas. This programme is jointly undertaken by Putrajaya Corporation, Malaysia Agriculture Research and Development Institute (MARDI) and Putrajaya Residence Community Corporation Bhd. So far, eight courses and a series of briefing had been conducted by experts from the Horticulture Research Centre of MARDI to the residents participated in this programme.

For a start, two urban farming sites had been identified and they are:

- i. Phase 4A, Precinct 8.
- ii. Jalan P9G, Precinct 9.

Figure 2.1: Community Farming Location at Putrajaya



Source: Parks and Landscape Department, PPj.



Putrajaya Community Farming participants learning fertigation farming technology.



Putrajaya Urban Farming Logo

i. Putrajaya Urban Farming, Site for Chilli Fertigation House, Phase 4A, Precinct 8

This site was launched by Putrajaya Corporation's President on 4 September 2014. The chillies here are planted by 16 members of the Koperasi Komuniti Penduduk Putrajaya Berhad. The type of chilli produced is called 'Kulai King' and there are all together 300 trees.





The chillies can grow up to about 9 inches long, and the trees will start producing after two months old.



The chillies will then be sorted by their quality before being packed and sold to local residents.



The chillies are packed and weighted as one kilogram each, and sold at only RM10 per kilogram, compared to the normal market price at RM17 per kilogram. This locally produced goods can directly reduce the need for vehicular trip and carbon emissions.

The green house built by MARDI also incorporated green technology elements such as rainwater harvesting system.





ii. Putrajaya Urban Farming, Rock Melon Fertigation House Site, Taman Rimba Desa, Precinct 9, Putrajaya

The site at Taman Rimba Desa Precinct 9, Putrajaya was launched by Putrajaya Corporation's President on 26 November 2014. The main produce here is rock melons.

It took three months to grow rock melons and they were sold at RM8 per kilogram to local community and also Putrajaya Lake Club operator.



There are 500 rock melons grown on site by 30 community farming participants.





2.5 Basic Facts

Table 2.1: Public Open Space to 1,000 Population Ratio, Putrajaya

National Urbanisation Policy ⁽¹⁾	Open Space Area: 1,000 population (hectare)				
	2011	2012	2013	2014	2025
	2 hectare				
Putrajaya	25.11 ⁽²⁾	24.15 ⁽³⁾	22.37 ⁽⁴⁾	23.42 ⁽⁵⁾	5.5 ⁽⁶⁾

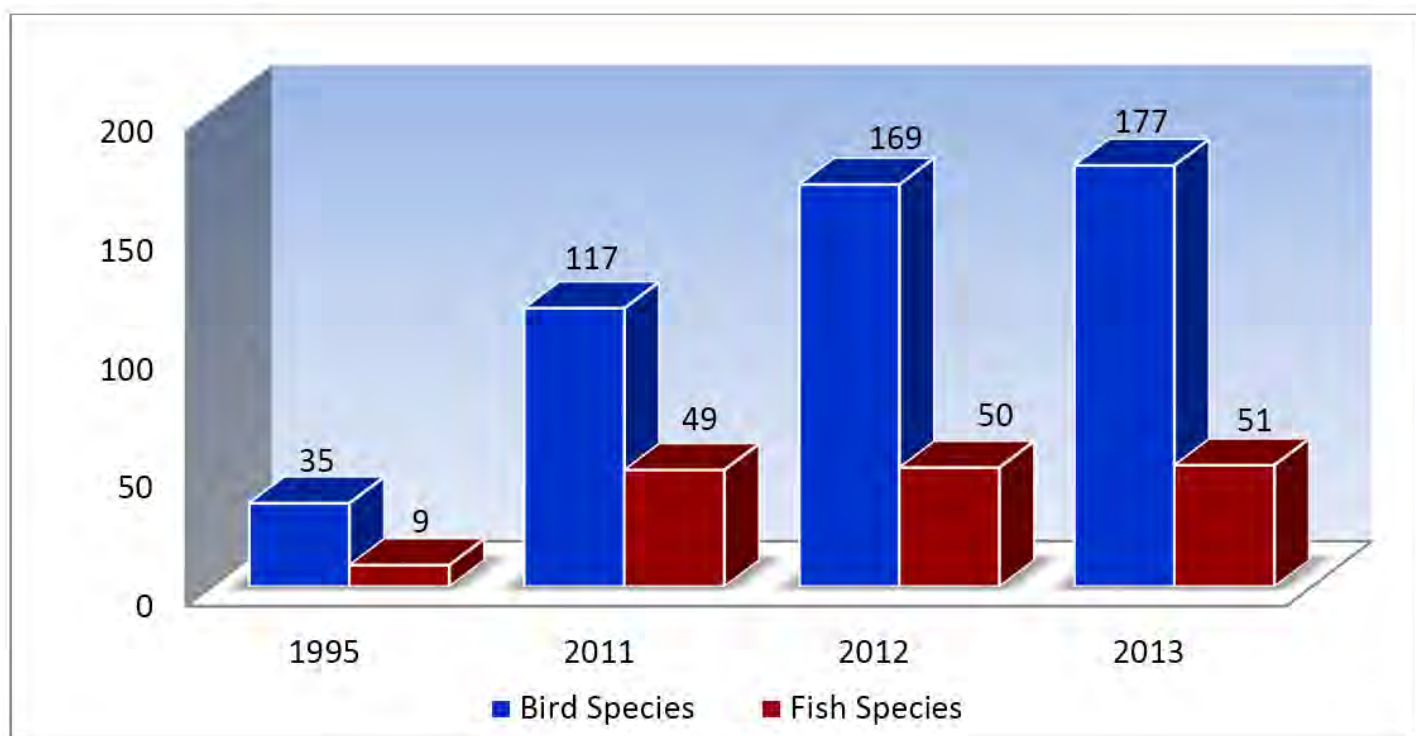
Source:

(1): Target of National Urbanisation Policy, DPN9, Measures (ii).

(2) – (5): Putrajaya City Wellbeing Report 2011-2014.

(6): Estimation based on 347,000 targeted for year 2025.

Chart 2.1: Number of Bird and Fish Species, Putrajaya



Source: Environment, Lake and Wetland Division, PPj.



Table 2.2: Number of Species Found at Putrajaya Lake and Wetland (Up to 2014)

Fauna Species	1995 (EIA)	2007 (Baseline)	2011	2012	2013	2014
Insect	-	21	343	445	767	1271
Amphibian	-	2	5	8	13	13
Reptile	-	5	15	15	14	20
Mammal	24	7	8	11	9	16

Source: Environment, Lake and Wetland Division, PPj.



Notes:



3.0 TRANSPORTATION AND MOBILITY



**PUTRAJAYA
SENTRAL**

SELAMAT



3.0 TRANSPORTATION AND MOBILITY

3.1 Environmentally Friendly Public Bus Service

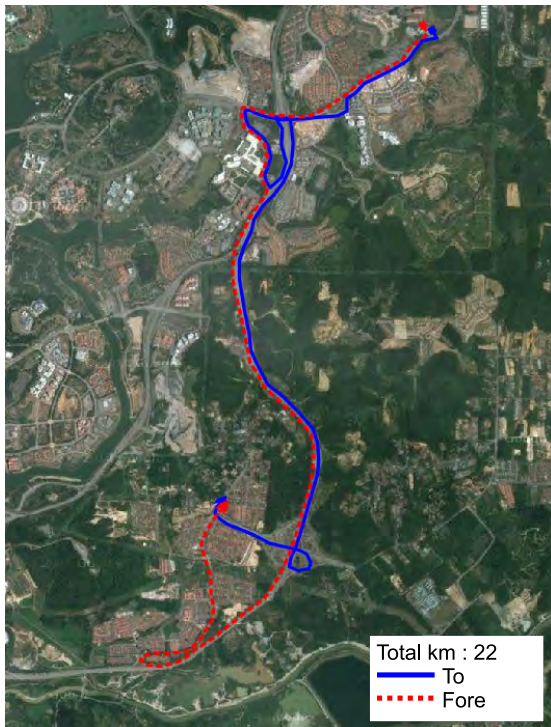
The promotion of low carbon public transportation is still very actively carried out by Syarikat Pengangkutan Awam Putrajaya Sdn. Bhd (PAPSB) through various programmes such as:

i. Inter-city Bus Service

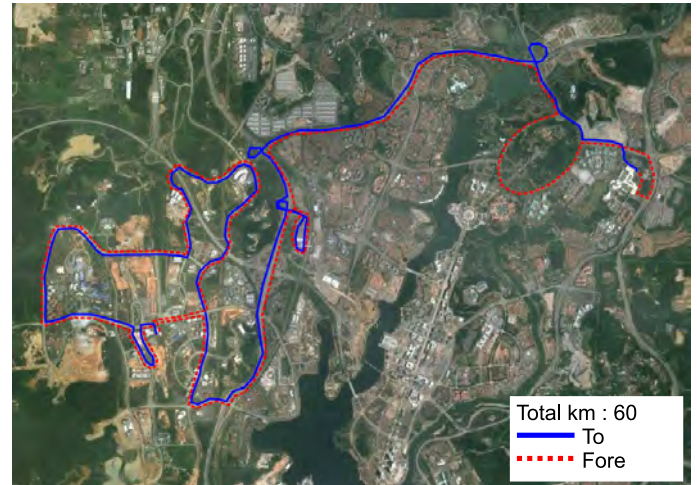
To encourage the use of long distance public transportation, Putrajaya bus service routes were extended to neighbouring cities such as Cyberjaya and Desa Pinggiran Putra. There is one route to Desa Pinggiran Putra that covers 22 kilometres (two ways), while three new routes to Cyberjaya that cover a total of 115 kilometres (two ways).

These additional routes are expected to reduce the number of private vehicle trips between cities, which will in turn bring direct and positive impact to carbon emissions reduction.

Route J01 (Desa Pinggiran Putra)



Route J02 (Cyberjaya)



Route J03 (Cyberjaya)





Route J05 (Cyberjaya)



ii. Intra-city Bus Service

To increase the number of workers in Putrajaya who use buses, direct routes were created to government office complexes and commercial centres during peak hours, from 6.30 morning to 8.30 morning and 4.30 afternoon to 6.30 evening.

Table 3.1: Direct Routes from Home to Offices

No.	Route	Shift	Destination
1	D01	Morning	Putra Harmoni – Complex EDBCA
	D02	Evening	Complex EDBCA – P9G – P9 – P. Sentral
2	D03	Morning	P9F – Phase 12 – P9C/1 – P8H – Complex EDBCA
	D04	Evening	Complex EDBCA – P9F – Phase 12 – P9C/1 – P8H – P8
3	D05	Morning	P9F – P9C/1 – P8H – Persiaran Perdana P2, 3, 4
	D06	Evening	Persiaran Perdana P2, 3, 4 – P8H - P9C/1 – Phase 12 – P9F – P9
4	D07	Morning	P9 – P9B – P9G – Complex EDBCA
	D08	Evening	Complex EDBCA – P9G – P9B
5	D09	Morning	P118 – P11J – Putra Damai – P11 - Complex EDBCA
	D10	Evening	Complex EDBCA – P10 – P11A – P118 – P11J – Putra Damai
6	D11	Morning	P11B – P11J – Putra Damai – P11(Police Station) – Persiaran Perdana P2, 3, 4
	D12	Evening	Persiaran Perdana P4, 3, 2 – PB – P10 – P11A – P118 – P11J – Putra Damai
7	D13	Morning	P14 – P15 – Persiaran Timur – P4, 3, 2
	D14	Evening	Persiaran Timur – P4, 3, 2 – Persiaran Timur – P14 – P15
8	D15	Morning	P5(KPKT) – Complex EDBCA
	D16	Evening	Complex EDBCA – P5
9	D17	Morning	P17 – P16 Complex EDBCA
	D18	Evening	Complex EDBCA – P16 – P17
	D19	Morning	P17 – P18 Gemilang Square – P4, 3, 2
10	D20	Evening	P2, 3, 4 – Gemilang Square – P18 – P17
	D21	Morning	Desa Pinggiran Putra – P5(KPKT) – P4, 3, 2
11	D22	Evening	Alamanda – Complex EDBCA – P2, 3, 4 – P5 (KPKT) – Desa Pinggiran Putra
	D23	Morning	Desa Pinggiran Putra – Complex ABCDE
12	D24	Evening	Complex ABCDE – Desa Pinggiran Putra
	D25	Morning	P. Sentral – Persiaran Perdana P2, 3, 4 – Wisma Putra
13	D26	Evening	P4, 3, 2 – P. Sentral
	D27	Morning	P9F – Phase 12 – P9C/1 – P8H – P2, 3, 4
14	D28	Evening	P2, 3, 4 – P9C/1 – Phase 12
	D29	Morning	P. Sentral – P9 – P11J – Putra Damai – P11D – P11C – P. Sentral
15	D30	Evening	Alamanda – Everly Hotel – Complex ABCDE – Putra Mosque – Persiaran Perdana P2, 3, 4
	D31	Morning	P18 – LP.S – Complex ABCDE
16	D32	Evening	LP.S – P18
	D33	Morning	APT 15 – Taman Rimba – P14 – Complex EDBCA
17	D34	Evening	Complex EDBCA – P14 – APT 15 – Taman Rimba
	D35	Morning	P9B – P9G – Persiaran Perdana P2, 3, 4
18	D36	Evening	Persiaran Perdana P4, 3, 2 – P9B – P9G
	D37	Morning	P9F – Phase 12 – P9C/1 – P8H – P2, 3, 4
19	S01	Morning/Evening	P. Sentral – Complex ABCDE – P. Sentral
	S02	Morning/Evening	P. Sentral – Persiaran Perdana P4 – P5 (KPKT) – P. Sentral
20	S03	Morning/Evening	P18 – Wisma Putra – P18

Source: Pengangkutan Awam Putrajaya Sdn. Bhd.



3.2 Ride Public Bus Campaign and Promotion – Putrajaya Bus Festival (Bus Fest)

Apart from stepping up the quality of existing public bus services, Pengangkutan Awam Putrajaya Sdn. Bhd (PAPSB) also initiated campaign to promote the use of public buses by organising Putrajaya Bus Festival (Bus Fest). This programme which was jointly organised by Malaysia Malay Chamber of Commerce (DPMM) was held from 5 to 7 December 2014, at Putrajaya Sentral Station.



The opening of Putrajaya Bus Festival by Tan Sri Dr. Aseh Che Mat, President of Putrajaya Corporation.

The Putrajaya Bus Festival aimed to:

- i. Instil public awareness on the importance of bus and its function at Putrajaya.
- ii. Encourage the younger generation living in Putrajaya to ride buses.
- iii. Promote Putrajaya Sentral as the public transportation hub for Putrajaya and its surround cities - Cyberjaya, Dengkil and Sepang.

This programme had successfully attracted 30,000 visitors and about 100 entrepreneurs, including online business owners.



The launching of PAPSB's new logo by Tan Sri Dr. Aseh Che Mat, President of Putrajaya Corporation.



The main activities conducted during the Bus Festival include:

- i. Busfest Treasure Hunt.
- ii. “Doodle Art on Bus” – the first ever in Malaysia.
- iii. “Selfie with Putrajaya Bus” Competition.
- iv. Kids Carnival.
- v. Bouncing Castles.
- vi. Movie on Bus.
- vii. Quiz on Bus.
- viii. Treasure Hunt by Bus.
- ix. Putrajaya Bus Logo Competition.
- x. Special programme with Putrajaya Bus.
- xi. Bus exhibition by government agencies such as the Royal Malaysian Polis (PDRM) and the Fire and Rescue Department, Malaysia.
- xii. Bus exhibition by private companies featuring public transportation systems and application.



Online entrepreneur participating in the first ever bus festival held in Malaysia.



This mini theatre with bus seats had attracted many visitors.



Treasure Hunt by bus was also held at Putrajaya Bus Festival. The winning participants received cash rewards.

During the three days Bus Fest celebration, PAPSB had provided free bus rides to the public, to be transported from selected points in Putrajaya to the event site. This was an effort to give the public a chance to experience environmentally friendly bus service at Putrajaya.



3.3 Basic Facts

Chart 3.1: Bus Ridership in Putrajaya



Source: Putrajaya Sustainable City Report 2010 to 2014.

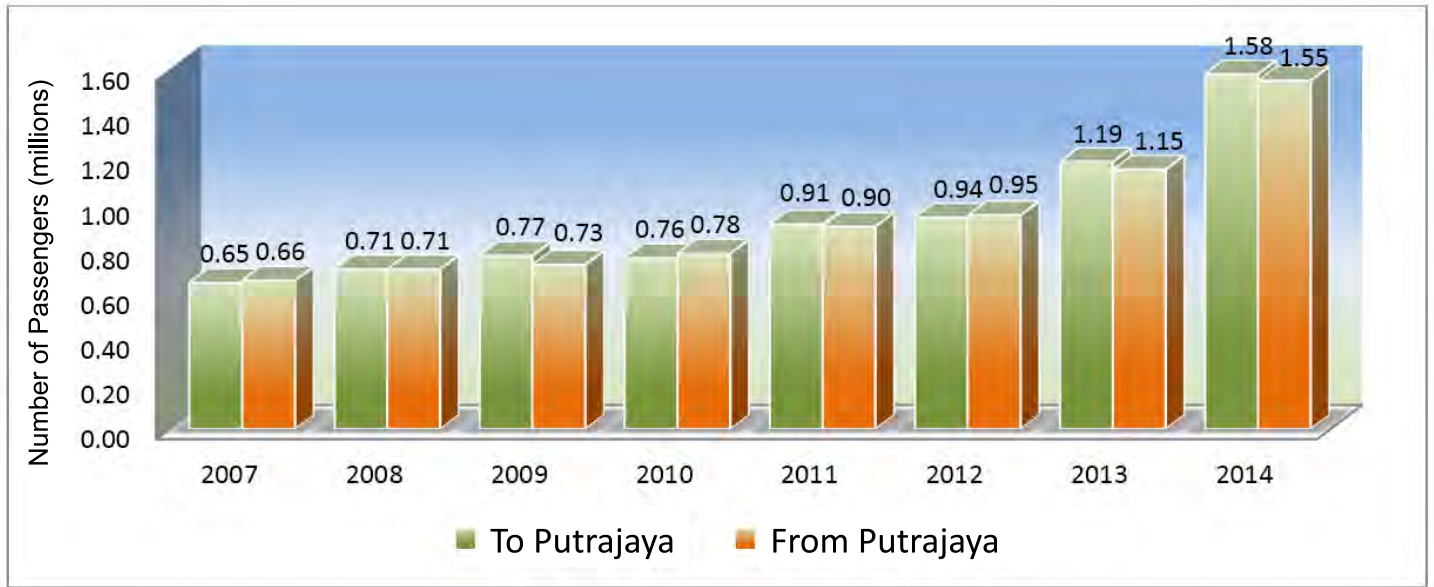
Chart 3.2: Taxi Ridership in Putrajaya



Source: Putrajaya Sustainable City Report 2010 to 2014.



Chart 3.3: Express Rail Link (ERL) Ridership at Putrajaya Sentral Station



Source: Putrajaya Sustainable City Report 2007 to 2014.



Notes:

PERBADANAN PUTRAJAYA



4.0 ENERGY USAGE





4.0 ENERGY USAGE

4.1 Improvement of Energy Efficiency (EE)

Putrajaya Corporation has made efforts to improve energy efficiency at its complex buildings by changing to energy saving light bulbs. This effort has been carried out in phases to retrofit Putrajaya Corporation complex.

LED lights have been put up at the following three locations:

- i. Dewan Seri Siantan (160 units).
- ii. Putrajaya Corporation Complex archway (144 units).
- iii. Putrajaya Corporation Complex courtyard (28 units).



LED lights at Dewan Seri Siantan



LED lights archway, Putrajaya Corporation Complex



LED lights at the Putrajaya Corporation Complex courtyard



4.2 Energy Consumption Data Record and Monitoring

The Building Consumption Input System (BCiS) has been utilised to monitor energy consumption at the Putrajaya Corporation Complex. This system was produced by Malaysian Green Technology Corporation (MGTC) in year 2010. It monitors energy and water consumption in buildings in Malaysia.

BCiS monitors monthly utility bills record. There are three types of utility data being recorded at Putrajaya Corporation Complex, as follow:

- i. Electricity (kWh)
- ii. Gas district cooling (RTH).
- iii. Water (m³).

By applying BCiS, Putrajaya Corporation is able to analyse Building Energy Index (BEI), Building Carbon Index (BCI) and Building Water Index (BWI) for the whole complex. BEI is the index that reflects the level of energy consumption for every building's floor space per metre square. With the BEI record, Putrajaya Corporation is able to compare it's energy usage with other buildings at Putrajaya and in Malaysia.

BCI is the measurement of buildings' level of carbon emissions, based on the total amount of electricity consumption at Putrajaya Corporation Complex in a year. While BWI reflects the level of water consumption for every building's floor space per square metre.

Figure 4.1: Login Screen of Building Consumption Input System (BCiS)

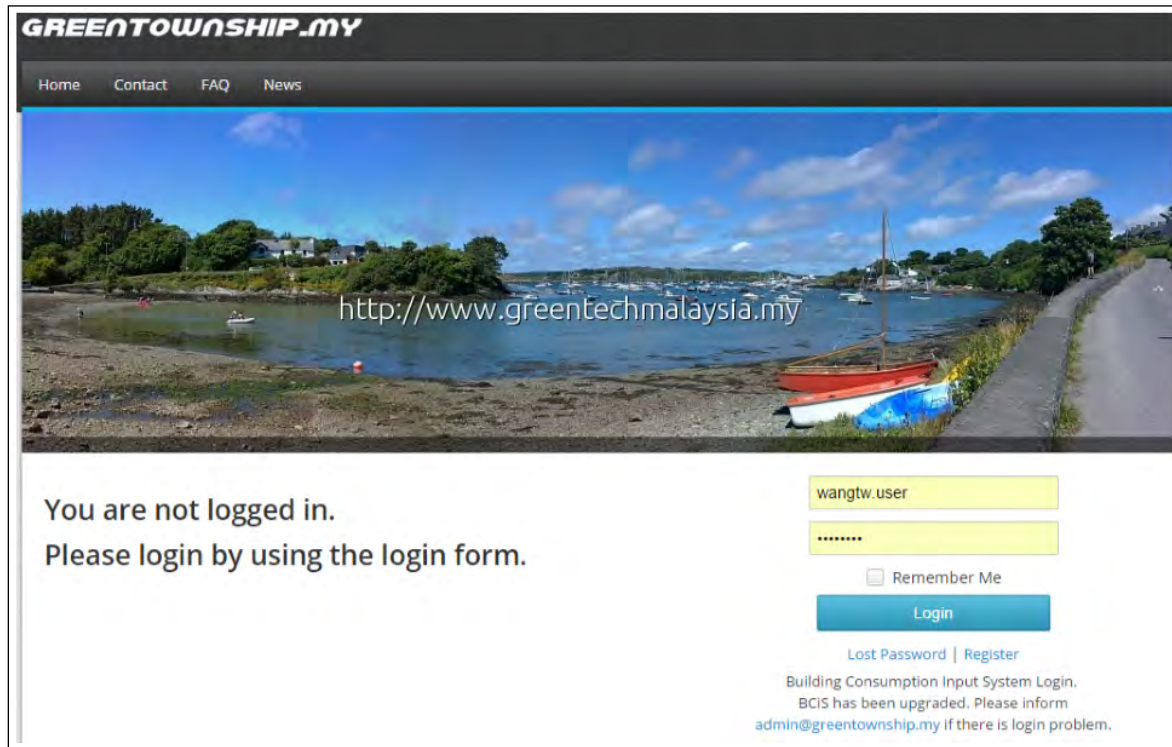


Figure 4.2: Reporting Functions in BCiS

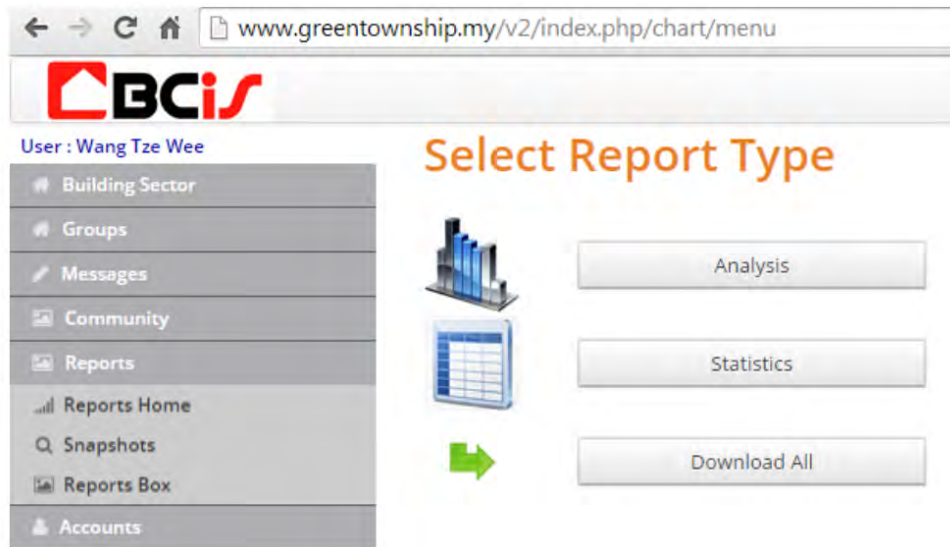


Figure 4.3: Example of Utility Data Records in BCiS

No	Year	Month	Monthly Electricity Consumption (kWh)	Monthly Maximum Demand (kW)	Monthly Energy Variable Charges (RTH)	Monthly Demand Charges (RT)	Monthly Water Consumption (m ³)	Monthly Total Energy Consumption (kWh)	Action
1	2014	January	1076390	8781	659579	0	6720	1558707.144	✎ 🗑
2	2014	February	976488	8781	498220	0	5150	1340811.375	✎ 🗑
3	2014	March	1120410	8781	638322	0	5800	1587182.963	✎ 🗑
4	2014	April	1058430	8781	610787	0	5620	1505067.994	✎ 🗑
5	2014	May	962186	8781	623972	0	7370	1418465.525	✎ 🗑
6	2014	June	1127640	8781	704022	0	6170	1642456.088	✎ 🗑
7	2014	July	1127970	8781	633803	0	8990	1591438.444	✎ 🗑
8	2014	August	1053170	8781	601729	0	8760	1493184.331	✎ 🗑
9	2014	September	1066660	8781	641009	0	8120	1535397.831	✎ 🗑
10	2014	October	1093524.07	8781	640833	0	8780	1562133.201	✎ 🗑
11	2014	November	1092129.34	8781	607596	0	10700	1536433.915	✎ 🗑
12	2014	December	1072654.25	8781	179975	0	9860	1204260.969	✎ 🗑
Average			1068970.97	8781	586653.92	0	7670	1497961.65	
Min			962186	8781	179975	0	5150	1204260.969	
Max			1127970	8781	704022	0	10700	1642456.088	



Chart 4.1: Electricity, Water and GDC Annual Consumption 2012 - 2014

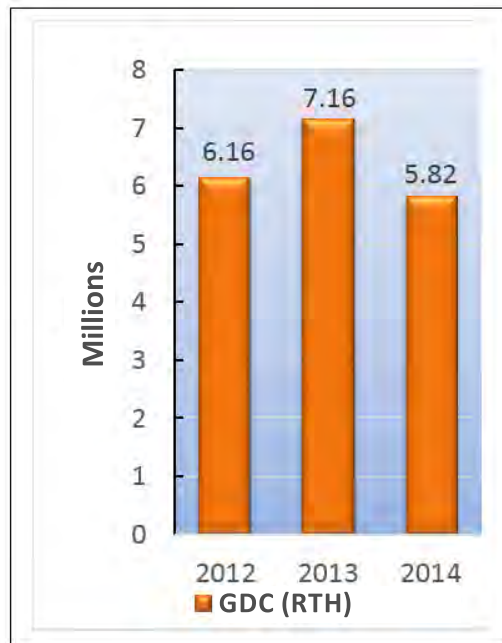
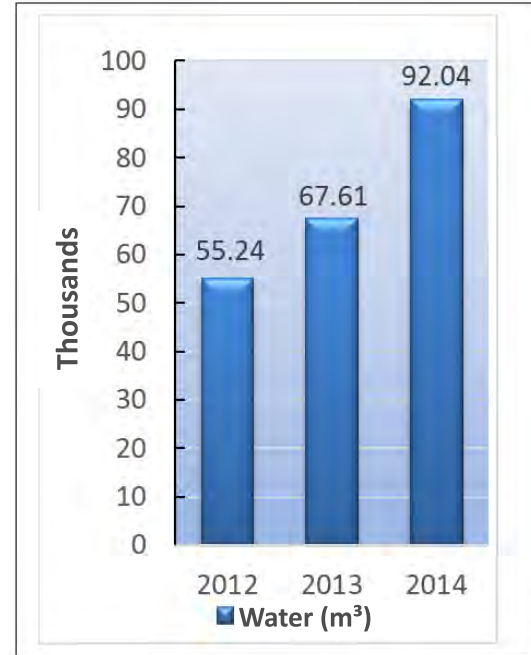
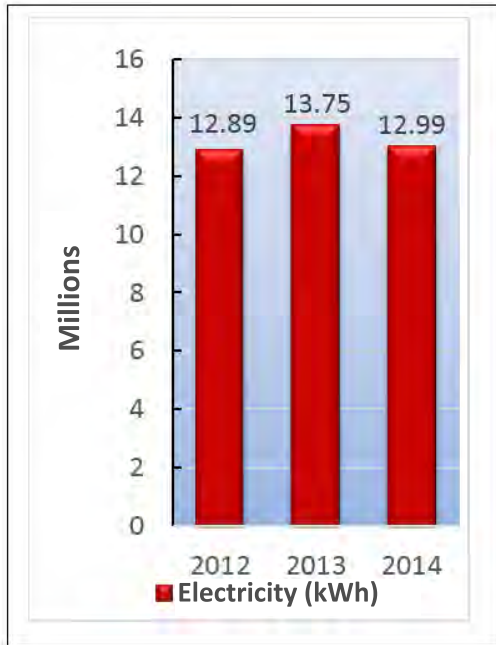


Chart 4.2: Building Energy Index (BEI)

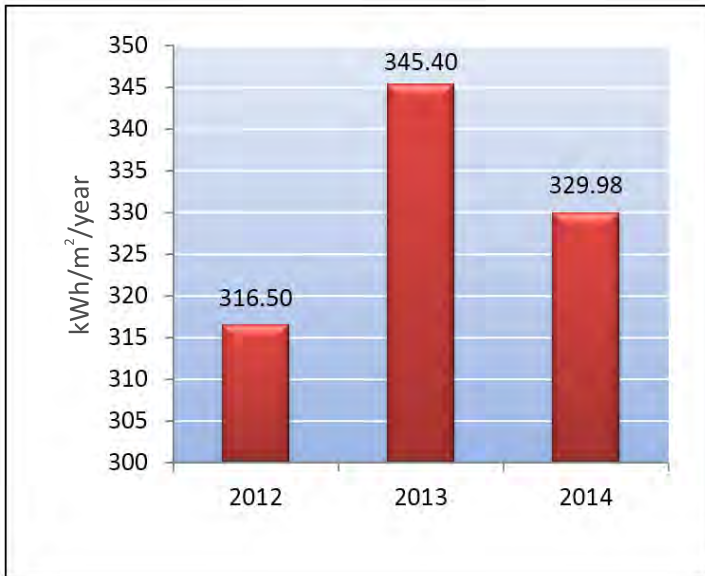


Chart 4.3: Building Carbon Index (BCI)

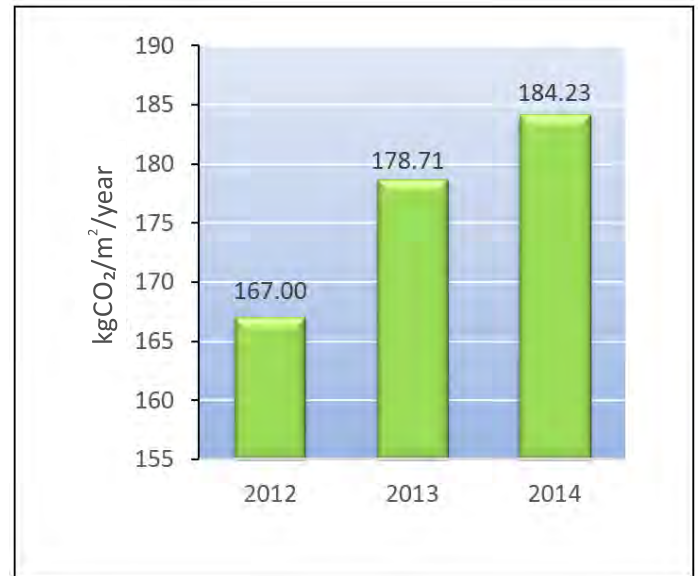
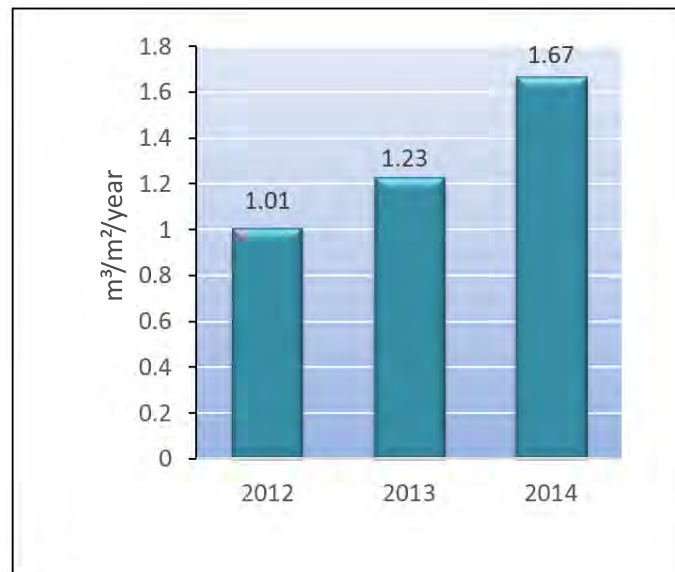


Chart 4.4: Building Water Index (BWI)



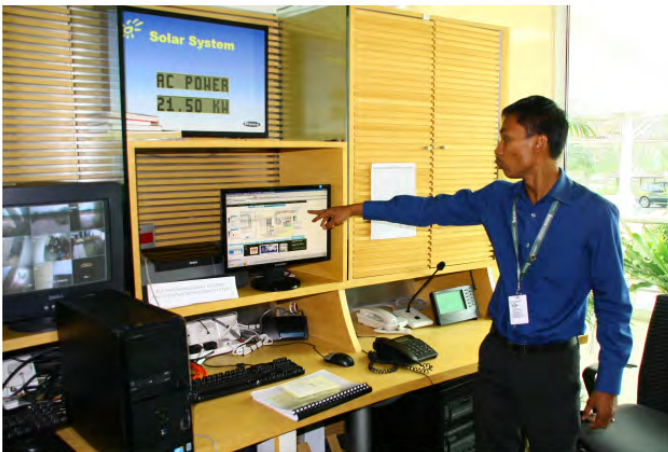


4.3 Study Visits

Green technology industry is constantly updated with latest changes and new technology is being developed swiftly. The members of Putrajaya Green City task force understand the need to be updated with the new development in technology, and to learn from experienced green technology agencies and institutions.

In year 2013 and 2014, a total of four study visits had been organised for the task force's members from various departments under Putrajaya Corporation, to update themselves with knowledge about energy management and renewable energy resources.

Visit to Malaysian Green Technology Corporation, Bangi, Selangor, on 28 May 2013



Visit to Recycle Energy Sdn. Bhd., Semenyih (RESB), Selangor, on 12 September 2013





Visit to GreenXs Factory, Bangi/Kajang and UKM Campus, Bangi, Selangor, on 27 January 2014





Visit to Melaka Green Technology Corporation (PTHM) and Melaka World Solar Valley on 18 November 2014





4.4 Basic Facts

Table 4.1: Total Energy Consumption (kWh) Per Capita in Putrajaya

Items	2012	2013	2014
Total Domestic Electricity Consumption (kWh)	72,519,970	103,640,035.43	125,381,875.00
Population	79,400	80,500	82,200
Total Electricity Consumption Per Capita (kWh)	913.35	1,287.45	1,525.33
kWh/day/capita	2.50	3.53	4.18

Source: Putrajaya Sustainable City Report 2012 to 2014



Notes:



5.0 WATER USAGE





5.0 WATER USAGE

5.1 Lake Water Quality Control Using Floating Aquatic Plants

Maintaining the quality of lake water is one of the focuses of green initiatives in the scope of water usage. Besides using control mechanism such as centralised sewerage system and gross pollutant trap (GPT) to control the lake water quality, other non-mechanical method such as the planting of floating aquatic plants was also applied.

This treatment method for polluted water was chosen because it is cheaper and easier to implement, especially applied at the locations where discharged water from the drains enter into Putrajaya Lake.

Floating aquatic plant is plant that float on water surface with its roots are submerged in water. Some of the floating aquatic species include *Eichhornia crassipes* (Water hyacinth), *Pistia stratiotes* (Water lettuce) and *Nelumbo nucifera* (Sacred lotus).

This programme was carried out by planting floating aquatic vegetation in plant boxes made from Polyvinyl Chloride (PVC) pipes and tied nets. As a start, four inlets location have been identified:

- i) Precinct 2 inlet (Umai Cafe);
- ii) Pond located near Putrajaya Seafood, Botani Garden, Precinct 1;
- iii) Lake Valley (Pond A), Precinct 8;
- iv) Lake Valley (Pond D), Precinct 8.

This floating aquatic plant will absorb contaminants dissolved in water through its root acting as nutrients to the plant. This process will indirectly improve water quality.

These floating plants multiply easily and will have negative impact on to the whole aquatic eco system if it not properly controlled. Therefore, its growth must be managed carefully.



Eichhornia crassipes (Water hyacinth)



Pistia stratiotes (Water lettuce)



Floating aquatic plants is a method to treat discharge from drainage, before it enters into Putrajaya Lake.



Planting boxes, measuring 4 feet x 2 feet were arranged in line at the identified locations.



5.2 Putrajaya Lake Awareness Programme

Besides the effort made by Putrajaya Corporation as the local authority, the local community and individuals have an important role to play in maintaining the lake water quality. To encourage more people to be involved in water resource conservation, Putrajaya Corporation had carried out various community activities and 'Lake and Wetland Eco-hydrology Appreciation' awareness campaign.

In addition, to strengthen the declaration of Putrajaya's lake and wetland as UNESCO-IHP site, that emphasises on three important scientific processes – ecosystem (biotic), hydrology and public participation, a number of activities had been undertaken namely :

- i) Putrajaya Fishing Circuit – four series (March, May, September and December).
- ii) Photography competition themed 'Fauna Diversity'.
- iii) Get to Know and Identification of Birds Programme.
- iv) Putrajaya Lake and Wetland Explorace.
- v) Boat Design Competition (Alternative Energy Resource) using recycled materials.
- vi) Environment Awareness Camp.
- vii) National Young Leaders 'Care for Water' Camp (Central Zone).
- viii) Lake and Wetland Eco-hydrology Appreciation Exhibition in conjunction with:
 - National World Water Day celebration.
 - Fiesta Ruih Sakan, Utusan Malaysia.
 - National World Ocean Day celebration.
 - FLORIA, Putrajaya.

- ix) Knowledge Sharing Programme:
 - Putrajaya Lake and Wetland Management Colloquium.
 - 'Putrajaya Lake Policy Statement' Drafting Workshop.
 - Putrajaya Lake and Wetland Ecosystem Evaluation Forum.
 - Technical briefing to local and foreign delegates (16 delegates including from Singapore, Indonesia, Australia, Sri Lanka and Korea).



'Get to Know and Identify Birds' Programme



Boat Design Competition (Alternative Energy Resource) using recycled materials



National Young Leaders 'Care for Water' Camp (Central Zone)



Putrajaya Lake and Wetland Explorace.



5.3 Basic Facts

Table 5.1: Non Revenue Water Rate in Putrajaya from 2011 to 2014

Year	2011	2012	2013	2014
Total Treated Water Generated (m ³)	19,375,275	21,636,808	23,310,593	24,627,282
Total Consumed Water (m ³)	16,784,325	19,194,568	20,910,175	22,132,761
NRW (m ³)	2,590,950	2,442,240	2,400,418	2,494,521
NRW (%)	13.4	11.3	10.3	10.13

Source: Putrajaya Sustainable City Reports 2011-2014

Table 5.2: Daily Domestic Water Consumption in Putrajaya from 2011 to 2014

Year	Domestic Water Consumption (litre/day/person)		
	Putrajaya ⁽¹⁾	Malaysia	World Health Organisation (WHO) ⁽⁵⁾
2011	351	210 ⁽²⁾	145
2012	258	212 ⁽³⁾	
2013	253	210 ⁽⁴⁾	
2014	295		

Source:

(1) Putrajaya Sustainable City Reports 2011-2014.

(2)-(5) <http://www.span.gov.my/>



Table 5.3: Comparison of River Water Quality Index

Location	River and Lake Water Quality Index			
	2011	2012	2013	2014
Sungai Chuau Inlet	83.8 (Class II)	83.3 (Class II)	81.9 (Class II)	82.3 (Class II)
Lake	93.5 (Class I)	91.5 (Class II)	88.7 (Class II)	90.4 (Class II)
Outlet After Putrajaya Dam	85.0 (Class II)	83.0 (Class II)	85.7 (Class II)	83.94 (Class II)

Source: Environment, Lake and Wetland Division, Putrajaya Corporation.

Table 5.4: Benefits of Using Lake Water as Alternative Water Resource

Description	2010	2011	2012	2013	2014
Approved Annual Intake of Lake Water (litre)	32,484,000	51,664,000	49,640,000	28,876,400	56,194,200
Saving Using Treated Water Resource (RM) ⁽¹⁾	52,885.28	83,179.04	79,920.40	46,491.04	90,472.67
Annual Water Consumption ⁽²⁾	Equals: 438 persons	Equals: 696 persons	Equals: 669 persons	Equals: 389 persons	Equals: 758 persons

Notes:

(1) Based on government department's rate of RM1.61/m³.

(2) Estimated based on Malaysian average daily domestic water consumption (203 litres/person) x 365 days



Notes:



6.0 SOLID WASTE MANAGEMENT





6.0 SOLID WASTE MANAGEMENT

6.1 Used Cooking Oil Collection Programme

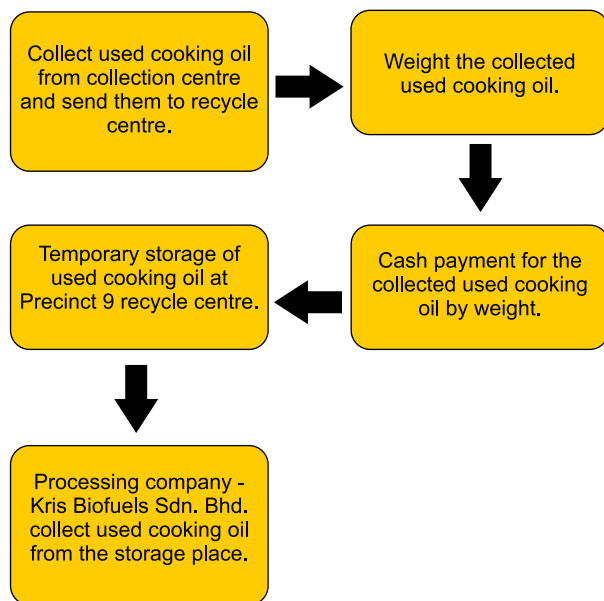
Used cooking oil collection programme has been implemented in Putrajaya since March 2011 by Alam Flora Sdn. Bhd. At the beginning of the programme, the targeted collection area for used cooking oil include service industry areas, food outlets and restaurants, hotels, schools, government office complexes. The collection also involved residents' associations. Alam Flora has offered to purchase the used cooking oil at RM0.80 per kilogramme.

The importance of reusing used cooking oil is that it can be transformed into other useful items such as biodiesel, soap and also products for steel work, hydraulic lubricant and engine oil.

Table 6.1: Used Cooking Oil Collection Location at Putrajaya

No.	Location	Precinct
1.	Hj. Tapah Restaurant	15
2.	Rahman Tahir Kafe Ikhwan Restaurant	5
3.	Nasi Ayam Gemas Restaurant	15
4.	En. Zamani Kopitiam	15
5.	Selera Kita Shop	15
6.	Ali 1 Bistro	15
7.	Hazny Kafeteria	3
8.	Putrajaya Shangri-la Hotel	1
9.	Precinct 18 (1) Secondary School	18(1)
10.	Mislani Trading	14
11.	Precinct 8 (2) Primary School	8(2)
12.	Food Court	11

Figure 6.1: Modus Operandi of Collecting Used Cooking Oil



Container placed at restaurant to collect used cooking oil.



Collection container placed at Putrajaya Shangri-la Hotel.

Ten units of large containers with the capacity of 56kg each were placed at the residential apartment areas of 18R12 and 18R13. The collected used cooking oil is sold to Alam Flora Sdn. Bhd. The money collected from the sale of used cooking oil are channelled back to the KRT and Surau Wahbah Al-Zuhaly's fund.



Used cooking oil collection facilities at Putrajaya Precinct 18 (1) Secondary School.



Used cooking oil recycle containers placed around community areas at 18R12 and 18R13

In June 2012, Putrajaya Precinct 18(1) Secondary School had been chosen to represent Putrajaya in the 2012 National level Toyota Eco Youth Competition. The students' team named Eco Green 18 had selected used cooking oil collection programme as their project. It was launched during the Environment Community Launching event with the cooperation of Precinct 18R12 Kawasan Rukun Tetangga (KRT) and Precinct 18R12 Surau Wahbah Al-Zuhaly's Committee.

Figure 6.2: Used Cooking Oil Containers Placed at 18R12 Apartment Area





The collection and weighing of used cooking oil



The handing over of collected used cooking oil to Alam Flora

The benefit of this programme not only help conserve environment, particularly in reducing pollution to the drainage system due to inappropriate discharge of used cooking oil, it also promote the growth of green economy.

6.2 Innovative Reuse of Solid Waste

i Soap Made from Used Cooking Oil

The students of Eco Green 18 from Putrajaya Precinct 18(1) Secondary School, who have been actively involved in the used cooking oil collection programme, had produced soaps made from used cooking oil and materials found in their school's labs.



The main ingredients of soap production include used cooking oil, Natrium Hydroxide, colouring, water and sugar.





The main ingredients mixture needs to be stirred for 45 to 60 minutes until it thickens.



The end products are soaps of all shapes and sizes.



The coloured liquid will be poured into plastic mould and let cooled at room temperature and then formed into soaps. The soaps will dry up within a week and they need to be kept for a month before use.



The efforts of these students had created green economy for the school, as they received order to produce soaps as souvenirs.



ii. The Eco Drum Group

Putrajaya Precinct 18(1) Secondary School has established the Eco Drum Group with the guidance of the Children's Environmental Heritage Foundation (YAWA) Eco Drum Circle. The uniqueness of this activity is to turn used items into musical instruments. The Eco Drum Group's motto is 'Music can be produced by anything'. This is in line with the purpose of making music from used items and to spread environmental conservation messages to the community.



Musical instruments such as drums are made of garbage bin, bucket, cooking pot; drum sticks are made of sweepers and flag rods; xylophone from glass bottles, plastic bottles; Gendang from biscuit tin and maracas from drink can.

The Eco Drum Group is often invited to perform at events in Putrajaya such as the Environment Week, Recycle Day organised by Putrajaya Member of Parliament, Santai @ Gemilang Programme and Innovation Trail Programme.



The Eco Drum Group has a total number of 20 students in the group.



The performance during Santai @ Gemilang Programme



6.3 3R Boutique

The 3R Boutique facility is another initiative to reduce community solid waste by Alam Flora. This facility is located at Precinct 9, Putrajaya, beside the existing Community Recycle Centre. The 3R Boutique started its operation on 1 November 2014, and operated from 8:30 morning to 5:30 afternoon.



The performance during Putrajaya Innovation Trail Programme and Unity Carnival on 23-24 June 2012 at Putrajaya Precinct 18(1) Secondary School's hall.



The People Feast (Majlis Kenduri Rakyat) organised by Putrajaya Member of Parliament and Putrajaya Corporation at Community Centre, Precinct 9, Putrajaya.



3R Boutique at Precinct 9, Putrajaya.

The purpose of this boutique is to gather used clothes from Putrajaya's residents and sell them at lower price. Cash collected from the sales are donated to charities.

The facility to collected used clothes had started two years ago. However, at that time, only a part of the existing Community Recycle Centre was used. Due to the good response from residents, larger space was needed to keep up with the increasing amount of donated clothes.

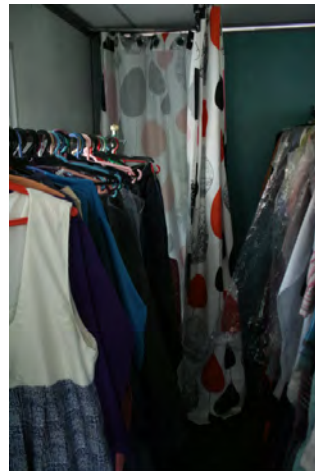


The previous 3R Boutique shared its space with the Community Recycle Centre.



The new dedicated building for the facility of 3R Boutique has more space and can receive more clothes donated by the residents.

With the new dedicated building for 3R Boutique, additional facility such as fitting room can be allocated. This improvement has attracted more customers.





6.4 Food Waste Composting Programme for Community Farming

This composting project has been carried out by the students of Putrajaya Precinct 9(1) Secondary School, Putra Rangers Odyssey Group (PRO). This project is one of the Toyota Eco Youth Projects jointly organised by UMW Toyota Motor Sdn. Bhd., Putrajaya Corporation, Solid Waste and Public Cleansing Management Corporation (SWCorp), Universiti Putra Malaysia (UPM), MARDI and Ministry of Federal Territories.

The PRO students have selected Putra Harmoni Apartment, Precinct 9, Putrajaya, as the project site, with the involvement of the local resident associations.

The objectives of the composting project are to:

- i. Educate Putra Harmoni Apartment's community on how best to recycle food waste through composting;
- ii. Partner community with other agencies on the best practices of food waste recycling;
- iii. Increase the knowledge of Putra Harmoni Apartment's residents and their participation in Local Agenda 21.

The target of this project is to produce 50kg compost from food waste and to reuse it at Putra Harmoni Apartment's farm site. To achieve this target, at least 150kg of food waste need to be collected.



The food waste collection activity started off by providing a small container to each house participated in this programme.



The collected organic waste were then weighted and recorded. The recorded data showed that average solid waste generated at each household is 1.95kg per day.



The collected food waste must first be cleaned.



Composters provided by SWCorp.



Rainwater harvesting facility is provided at the composting site.



Composters are then filled with earth and decomposing materials. Water is added to the earth to maintain moisture.



The collected food waste were then put into the composters and mixed with earth layers and decomposing materials.



For the purpose of analysis, the students of PRO took the temperature of the compost after eight weeks.



The compost samples were sent to MARDI's lab to be analysed for the content of Nitrogen, Potassium and Phosphorus, as part of the study on compost quality.



6.5 Basic Facts

Table 6.2: Recycle Rate in Putrajaya from Year 2011 to 2014

Year	Total Solid Waste (kg) ⁽¹⁾	Total Collected Recycle Materials (kg) ⁽²⁾	Recycle Rate (%)	Malaysia Recycle Rate ⁽³⁾
2011	17,756,000	1,567,611	8.8	10.5
2012	26,426,000	1,992,111	7.5	
2013	26,687,520	2,212,303	8.3	
2014	27,757,460	2,219,404	8.0	

Source:

(1) & (2) Malaysia Sustainable Cities Reports 2011-2014

(3) National Solid Waste Management Department.

Table 6.3: Domestic Solid Waste Generation Rate in Putrajaya

Year	Putrajaya ⁽¹⁾			Malaysia ⁽²⁾ (kg)
	Domestic Solid Waste (kg)	Total Population	kg/capita/day	
2011	17,756,000	76,400	0.369	1.17
2012	15,327,080	79,400	0.529	
2013	16,012,512	80,500	0.544	
2014	16,654,476	82,200	0.555	

Source:

(1) Malaysia Sustainable Cities Reports 2011-2014

(2) National Solid Waste Management Department.



Notes:



7.0 CITY ADMINISTRATION AND MANAGEMENT





7.0 CITY ADMINISTRATION AND MANAGEMENT

7.1 Healthy Life Style

i. Friendly Walk with Putrajaya Corporation's President Programme

Putrajaya Corporation as the local authority, has always played active role in encouraging healthy and low carbon life style among Putrajaya's residents. In August 2012, Putrajaya Corporation's top management has initiated the Friendly Walk with Putrajaya Corporation's President Programme, aiming to turn Putrajaya into a walkable city.

This programme is conducted weekly on every Wednesday for two hours with the walking distance of between five to nine kilometres in areas around Putrajaya. It not only promotes a healthy lifestyle, but also encourage appreciation of the beautiful scenery and surroundings of Putrajaya.

Putrajaya Corporation welcomes the participation of residents and working population in Putrajaya to this friendly walk programme.



The friendly walk programme started with warming up exercises.



While walking, Putrajaya Corporation's officials observed the cleanliness of the surrounding places.



Officials mingled with the residents during the programme.



ii. Fun Walk @ Putrajaya Programme

Fun Walk @ Putrajaya Programme (Langkah Ceria @ Putrajaya) was first held on 20 January 2013. This programme aimed to promote healthy lifestyle among residents and to make Putrajaya City Centre lively on Sunday. The participation for this activity is open to all and is well received by the local residents, schools and people living surrounding Putrajaya.



Fun Walk @ Putrajaya Programme is held on every third Sunday of the month at Dataran Putrajaya, Precinct 3. It starts at 7.00 am and usually lasted for about four hours.



This programme successfully attracts the participation of school children and families.



iii. Cycling Programmes at Putrajaya

Besides walking, cycling is also considered a low carbon lifestyle practice. In Putrajaya, numerous cycling programmes were held year long.

The organisation of cycling programmes indirectly supports one of the sub-actions of PGC225, which is to encourage low carbon vehicles usage. Besides that, cycling is also a recreational activity at Putrajaya.

Putrajaya has been planned with cycling infrastructure at the city centre and residential areas. These have given a strong foundation for the implementation of bikeable city programme.

Various programmes had been carried out to promote cycling activities among Putrajaya communities. One of the programmes is Putrajaya Inter Parks Ride (PIPR) which was first held in May 2010. Another is Fun ride@Putrajaya (Kayuhan Ceria@Putrajaya) held since January 2013 on every fourth Sunday of the month.



Fun Ride@Putrajaya Programme (Program Kayuhan Ceria@Putrajaya)





Putrajaya Inter-park Ride Programme



Bicycle lane facilities around Putrajaya





7.2 Awards and Accolades

Throughout years 2013 and 2014, Putrajaya Corporation had received numerous recognitions for efforts and initiatives carried out, namely;

1. Sustainable City Awards 2012 through MURNInets Programme, Ministry of Urban Wellbeing, Housing and Local Government.
2. Sustainable City Awards 2013 through MURNInets Programme, Ministry of Urban Wellbeing, Housing and Local Government.
3. Appreciation for the Implementation of Green Neighbourhood Initiatives, for the category of rainwater harvesting and reuse system (SPAH), Ministry of Urban Wellbeing, Housing and Local Government (2013)
4. Malaysia Landscape Architect Awards (MLAA) 2012 Green City Awards: Excellence Award for Ecohydrology Management of Lake and Wetland in Putrajaya Urban Ecosystem.
5. Malaysia Landscape Architect Awards (MLAA) 2012 Green City Awards: Honorary Awards for:
 - a) Putrajaya Healthy Parks Healthy People, Putrajaya Inter-parks Ride (PIRR).
 - b) Putrajaya Botanical Garden.
 - c) Putrajaya Community Farming.
 - d) Putrajaya Pancarona Park.
6. MIP Excellence Awards 2014 (Special Mention), Community Based Planning Award (Putrajaya Sustainable Recycling Practice Through Community Participations)
7. Participation in the 19th Conference of the Parties (COP19), United Nation Framework Convention of Climate Change (UNFCCC) Side Events, 15 November 2013.
8. Participation in the 20th Conference of the Parties (COP20), United Nation Framework Convention of Climate Change (UNFCCC) Side Events, 6 December 2014.



Sustainable City Award 2012



Recognition for the Implementation of Green Neighbourhood Initiatives for SPAH



Malaysia Landscape Architect Awards (MLAA) 2012
Green City Awards: Excellence Award for
Ecohydrology Management of Lake and Wetland in
Putrajaya Urban Ecosystem.



The 19th Conference of the Parties (COP19), United
Nation Framework Convention of Climate Change
(UNFCCC) Side Events, 15 November 2013.



The 20th Conference of the Parties (COP20), United Nation
Framework Convention of Climate Change (UNFCCC) Side
Events, 6 December 2014.



Notes:

PUTRAJAYA GREEN CITY COMMITTEES LIST, PUTRAJAYA CORPORATION

PATRON:

Tan Sri Dato' Seri (Dr) Aseh Bin Hj. Che Mat, President, Putrajaya Corporation.

CHAIRMAN:

YBhg. Dato' Omairi Bin Hashim, Vice President (City Planning) City Planning Department.

COMMITTEE MEMBERS:

Mdm. Salmah Binti Salman
Director
Sustainable Development Division,
City Planning Department.

Mr. Shamsul Bahrin Bin Rahmat
Director
Building Inspectorate and Architecture Division,
City Planning Department.

(Ir.) Ahmad Zubir Bin Sopian
Director
Environment, Lakes and Wetland Division,
City Planning Department.

(Ir.) Marzuki Bin Abdullah
Director
Road Division,
Engineering and Maintenance Department.

Tuan Hj. Jalani Bin Abdullah
Director
Project Management Division,
City Development Department.

Mr. Mohd Suzilan Bin Sahak
Principle Assistant Director,
Mechanical and Electrical Engineering Services,
City Development Department.

Mdm. Norieh Binti Mat
Director
Parks and Recreation Division,
Landscape and Park Department.

Mr. Abdul Aziz Bin Buang
Director
Landscape Management and Control,
Landscape and Park Department.

Mr. Mustafa Kamal Bin Ismail
Senior Principle Assistant Director,
Horticulture and Wildlife Section,
Landscape and Park Department.

Dr. Azali Bin Sulaiman
Director
Environmental Health,
City Services Department.

Mr. Shamshul Joehari Bin Zainal Mokhtar
Director
Commercial, Business Development and Licensing,
City Services Department.

Mr. Kamaruddin Bin Dolmat
Director
Strategic Management Division,
Corporate Services Department.

Putrajaya Local Agenda 21 Section
Sustainable Development Division,
City Planning Department.

Secretariat:

Mr. Azhar Bin Othman
Ms. Wang Tze Wee
Mdm. Norhatini Binti Idris
Mr. Megat Sharul Badri Megat Mohd Nor

LIST OF APPRECIATIONS

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Jaya,
75450 Ayer Keroh, Melaka.

Sustainable Energy Development Authority Malaysia (SEDA)

Level 9, PJH Galeria, Jalan P4W,
Persiaran Perdana, Precinct 4,
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Universiti Kebangsaan Malaysia

Campus (Ukm), Bangi, Selangor
Jalan Reko, 43600 Bangi,
Selangor.

Putrajaya Public Transportation Sdn. Bhd. (PAPSB)

Depo Bas Nadi Putra,
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62250, Putrajaya

Alam Flora Sdn. Bhd.

Level 4, Wisma DRB-HICOM,
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Persiaran MARDI-UPM,
43400 Serdang, Selangor.

Malaysian Green Technology Corporation (MGTCM)

No. 2 Jalan 9/10
Persiaran Usahawan, Seksyen 9,
43650 Bandar Baru Bangi Selangor.

Green Building Index (GBI)

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59000 Kuala Lumpur

Recycle Energy Sdn. Bhd Semenyih (RESB)

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Pejabat Pos Semenyih,
Semenyih, Selangor.

Greenxs Sdn. Bhd.

Batu 2 1/2 Jalan Reko,
Bangi, Kajang, 43000 Selangor

Putrajaya Residents` Community Corporation Bhd.

Blok D, Phase 4B, Precinct 8,
62250 Putrajaya.

Putrajaya P8(1) Secondary School

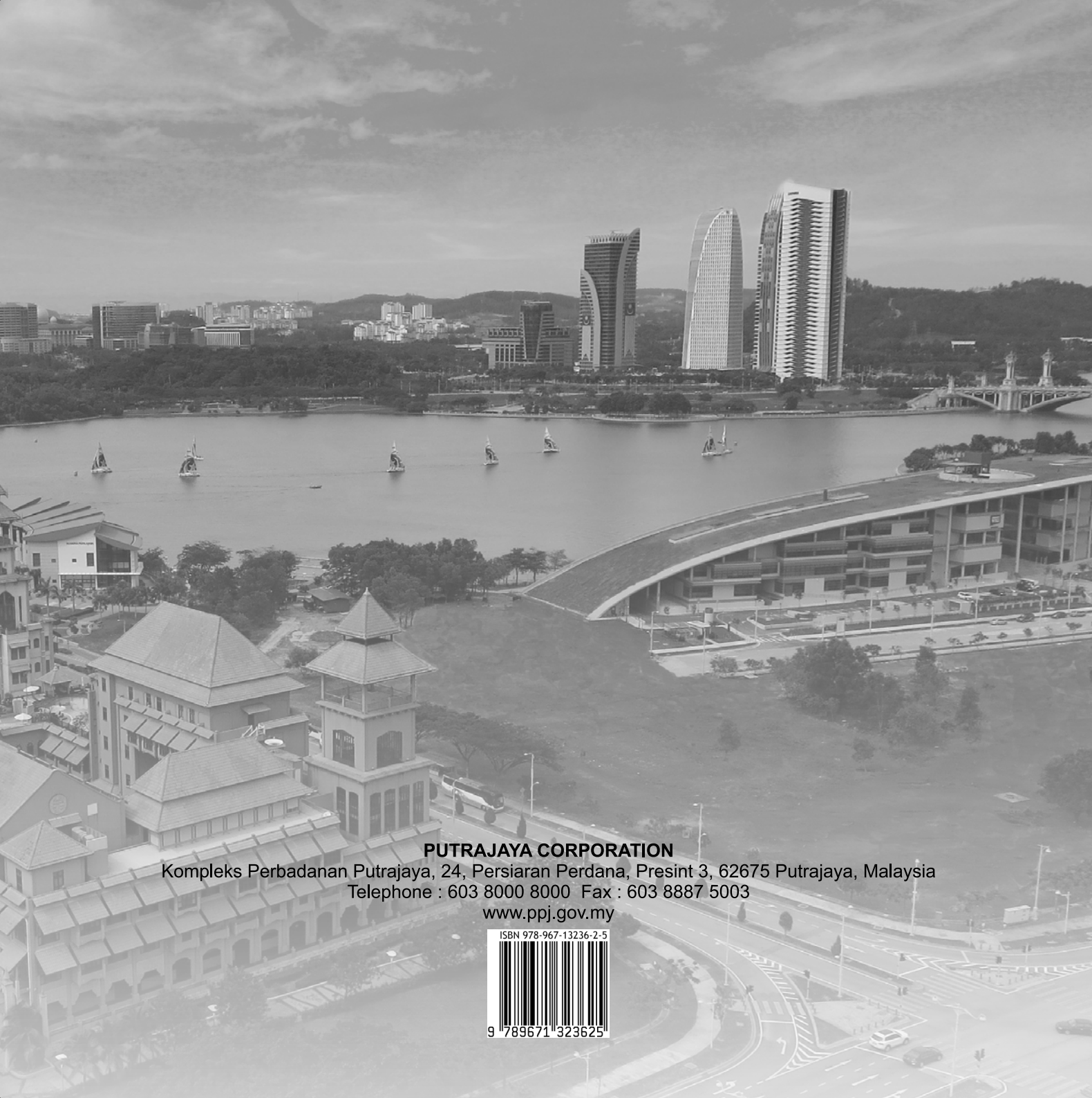
No.4, Jalan P8, Precinct 8,
62250 Putrajaya

Putrajaya P9(1) Secondary School

Jalan P9F, Precinct 9,
62250 Putrajaya

Putrajaya P18(1) Secondary School

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