



EARTHCHECK

# BENCHMARKING ASSESSMENT REPORT

COMMUNITY BENCHMARKING

**COMMONWEALTH OF DOMINICA**  
ROSEAU, DOMINICA




**REPORT DATE: 1 August 2011**

Benchmarking Data Collection Period: 1 January 2009 – 31 December 2009

*The planet deserves more than half measures*

## OVERVIEW

This annual assessment of **Commonwealth of Dominica** was undertaken against EarthCheck benchmarking indicators and checklists developed for EarthCheck and listed below. They have been carefully selected to track performance in key areas of environmental and social performance impact. The lead agency responsible for collection, collation and authorisation of the information required by the indicators was the **Ministry of Tourism and Legal Affairs**.

		Indicator Measure (Benchmark)
1	Sustainability Policy	Policy is produced and in place <sup>1</sup>
2	Energy Consumption	Energy Consumption (GJ /Person Year) <sup>2</sup>
		Green Power (%) <sup>3</sup>
3	Greenhouse Gas (CO <sub>2</sub> ) Production	Greenhouse Gas Emissions (Scope 1 and Scope 2) (t / Person Year) <sup>2</sup>
		Greenhouse Gas Emissions breakdown by scope (t / Person Year) <sup>2</sup>
4	Potable Water Consumption	Potable Water consumed (kL / Person Year) <sup>2</sup>
		% of total potable water consumed that is recycled / from captured sources (%) <sup>3</sup>
5	Waste Sent to Landfill	Waste Sent to Landfill (t / Person Year) <sup>2</sup>
		% of total waste produced that is recycled / reused / composted (%) <sup>3</sup>
6	Air Quality	Nitrous Oxides Produced (kg / Person Year / Area) <sup>4</sup>
7	Air Quality	Sulphur Dioxide Produced (kg / Person Year / Area) <sup>4</sup>
8	Air Quality	Particulate Matter Produced (kg / Person Year / Area) <sup>4</sup>
9	Waterways Quality	Tested waterways samples passing quality guidelines pa / Total number of waterways samples tested pa
10	Habitat Conservation (Biodiversity)	Area set aside for conservation of native species (ha) / Total community area (ha)
11	Green Space	Green Space Area of Community (ha) / Total community area (ha)
12	Travel & Tourism Accreditation	Environmentally accredited operators / Total number of operators in the community

<sup>1</sup> Produced by the lead agency after consultation with the community and consensus

<sup>2</sup> Person year is equivalent to 365 person days. Earthcheck Communities must also allow for both resident and transient (tourist) populations in indicators assessed on a per person year basis. Tourist activity is classified into an "overnight stay" or "day tripper". An overnight stay is counted the same as a permanent resident, that is, 1 person day. A day tripper is counted as 0.333 person day.

<sup>3</sup> These indicators are for guidance only and do not affect the overall benchmarking evaluation.

<sup>4</sup> Primary assessed impacts on air quality are emissions due to electricity consumption, vehicular transport, industrial processes and mining. The levels are calculated on a per unit area basis using total emissions and total bounded area of the Community, including waterways. The data is then normalized against the average number of person years per area of the country.

EarthCheck® is a registered trademark of Earthcheck Ptv Ltd.

---



---

**Indicator Measure (Benchmark)**


---



---

Lead Agency Performance

---

<b>13</b>	Water Saving	Water Saving (Checklist Rating) <sup>5</sup>
<b>14</b>	Waste Recycling	Waste Recycling (Checklist Rating) <sup>5</sup>
<b>15</b>	Paper Products	Paper Product types used (Checklist rating) <sup>5</sup>
<b>16</b>	Cleaning Products	Cleaning Product types used (Checklist rating) <sup>5</sup>
<b>17</b>	Pesticide Products	Pesticide Product types used (Checklist Rating) <sup>5</sup>

---



---

<sup>5</sup> Produced by the lead agency

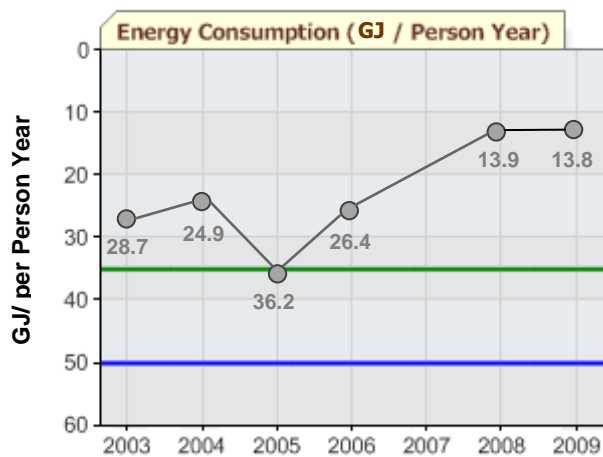
# COMMUNITY PERFORMANCE BENCHMARKS

**Current performance:** Below Baseline \* At or above Baseline ✓ At or above Best Practice ★

## 1. Sustainability Policy ★

## 2. Energy

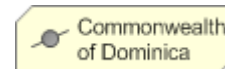
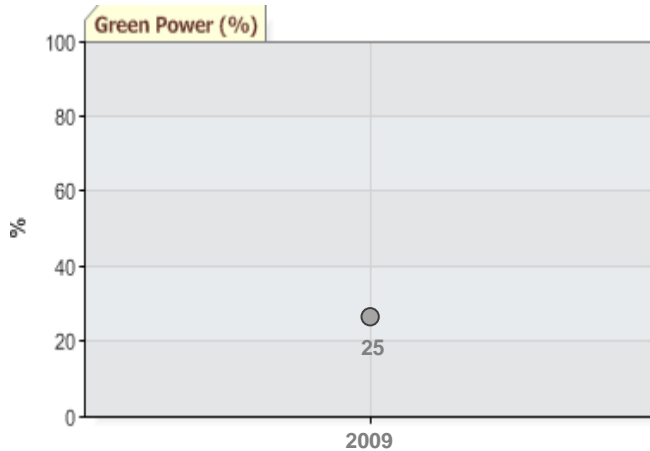
### Energy Consumption (GJ / Person Year) ★



Energy Consumption (GJ / Person Year) for the year 2009 (1 January 2009 - 31 December 2009) was 13.8 GJ / Person Year, which was 60.6% better than the Best Practice level.

\*2007 data for Energy Consumption is not available.

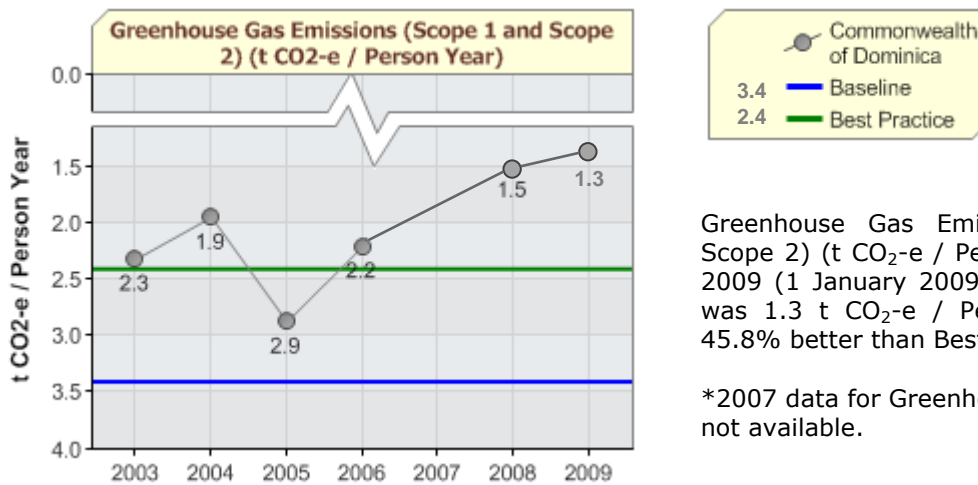
### Green Power (%)



Green Power (%) for the year 2009 (1 January 2009 - 31 December 2009) was 25.0%.

### 3. Greenhouse Gas (CO<sub>2</sub>) Production

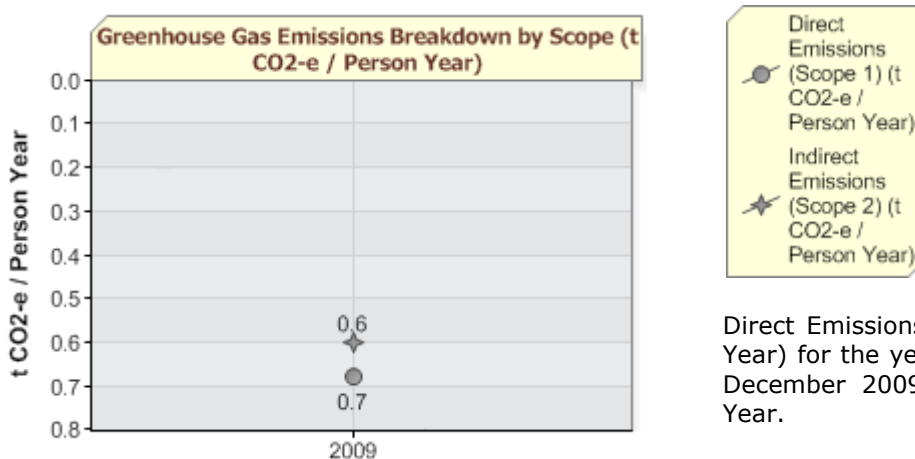
#### Greenhouse Gas Emissions (Scope 1 and Scope 2) (t CO<sub>2</sub>-e / Person Year) ★



Greenhouse Gas Emissions (Scope 1 and Scope 2) (t CO<sub>2</sub>-e / Person Year) for the year 2009 (1 January 2009 – 31 December 2009) was 1.3 t CO<sub>2</sub>-e / Person Year, which was 45.8% better than Best Practice level.

\*2007 data for Greenhouse Gas Emissions is not available.

#### Greenhouse Gas Emissions Breakdown by Scope (t CO<sub>2</sub>-e / Person Year)



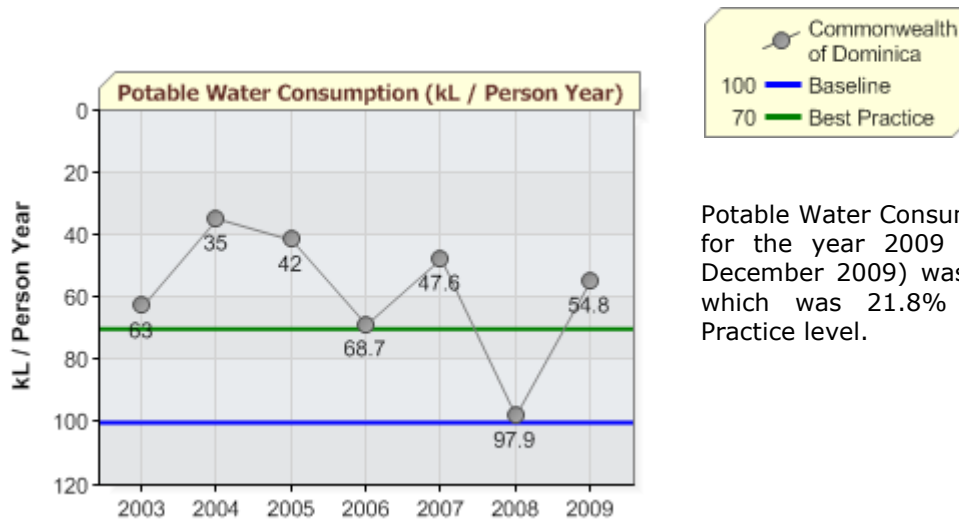
Direct Emissions (Scope 1) (t CO<sub>2</sub>-e / Person Year) for the year 2009 (1 January 2009 – 31 December 2009) was 0.7 t CO<sub>2</sub>-e / Person Year.

Indirect Emissions (Scope 2) (t CO<sub>2</sub>-e / Person Year) for the year 2009 (1 January 2009 – 31 December 2009) was 0.6 t CO<sub>2</sub>-e / Person Year.

<b>Direct Emissions (Scope 1)</b>								
<b>Stationary Fuel Combustion</b>								
Type	Quantity	Unit	Energy Consumption (MJ)	CO <sub>2</sub> Emission Estimate (t CO <sub>2</sub> -e)	CH <sub>4</sub> Emission Estimate (t CO <sub>2</sub> -e)	N <sub>2</sub> O Emission Estimate (t CO <sub>2</sub> -e)	Total Emission Estimate (t CO <sub>2</sub> -e)	
Diesel	3942115	gallons (UK)	651938048.9	48308.6	136.9	121.3	48566.8	
subtotal			651938048.9	48308.6	136.9	121.3	48566.8	
<b>Mobile Fuel Combustion (road)</b>								
Diesel	18960	gallons (UK)	3135561.9	232.3	0.3	3.8	236.4	
subtotal			3135561.9	232.3	0.3	3.8	236.4	
<b>TOTAL</b>			<b>655073610.8</b>	<b>48541.0</b>	<b>137.2</b>	<b>125.1</b>	<b>48803.2</b>	
<b>Indirect Emissions (Scope 2)</b>								
<b>Purchased Electricity</b>								
Quantity	Unit	% Green Power	Provider	Energy Consumption (MJ)	CO <sub>2</sub> Emission Estimate (t CO <sub>2</sub> -e)	CH <sub>4</sub> Emission Estimate (t CO <sub>2</sub> -e)	N <sub>2</sub> O Emission Estimate (t CO <sub>2</sub> -e)	Total Emission Estimate (t CO <sub>2</sub> -e)
23156000	Kilowatt hour (kWh)	100	OTHER LATIN AMERICA	83361600.0	0.0	0.0	0.0	0.0
69565000	Kilowatt hour (kWh)	0	OTHER LATIN AMERICA	250434000.0	40626.0	2137.7	427.1	43190.8
subtotal			333795600.0	40626.0	2137.7	427.1	43190.8	
<b>TOTAL</b>			<b>333795600.0</b>	<b>40626.0</b>	<b>2137.7</b>	<b>427.1</b>	<b>43190.8</b>	
<b>Greenhouse Gas Emissions (Scope 1 and Scope 2)</b>								
<b>GRAND TOTAL</b>			<b>988869210.8</b>	<b>89166.9</b>	<b>2274.9</b>	<b>552.2</b>	<b>91994.0</b>	

## 4. Water

### Potable Water Consumption (kL / Person Year) ★



Potable Water Consumption (kL / Person Year) for the year 2009 (1 January 2009 – 31 December 2009) was 54.8 kL / Person Year, which was 21.8% better than the Best Practice level.

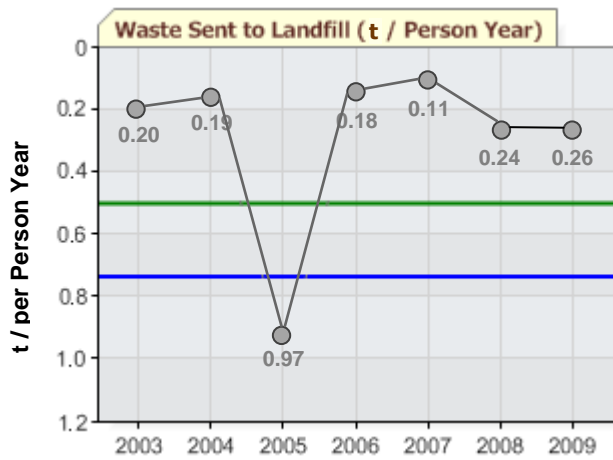
Quantity	Unit	Potable Water Consumption (kL)
865586659	gallons (UK)	3935043.5 kL
	<b>Totals:</b>	<b>3935043.5 kL</b>

### Recycled (%) / Captured Water (%)

No data submitted.

## 5. Waste

### Waste Sent to Landfill (t / Person Year) ★



Waste Sent to Landfill (t / Person Year) for the year 2009 (1 January 2009 – 31 December 2009) was 0.26 t / Person Year, which was 48% better than the Best Practice level.

Quantity	Unit	Waste Sent to Landfill (t)
11965870	kilograms (compacted)	11965.9 t
	<b>Totals:</b>	<b>11965.9 t</b>

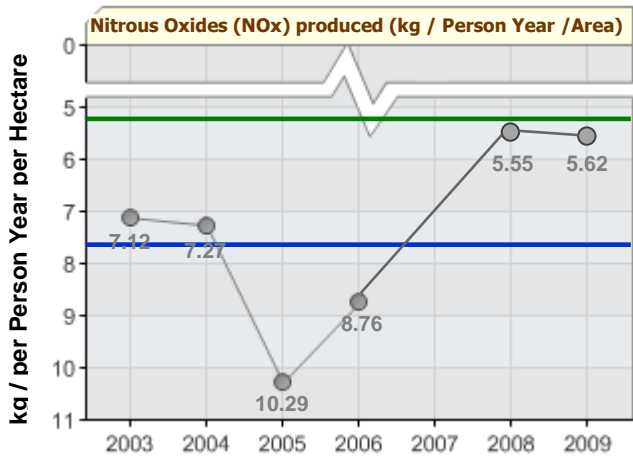
### Recycled / Reused / Composted Waste (%)

No data submitted.

## SECTOR SPECIFIC

### 6. Air Quality

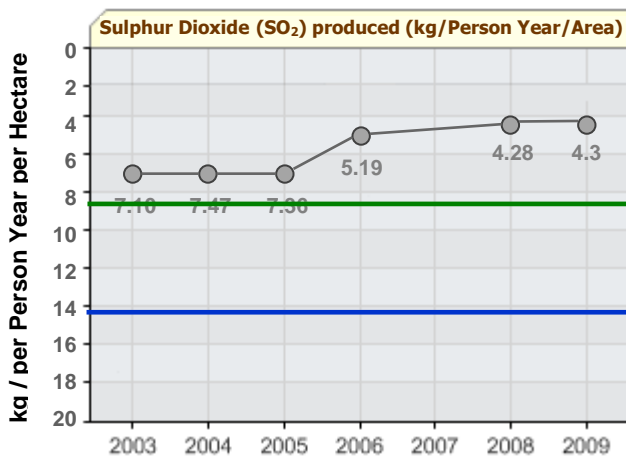
#### Nitrous Oxides Produced (kg / Person Year / Area) ✓



Nitrous Oxides Produced (kg / Person Year) for the year 2009 (1 January 2009 – 31 December 2009) was 5.62 kg per Person Year per Hectare, which was 26% better than the Baseline level.

\*2007 data is unavailable.

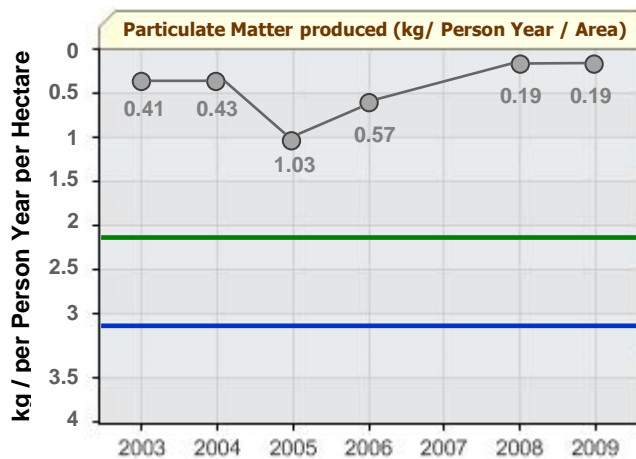
#### Sulphur Dioxide Produced (kg / Person Year / Area) ★



Sulphur Dioxide Produced (kg / Person Year) for the year 2009 (1 January 2009 – 31 December 2009) was 4.3 kg per Person Year per Hectare, which was 56% better than the Best practice level.

\*2007 data is unavailable.

## Particulate Matter Produced (kg / Person Year / Area) ★

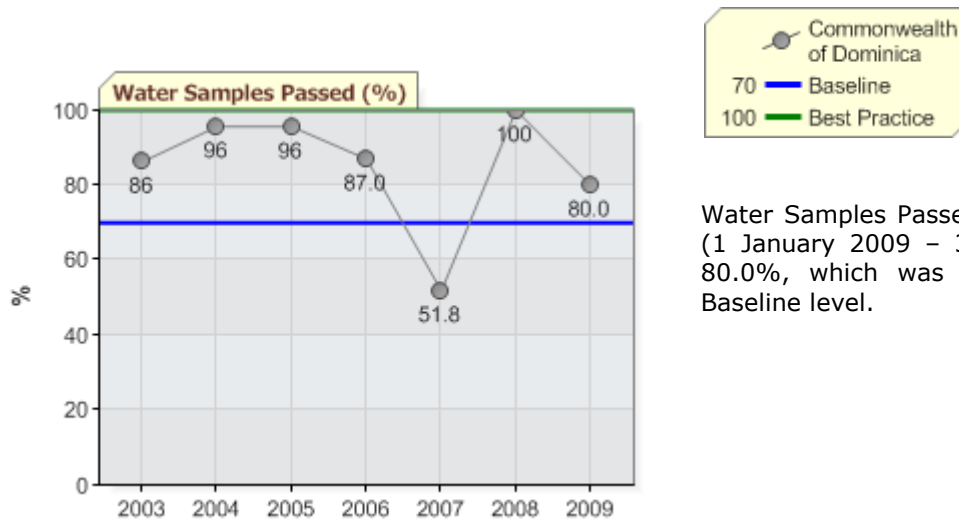


Particulate Matter Produced (kg / Person Year) for the year 2009 (1 January 2009 – 31 December 2009) was 0.19 kg per Person Year per Hectare, which was 91.4% better than the Best Practice level.

\*2007 data is unavailable.

## 7. Waterways Quality

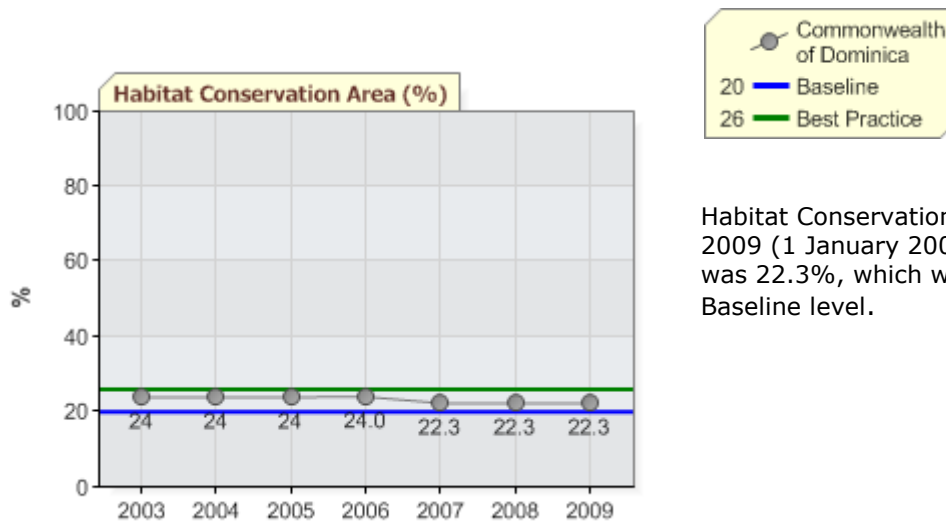
### Water Samples Passed (%) ✓



Water Samples Passed (%) for the year 2009 (1 January 2009 – 31 December 2009) was 80.0%, which was 10.0% better than the Baseline level.

## 8. Habitat Conservation

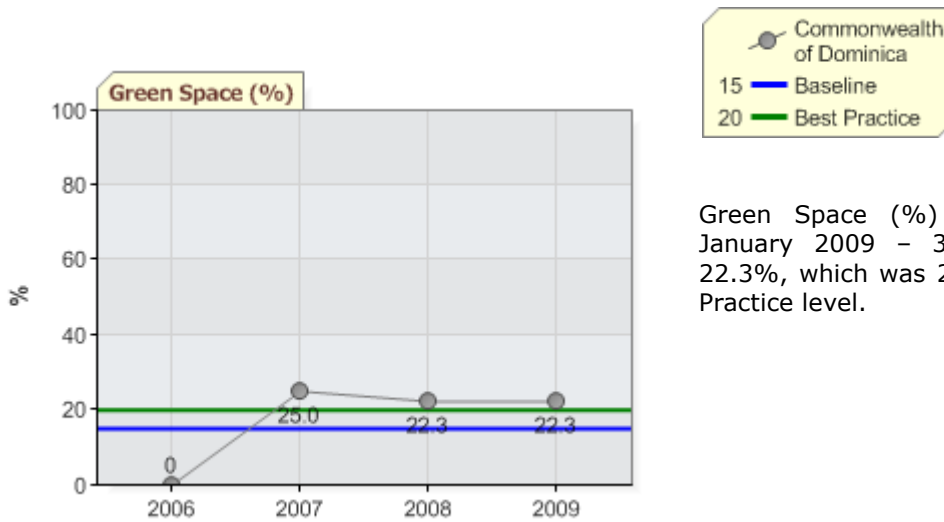
### Habitat Conservation Area (%) ✓



Habitat Conservation Area (%) for the year 2009 (1 January 2009 – 31 December 2009) was 22.3%, which was 2.3% better than the Baseline level.

## 9. Green Space

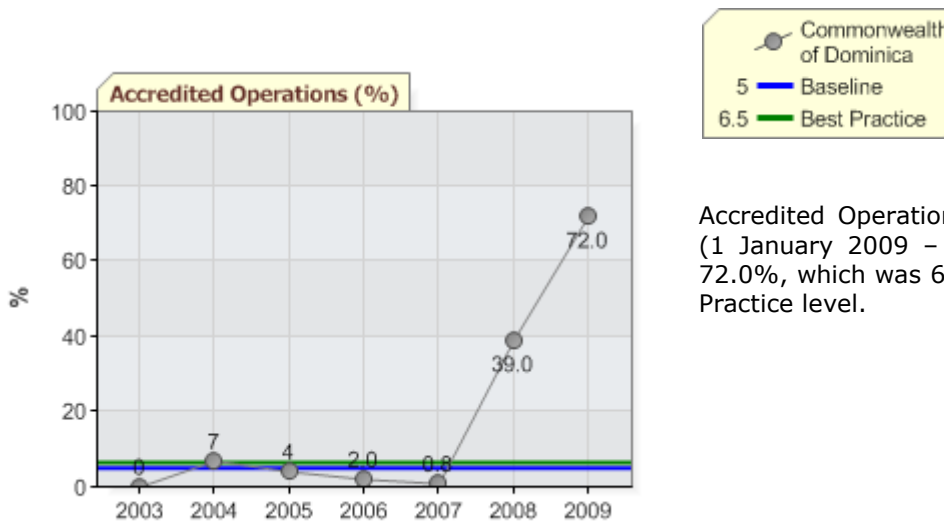
### Green Space (%) ★



Green Space (%) for the year 2009 (1 January 2009 – 31 December 2009) was 22.3%, which was 2.3% better than the Best Practice level.

## 10. Travel and Tourism Accreditation

### Accredited Operations (%) ★

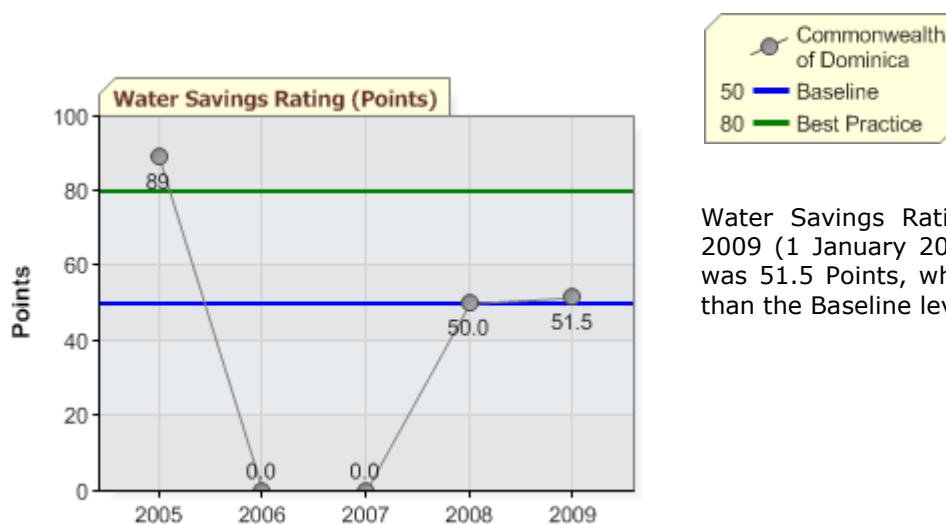


Accredited Operations (%) for the year 2009 (1 January 2009 – 31 December 2009) was 72.0%, which was 65.5% better than the Best Practice level.

# Lead Agency Performance Benchmarks

## 11. Water Savings

### Water Savings Rating (Points) ✓

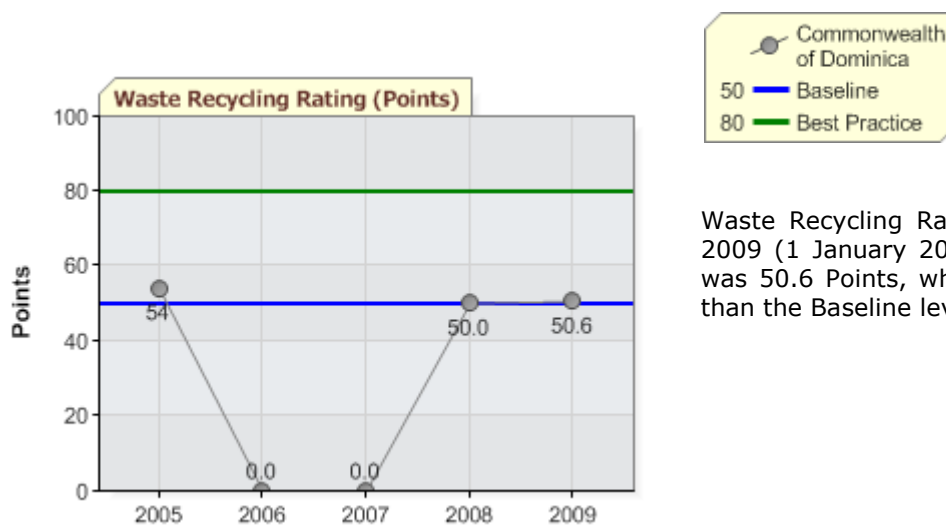


Water Savings Rating (Points) for the year 2009 (1 January 2009 – 31 December 2009) was 51.5 Points, which was 1.5 Points better than the Baseline level.

Water Savings Measures	Frequency / Percentage Rating	Water Savings Rating (Points)
Check for leaks	Every 6 months	58.8 Points
Low/dual flush toilets	Relevant / Not Available	50.0 Points
Low flow tap fittings	Relevant / Not Available	50.0 Points
Low flow shower fittings	Relevant / Not Available	50.0 Points
Water sprinklers used after dark	Not Relevant / Available	-
Minimal irrigation landscaping	Relevant / Not Available	50.0 Points
Use of recycle/grey/rain water	Relevant / Not Available	50.0 Points
	<b>Overall Rating:</b>	<b>51.5 Points</b>

## 12. Waste Recycling

### Waste Recycling Rating (Points) ✓

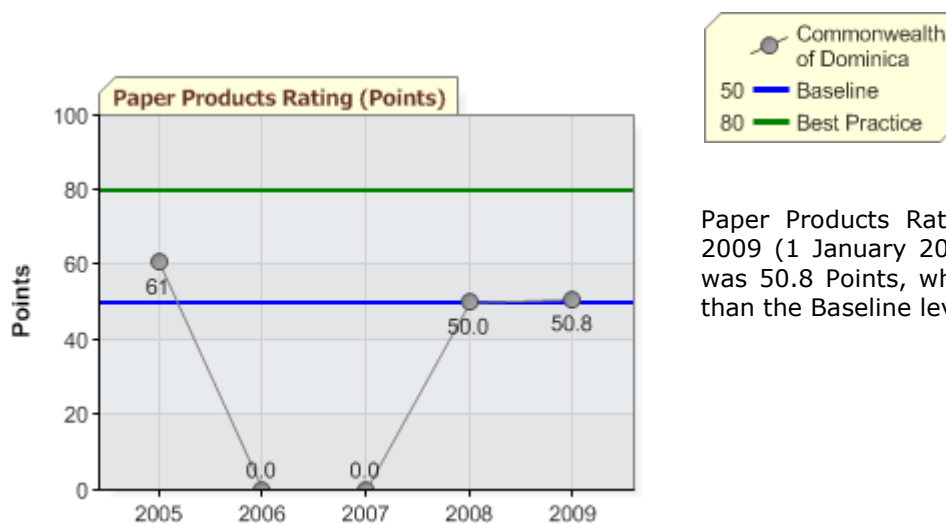


Waste Recycling Rating (Points) for the year 2009 (1 January 2009 – 31 December 2009) was 50.6 Points, which was 0.6 Points better than the Baseline level.

Waste Recycling Measures	Frequency / Percentage Rating	Waste Recycling Rating (Points)
Glass	Relevant / Not Available	50.0 Points
Paper/card	1-19%	54.0 Points
Iron & steel (ferrous metals)	Relevant / Not Available	50.0 Points
Other metals (non-ferrous)	Relevant / Not Available	50.0 Points
Plastics	Relevant / Not Available	50.0 Points
Rubber	Relevant / Not Available	50.0 Points
Green waste	Relevant / Not Available	50.0 Points
	<b>Overall Rating:</b>	<b>50.6 Points</b>

## 13. Paper Products

### Paper Products Rating (Points) ✓

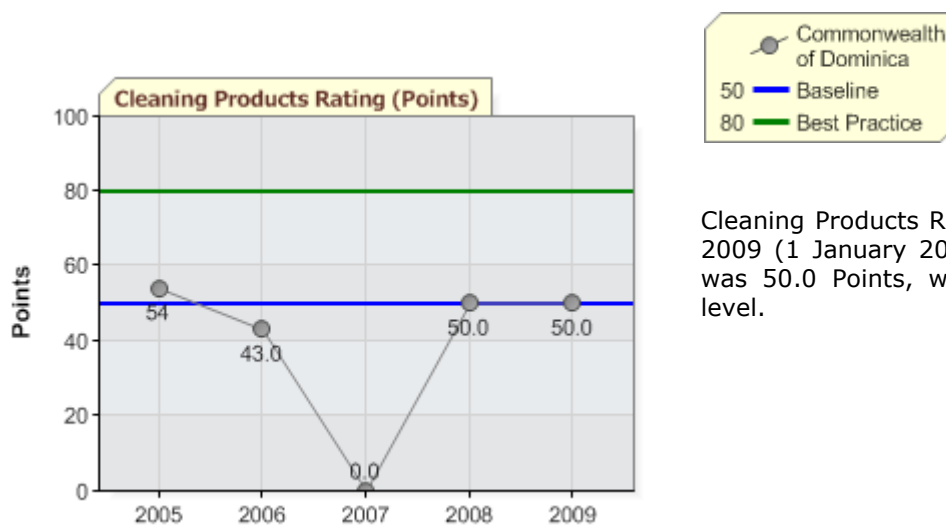


Paper Products Rating (Points) for the year 2009 (1 January 2009 – 31 December 2009) was 50.8 Points, which was 0.8 Points better than the Baseline level.

Paper Products Measures	Frequency / Percentage Rating	Paper Products Rating (Points)
Office paper	1-19%	54.0 Points
Serviettes	Relevant / Not Available	50.0 Points
Tissues	Relevant / Not Available	50.0 Points
Toilet tissue	Relevant / Not Available	50.0 Points
Paper towels	Relevant / Not Available	50.0 Points
	<b>Overall Rating:</b>	<b>50.8 Points</b>

## 14. Cleaning Products

### Cleaning Products Rating (Points) ✓

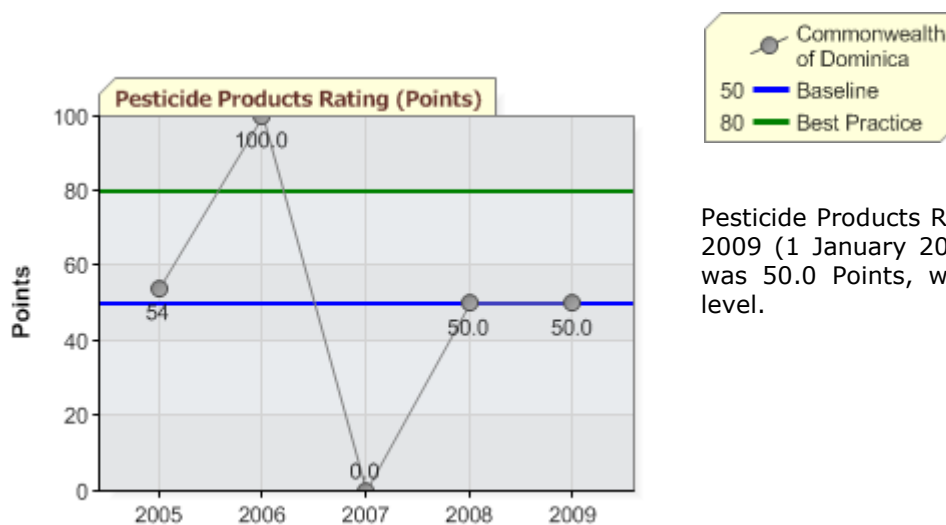


Cleaning Products Rating (Points) for the year 2009 (1 January 2009 – 31 December 2009) was 50.0 Points, which was at the Baseline level.

Cleaning Products Measures	Frequency / Percentage Rating	Cleaning Products Rating (Points)
Hard floor cleaners	Relevant / Not Available	50.0 Points
Carpet cleaners	Relevant / Not Available	50.0 Points
Interior surface cleaners	Relevant / Not Available	50.0 Points
External surface cleaners	Relevant / Not Available	50.0 Points
Glass cleaners	Relevant / Not Available	50.0 Points
Detergents	Relevant / Not Available	50.0 Points
Personal hygiene	Relevant / Not Available	50.0 Points
	<b>Overall Rating:</b>	<b>50.0 Points</b>

## 15. Pesticides

### Pesticide Products Rating (Points) ✓



Pesticide Products Rating (Points) for the year 2009 (1 January 2009 – 31 December 2009) was 50.0 Points, which was at the Baseline level.

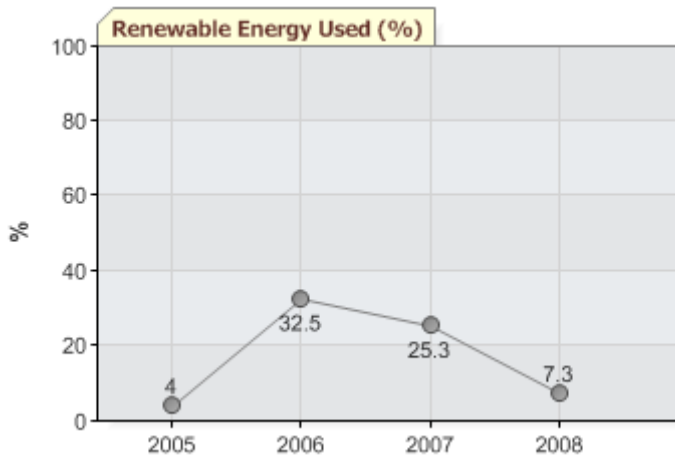
Pesticide Products Measures	Frequency / Percentage Rating	Pesticide Products Rating (Points)
Weed killers	Relevant / Not Available	50.0 Points
Fungal killers	Relevant / Not Available	50.0 Points
Rodent killers	Relevant / Not Available	50.0 Points
Insect killers	Relevant / Not Available	50.0 Points
	<b>Overall Rating:</b>	<b>50.0 Points</b>

# 1. HISTORIC BENCHMARKING INDICATORS

## 1. Renewable Energy

Renewable Energy % is no longer a supplementary indicator; it is included here for historical reference.

### 1.1.1 Renewable Energy Used (%)



---

*The supplied data has been compiled by **Commonwealth of Dominica** in the prescribed manner, authorised by a senior executive of the company and submitted for an annual assessment.*

## 2. CONCLUSION AND RECOMMENDATIONS

Congratulations, **Commonwealth of Dominica** has passed the requirements to be recognised as an EarthCheck Benchmarked Community.

In addition to having a Sustainability Policy in place, sixteen of the assessed EarthCheck indicators are at or above the Baseline level. From the benchmarking data provided, eight indicators, *Energy Consumption, Greenhouse Gas Emissions (scope 1 and scope 2), Potable Water Consumption, Waste Sent to Landfill, Sulphur Dioxide Produced, Particle Matter Produced, Green Space and Accredited Operations* are at or above the Best Practice level, which is an achievement to be highly commended.

Improvements in all the EarthCheck indicators will not only help the environment, but can also help reduce operational costs. Due to the positive commitment that **Commonwealth of Dominica** has demonstrated to the environment, the assessors are confident that they can maintain or improve performance, where appropriate and practical, in all indicators. In line with EarthCheck Policy this would enable the **Commonwealth of Dominica** to continue to meet the benchmarking requirements of the EarthCheck program.

### 3. APPENDIX

#### HISTORICAL DATA

It is acknowledged that whilst information presented in the benchmarking assessment report displays results for the years 2003 to 2009, it is **Commonwealth of Dominica's** 5<sup>th</sup> benchmarking assessment. The information for the 2006 and 2007 benchmarking periods represent historical data and have not been formally assessed. They have been displayed in the report to provide an overall reflection of the organisation's operational performance.

#### ENERGY CONSUMPTION

The Benchmarking Assessors sought clarification regarding *Energy Consumption* as no figures were submitted. The **Commonwealth of Dominica** provided the following table in response:

Source	Quantity	Unit
Hydro - Grid	289,109	GJ
Oil (fuel) - Grid	17,921	m <sup>3</sup>
Diesel	83,363	GJ
Oil (heating)	25.0	%

The Benchmarking Assessors sought further clarification regarding the submitted unit for Oil (heating) in order to determine the Quantity and unit of measurement. The **Commonwealth of Dominica** replied with the following:

Source	Quantity	Unit	(MJ)
Electricity produced by Hydro for the Grid	2 3156 000	kWh	MJ
Electricity produced by diesel engines for the Grid	69 565 000	kWh	MJ
Diesel oil used in the production of electricity fro the grid	3 942 115	gallon ( UK )	MJ
Diesel oil used in company vehicles	18 960	gallon ( UK )	MJ
		<b>Totals:</b>	<b>GJ</b>

The Benchmarking Assessors have updated the total *Energy Consumption* as follows:

#### Stationary Fuel Combustion

Fuel Type	Quantity	Unit	Energy Consumption (GJ)	Total Emission Estimate (t) (t)
Diesel	3 942 115	Gallons (UK)	651 938 048.9	48 566.8

#### Mobile Fuel Combustion (road)

Fuel Type	Quantity	Unit	Energy Consumption (GJ)	Total Emission Estimate (t) (t)
Diesel	18 960	Gallons (UK)	3 135 561.9	236.4

#### Purchased Electricity

Quantity	Unit	% Green Power	Provider	Energy Consumption (GJ)	Total Emission Estimate (t)
23 156 000	kWh	100	Other Latin America	83 361 600	0
69 565 000	kWh	0	Other Latin America	250 434 000	43 190.8

These sources produced a total of 988 869 210.8 GJ which equates to 13.8 GJ per Person Year. Total *Greenhouse Gas Emissions (Scope 1 and Scope 2)* was 91 994 t which equates to 1.3 t per Person Year.

## POTABLE WATER CONSUMPTION

The Benchmarking Assessors sought clarification regarding *Potable Water Consumption* as the submitted figure of 611 gallons (UK) was less than expected.

The **Commonwealth of Dominica** advised:

*"I have received the same information from the Environmental Health Unit with regards to portable & bottled water and the energy dept. The same information were given."*

The Benchmarking Assessors sought further clarification as to why the submitted figure for *Potable Water Consumption* was significantly lower than the previous assessment. The **Commonwealth of Dominica** replied:

*"I rephrased the data. I hope it is clarified. Feel free to contact me again for any clarification if needed."*

*Here is the information requested!*

*Drinking and recreational water testing*

*% SAMPLES PASSING TEST (WHO Standard)*

- Drinking water/Potable: Out of 611 samples analysed 457 samples passed WHO standard = 74.8% above*
- Bottled water: Out of 233 samples analysed 219 samples passed WHO standard = 94 % above*

*Out of TOTAL 844 samples analysed 676 samples passed WHO standards = 80.1 % above. Final outcome for Dominica is 0.80 samples passing out of total samples taken in 2009. Source: Environmental Health Department"*

The Benchmarking Assessors clarified that the *Potable Water Consumption* should reflect the figure for total potable water consumed by the community **Commonwealth of Dominica** during the 2009 benchmarking period. Further clarification was sought as the figure submitted was significantly less than expected. In response the **Commonwealth of Dominica** advised:

*"I guess that there was an error in the 2008 submission."*

*The figures for **Potable Water Consumption** was received from the **Environmental Health Department** (re samples of water tested). The Dominica Water and Sewage Company (**DOWASCO**) under 1.5 Water Consumption findings. "*

The Benchmarking Assessors further clarified that for the assessment report we are after the total amount of water used by the community (which is drinking quality). The response was:

*"Please call me for further clarification."*

After a phone conversation with the Benchmarking Manager the **Commonwealth of Dominica** provided the following documentation:

### "WATER CONSUMPTION

#### **Indicator Measure**

*Total water consumed by the community (kilolitres) per annum/persons year per annum.*

#### **Findings – Dominica Water Authority (DOWASCO)**

*Total water consumed in Dominica in 2009 was **865,586,659** gallons*

*Total water consumed in Dominica for Domestic use in 2009 was 571,498,958 gallons*

*Total water consumed in Dominica for Commercial use in 2009 was 113,308,813 gallons*

*Total water consumed in Dominica for Industrial use in 2009 was 21,699,453 gallons*

*Total water consumed in Dominica for Sale of Water in 2009 was 24,176,406 gallons*

*Total water consumed within the Government institutions in 2009 was 134,903,029 gallons"*

The Benchmarking Assessors have updated the figure for *Potable Water Consumption* as below:

Quantity	Unit	Potable Water Consumption (kL)
865 586 659	gallons (UK)	3 935 043.5 kL
	<b>Totals:</b>	<b>3 935 043.5 kL</b>

This equates to 54.8 kL per Person Year

### RECYCLED / CAPTURED WATER

It has been noted that no figure was submitted for the supplementary indicator *Recycled / Captured Water*. It is recommended that for future assessments, where possible, the **Commonwealth of Dominica** incorporate measures to collate this data.

### RECYCLED / REUSED / COMPOSTED WASTE

It has been noted that no figure was submitted for the supplementary indicator *Recycled / Reused / Composted Waste*. It is recommended that for future assessments, where possible, the **Commonwealth of Dominica** incorporate measures to collate this data.

### AIR QUALITY

The benchmarking assessors have calculated the figures for Air Quality as per below;

#### **Initial figures;**

Nitrous Oxides Produced : 0.0 kg per Person Year

Sulphur Dioxide Produced : 0.0 kg per Person Year

Particulate Matter Produce : 0.0 kg per Person Year

#### **Revised figures;**

Nitrous Oxides Produced : 5.62 kg per Person Year / Area

Sulphur Dioxide Produced : 4.3 kg per Person Year / Area

Particulate Matter Produce : 0.19 kg per Person Year / Area

### WATER SAMPLES PASSED

The Benchmarking Assessors sought clarification regarding *Water Samples Passed* as the submitted figure of 0% was less than the previous assessment.

*"Drinking and recreational water testing*

<b>STANDARDS</b>	<b>SAMPLES</b>	<b>PASSING TEST</b>	<b>%</b>
<i>WHO Standard for Microbiological Test - Drinking water/Portable</i>	611	457	74.8 above
<i>WHO Standard for Microbiological Test - Bottled water</i>	233	219	94 above
<b>TOTAL</b>	<b>844</b>	<b>676</b>	<b>80.1</b>

*Final outcome for Dominica is 0.80 samples passing out of total samples taken in 2009"*

The Benchmarking Assessors have updated the *Water Samples Passed* to 80%.



**EARTHCHECK**

**Benchmarks Assessed by EarthCheck**

## 4. SUMMARY OF SUPPLIED BENCHMARKING DATA

### Activity Measures

Person Years	71865.62
Total Community Area	71180

### Supplied Benchmarking Data

#### Community Indicators

##### Energy

##### Energy Consumption (GJ / Person Year)

Supplied	988869210.8 GJ
Calculated	13,8 GJ / Person Year
Baseline	50 GJ / Person Year
Best Practice	35 GJ / Person Year
Difference	60.6% better than the Best Practice level

##### Green Power (%)

Supplied	25.0%
Calculated	25.0%

##### Greenhouse Gas Emissions (Scope 1 and Scope 2) (t CO<sub>2</sub>-e / Person Year)

Supplied	91994 t CO <sub>2</sub> -e
Calculated	1.3 t CO <sub>2</sub> -e / Person Year
Baseline	3.4 t / Person Year
Best Practice	2.4 t / Person Year
Difference	45.8% better than the Best Practice level

##### Direct Emissions (Scope 1) (t CO<sub>2</sub>-e / Person Year)

Supplied	48803.2 t CO <sub>2</sub> -e
Calculated	0.7 t CO <sub>2</sub> -e / Person Year

##### Indirect Emissions (Scope 2) (t CO<sub>2</sub>-e / Person Year)

Supplied	43190.8 t CO <sub>2</sub> -e
Calculated	0.6 t CO <sub>2</sub> -e / Person Year

##### Water

##### Potable Water Consumption (kL / Person Year)

Supplied	3935043.5 kL
Calculated	54.8 kL / Person Year
Baseline	100 kL / Person Year
Best Practice	70 kL / Person Year
Difference	21.8% better than the Best Practice level

##### Recycled / Captured Water (%)

Supplied	No data submitted
Calculated	No data submitted

##### Waste

##### Waste Sent to Landfill (t / Person Year)

Supplied	11965.9 t
Calculated	0.26 t / Person Year
Baseline	0.73 t / Person Year
Best Practice	0.50 t / Person Year
Difference	48% better than the Best Practice level

##### Recycled / Reused / Composted Waste (%)

Supplied	No data submitted
Calculated	No data submitted

##### Air Quality

##### Nitrous Oxides Produced (kg / Person Year / Hectare)

Supplied	760004 kg
Calculated	5.62 kg per PY per ha
Baseline	7.6 kg per PY per ha
Best Practice	5.3 kg per PY per ha
Difference	26% better than the Baseline level

##### Sulphur Dioxide Produced (kg / Person Year / Hectare)

Supplied	49566 kg
Calculated	4.3 kg per PY per ha
Baseline	14 kg per PY per ha
Best Practice	9.8 kg per PY per ha
Difference	56% better than the Best Practice level

##### Particulate Matter Produced (kg / Person Year / Hectare)

Supplied	1028761 kg
Calculated	0.19 kg per PY per ha
Baseline	3.1 kg per PY per ha
Best Practice	2.2 kg per PY per ha
Difference	91.4 % better than Best Practice level.

**Water Samples Passed (%)**

Supplied	80.0%
Calculated	80.0%
Baseline	70 %
Best Practice	100 %
Difference	10.0% better than the Baseline level

**Habitat Conservation Area (%)**

Supplied	22.3%
Calculated	22.3%
Baseline	20 %
Best Practice	26 %
Difference	2.3% better than the Baseline level

**Green Space (%)**

Supplied	22.3%
Calculated	22.3%
Baseline	15 %
Best Practice	20 %
Difference	2.3% better than the Best Practice level

**Accredited Operations (%)**

Supplied	72.0%
Calculated	72.0%
Baseline	5 %
Best Practice	6.5 %
Difference	65.5% better than the Best Practice level

**Lead Authority****Water****Water Savings Rating (Points)**

Supplied	51.5 Points
Calculated	51.5 Points
Baseline	50 Points
Best Practice	80 Points
Difference	1.5 Points better than the Baseline level

**Waste****Waste Recycling Rating (Points)**

Supplied	50.6 Points
Calculated	50.6 Points
Baseline	50 Points
Best Practice	80 Points
Difference	0.6 Points better than the Baseline level

**Paper****Paper Products Rating (Points)**

Supplied	50.8 Points
Calculated	50.8 Points
Baseline	50 Points
Best Practice	80 Points
Difference	0.8 Points better than the Baseline level

**Cleaning****Cleaning Products Rating (Points)**

Supplied	50.0 Points
Calculated	50.0 Points
Baseline	50 Points
Best Practice	80 Points
Difference	at the Baseline level

**Pesticides****Pesticide Products Rating (Points)**

Supplied	50.0 Points
Calculated	50.0 Points
Baseline	50 Points
Best Practice	80 Points
Difference	at the Baseline level

## 5. DETERMINATION OF BASELINE AND BEST PRACTICE LEVELS

### General

The values for the Baseline and Best Practice levels for each indicator are derived from extensive worldwide research into available and appropriate case studies, industry surveys, engineering design handbooks, energy, water and waste audits, and climatic and geographic conditions.

National and regional data for per capita energy use, greenhouse gas and other emissions, wastes to landfill and water consumption, where available provide background data for normalisation of the expected performance values for per customer or employee, and/or overall performance of an enterprise being benchmarked. They are used to gauge the regional or national situation and environmental performances that an enterprise is based in, and hence what are reasonable levels to expect the enterprise to achieve.

A benchmarking result at, or above, the Baseline level demonstrates to all stakeholders that the enterprise is achieving above average performance. A result below the Baseline level indicates that an enterprise can and should carry out actions that will make beneficial improvements in performance.

### Consideration of Climate

A major determinant of energy consumption in some sectors, primarily those centred on buildings such as accommodation, visitor centres and administration offices will be the dominant climatic conditions in which the enterprise is located. In general, to maintain the same level of indoor comfort, enterprises operating in hot or cold climates will consume more energy than those in temperate climates.

Similarly, it is recognised that in certain sectors a major determinant of potable water consumption will be the climate in which an enterprise is located, in particular those with large grounds and/or significant water-based facilities or activities. That is, enterprises located in hot climates are more likely to consume more potable water than equivalent ones located in cooler climates. Factors that are likely to lead to a higher level of potable water consumption, for example in the accommodation sector, include increased evaporation rates of swimming pools, personal bathing and irrigation demands of grounds. In consideration of this factor, Baseline and Best Practice levels can vary in relation to country location.

### Waste Sent to Landfill

The benchmark indicator used for Waste Sent to Landfill is given in litres as waste bins are usually calibrated by volume, and it has been found that the majority of operations do not have access to the weight of material disposed of. However, if a weight is supplied, standard factors are used to convert from weight (e.g., kilograms (kg)) to volume (e.g., cubic metres (m<sup>3</sup>) or litres (L)). These are: 1 kg (uncompacted waste) = 0.00333333 m<sup>3</sup> or 3.33333 L and 1 kg (compacted waste) = 0.00153846 m<sup>3</sup> or 1.53846 L.

Operations should make note of the level of compaction when submitting data for assessment by EarthCheck.

### Review of Performance Levels

The Baseline and Best Practice performance levels for EarthCheck indicators are continuously reviewed and are likely to change over time. This review by a team of international experts, takes into account "business-as-usual" changes in practices, equipment and facilities, as well as regulations and general improvement trends in performance and procedures. This review is used to update the levels of Baseline and Best Practice, and provides useful feedback to the user of the indicators.

The list below summarises the basic generic rules used to determine Baseline and Best Practice levels for EarthCheck indicators.

- If relevant enterprise sector specific case studies are not available for a type of activity in a designated region, then national averages will be used to ascertain the Baseline level. In this case, the Best Practice level will be set at a minimum of 30% better performance than the Baseline.
- If case study or national data are not available for a specific indicator, then the first enterprise that benchmarks will have its results set as 15% better than Baseline (i.e., half way between Baseline and Best Practice).