



EARTHCHECK

BENCHMARKING ASSESSMENT REPORT

THEME PARK BENCHMARKING

WATERBOM BALI
DENPASAR, INDONESIA



REPORT DATE: 8 October 2010

Benchmarking Data Collection Period: 13 April 2009 – 12 April 2010

The planet deserves more than half measures

OVERVIEW

This annual assessment of **Waterbom Bali** was undertaken against EarthCheck benchmarking indicators and checklists developed for EarthCheck and listed below. ¹ They have been carefully selected to track performance in key areas of environmental and social performance impact. Their outcomes which are presented in this report are used by EarthCheck to evaluate whether the operation has reached the standards necessary to pass the benchmarking requirements, as stated in the EarthCheck Benchmarking Policy. ²

		Indicator Measure (Benchmark)
1	Policy	Policy is produced and in place
2	Energy	Energy Consumption (GJ / Person Year) Total CO ₂ -e Produced (kg CO ₂ -e / Person Year) Renewable Energy Used (%) ³
3	Water	Potable Water Consumption (kL / Person Year) Recycled / Captured Water (%) ³ Water Savings Rating (Points)
4	Waste	Waste Sent to Landfill (t / Person Year) Recycled / Reused / Composted Waste (%) ³ Waste Recycling Rating (Points)
5	Community	Community Commitment (%) Community Contributions Rating (Points)
6	Paper	Paper Products Rating (Points)
7	Cleaning	Cleaning Products Rating (Points)
8	Pesticides	Pesticide Products Rating (Points)
9	Sector Specific	Total CO ₂ -e Produced (t CO ₂ -e / Person Year) Water Samples Passed (%) Habitat Conservation Area (%) Vehicle Services Completed (%)

¹ Refer to the EarthCheck Sector Benchmarking Indicator (SBI) document for more information. For frequently asked questions (FAQs) about benchmarking or specific help, please log on to 'My EarthCheck' and visit your EarthCheck Benchmarking software.

² To meet the requirements stipulated in the EarthCheck Company Standard, the benchmarks for all the submitted EarthCheck indicators need to be at, or better than, the Baseline level. Baseline and Best Practice performance levels are set with reference to the type of activity (registered sector/s) and appropriate national and international data which take into account social, geographical and climatic impacts.

First-time benchmarking operations that fail to meet the minimum requirements (Baseline performance or better) for up to two submitted EarthCheck indicators (with a third indicator within 10% of the Baseline level), will be permitted to pass benchmarking. The operation is however, given a maximum of 12 months to improve performance in at least one of the indicators to Baseline performance or better. If on the next submission this is not achieved without substantiated evidence that the situation was beyond the control of the operation (e.g., occurrence of a natural disaster), then the right to use the appropriate EarthCheck logo will be withdrawn.

As a standard policy, all EarthCheck indicators are continuously reviewed, along with the performance levels which operators have to achieve in order to meet the requirements of the Company Standard. This review takes into account "business-as-usual" changes in practices and equipment, and is used to update where appropriate Baseline and Best Practice levels.

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

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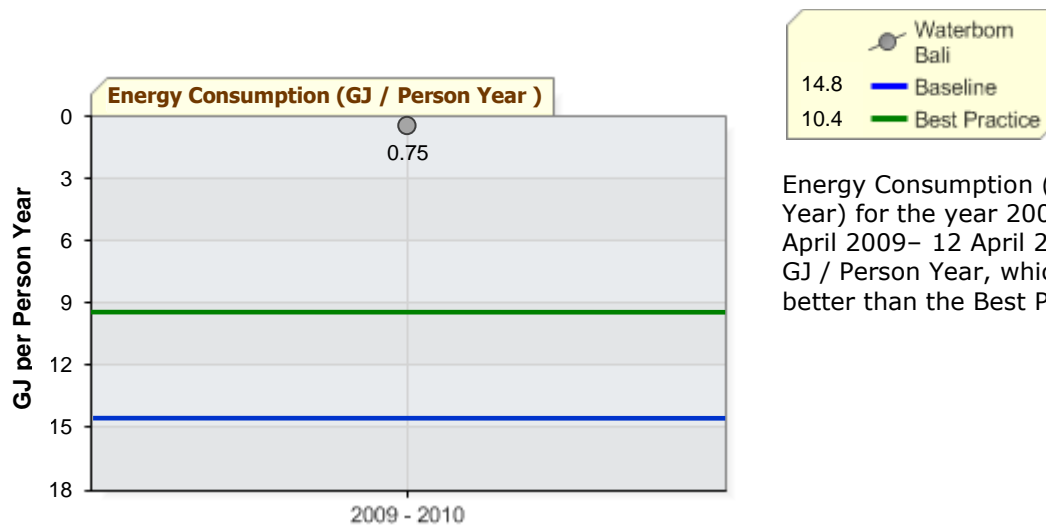
THEME PARK PERFORMANCE BENCHMARKS

Current performance: Below Baseline ✖ At or above Baseline ✔ At or above Best Practice ★

1. Policy ★

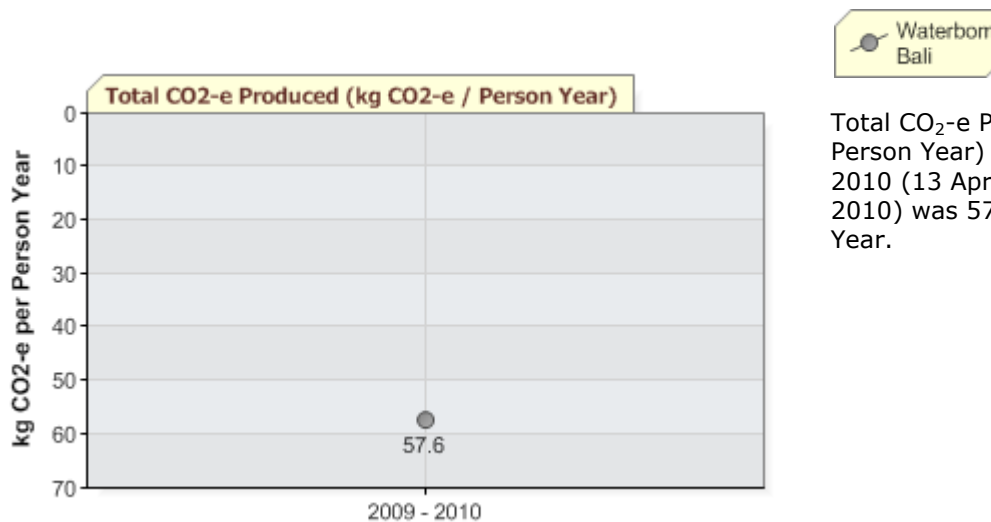
2. Energy

Energy Consumption (GJ / Person Year) ★



Energy Consumption (GJ / Person Year) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 0.75 GJ / Person Year, which was 92.8% better than the Best Practice level.

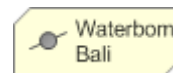
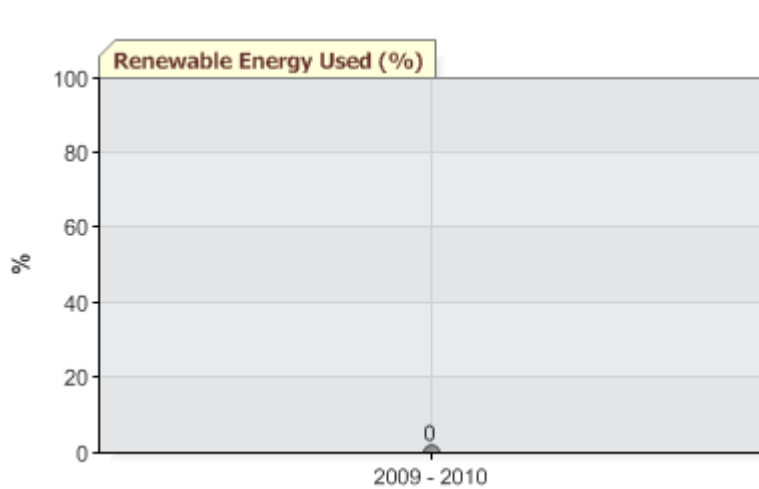
Total CO₂-e Produced (kg CO₂-e / Person Year)



Total CO₂-e Produced (kg CO₂-e / Person Year) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 57.6 kg CO₂-e / Person Year.

Source	Quantity	Unit	Energy Consumption (MJ)	Total CO ₂ -e Produced (t CO ₂ -e)
Kerosene (power) - Grid	7728	kWh (kilowatt hour)	27820.8 MJ	2.2 t CO ₂ -e
Gasoline (automotive)	2403	L (litre)	82182.6 MJ	5.4 t CO ₂ -e
Diesel	5000	L (litre)	193000.0 MJ	13.5 t CO ₂ -e
Natural Gas	25.08	kg (kilogram)	1393.7 MJ	0.08 t CO ₂ -e
		Totals:	304397.1 MJ (304.4 GJ)	21.1 t CO₂-e

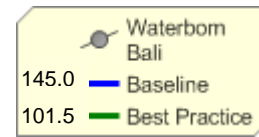
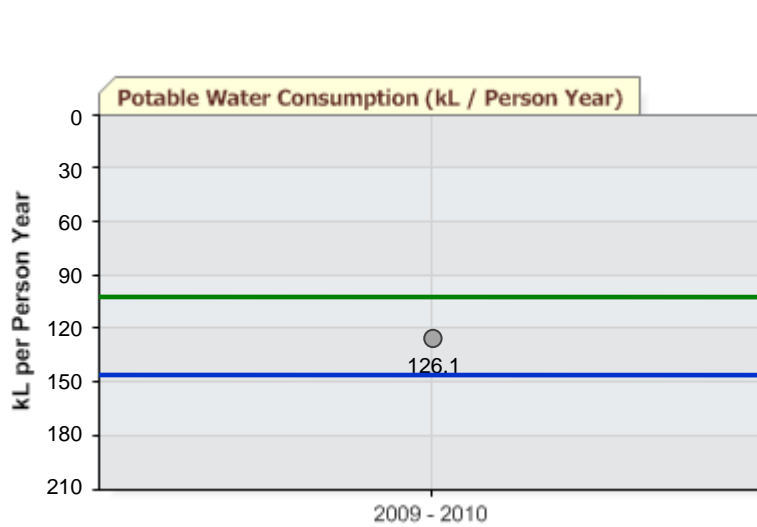
Renewable Energy Used (%)



Renewable Energy Used (%) for the year 2009 - 2010 (13 April 2009–12 April 2010) was 0%.

3. Water

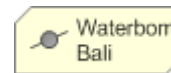
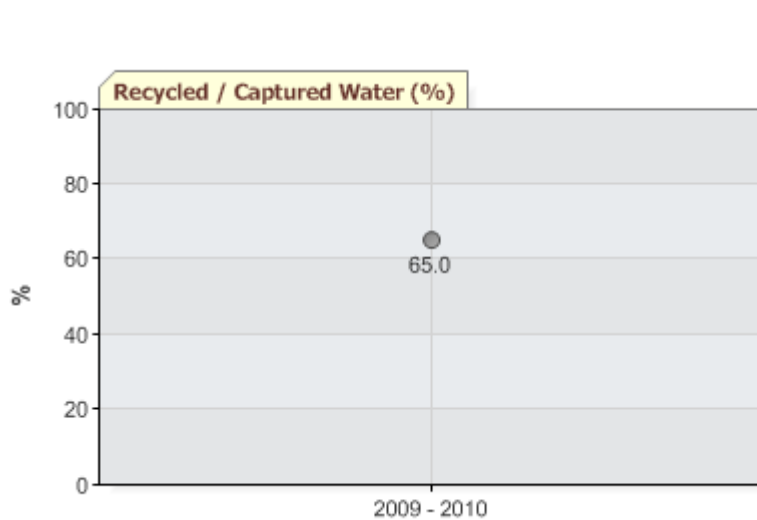
Potable Water Consumption (kL / Person Year) ✓



Potable Water Consumption (kL / Person Year) for the year 2009 - 2010 (13 April 2009- 12 April 2010) was 126.1 kL / Person Year, which was 13.0% better than the Baseline level.

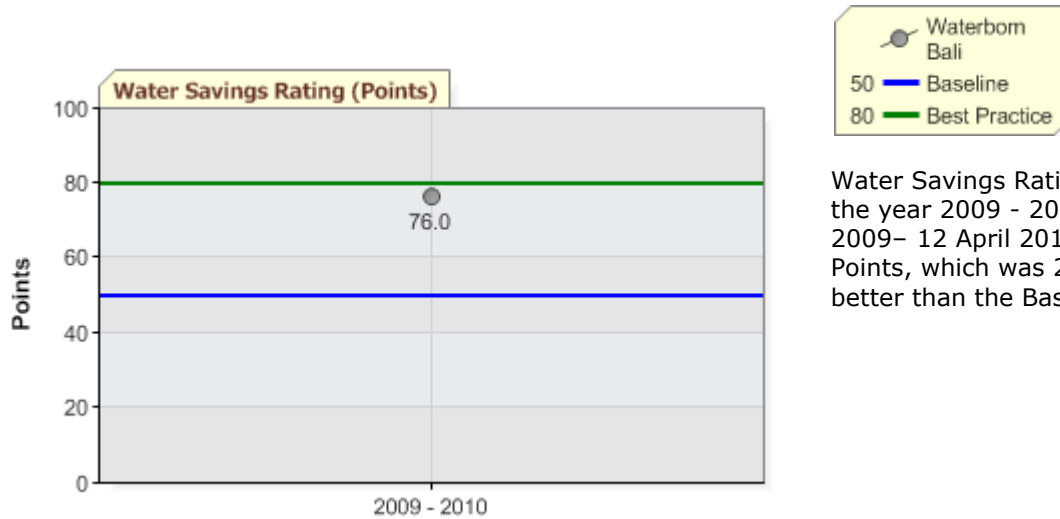
Quantity	Unit	Potable Water Consumption (kL)
51107.3	cubic metres	51107.3 kL
	Totals:	51107.3 kL

Recycled / Captured Water (%)



Recycled / Captured Water (%) for the year 2009 - 2010 (13 April 2009- 12 April 2010) was 65.0%.

Water Savings Rating (Points) ✓

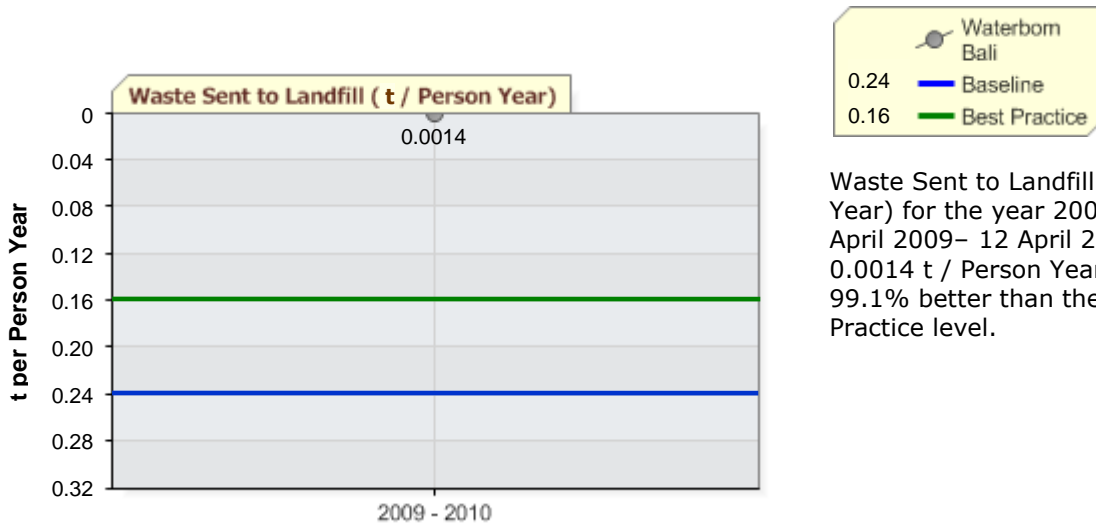


Water Savings Rating (Points) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 76.0 Points, which was 26.0 Points better than the Baseline level.

Water Savings Measures	Frequency / Percentage Rating	Water Savings Rating (Points)
Check for leaks	Every week	100.0 Points
Low/dual flush toilets	40-59%	65.1 Points
Low flow tap fittings	60-79%	73.9 Points
Low flow shower fittings	80-99%	88.9 Points
Water sprinklers used after dark	40-59%	65.1 Points
Minimal irrigation landscaping	40-59%	65.1 Points
Use of recycle/grey/rain water	60-79%	73.9 Points
	Overall Rating:	76.0 Points

4. Waste

Waste Sent to Landfill (t / Person Year) ★



Waste Sent to Landfill (t / Person Year) for the year 2009 - 2010 (13 April 2009- 12 April 2010) was 0.0014 t / Person Year, which was 99.1% better than the Best Practice level.

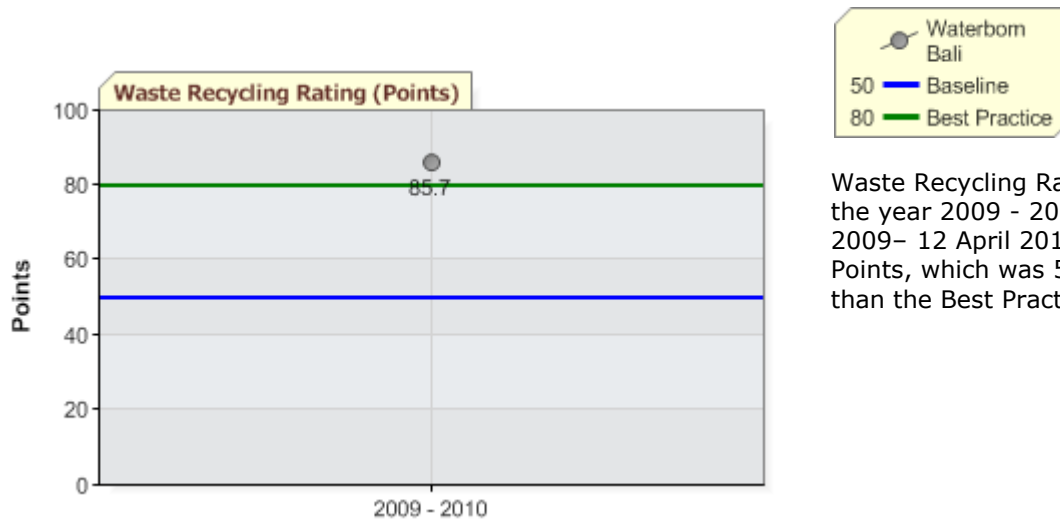
Quantity	Unit	Waste Sent to Landfill (t)
556	kilograms (uncompacted)	0.556 t (uncompacted)
	Totals:	0.556 t (uncompacted)

Recycled / Reused / Composted Waste (%)



Recycled / Reused / Composted Waste (%) for the year 2009 - 2010 (13 April 2009- 12 April 2010) was 94.0%.

Waste Recycling Rating (Points) ★

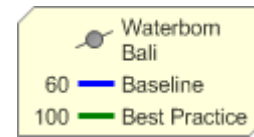
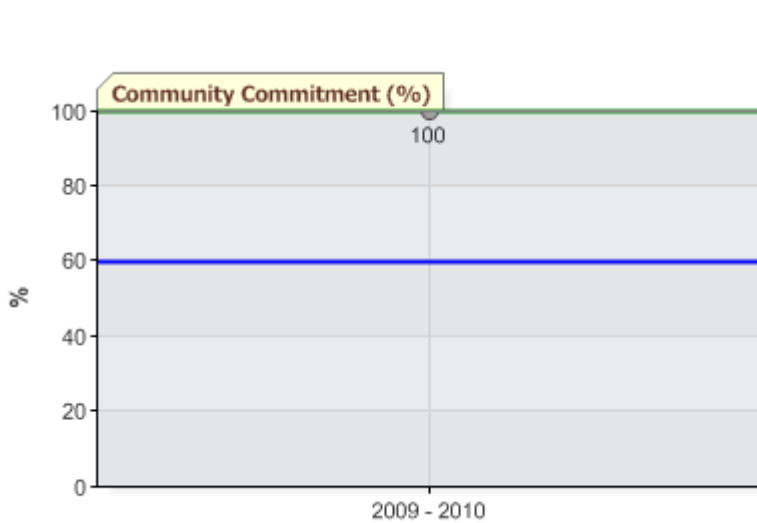


Waste Recycling Rating (Points) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 85.7 Points, which was 5.7 Points better than the Best Practice level.

Waste Recycling Measures	Frequency / Percentage Rating	Waste Recycling Rating (Points)
Glass	100%	100.0 Points
Paper/card	100%	100.0 Points
Iron & steel (ferrous metals)	Relevant / Not Available	50.0 Points
Other metals (non-ferrous)	Relevant / Not Available	50.0 Points
Plastics	100%	100.0 Points
Rubber	100%	100.0 Points
Green waste	100%	100.0 Points
	Overall Rating:	85.7 Points

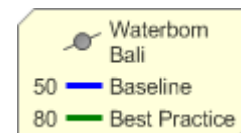
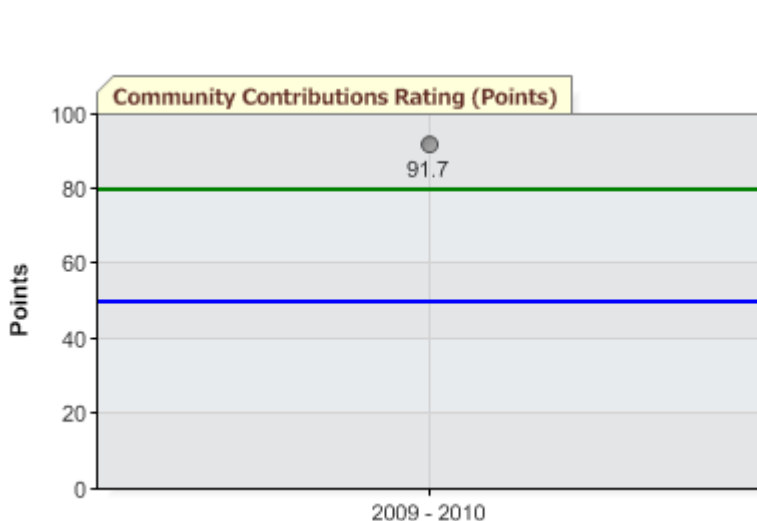
5. Community

Community Commitment (%) ★



Community Commitment (%) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 100%, which was at the Best Practice level.

Community Contributions Rating (Points) ★

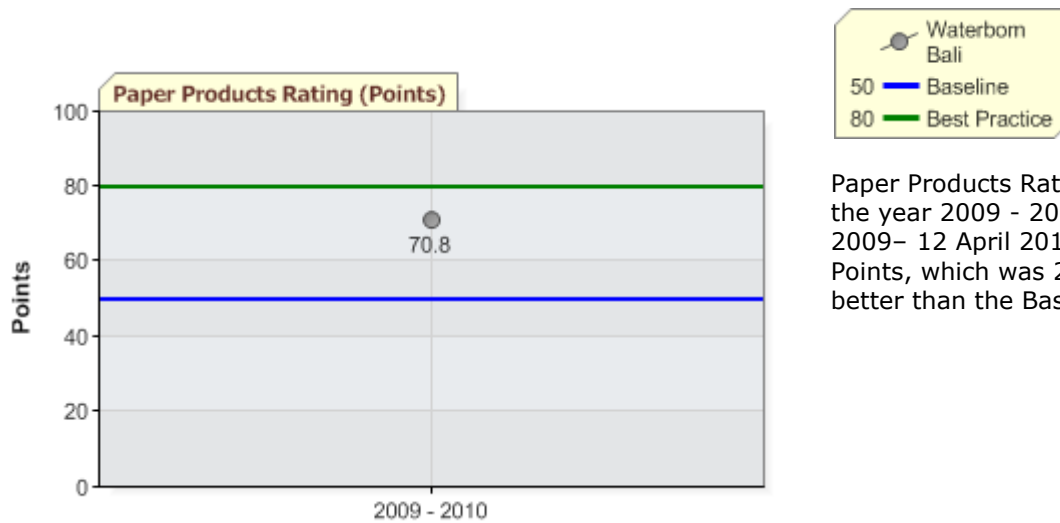


Community Contributions Rating (Points) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 91.7 Points, which was 11.7 Points better than the Best Practice level.

Community Contributions Measures	Frequency / Percentage Rating	Community Contributions Rating (Points)
Net income spent on sustainability programs	8.0% - 9.9%	88.9 Points
Perishable purchased goods that are of local origin	80-99%	88.9 Points
Service contracts given to local contractors	80-99%	88.9 Points
Staff received training on sustainability issues	100%	100.0 Points
	Overall Rating:	91.7 Points

6. Paper

Paper Products Rating (Points) ✓

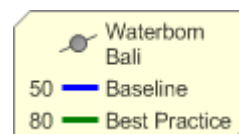
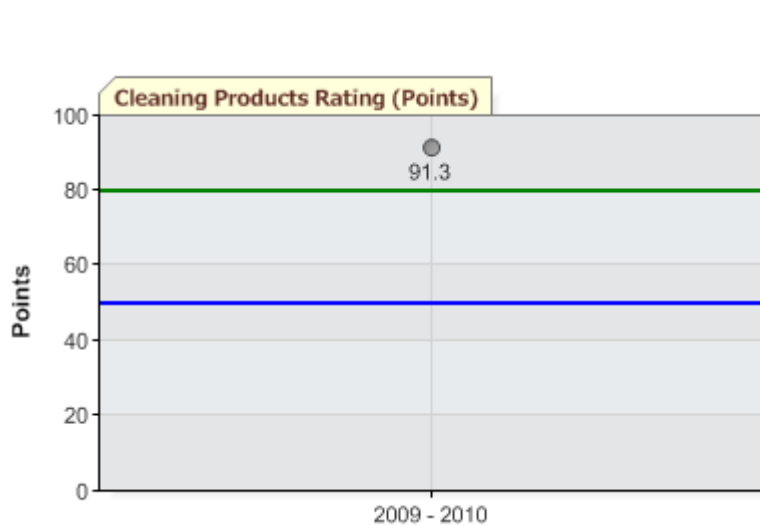


Paper Products Rating (Points) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 70.8 Points, which was 20.8 Points better than the Baseline level.

Paper Products Measures	Frequency / Percentage Rating	Paper Products Rating (Points)
Office paper	80-99%	88.9 Points
Serviettes	0%	0.0 Points
Tissues	100%	100.0 Points
Toilet tissue	40-59%	65.1 Points
Paper towels	100%	100.0 Points
	Overall Rating:	70.8 Points

7. Cleaning

Cleaning Products Rating (Points) ★

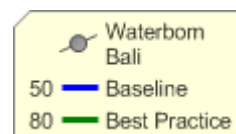
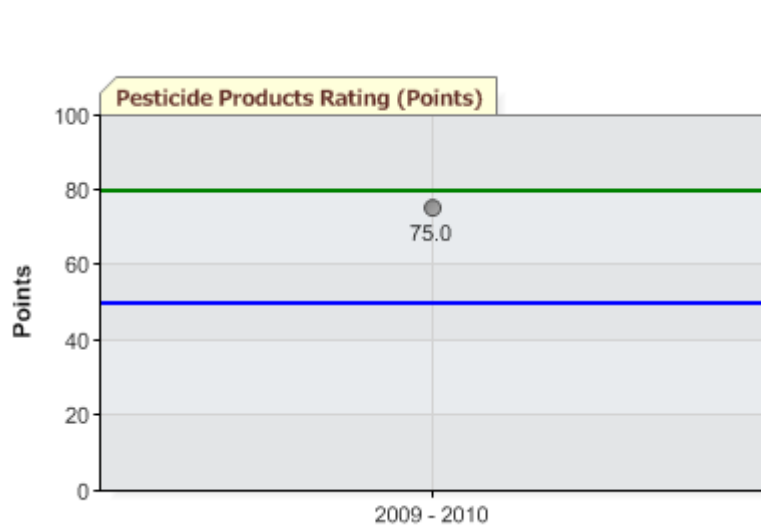


Cleaning Products Rating (Points) for the year 2009 - 2010 (13 April 2009- 12 April 2010) was 91.3 Points, which was 11.3 Points better than the Best Practice level.

Cleaning Products Measures	Frequency / Percentage Rating	Cleaning Products Rating (Points)
Hard floor cleaners	60-79%	73.9 Points
Carpet cleaners	Not Relevant / Not Available	100.0 Points
Interior surface cleaners	100%	100.0 Points
External surface cleaners	100%	100.0 Points
Glass cleaners	100%	100.0 Points
Detergents	40-59%	65.1 Points
Personal hygiene	100%	100.0 Points
	Overall Rating:	91.3 Points

8. Pesticides

Pesticide Products Rating (Points) ✓

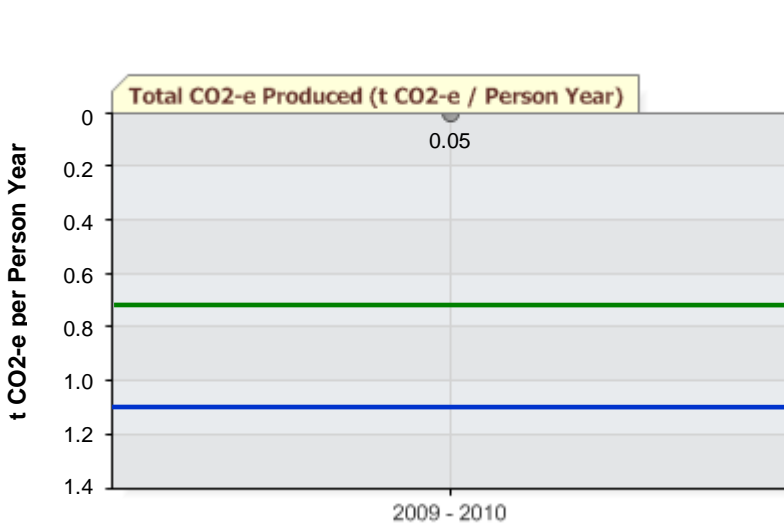


Pesticide Products Rating (Points) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 75.0 Points, which was 25.0 Points better than the Baseline level.

Pesticide Products Measures	Frequency / Percentage Rating	Pesticide Products Rating (Points)
Weed killers	Not Relevant / Not Available	100.0 Points
Fungal killers	100%	100.0 Points
Rodent killers	0%	0.0 Points
Insect killers	100%	100.0 Points
	Overall Rating:	75.0 Points

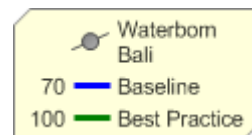
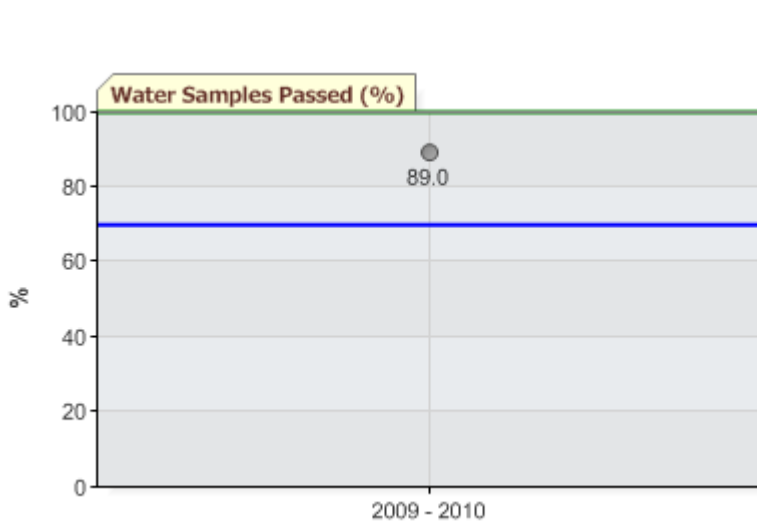
9. Sector Specific

Total CO₂-e Produced (t CO₂-e / Person Year) ★



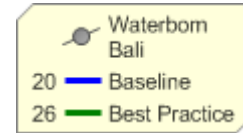
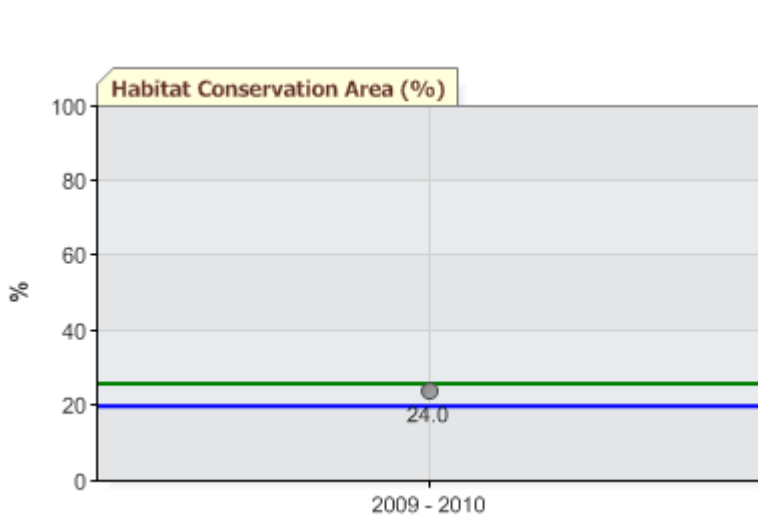
Total CO₂-e Produced (t CO₂-e / Person Year) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 0.05 t CO₂-e / Person Year, which was 93.2% better than the Best Practice level.

Water Samples Passed (%) ✓



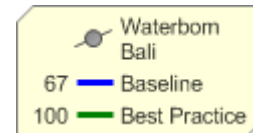
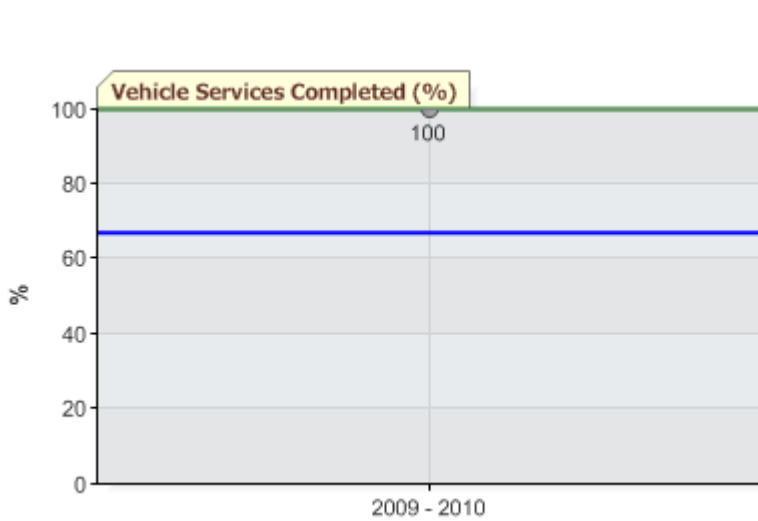
Water Samples Passed (%) for the year 2009 - 2010 (13 April 2009– 12 April 2010) was 89.0%, which was 19.0% better than the Baseline level.

Habitat Conservation Area (%) ✓



Habitat Conservation Area (%) for the year 2009 - 2010 (13 April 2009- 12 April 2010) was 24.0%, which was 4.0% better than the Baseline level.

Vehicle Services Completed (%) ★



Vehicle Services Completed (%) for the year 2009 - 2010 (13 April 2009- 12 April 2010) was 100%, which was at the Best Practice level.

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

CONCLUSION AND RECOMMENDATIONS

Congratulations, **Waterbom Bali** has passed the requirements to be recognised as an EarthCheck Benchmarked Theme Park.

In addition to having a Sustainability Policy in place, fourteen of the assessed EarthCheck indicators are at or above the Baseline level. From the benchmarking data provided, eight indicators, *Energy Consumption, Waste Sent to Landfill, Waste Recycling, Community Commitment, Community Contributions, Cleaning Products, CO₂-e Produced, Vehicle Management*, 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 **Waterbom Bali** 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 **Waterbom Bali** to continue to meet the benchmarking requirements of the EarthCheck program.

APPENDIX

ACTIVITY MEASURES

The benchmarking assessors sought clarification as the submitted figures of 348 Person Years and 3.9 Hectares (ha) were considerably lower than expected. The following comments were provided:

"I believe all the information should be correct. We had Mr Raka Dalem (affiliated with green globe) consult for us within the year, he helped me understand the functions and further more he reviewed all the data collected. One article of data could be incorrect, (activity measures). The 3.9 hectares is the total area of the Waterpark."

"In regards to the figure of the person years: Brief analysis:

*People visiting park over a 365 day period = Under 400,000 (under the companies confidentiality agreement, I can give you the exact figures)
Total Day Staff = an average of 120 people come to work a day (this figure changes per season –High season vs Low Season, less or more staff)
Staff Living onsite = 0"*

The benchmarking assessors recalculated Person Years as follows:

$$= \frac{[\text{Total Day Visitors}] + [\text{Total Day Staff (FTE)}] + [\text{Total Staff Living Onsite}]}{365}$$

$$= \frac{[\frac{400\,000}{3}] + [\frac{120 \times 365}{3}] + [0]}{365}$$

= 405.3 Person Years

ENERGY CONSUMPTION

The benchmarking assessors sought clarification as the submitted figures for *Energy Consumption* were considerably less than expected. The following comments were provided:

"I believe all the information should be correct. We had Mr Raka Dalem (affiliated with green globe) consult for us within the year, he helped me understand the functions and further more he reviewed all the data collected."

"I have just re-checked the data, and everything seems correct."

Total *Energy Consumption* was derived from the following energy sources:

Source	Quantity	Unit
Gasoline (automotive) - Grid	2403	L (litre)
Diesel - Grid	5000	L (litre)
Natural Gas - Grid	25.08	kg (kilogram)
Kerosene (power) - Grid	7728	kWh (kilowatt hour)

As Gasoline (automotive) – Grid, Diesel – Grid, and Natural Gas – Grid have been submitted in litres (L), litres (L), and kilograms (kg) respectively, it is likely that these are not Grid energy sources.

Therefore, the revised figures for total *Energy Consumption* are illustrated below:

Source	Quantity	Unit
Kerosene (power) - Grid	7728	kWh (kilowatt hour)
Gasoline (automotive)	2403	L (litre)
Diesel	5000	L (litre)
Natural Gas	25.08	kg (kilogram)

These sources produced a total of 304 397.1 MJ (304.4 GJ) which equates to 0.75 GJ per Person Year. The revised figure for total *Carbon Dioxide (CO₂) Produced* was 21 106.5 kg which equates to 52.1 kg per Person Year.

As there were no renewable sources of energy submitted, the figure for percentage of energy from renewable sources was changed reported as 0%. Please refer to the energy table on page 3 for more information.

POTABLE WATER CONSUMPTION

The benchmarking assessors sought clarification as the submitted figure for *Potable Water Consumption* was greater than expected. The following comments were provided:

"I believe all the information should be correct. We had Mr Raka Dalem (affiliated with green globe) consult for us within the year, he helped me understand the functions and further more he reviewed all the data collected."

"I have just re-checked the data, and everything seems correct."

WASTE SENT TO LANDFILL

The benchmarking assessors sought clarification as the submitted figure for *Waste Sent to Landfill* was considerably less than expected. The following comments were provided:

"I believe all the information should be correct. We had Mr Raka Dalem (affiliated with green globe) consult for us within the year, he helped me understand the functions and further more he reviewed all the data collected."

"I have just re-checked the data, and everything seems correct."

PESTICIDE PRODUCTS

The benchmarking assessors sought clarification as the *Pesticide Products* checklist included a selection for *Weed Killers* as 'Not Relevant / Not Available'. The following comments were provided:

"I believe all the information should be correct. We had Mr Raka Dalem (affiliated with green globe) consult for us within the year, he helped me understand the functions and further more he reviewed all the data collected."

"I have just re-checked the data, and everything seems correct."



EARTHCHECK

Benchmarks Assessed by EarthCheck

SUMMARY OF SUPPLIED BENCHMARKING DATA

Activity Measures

Person Years	405.3
Total Theme Park Area	3.9

Supplied Benchmarking Data

Energy

Energy Consumption (GJ / Person Year)

Supplied	304.3971 GJ
Calculated	0.75 GJ / Person Year
Baseline	14.8 GJ / Person Year
Best Practice	10.4 GJ / Person Year
Difference	92.8% better than the Best Practice level

Total CO₂-e Produced (kg CO₂-e / Person Year)

Supplied	21106.5 kg CO ₂ -e
Calculated	52.1 kg CO ₂ -e / Person Year

Renewable Energy Used (%)

Supplied	0%
Calculated	0%

Water

Potable Water Consumption (kL / Person Year)

Supplied	51107.3 kL
Calculated	126.1 kL / Person Year
Baseline	145.0 kL / Person Year
Best Practice	101.5 kL / Person Year
Difference	13.0% better than the Baseline level

Recycled / Captured Water (%)

Supplied	65.0%
Calculated	65.0%

Water Savings Rating (Points)

Supplied	76.0 Points
Calculated	76.0 Points
Baseline	50 Points
Best Practice	80 Points
Difference	26.0 Points better than the Baseline level

Waste

Waste Sent to Landfill (t / Person Year)

Supplied	0.556 t (uncompacted)
Calculated	0.0014 t / Person Year
Baseline	0.24 t / Person Year
Best Practice	0.16 t / Person Year
Difference	99.1% better than the Best Practice level

Recycled / Reused / Composted Waste (%)

Supplied	94.0%
Calculated	94.0%

Waste Recycling Rating (Points)

Supplied	85.7 Points
Calculated	85.7 Points
Baseline	50 Points
Best Practice	80 Points
Difference	5.7 Points better than the Best Practice level

Community

Community Commitment (%)

Supplied	100%
Calculated	100%
Baseline	60 %
Best Practice	100 %
Difference	at the Best Practice level

Community Contributions Rating (Points)

Supplied	91.7 Points
Calculated	91.7 Points
Baseline	50 Points
Best Practice	80 Points
Difference	11.7 Points better than the Best Practice level

Paper

Paper Products Rating (Points)

Supplied	70.8 Points
Calculated	70.8 Points
Baseline	50 Points
Best Practice	80 Points
Difference	20.8 Points better than the Baseline level

Cleaning

Cleaning Products Rating (Points)

Supplied	91.3 Points
Calculated	91.3 Points
Baseline	50 Points
Best Practice	80 Points
Difference	11.3 Points better than the Best Practice level

Pesticides

Pesticide Products Rating (Points)

Supplied	75.0 Points
Calculated	75.0 Points
Baseline	50 Points
Best Practice	80 Points
Difference	25.0 Points better than the Baseline level

Sector Specific

Total CO₂-e Produced (t CO₂-e / Person Year)

Supplied	21.1 t CO ₂ -e
Calculated	0.05 t CO ₂ -e / Person Year
Baseline	1.1 t CO ₂ -e / Person Year
Best Practice	0.74 t CO ₂ -e / Person Year
Difference	93.2% better than the Best Practice level

Water Samples Passed (%)

Supplied	89.0%
Calculated	89.0%
Baseline	70 %
Best Practice	100 %
Difference	19.0% better than the Baseline level

Habitat Conservation Area (%)

Supplied	24.0%
Calculated	24.0%
Baseline	20 %
Best Practice	26 %
Difference	4.0% better than the Baseline level

Vehicle Services Completed (%)

Supplied	100%
Calculated	100%
Baseline	67 %
Best Practice	100 %
Difference	at the Best Practice level

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 (m³) or litres (L)). These are: 1 kg (uncompacted waste) = 0.00333333 m³ or 3.33333 L and 1 kg (compacted waste) = 0.00153846 m³ 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).