

# ENVIRONMENTAL PERFORMANCE INDICES

## RAW WATER ABSTRACTION, MILLION CUBIC METERS GRI 303-1, 303-2

	2016	2017	2018
<b>Groundwater</b>	<b>76.52</b>	<b>88.98</b>	<b>85.23</b>
Manila Concession	0.88	0.91	1.70
BMDC	-	1.95	2.81
Calasiao Water	-	-	0.22
Clark Water	14.11	15.19	15.20
Estate Water	10.64	14.46	8.92
Laguna Water	50.89	56.47	55.90
Obando Water	-	-	0.48
<b>Surface Water</b>	<b>753.52</b>	<b>768.40</b>	<b>779.54</b>
Manila Concession (Umiray-Angat-Ipo-La Mesa Water Resource)	559.08	575.16	587.39
Boracay Water (Nabaoy River, Malay, Aklan)	5.87	6.71	5.07
Cebu Water (Luyang River, Cebu)	12.23	13.36	13.68
MWAP (Dau Tieng Lake, Dong Nai River)	176.34	173.17	170.76
Obando Water (Bulk – Angat)	-	-	2.64
<b>Total</b>	<b>830.04</b>	<b>857.38</b>	<b>864.77</b>

**TOTAL TREES PLANTED GRI 304-3**

	Years Covered	Total Number of Trees Planted
Ipo Watershed	2006-2018	319,868
La Mesa Watershed	2008-2018	252,429
Marikina Watershed	2010-2012	313,063
Nabaoy Watershed	2013-2018	64,116
Clark Water	2014-2018	1,710
Laguna Water	2014-2018	3,900
<b>Total</b>		<b>955,086</b>

**USED WATER TREATED, MILLION CUBIC METERS GRI 306-1**

	2016	2017	2018
Manila Concession	37.22	40.66	44.70
Boracay Water	2.09	2.50	2.04
Clark Water	6.27	6.94	7.00
Estate Water	4.25	4.78	6.77
Laguna Water	1.69	1.54	1.91
<b>Total</b>	<b>51.52</b>	<b>56.42</b>	<b>62.42</b>

**ORGANIC POLLUTION LOAD REMOVED, TONS BIOCHEMICAL OXYGEN DEMAND (BOD)**

	2016	2017	2018
Manila Concession	6,264	6,417	5,754
Boracay Water	658	758	445
Clark Water	216	852	779
Estate Water	1,706	866	1,895
Laguna Water	160	194	229
<b>Total</b>	<b>9,003</b>	<b>9,087</b>	<b>9,102</b>

**CARBON DIOXIDE AVOIDED DUE TO USED WATER TREATMENT AND BOD REMOVAL, TONS CO2 (EQ)**

	2016	2017	2018
Manila Concession	39,461	40,428	36,252
Boracay Water	4,145	4,778	2,802
Clark Water	1,361	5,366	4,910
Estate Water	10,748	5,456	11,937
Laguna Water	1,005	1,220	1,445
<b>Total</b>	<b>56,720</b>	<b>57,249</b>	<b>57,345</b>

**2018 AVERAGE EFFLUENT QUALITY GRI 306-1**

**AVERAGE EFFLUENT QUALITY OF MANILA CONCESSION, CLARK WATER AND LAGUNA WATER**

Parameters	DAO 35 Class C effluent requirements	2018 Average Effluent Quality		
		Manila Concession	Clark Water	Laguna Water
Receiving water body		Pasig River, San Juan River, Marikina River	Dolores Creek	Sta. Rosa River
BOD <sub>5</sub> , mg/l	≤ 50Z	1.57	9	16
COD, mg/l	≤ 100	19.31	61	51
TSS, mg/l	≤ 70	8.00	19	10
Oil and Grease, mg/l	≤ 5	<3.70	1	<1
Total Coliform, MPN/100ml	≤ 10,000	<16.75	79	1,646.37
pH	6.5 – 9.0	7.16	7.7	7.53
Color, PCU	≤ 150	12.39	32	21

### 2018 AVERAGE EFFLUENT QUALITY OF BORACAY WATER

Parameters	DAO -35 Class SB effluent requirements	2018 Average Effluent Quality
Receiving Water Body		Sibuyan Sea
BOD <sub>5</sub> , mg/l	≤ 30	6
COD, mg/l	≤ 60	36
TSS, mg/l	≤ 50	10
Oil and Grease, mg/l	≤ 5	<1.0
Total Coliform, MPN/100ml	≤ 3,000	220
pH	6.0 – 9.0	7.22
Color	≤ 100	20

### 2018 AVERAGE EFFLUENT QUALITY OF ESTATE WATER

Parameters	DAO 35 Class C effluent requirements	Estate Water				
		Ilingin Creek, Ilingin Bay	Laguna Lake (Lara, Inchican, and Tibig Creek; Silang-Sta Rosa River)	Iloilo River	Sapang Malaki	
Receiving Water Body						
BOD <sub>5</sub> , mg/l	≤ 50	1.6	12.75	105	25	<b>36.1</b>
COD, mg/l	≤ 100	21	23.75	393	41	<b>119.7</b>
TSS, mg/l	≤ 70	7	12	43	24	<b>19</b>
Oil and Grease, mg/l	≤ 5		4	5	2.7	<b>3.9</b>
Total Coliform, MPN/100ml	≤ 10,000		<1.8	4,939	1,492	<b>1477.6</b>
pH	6.5 – 9.0	7.3	7.52	7.3	7.2	<b>7.3</b>
Color, PCU	≤ 150				79	

	DAO 2016 Class D effluent requirements	Estate Water
Receiving Water Body		Mahiga Creek, Hippodromo Creek
BOD <sub>5</sub> , mg/l	≤ 120	19
COD, mg/l	≤ 200	54
TSS, mg/l	≤ 150	12
Oil and Grease, mg/l	≤ 15	3
Total Coliform, MPN/100ml	a	n/a
pH	5.5 - 9.5	7.5
Color, TCU	-	n/a

<sup>a</sup> If effluent is used to irrigate vegetable and fruit crops which may be eaten raw, fecal coliforms should be less than 500 MPN/100 ml.

	DAO 2016 Class SC effluent requirements	Estate Water
Receiving Water Body		Liloan Coastal Water
BOD <sub>5</sub> , mg/l	≤ 100	14
COD, mg/l	≤ 200	25
TSS, mg/l	≤ 100	5
Oil and Grease, mg/l	≤ 10	1
Total Coliform, MPN/100ml	≤ 10,000	Not analyzed
pH	6.0 - 9.0	8.0
Color, TCU	150	Not analyzed

	DAO 2016 Class SB effluent requirements	Estate Water
Receiving Water Body		Davao Gulf
BOD <sub>5</sub> , mg/l	≤ 30	34.8
COD, mg/l	≤ 60	49
TSS, mg/l	≤ 50	17.3
Oil and Grease, mg/l	≤ 5	2
Total Coliform, MPN/100ml	≤ 3,000	Not yet analyzed
pH	6.0 – 9.0	7.9
Color, TCU	≤ 100	Not analyzed

#### WATER SUPPLY CHEMICAL CONSUMPTION, TONS GRI 301-1

Company	2016	2017	2018
Manila Concession	5,987.00	6,615.65	18,507.63
Boracay Water	5.13	11.85	4.19
BMDC	-	2.56	3.13
Calasiao Water	-	-	4.94
Cebu Water	14.00	130.14	108.80
Clark Water	14.00	14.67	17.06
Estate Water	388.38	230.25	164.86
Laguna Water	545.00	755.43	855.07
MWAP (Kenh Dong Water and Thu Duc Water)	4,434.57	4,138.47	3,990.71
Obando Water	-	-	0.07
<b>Total</b>	<b>11,388</b>	<b>11,899</b>	<b>23,656</b>

**WATER SUPPLY CHEMICAL CONSUMPTION INTENSITY, TONS/MCM WATER ABSTRACTED**

Company	2016	2017	2018
Manila Concession	10.69	11.48	31.42
Boracay Water	0.87	1.77	0.83
BMDC		1.31	1.11
Calasiao Water			22.82
Cebu Water	1.14	9.74	7.95
Clark Water	0.99	0.97	1.12
Estate Water	36.50	15.92	9.72
Laguna Water	10.71	13.38	15.30
MWAP (Kenh Dong Water and Thu Duc Water)	25.15	23.90	23.37
Obando Water			0.14
<b>Total</b>	<b>13.72</b>	<b>14.34</b>	<b>28.50</b>

**USED WATER CHEMICAL CONSUMPTION, TONS GRI 301-1**

Company	2016	2017	2018
Manila Concession	2,171	1,239	2,014
Boracay Water	88	72	80
Clark Water	1	-	31
Estate Water	288	148	335
Laguna Water	46	47	57
<b>Total</b>	<b>2,594</b>	<b>1,506</b>	<b>2,517</b>

**USED WATER CHEMICAL CONSUMPTION INTENSITY, TONS/MCM USED WATER TREATED**

Company	2016	2017	2018
Manila Concession	58.33	33.30	54.11
Boracay Water	42.11	28.69	39.42
Clark Water	0.16	-	4.39
Estate Water	67.75	30.98	49.55
Laguna Water	27.22	30.65	29.79
<b>Average</b>	<b>50.35</b>	<b>26.70</b>	<b>40.33</b>

**ELECTRICITY CONSUMPTION, MILLION KWH GRI 302-1**

	2016	2017	2018
Manila Concession	108.84	115.04	126.70
BMDC	-	0.76	1.31
Boracay Water	4.08	5.29	3.66
Calasiao Water	-	-	0.08
Cebu Water	6.75	7.95	5.45
Clark Water	10.15	12.62	13.34
Estate Water	7.73	8.51	10.51
Laguna Water	20.51	27.23	22.17
MWAP (Kenh Dong Water and Thu Duc Water)	48.30	46.27	46.16
MWTS	0.02	0.03	0.02
Obando Water	-	-	0.29
<b>Total</b>	<b>206.39</b>	<b>223.69</b>	<b>229.69</b>

**GASOLINE CONSUMPTION, LITERS GRI 302-1**

	2016	2017	2018
Manila Concession	66,678	57,705	53,472
BMDC	-	-	5,437
Boracay Water	480	5,543	5,355
Calasiao Water	-	-	2,288
Cebu Water	2,800	1,992	1,657
Clark Water	4,864	6,259	6,190
Estate Water	389	1,920	2,795
Laguna Water	30,138	30,593	34,252
MWTS	85,447	50,588	54,363
Obando Water	-	-	145
<b>Total</b>	<b>190,796</b>	<b>154,600</b>	<b>165,954</b>



**DIESEL CONSUMPTION, LITERS GRI 302-1**

	2016	2017	2018
Manila Concession	503,902	573,589	590,046
BMDC	-	-	3,889
Boracay Water	37,980	70,791	150,531
Calasiao Water	-	-	8,785
Cebu Water	26,483	26,042	34,310
Clark Water	495,001	192,922	158,202
Estate Water	72,065	160,528	77,299
Laguna Water	120,307	125,997	61,747
MWTS	52,506	96,541	125,435
Obando Water	-	-	134
<b>Total</b>	<b>1,308,244</b>	<b>1,246,410</b>	<b>1,210,378</b>

**ELECTRICITY CONSUMPTION, GIGAJOULES (GJ)**

	2016	2017	2018
Manila Concession	391,831	414,140	456,114
BMDC	-	2,721	4,707
Boracay Water	14,688	19,033	13,164
Calasiao Water	-	-	302
Cebu Water	24,312	28,612	19,631
Clark Water	36,555	45,430	48,032
Estate Water	27,825	30,648	37,826
Laguna Water	73,836	98,027	79,802
MWTS	72	100	87
MWAP (Kenh Dong Water and Thu Duc Water)	173,886	166,583	166,159
Obando Water	-	-	1,045
<b>Total</b>	<b>743,006</b>	<b>805,295</b>	<b>826,870</b>

**FUEL (DIESEL AND GASOLINE) CONSUMPTION, GIGAJOULES (GJ)**

	2016	2017	2018
Manila Concession	21,821	24,206	24,696
BMDC	-	-	340
Boracay Water	1,487	2,933	6,012
Calasiao Water	-	-	420
Cebu Water	1,122	1,077	1,385
Clark Water	19,326	7,684	6,338
Estate Water	2,802	6,279	3,089
Laguna Water	5,705	5,941	3,582
MWTS	5,006	5,497	6,746
Obando Water	-	-	10
<b>Total</b>	<b>57,269</b>	<b>53,616</b>	<b>52,617</b>

**ENERGY INTENSITY OF WATER SUPPLY FACILITIES, GJ/MCM BILLED VOLUME GRI 302-3**

Water Supply	2016	2017	2018
Manila Concession	691	736	802
BMDC	-	3,249	2,880
Boracay Water	2,131	2,254	2,289
Calasiao Water	-	-	2,487
Cebu Water	2,174	2,350	1,641
Clark Water	3,843	3,341	3,478
Estate Water	8,967	6,030	3,957
Laguna Water	2,125	2,245	1,812
MWAP (Kenh Dong Water and Thu Duc Water)	1,036	988	994
Obando Water	-	-	626
<b>Average</b>	<b>972</b>	<b>1,009</b>	<b>1,002</b>

**ENERGY INTENSITY OF USED WATER FACILITIES, GJ/MCM TREATED USED WATER GRI 302-3**

	2016	2017	2018
Manila Concession	939	883	728
Boracay Water	2,691	3,614	4,743
Clark Water	532	485	515
Estate Water	2,116	2,049	2,648
Laguna Water	1,625	2,115	1,470
<b>Average</b>	<b>1,080</b>	<b>1,087</b>	<b>1,066</b>

**GREENHOUSE GAS EMISSIONS SCOPE 1 EMISSION (FUEL), TONS CO2 (EQ) GRI 305-1**

	2016	2017	2018
Manila Concession	1,506	1,672	1,706
BMDC	-	-	23
Boracay Water	103	203	416
Calasiao Water	-	-	29
Cebu Water	78	74	96
Clark Water	1,338	532	438
Estate Water	194	435	214
Laguna Water	393	409	246
MWTS	341	377	463
Obando Water	-	-	1
<b>Total</b>	<b>3,953</b>	<b>3,702</b>	<b>3,632</b>

**SCOPE 2 (ELECTRICITY) CO2 EMISSION, TONS CO2 (EQ) GRI 305-2**

	2016	2017	2018
Manila Concession	82,078	78,473	87,116
BMDC	-	469	876
Boracay Water	2,530	3,278	2,385
Calasiao Water	-	-	56
Cebu Water	4,187	4,928	4,192
Clark Water	6,296	7,824	8,939
Estate Water	4,792	5,278	6,867
Laguna Water	14,562	19,061	15,739
MWAP (Kenh Dong Water and Thu Duc Water)	39,385	37,731	37,635
MWTS	12	17	15
Obando Water	-	-	195
<b>Total</b>	<b>153,843</b>	<b>157,059</b>	<b>164,014</b>

**SCOPE 3 GHG EMISSION - DESLUDGING BY CONTRACTORS, TONS CO2 (EQ) GRI 305-3**

	2016	2017	2018
Manila Concession	1,457	1,598	1,540
Boracay Water	7	51	43
Clark Water	-	4	5
Laguna Water	-	-	23
<b>Total</b>	<b>1,464</b>	<b>1,653</b>	<b>1,611</b>

**GHG INTENSITY OF WATER FACILITIES, TONS CO2 (EQ)/MCM BILLED VOLUME GRI 305-4**

	2016	2017	2018
Manila Concession	144	135	149
BMDC	-	560	536
Boracay Water	349	363	384
Calasiao Water	-	-	329
Cebu Water	366	389	335
Clark Water	520	529	606
Estate Water	1,544	906	651
Laguna Water	319	375	355
MWAP (Kenh Dong Water and Thu Duc Water)	235	224	225
Obando Water	-	-	116
<b>Average</b>	<b>195</b>	<b>189</b>	<b>188</b>

**GHG INTENSITY OF USED WATER FACILITIES, TONS CO2 (EQ)/MCM TREATED USED WATER GRI 305-4**

	2016	2017	2018
Manila Concession	174	164	137
Boracay Water	431	560	596
Clark Water	88	79	92
Estate Water	364	343	495
Laguna Water	280	364	289
<b>Average</b>	<b>193</b>	<b>191</b>	<b>191</b>