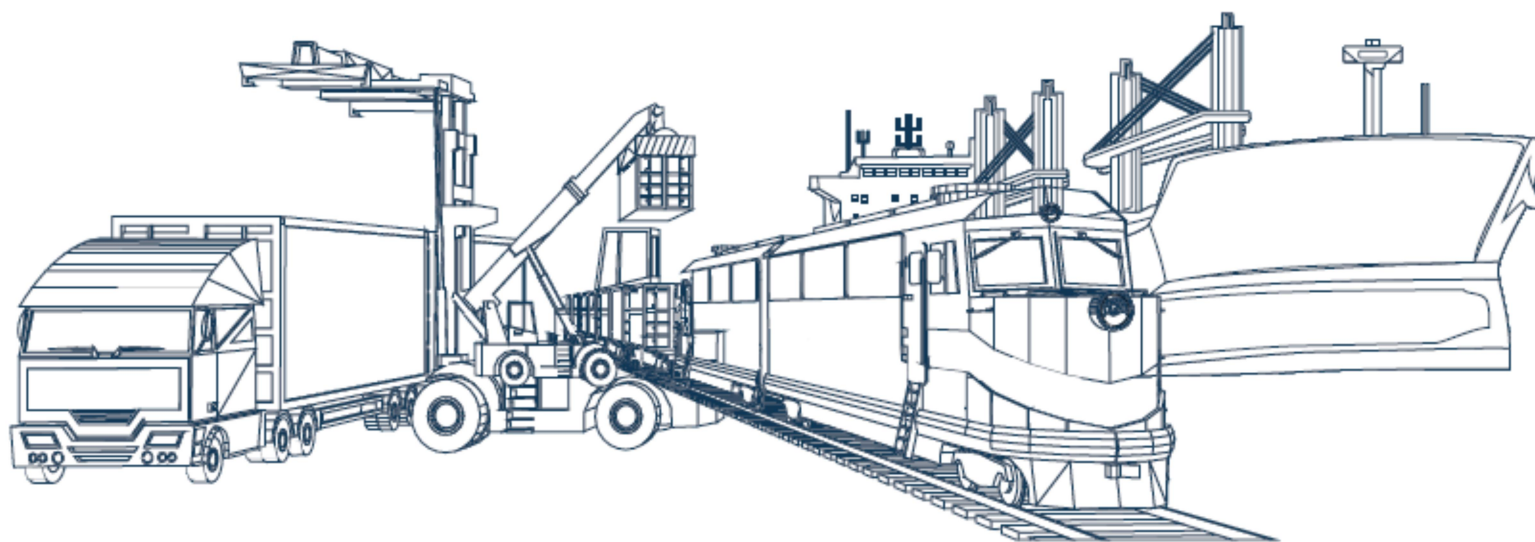




INTEGRATED ANNUAL REPORT 2016  
Environmental Information Supplement



FINANCIAL + FREIGHT + SHIPPING

[www.grindrod.com](http://www.grindrod.com)



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Grindrod acknowledges that the environment forms the basis for human survival and economic activity. As a responsible corporate citizen, Grindrod strives to minimise and mitigate the impact of its operations on the environment in a sensible, responsible, innovative and legally compliant manner.

This approach is formalised in Vision 2020, the Grindrod environmental and climate-change policy which was adopted by the board in 2012. It sets tangible targets to conserve natural resources, maximise eco-efficiency, prevent pollution and reduce waste and climate-change impacts. The policy forms the base for the development of business-specific implementation strategies at group businesses and subsidiaries over which Grindrod has operational control.

The policy gives substance to:

- two Grindrod sustainability pillars:
  - the adverse impact of Grindrod activities on the environment should be minimised; and
  - the health and safety of employees, contractors and visitors are of paramount importance;
- and three Grindrod values:
  - respect for the stakeholders, assets and the environment;
  - transparency in the disclosure of information to stakeholders; and
  - operating with integrity.

Environmental management is based on ISO 14001 criteria. Where feasible, companies and vessels develop integrated safety, health, environmental and quality management systems that include regular internal and external audits.

## GRI reporting

Grindrod has adopted the Global Reporting Initiative (GRI G4) Sustainability Reporting Guidelines to ensure structured sustainability reporting within its business. Information on the most critical impacts Grindrod has on the environment is included in this report, with details of disclosures specific to the framework being available in the GRI G4 content index on the company website.

## Reporting benchmarks

Vision 2020 requires that reports on environmental activities are accurate, transparent and complete, against key performance indicators, in line with requirements of the Greenhouse Gas (GHG) Protocol, King III and, where applicable, King IV reporting requirements and other benchmarks used to achieve integrated reporting on all six capitals.

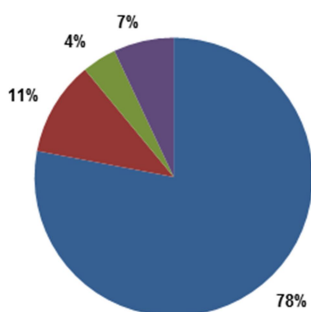
Other benchmarks which will be added progressively are from the 17 sustainable development goals (SDGs) published by the United Nations in terms of its 2030 Agenda for Sustainable Development. Grindrod supports the goals, which, collectively, aim to end poverty, protect the planet and ensure prosperity for all. Goals specific to the environment are climate action, life below water, life on land and clean water and sanitation.

## GHG Protocol

Vision 2020 contains specific emission-related objectives, based on the international GHG Protocol which provides accounting and reporting standards for the management of GHG emissions. These objectives focus on the use of non-renewable fossil fuels in Freight Services and Shipping, which collectively account for approximately 90 per cent of the Grindrod carbon footprint.

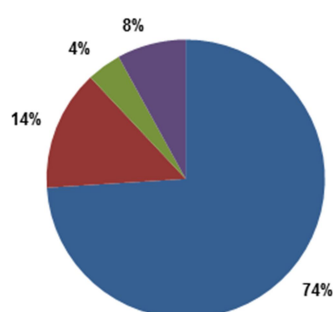
### Grindrod's carbon footprint (%)

2016



- Combustion of marine fuel in ships
- Land-based consumption of diesel and petrol
- Electricity
- Other

2015



The approach Grindrod follows, is the operational-control approach, because there are instances in which Grindrod has limited financial control or a minority shareholding, but sufficient operational control to influence emissions-reduction strategies through management or contractual arrangements.

In line with the protocol definition of operational control, Grindrod has disclosed 100 per cent of emissions from entities over which it has operational control, but none of entities in which the company does not have full authority to introduce and implement its operating policies.

Operational control is defined in the GHG protocol as “control over an operation if the company or one of its subsidiaries has the full authority to introduce and implement its operating policies at the operation”.

Determining authority is based on the objective and auditable existence of at least one of the following:

- **Ownership.** As financial control (either through majority shareholding or through contractual arrangements) and operational control are closely aligned, this forms the starting point for determining operational control. A 51 per cent or higher stake in a joint venture or company would indicate a high probability of having a reasonable ability to exert authority.
- **Employee authority.** Regardless of ownership, where Grindrod employees have reasonable ability or authority to make changes to or influence how the business is being run, this would indicate an ability to control operations. This may include an ability to exert control via board representation or direct management control of operations.
- **ISO 14001 EMS.** Where Grindrod has the reasonable ability to directly implement (by implication with own employees) or to influence the development (by non-employees) of an ISO 14001 environmental management system (EMS) or equivalent, this would indicate an ability to control operations.
- **Contractual arrangements.** Where Grindrod has the reasonable ability to impose environmental management directives in contractual obligations, this would indicate an ability to control operations.

The inclusion of “reasonable ability” is an important consideration. Within Shipping, for example, it could be argued that Grindrod has the ability to influence how all of its assets (ships) that are chartered out are managed and run. In reality and in the context of how the global shipping community operates, however, this is not the case.

Given Grindrod's business model and complex ownership and operational structures, particularly within the Freight Services and Shipping divisions, these screening rules have been applied firstly at company ownership level as well as at the level of asset ownership and operations (i.e. specific ships and land-based facilities) within these companies.

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Finally, Grindrod has adopted a conservative approach, including emissions from sources where interpretation of the screening rules are still not 100 per cent decisive.

GHG objectives in Vision 2020, against 2012 as base year, are to:

- reduce normalised overall group emissions CO<sub>2</sub>-e per rand revenue by 10 per cent;
- reduce ship-based GHG emissions (CO<sub>2</sub>-e) per tonne/NM by an average (across the fleet) of 10 per cent;
- reduce land-based GHG emissions per km by an average (across the transport fleet) by 10 per cent;
- reduce normalised land-based Scope 2 electricity consumption in machinery and buildings on property owned and operated by Grindrod) usage by 20 per cent; and
- increase the proportion of renewable energy consumption, such as wind- and solar-produced electricity and biofuels, to 5 per cent of total energy usage.

Besides GHG emissions, the combustion of fossil fuels by Grindrod's shipping and land-based transport activities also produces sulphur oxides (SO<sub>x</sub>), nitrous oxides (NO<sub>x</sub>) and particulates, while port activities and terminal operations generate dust. Grindrod is committed to managing these impacts responsibly, within legal parameters and, where possible, to reducing levels of air pollution.

Using 2010 as the base year, specific objectives and targets to be achieved by 2020 include a reduction of 10 per cent in SO<sub>x</sub> and NO<sub>x</sub> and vehicle emissions (per nautical mile for ships and per kilometre travelled for vehicles). These objectives and targets are met through division-specific improvement programmes that include eco-friendly fleet renewals and the increased use of cleaner fuels and emissions-abatement technologies.

## CDP

Grindrod subscribes to the international Carbon Disclosure Project (CDP), a global disclosure system that enables companies, cities and regions to measure and manage their environmental impacts. Participants are rated on:

- the level of effectiveness in addressing climate risk, based on scores ranging from level E to A, indicating top performance. Grindrod was rated B- (C in 2015), above the programme and industry averages.

## Eco-efficiency

Grindrod aims to improve eco-efficiency by using natural resources, particularly water and energy, as efficiently as possible and to reduce the unnecessary generation of waste and wastewater. Using 2010 as the base year, group-level eco-efficiency objectives and targets to be achieved by 2020 are to reduce:

- water and wastewater by reducing normalised water consumption, and the resulting wastewater effluent, within the group by 20 per cent; and
- solid waste by improving material recycling to 20 per cent of total solid waste generated.

## Marine biodiversity impacts

Shipping targets zero material pollution of the marine ecosystems that Grindrod's ships come into contact with. This objective is managed through rigorous on-board management systems that include ongoing training and awareness, and audits against international marine pollution prevention standards. To minimise potential impacts to marine ecosystems as a result of collisions and groundings, all tankers owned by Grindrod have double hull constructions or are constructed with materials designed to minimise corrosion and to promote robustness and longevity, and to have on-board navigation and safety equipment that is the best available.

All Grindrod's ships will be flagged under countries that are signatories to MARPOL (the international convention for the prevention of pollution from ships) and all of these ships will be required to maintain 100 per cent compliance with all relevant provisions and annexes of this convention. Ships bilge, ballast and wastewater discharge, and solid waste disposal, whilst at sea are in strict compliance with MARPOL at all times.

## Land-based environmental impacts

Grindrod strives to achieve zero material pollution of terrestrial ecosystems in which its land-based operations are located. This objective is managed through the implementation of rigorous management systems that ensure a prioritised approach to environmental risk management, ongoing training and awareness and environmental audits. All new land-based developments comply in full with country-specific environmental impact assessment regulations and approval conditions.

Businesses manage materials with caution. Hazardous materials and wastes are stored, used, managed and transported according to procedure and under controlled conditions, with consideration given to containment of potential spills and contaminated run-off.

## Environmental key performance indicators

Key environmental and climate-change indicators for Grindrod are monitored and managed in accordance with its Vision 2020. Shipping and Freight Services comprise 95+ per cent of the group's environmental footprint (99 per cent of total GHG emissions, 99 per cent of waste and 98 per cent of water consumption). Data for the other divisions is incorporated into group totals.

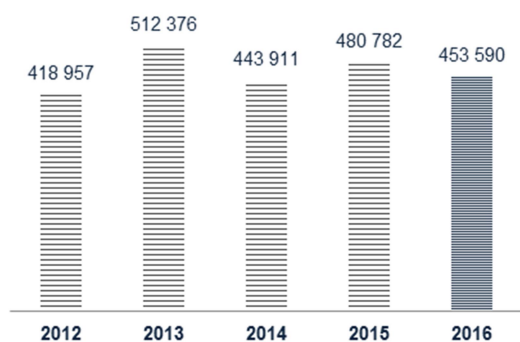
The following tables detail performance trends over five years.

### Consolidated Grindrod group (global) footprint trends over five years

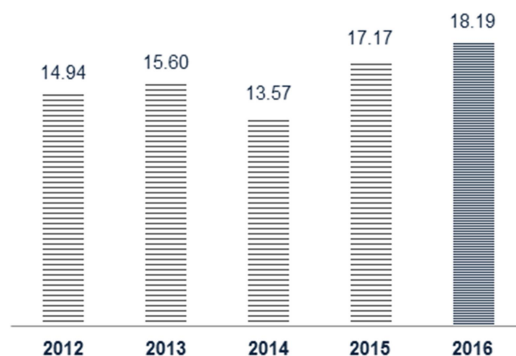
Key performance indicators	2016	2015	2014	2013	2012
<b>Water and wastewater (kilolitres)</b>					
Total water usage (land-based and ships)	152 180	277 523	219 507	227 156	191 529
Harvested rainwater usage (% of total)	2 264 (1.5%)	2 620 (1%)	4 858 (2%)	15 296 (7%)	11 942 (6%)
<b>Land-based water utilisation (kilolitres) (% contribution)</b>					
Domestic office use discharged to municipal sewer	44 147 (34%)	84 041 (32%)	66 530 (33%)	69 307 (33%)	65 634 (35%)
Domestic / office use – not to municipal sewer (e.g. soak away)	5 872 (5%)	10 028 (4%)	7 612 (4%)	7 794 (4%)	6 861 (4%)
Washing vehicles and equipment discharged to municipal sewer	31 708 (24%)	75 208 (29%)	57 093 (28%)	56 933 (28%)	41 996 (22%)
Washing vehicles and equipment - discharged to ground / storm-water	18 790 (14%)	37 604 (14%)	28 546 (14%)	29 904 (14%)	24 439 (13%)
Dust suppression - to atmosphere or storm-water system	25 836 (20%)	52 645 (20%)	39 965 (20%)	41 574 (20%)	46 579 (25%)
Other	3 523 (3%)	2 507 (1%)	1 903 (1%)	1 511 (1%)	2 719 (1%)
<b>Solid and liquid waste (tonnes)</b>					
Total solid and liquid waste generated (tonnes)	14 070	9 948	10 889	14 328	10 562
Solid and liquid waste – to landfill (tonnes)	619	1 088	1 838	8 120	8 824
MARPOL category 1-6 waste - disposed of at sea or incinerated at sea in accordance with MARPOL (tonnes)	1 867	1 900	158	586	687
Total land-based non-hazardous solid waste recycled (tonnes)	382 of 920 (42%)	5 172 of 9 948 (52%)	5 594 of 10 889 (52%)	4 177 of 7 792 (54%)	1 026 of 2 833 (36%)
<b>Energy, fuel and air emissions:</b>					
Total electricity usage (kWh)	18 799 752	19 061 710	22 085 003	21 416 815	22 560 736
Electricity efficiency (kWh per Full Time Equivalent)	3 197	2 706	2 942	2 791	3 093
Land-based diesel (kilolitres)	19 172	24 315	23 009	29 469	30 910
Land-based petrol (kilolitres)	186	602	278	413	531
LPG (tonnes)	10	8	15	19	3
Air pollution – SO <sub>x</sub> emitted (tonnes)	5 547	4 922	5 006	4 988	4 393
Air pollution – NO <sub>x</sub> emitted (tonnes)	10 378	10 302	10 138	10 324	7 449
Scope 1 and 2 GHG emissions (tonnes CO <sub>2</sub> -e) *	444 695	462 896	431 665	501 275	407 211
Total GHG emissions including scope 3 (tonnes CO <sub>2</sub> -e)	453 590	480 782	443 911	512 376	418 957
GHG emissions Intensity (gCO <sub>2</sub> -e per Rand revenue)	18.19	17.17	13.57	15.60	14.94
Total energy usage scope 1 and 2 (GJ)	6 495 578	6 512 775	6 698 816	6 119 047	5 421 251
Energy intensity (MJ per Rand revenue)	0.26	0.23	0.20	0.19	0.20

\* See breakdown on the following page.

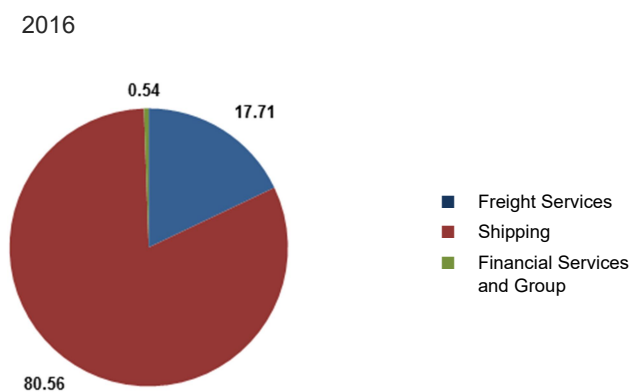
Total GHG emissions (CO<sub>2</sub> equivalent)



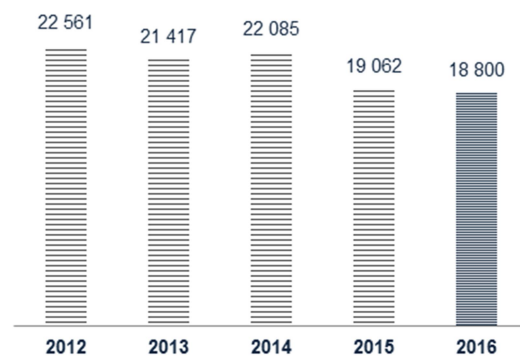
GHG emissions intensity (grams CO<sub>2</sub> per rand revenue)



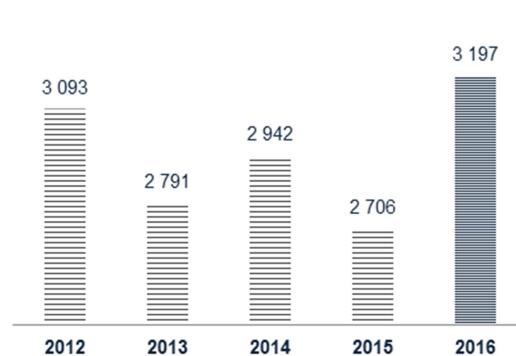
Divisional carbon footprint (%)



Total equivalent electricity usage (MWh)



Energy efficiency (electricity kWh/FTE)



## Grindrod group GHG emissions

Five year trends by GHG Protocol Scope and a divisional analysis and breakdown of scope 1 and 2 emissions for South African operations for 2016 is as follows:

		Group global totals					2016 divisional analysis			2016
		2016	2015	2014	2013	2012	Freight Services	Shipping	Financial Services and Head Office	South African scope 1&2 emissions
Scope 1	Combustion of fuel in ships where company has operational control*	359 175	354 398	340 771	328 891	276 535	-	359 175	-	34 741
	Company owned and/or operated vehicles, mobile equipment, locomotives	51 723	66 347	61 593	92 603	97 349	51 723	-	-	34 840
	Combustion in stationary fuel-burning equipment (generators and boilers)	6 701	7 866	150	13 618	350	6 701	-	-	5 296
	HFC refrigerant gasses	12 965	16 020	10 560	44 104	9 777	8 206	4 759	-	8 207
<b>Scope 1 subtotal</b>		<b>430 563</b>	<b>444 631</b>	<b>413 074</b>	<b>479 216</b>	<b>384 011</b>	<b>66 630</b>	<b>363 934</b>	<b>-</b>	<b>83 084</b>
Scope 2 total	Purchased electricity	14 132	18 265	18 592	22 059	23 199	11 696	-	2 436	10 477
Scope 3 & other	Business travel	5 404	12 982	6 194	1 962	1 868	-	-	-	-
	HCFCs and other non-Kyoto gases	1	57	157	424	357	1	-	-	-
	Waste sent to landfill	3 490	4 847	5 948	8 715	9 521	2 012	1 478	-	-
<b>Scope 3 &amp; other subtotal</b>		<b>8 895</b>	<b>17 886</b>	<b>12 246</b>	<b>11 101</b>	<b>11 746</b>	<b>2 013</b>	<b>1 478</b>	<b>-</b>	<b>-</b>
<b>Totals</b>	Metric tonnes of CO <sub>2</sub> -e	<b>453 590</b>	<b>480 782</b>	<b>443 965</b>	<b>512 376</b>	<b>418 956</b>	<b>84 624</b>	<b>365 412</b>	<b>2 436</b>	<b>93 561</b>
<b>Percentage contribution</b>							<b>18.36%</b>	<b>79.92%</b>	<b>0.53%</b>	
<b>GHG emissions intensity (gCO<sub>2</sub>-e per Rand revenue)</b>							<b>22.00</b>	<b>17.75</b>	<b>4.95</b>	

Notes:

All figures in metric tonnes CO<sub>2</sub>-e.

\* Grindrod's South African shipping emissions reported here are for operationally controlled ships' fuel purchased and combusted within South African EEZ waters.



## Detailed environmental footprint - Shipping

Key performance indicators	2016	2015	2014	2013	2012
<b>Water and wastewater (kilolitres)</b>					
Water usage (kilolitres) not including water generated on board at sea	22 303	20 391	17 858	20 132	20 786
Untreated effluent (domestic) – disposed of at sea in accordance with MARPOL (kilolitres)	19 669	16 100	16 588	38 242	24 040
Treated effluent – disposed of at sea in accordance with MARPOL(kilolitres)	29 503	24 150	24 882	76 742	5 179
Land-based (office) water and wastewater	Incl. in group	Incl. in group	Incl. in group	Incl. in group	Incl. in group
<b>Solid waste (tonnes)</b>					
Total Solid Waste (tonnes)	3 793	4 547	1 915	2 135	2 771
MARPOL category 1-6 waste - to licensed landfill sites (tonnes)	1 769	2 233	1 384	1 548	2 084
MARPOL category 1-6 waste - disposed of at sea or incinerated at sea in accordance with MARPOL (tonnes)	1 867	1 900	158	587	687
<b>Energy, fuel and air emissions:</b>					
Total electricity usage (kWh)	Incl. in group	Incl. in group	Incl. in group	Incl. in group	Incl. in group
Marine diesel oil (MDO) consumed (tonnes)	8 123	11 628	4 390	4 660	4 528
Heavy-sulphur fuel oil (HSFO) consumed (tonnes)	101 825	92 700	83 370	90 701	77 937
Low sulphur fuel oil (LSFO) consumed (tonnes)	5 094	9 029	21 275	15 709	10 950
Diesel usage in land-based vehicles (kilolitres)	Incl. in group	Incl. in group	Incl. in group	Incl. in group	Incl. in group
Petrol usage in land-based vehicles (kilolitres)	Incl. in group	Incl. in group	Incl. in group	Incl. in group	Incl. in group
Air pollution – SO <sub>x</sub> emitted (tonnes)	5 531	4 901	4 986	4 960	4 364
Air pollution – NO <sub>x</sub> emitted (tonnes)	9 765	9 513	9 354	9 261	6 331
SO <sub>x</sub> (tonnes) per 1000 NM	4.12	3.91	3.47	3.74	4.31
NO <sub>x</sub> (tonnes) per 1000 NM	7.28	7.63	6.55	6.96	6.19
Average per-ship CO <sub>2</sub> emissions efficiency (as per IMO guidelines) (gCO <sub>2</sub> e per tonne-NM)	11.45	10.20	7.22	9.78	11.99
Range per-ship CO <sub>2</sub> emissions efficiency (gCO <sub>2</sub> per tonne-NM)	6.73 – 422.09	2.66 - 240	1.053 - 684.193	3.60 - 254.14	2.93 - 673.71

## Detailed environmental footprint - Freight Services

Key performance indicators	2016	2015	2014	2013	2012
<b>Water and wastewater (kilolitres)</b>					
Total water usage	117 438	250 692	190 309	194 034	178 247
Harvested rainwater usage (% of total)	2 264 (1.89%)	2 620 (1%)	4 858 (3%)	15 296 (8%)	11 942 (7%)
<i>Water utilisation and fate (figures in kilolitres)</i>					
Domestic office use discharged to municipal sewer	31 708 (27%)	72 701 (29%)	55 190 (29%)	56 317 (29%)	55 653 (31%)
Domestic/office use – not to municipal sewer (e.g. soak away)	5 872 (5%)	10 028 (4%)	7 612 (4%)	7 794 (4%)	6 861 (4%)
Washing vehicles and equipment discharged to municipal sewer	31 708 (27%)	75 208 (30%)	57 093 (30%)	56 933 (29%)	41 996 (24%)
Washing vehicles and equipment - discharged to ground / storm-water	18 790 (16%)	37 304 (15%)	28 546 (15%)	29 904 (16%)	24 439 (14%)
Dust suppression - to atmosphere or storm-water system	25 836 (22%)	52 645 (21%)	39 965 (21%)	41 574 (21%)	46 579 (26%)
Other	3 523 (3%)	2 507 (1%)	1 903 (1%)	1 515 (1%)	2 719 (2%)
<b>Solid and liquid waste (tonnes)</b>					
Total solid waste (tonnes)	6642	1218	7 313	9 764	5 781
Total liquid waste (kilolitres)	804	2 601	2 062	1 437	1 960
Solid waste to landfill (tonnes)	619	1 039	1 719	4 152	4 749
Liquid waste to landfill (kilolitres)	171	310	1 671	1 437	1 949
Non-hazardous solid waste recycled (tonnes) (% of total)	382 of 920 (41.5%)	926 of 1 218 (76.0%)	5 594 of 7 313 (76.5%)	5 613 of 7 430 (75.5%)	1 026 of 2 833 (36.2%)
Hazardous liquid waste recycled (tonnes) (% of total)	160 of 172 (93%)	0 of 244 (0%)	0 of 2 062 (0%)	43.7 of 1 481 (3%)	10.5 of 1 960 (0.5%)
<b>Energy, fuel and air emissions:</b>					
Total electricity usage (kWh)	16 170 971	16 533 640	17 449 576	14 816 191	19 610 787
Total land-based diesel (kilolitres)	19 172	24 314	22 807	29 234	30 910
Total land-based petrol (kilolitres)	186	602	278	409	528
Parafin (LF-10) (kilolitres)	-	-	-	33	100
Total LPG (tonnes)	10	8	15	4	3
Heavy vehicle diesel emissions efficiency (kg CO <sub>2</sub> per km)	1.00	1.06	1.11	1.38	1.41
Air pollution – Total SO <sub>x</sub> (tonnes)	16.15	20.75	19.25	27.98	29.42
Air pollution – Total NO <sub>x</sub> (tonnes)	613.56	788.44	731.5	1 063	1 119
Heavy vehicle SO <sub>x</sub> emissions (kg SO <sub>x</sub> per 1000km)	0.35	0.37	0.39	0.42	0.43
Heavy vehicle NO <sub>x</sub> emissions (kg NO <sub>x</sub> per 1000km)	13.40	14.15	14.82	15.87	16.16