



2017

Environmental Information Supplement
Grindrod Limited



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.

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.

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 CO₂-e per rand revenue by 10 per cent;
- reduce ship-based GHG emissions (CO₂-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_x), nitrous oxides (NO_x) 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_x and NO_x 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.



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	2017	2016	2015	2014	2013
Water and wastewater (kilolitres)					
Total water usage (land-based and ships)	108 818	152 180	277 523	219 507	227 156
Harvested rainwater usage (% of total)	5 527 (6.0%)	2 264 (1.5%)	2 620 (1%)	4 858 (2%)	15 296 (7%)
Land-based water utilisation (kilolitres) (% contribution)					
Domestic office use discharged to municipal sewer	32 591 (36%)	44 147 (34%)	84 041 (32%)	66 530 (33%)	69 307 (33%)
Domestic / office use – not to municipal sewer (e.g. soak away)	4 033 (4%)	5 872 (5%)	10 028 (4%)	7 612 (4%)	7 794 (4%)
Washing vehicles and equipment discharged to municipal sewer	21 779 (24%)	31 708 (24%)	75 208 (29%)	57 093 (28%)	56 933 (28%)
Washing vehicles and equipment - discharged to ground / storm-water	12 906 (14%)	18 790 (14%)	37 604 (14%)	28 546 (14%)	29 904 (14%)
Dust suppression - to atmosphere or storm-water system	17 746 (19%)	25 836 (20%)	52 645 (20%)	39 965 (20%)	41 574 (20%)
Other	2420 (3%)	3 523 (3%)	2 507 (1%)	1 903 (1%)	1 511 (1%)
Solid and liquid waste (tonnes)					
Total solid and liquid waste generated (tonnes)	20 164	14 070	9 948	10 889	14 328
Solid and liquid waste – to landfill (tonnes)	2 299	619	1 088	1 838	8 120
MARPOL category 1-6 waste - disposed of at sea or incinerated at sea in accordance with MARPOL (tonnes)	1 558	1 867	1 900	158	586
Total land-based non-hazardous solid waste recycled (tonnes)	530 of 868 (61%)	382 of 920 (42%)	5 172 of 9 948 (52%)	5 594 of 10 889 (52%)	4 177 of 7 792 (54%)
Energy, fuel and air emissions:					
Total electricity usage (kWh)	18 390 686	18 799 752	19 061 710	22 085 003	21 416 815
Electricity efficiency (kWh per Full Time Equivalent)	3 515	3 197	2 706	2 942	2 791
Land-based diesel (kilolitres)	19 202	19 172	24 315	23 009	29 469
Land-based petrol (kilolitres)	121	186	602	278	413
LPG (tonnes)	4	10	8	15	19
Air pollution – SO _x emitted (tonnes)	4 234	5 547	4 922	5 006	4 988
Air pollution – NO _x emitted (tonnes)	8 296	10 378	10 302	10 138	10 324
Scope 1 and 2 GHG emissions (tonnes CO ₂ -e) *	373 665	444 695	462 896	431 665	501 275
Total GHG emissions including scope 3 (tonnes CO ₂ -e)	383 407	453 590	480 782	443 911	512 376
GHG emissions Intensity (gCO ₂ -e per Rand revenue)	125.32	137.96	17.17	13.57	15.60
Total energy usage scope 1 and 2 (GJ)	5 075 503	6 495 578	6 512 775	6 698 816	6 119 047
Energy intensity (MJ per Rand revenue)	1.66	1.98	0.23	0.20	0.19

* See breakdown on the following page.



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 2017 is as follows:

		Group global totals					2017 divisional analysis			2017
		2017	2016	2015	2014	2013	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*	285 933	359 175	354 398	340 771	328 891	-	285 933	-	28 576
	Company owned and/or operated vehicles, mobile equipment, locomotives	51 654	51 723	66 347	61 593	92 603	51 654	-	-	34 350
	Combustion in stationary fuel-burning equipment (generators and boilers)	6 574	6 701	7 866	150	13 618	6 574	-	-	5 128
	HFC refrigerant gasses	13 951	12 965	16 020	10 560	44 104	8 834	5 117	-	8 838
Scope 1 subtotal		358 112	430 563	444 631	413 074	479 216	67 062	291 050	-	76 892
Scope 2 total	Purchased electricity	15 554	14 132	18 265	18 592	22 059	13 135	-	2 419	9 714
Scope 3 & other	Business travel	3 236	5 404	12 982	6 194	1 962	Inc. in Group	Inc. in Group	Inc. in Group	
	HCFCs and other non-Kyoto gases	1	1	57	157	424	1	0	0	
	Waste sent to landfill	6 504	3 490	4 847	5 948	8 715	4 647	1 858	-	
Scope 3 & other subtotal		9741	8 895	17 886	12 246	11 101	4 648	1 858	-	
Totals	Metric tonnes of CO ₂ -e	383 407	453 590	480 782	443 965	512 376	84 844	292 907	2 419	86 606
Percentage contribution GHG emissions intensity (gCO₂-e per Rand revenue)		125.32	137.96	17.17	13.57	15.60	4.08	56.61	5.18	

Notes:

All figures in metric tonnes CO₂-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	2017	2016	2015	2014	2013
Water and wastewater (kilolitres)					
Water usage (kilolitres) not including water generated on board at sea	17 342	22 303	20 391	17 858	20 132
Untreated effluent (domestic) – disposed of at sea in accordance with MARPOL (kilolitres)	15 922	19 669	16 100	16 588	38 242
Treated effluent – disposed of at sea in accordance with MARPOL(kilolitres)	23 884	29 503	24 150	24 882	76 742
Land-based (office) water and wastewater	Incl. in group	Incl. in group	Incl. in group	Incl. in group	Incl. in group
Solid waste (tonnes)					
Total Solid Waste (tonnes)	4 749	3 793	4 547	1 915	2 135
MARPOL category 1-6 waste - to licensed landfill sites (tonnes)	3 028	1 769	2 233	1 384	1 548
MARPOL category 1-6 waste - disposed of at sea or incinerated at sea in accordance with MARPOL (tonnes)	1 558	1 867	1 900	158	587
Energy, fuel and air emissions:					
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)	9 112	8 123	11 628	4 390	4 660
Heavy-sulphur fuel oil (HSFO) consumed (tonnes)	74 329	101 825	92 700	83 370	90 701
Low sulphur fuel oil (LSFO) consumed (tonnes)	8 016	5 094	9 029	21 275	15 709
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 _x emitted (tonnes)	4 218	5 531	4 901	4 986	4 960
Air pollution – NO _x emitted (tonnes)	7 683	9 765	9 513	9 354	9 261
SO _x (tonnes) per 1000 NM	3.82	4.12	3.91	3.47	3.74
NO _x (tonnes) per 1000 NM	6.97	7.28	7.63	6.55	6.96
Average per-ship CO ₂ emissions efficiency (as per IMO guidelines) (gCO ₂ -e per tonne-NM)	9.50	11.45	10.20	7.22	9.78
Range per-ship CO ₂ emissions efficiency (gCO ₂ per tonne-NM)	42.06 – 297.93	6.73 – 422.09	2.66 – 240	1.053 – 684.193	3.60 – 254.14



Detailed environmental footprint - Freight Services

Key performance indicators	2017	2016	2015	2014	2013
Water and wastewater (kilolitres)					
Total water usage	80 664	117 438	250 692	190 309	194 034
Harvested rainwater usage (% of total)	5 527 (6.41%)	2 264 (1.89%)	2 620 (1%)	4 858 (3%)	15 296 (8%)
<i>Water utilisation and fate (figures in kilolitres)</i>					
Domestic office use discharged to municipal sewer	21 779	31 708 (27%)	72 701 (29%)	55 190 (29%)	56 317 (29%)
Domestic/office use – not to municipal sewer (e.g. soak away)	4 033	5 872 (5%)	10 028 (4%)	7 612 (4%)	7 794 (4%)
Washing vehicles and equipment discharged to municipal sewer	21 779	31 708 (27%)	75 208 (30%)	57 093 (30%)	56 933 (29%)
Washing vehicles and equipment - discharged to ground / storm-water	12 906	18 790 (16%)	37 304 (15%)	28 546 (15%)	29 904 (16%)
Dust suppression - to atmosphere or storm-water system	17 746	25 836 (22%)	52 645 (21%)	39 965 (21%)	41 574 (21%)
Other	2 420	3 523 (3%)	2 507 (1%)	1 903 (1%)	1 515 (1%)
Solid and liquid waste (tonnes)					
Total solid waste (tonnes)	10 829	6642	1218	7 313	9 764
Total liquid waste (kilolitres)	2 023	804	2 601	2 062	1 437
Solid waste to landfill (tonnes)	2 299	619	1 039	1 719	4 152
Liquid waste to landfill (kilolitres)	1 512	171	310	1 671	1 437
Non-hazardous solid waste recycled (tonnes) (% of total)	530 of 868 (61.0%)	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%)
Hazardous liquid waste recycled (tonnes) (% of total)	388 of 388 (100%)	160 of 172 (93%)	0 of 244 (0%)	0 of 2 062 (0%)	43.7 of 1 481 (3%)
Energy, fuel and air emissions:					
Total electricity usage (kWh)	15 779 871	16 170 971	16 533 640	17 449 576	14 816 191
Total land-based diesel (kilolitres)	19 202	19 172	24 314	22 807	29 234
Total land-based petrol (kilolitres)	121	186	602	278	409
Parafin (LF-10) (kilolitres)	-	-	-	-	33
Total LPG (tonnes)	3 906	10	8	15	4
Heavy vehicle diesel emissions efficiency (kg CO ₂ per km)	1.04	1.00	1.06	1.11	1.38
Air pollution – Total SO _x (tonnes)	16.12	16.15	20.75	19.25	27.98
Air pollution – Total NO _x (tonnes)	612.68	613.56	788.44	731.5	1 063
Heavy vehicle SO _x emissions (kg SO _x per 1000km)	0.37	0.35	0.37	0.39	0.42
Heavy vehicle NO _x emissions (kg NO _x per 1000km)	13.88	13.40	14.15	14.82	15.87