

# Appendix 4 – Environmental performance

Indicator	Unit	2017	2018	2019	2019 vs. 2018		Definition	Comments
					Δ	%		
<b>Air Emissions</b>								
<b>Key Air emissions</b>	<b>thousand tonnes</b>	<b>137.11</b>	<b>128.24</b>	<b>127.69</b>	<b>-0.55</b>	<b>-0.4</b>		
SO <sub>x</sub>	thousand tonne	58.18	51.30	45.38	-5.92	-11.5	Sulfur dioxide (SO <sub>2</sub> )	
NO <sub>x</sub>	thousand tonnes	29.17	29.69	28.86	-0.83	-2.8	Sum of Nitric oxides (NO <sub>x</sub> ) as nitrogen dioxide (NO <sub>2</sub> )	
Dust	thousand tonnes	48.61	45.98	52.15	6.17	13.4	Sum of PM10 and PM25	
VOC	thousand tonnes	1.15	1.26	1.30	0.04	3.2	Volatile organic compounds	
<b>CO</b>	<b>thousand tonnes</b>	<b>311.09</b>	<b>285.94</b>	<b>272.91</b>	<b>-13.03</b>	<b>-4.6</b>	<b>Carbon Monoxide (CO)</b>	
<b>Other</b>	<b>thousand tonnes</b>	<b>3.29</b>	<b>3.32</b>	<b>3.24</b>	<b>-0.08</b>	<b>-2.4</b>	<b>excl. CH<sub>4</sub>, see “Greenhouse Gases “</b>	
<b>Greenhouse Gases</b>								
<b>GHG Scope 1</b>	<b>million tonnes CO<sub>2</sub>e</b>	<b>36.68</b>	<b>34.56</b>	<b>39.06</b>	<b>4.50</b>	<b>13.0</b>	<b>Direct GHG emissions; sum of CO<sub>2</sub> equivalent of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, PFC, HFC, SF<sub>6</sub> and NF<sub>3</sub></b>	Direct GHG emissions are emissions from sources that are owned or controlled by EVRAZ
CO <sub>2</sub>	million tonnes CO <sub>2</sub> e	28.35	26.86	27.96	1.10	4.1	Carbon dioxide (CO <sub>2</sub> )	Direct CO <sub>2</sub> emissions from operations were calculated using the carbon balance method for carbon flows within production facilities, including fuel use. Emissions of other GHGs were calculated based on measured volumes, inventory changes or IPCC2006 factors and models (including for post-mining coal methane emissions) where direct measurement data were not available.
CH <sub>4</sub>	million tonnes CO <sub>2</sub> e	8.26	7.64	11.04	3.40	44.5	CO <sub>2</sub> equivalent of methane (CH <sub>4</sub> ) emission	
N <sub>2</sub> O	million tonnes CO <sub>2</sub> e	0.06	0.06	0.06	0.0	0.0	CO <sub>2</sub> equivalent of nitrous oxide (N <sub>2</sub> O) emission	
PFC and HFC	million tonnes CO <sub>2</sub> e	0.00003	0.00009	0.00002	-0.00007	-77.8	CO <sub>2</sub> equivalent of hydrofluorocarbons & perfluorocarbons emissions	
SF <sub>6</sub>	million tonnes CO <sub>2</sub> e	-	-	-	-	-	CO <sub>2</sub> equivalent of sulphur hexafluoride (SF <sub>6</sub> ) emissions	
NF <sub>3</sub>	million tonnes CO <sub>2</sub> e	-	-	-	-	-	CO <sub>2</sub> equivalent of nitrogen trifluoride (NF <sub>3</sub> ) emissions	
<b>GHG Scope 2</b>	<b>million tonnes CO<sub>2</sub>e</b>	<b>4.97</b>	<b>4.23</b>	<b>4.28</b>	<b>0.05</b>	<b>1.2</b>	<b>Indirect GHG emissions from consumption of purchased electricity, heat or steam</b>	Scope 2 emissions are emissions associated with the generation of electricity, heating/cooling, or steam purchased by EVRAZ assets for own consumption. Scope 2 emissions were estimated using emission factors specifically developed for the country or region, if available, or otherwise factors provided by UK Defra or given in National Inventory Reports.

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<b>Total GHG</b>	<b>million tonnes CO<sub>2</sub>e</b>	<b>41.65</b>	<b>38.79</b>	<b>43.35</b>	<b>4.56</b>	<b>11.8</b>	<b>Calculation perimeter includes the following subsidiaries:</b>	
GHG Steel Segment	million tonnes CO <sub>2</sub> e	30.44	28.15	29.32	1.17	4.2	EVRAZ NTMK, EVRAZ KGOK, EVRAZ ZSMK,	
Scope 1	million tonnes CO <sub>2</sub> e	27.02	25.47	26.58	1.11	4.4	Evrazruda, EVRAZ DMZ, EVRAZ, Vanady Tula, EVRAZ	
Scope 2	million tonnes CO <sub>2</sub> e	3.42	2.68	2.74	0.06	2.2	Caspian Steel, EVRAZ Palini e Bertoli, EVRAZ Nikom	
GHG Steel NA Segment	million tonnes CO <sub>2</sub> e	1.45	1.39	1.41	0.02	1.4	EVRAZ Stratcor, EVRAZ Calgary, EVRAZ Camrose,	
Scope 1	million tonnes CO <sub>2</sub> e	0.83	0.75	0.76	0.01	1.3	EVRAZ Portland, EVRAZ Pueblo, EVRAZ Red Deer, EVRAZ Regina,	
Scope 2	million tonnes CO <sub>2</sub> e	0.62	0.64	0.65	0.01	1.6		
GHG Coal Segment	million tonnes CO <sub>2</sub> e	9.76	9.25	12.61	3.36	36.3	Raspadskaya Coal Company, Mezhegeyugol	
Scope 1	million tonnes CO <sub>2</sub> e	8.82	8.34	11.73	3.39	40.6		
Scope 2	million tonnes CO <sub>2</sub> e	0.94	0.91	0.89	-0.02	-2.2		
<b>GHG per t of steel cast</b>	<b>tCO<sub>2</sub>e per tonne of steel cast</b>	<b>2.02</b>	<b>2.01</b>	<b>1.97</b>	<b>-0.04</b>	<b>-2.0</b>		
<b>GHG per net revenue</b>	<b>kg CO<sub>2</sub>e / US\$</b>	<b>3.80</b>	<b>3.00</b>	<b>3.64</b>	<b>0.64</b>	<b>21.3</b>		
GHG Steel Segment	kg CO <sub>2</sub> e / US\$	3.90	3.20	3.60	0.40	12.5		
GHG Steel NA Segment	kg CO <sub>2</sub> e / US\$	0.80	0.50	0.56	0.06	12.0		
GHG Coal Segment	kg CO <sub>2</sub> e / US\$	4.40	4.00	6.24	2.24	56.0		
<b>Water Management</b>								
<b>Total fresh water intake for production needs</b>	<b>million m<sup>3</sup></b>	<b>319.43</b>	<b>226.49</b>	<b>205.32</b>	<b>-21.17</b>	<b>-9.3</b>		
surface water sources	million m <sup>3</sup>	288.55	196.74	175.03	-21.71	-11.0		
ground water	million m <sup>3</sup>	9.09	8.64	9.20	0.56	6.5		
seawater	million m <sup>3</sup>	-	-	-	-	-		
public network	million m <sup>3</sup>	17.30	15.34	16.19	0.85	5.5		
other sources	million m <sup>3</sup>	4.49	5.77	4.90	-0.87	-15.1		
<b>Mine and quarry water usage for production needs</b>	<b>million m<sup>3</sup></b>	<b>21.15</b>	<b>17.36</b>	<b>21.22</b>	<b>3.86</b>	<b>22.2</b>		
mine water	million m <sup>3</sup>	11.78	11.01	13.70	2.69	24.4		
quarry water	million m <sup>3</sup>	9.37	6.35	7.52	1.17	18.5		

Indicator	Unit	2017	2018	2019	2019 vs. 2018	2019 vs. 2018	Definition	Comments
<b>Steel segment: fresh water intake for production needs</b>	<b>million m<sup>3</sup></b>	<b>274.08</b>	<b>183.18</b>	<b>164.66</b>	<b>-18.52</b>	<b>-10.1</b>	EVRAZ NTMK, EVRAZ ZSMK, EVRAZ DMZ (included in the figures for both 2017 and 2018, however, was sold in 2018), EVRAZ Vanady Tula, EVRAZ Caspian Steel, EVRAZ Palini e Bertoli, EVRAZ Nikom, EVRAZ Stratcor, EVRAZ Inc. NA (including EVRAZ Portland, EVRAZ Pueblo), EVRAZ Inc. NA Canada (including EVRAZ Camrose, EVRAZ Red Deer, EVRAZ Calgary, EVRAZ Regina)	
surface water sources	million m <sup>3</sup>	255.88	166.67	148.05	-18.62	-11.2		
ground water	million m <sup>3</sup>	4.88	4.69	4.74	0.05	1.1		
seawater	million m <sup>3</sup>	-	-	-	-	-		
public network	million m <sup>3</sup>	12.40	11.18	10.78	-0.40	-3.6		
other sources	million m <sup>3</sup>	0.92	0.64	1.09	0.45	71.0		
<b>Iron Ore: fresh water intake for production needs</b>	<b>million m<sup>3</sup></b>	<b>37.90</b>	<b>34.21</b>	<b>32.13</b>	<b>-2.08</b>	<b>-6.1</b>	<b>EVRAZ KGOK, Evrazruda, EVRAZ Sukha Balka (included only in the figure for 2017 due to asset disposition in 2017), Evraz Vametco (included only in the figure for 2017 due to asset disposition in 2017)</b>	
surface water sources	million m <sup>3</sup>	32.51	30.03	26.86	-3.17	-10.6		
ground water	million m <sup>3</sup>	0.61	0.58	0.54	-0.04	-7.0		
seawater	million m <sup>3</sup>	-	-	-	-	-		
public network	million m <sup>3</sup>	4.35	3.39	4.72	1.33	39.1		
other sources	million m <sup>3</sup>	0.43	0.21	0.01	-0.20	-94.1		
<b>Mine and quarry water usage for production needs</b>		<b>11.56</b>	<b>7.66</b>	<b>8.84</b>	<b>1.17</b>	<b>15.3</b>		
mine water	million m <sup>3</sup>	2.19	1.88	1.88	0.00	0.0		
quarry water	million m <sup>3</sup>	9.37	5.78	6.95	1.17	20.3		
<b>Coal segment: fresh water intake for production needs</b>	<b>million m<sup>3</sup></b>	<b>7.45</b>	<b>9.10</b>	<b>8.52</b>	<b>-0.58</b>	<b>-6.3</b>	<b>Raspadskaya Coal Company, Mezhegyugol</b>	
surface water sources	million m <sup>3</sup>	0.17	0.04	0.13	0.9	189.5		
ground water	million m <sup>3</sup>	3.60	3.36	3.91	0.55	16.4		
seawater	million m <sup>3</sup>	-	-	-	-	-		
public network	million m <sup>3</sup>	0.55	0.76	0.69	-0.08	-10.3		
other sources	million m <sup>3</sup>	3.13	4.93	3.79	-1.14	-23.0		
<b>Mine and quarry water usage for production needs</b>		<b>9.60</b>	<b>9.70</b>	<b>12.39</b>	<b>2.69</b>	<b>27.7</b>		

Indicator	Unit	2017	2018	2019	2019 vs. 2018		Definition	Comments
mine water	million m <sup>3</sup>	9.60	9.13	11.82	2.69	29.4		
quarry water	million m <sup>3</sup>	0.00	0.57	0.57	0.00	0.0		
<b>Fresh water withdrawal intensity</b>	<b>m<sup>3</sup>/tonne of steel cast</b>	<b>19.53</b>	<b>14.07</b>	<b>11.92</b>	<b>-2.15</b>	<b>-15.3</b>		
<b>Water discharge intensity</b>	<b>m<sup>3</sup>/tonne of steel cast</b>	<b>9.46</b>	<b>5.78</b>	<b>4.99</b>	<b>-0.79</b>	<b>-13.7</b>		
<b>Fresh water withdrawal intensity</b>	<b>m<sup>3</sup>/tonne of iron ore</b>	<b>2.61</b>	<b>2.54</b>	<b>2.34</b>	<b>-0.2</b>	<b>-7.9</b>		
<b>Water discharge intensity</b>	<b>m<sup>3</sup>/tonne of iron ore</b>	<b>0.97</b>	<b>0.89</b>	<b>0.93</b>	<b>0.04</b>	<b>4.5</b>		
<b>Fresh water withdrawal intensity</b>	<b>m<sup>3</sup>/tonne of raw coking coal</b>	<b>0.33</b>	<b>0.38</b>	<b>0.33</b>	<b>-0.05</b>	<b>-13.2</b>		
<b>Water discharge intensity</b>	<b>m<sup>3</sup>/tonne of raw coking coal</b>	<b>1.73</b>	<b>1.85</b>	<b>1.72</b>	<b>-0.13</b>	<b>-7.0</b>		
<b>Fresh water withdrawal intensity</b>	<b>m<sup>3</sup>/US\$ revenue</b>	<b>29.50</b>	<b>17.64</b>	<b>17.25</b>	<b>-0.39</b>	<b>-2.2</b>		
<b>Water recycled for use in own operations</b>	<b>%</b>	<b>90.4</b>	<b>92.8</b>	<b>93.3</b>	<b>0.50</b>	<b>0.5</b>		
<b>Total water discharge into water bodies</b>	<b>million m<sup>3</sup></b>	<b>185.68</b>	<b>131.85</b>	<b>125.91</b>	<b>-5.93</b>	<b>-4.5</b>		
Steel segment	million m <sup>3</sup>	132.75	75.27	68.90	-6.37	-8.5	EVRAZ NTMK, EVRAZ ZSMK, EVRAZ DMZ (included in the figures for both 2017 and 2018, however, was sold in 2018), EVRAZ Vanady Tula, EVRAZ Caspian Steel, EVRAZ Palini e Bertoli, EVRAZ Nikom, EVRAZ Stratcor, EVRAZ Inc. NA (including EVRAZ Portland, EVRAZ Pueblo), EVRAZ Inc. NA Canada (including EVRAZ Camrose, EVRAZ Red Deer, EVRAZ Calgary, EVRAZ Regina)	
Iron Ore	million m <sup>3</sup>	14.01	12.03	12.86	0.83	6.9	EVRAZ KGOK, Evrazruda, EVRAZ Sukha Balka (included only in the figure for 2017 due to asset disposition in 2017), Evraz Vametco (included only in the figure for 2017 due to asset disposition in 2017)	
Coal segment	million m <sup>3</sup>	38.92	44.55	44.15	-0.40	-0.9	Raspadskaya Coal Company, Mezhegeyugol, EVRAZ NMTP (was sold in 2017)	
<b>Waste &amp; By-product Management</b>								
<b>Non-mining waste &amp; by-product generation</b>	<b>kt</b>	<b>9,233.5</b>	<b>7,947.8</b>	<b>8,445.4</b>	<b>497.6</b>	<b>6.3</b>		

Indicator	Unit	2017	2018	2019	2019 vs. 2018	Definition	Comments
Metallurgical by-product generation	kt	7,629.5	6,401.7	6,829.6	427.9	6.7	
General waste	kt	1,603.9	1,546.1	1,615.7	69.6	4.5	
non-hazardous waste generation	kt	1,533.5	1,471.9	1,547.4	75.5	5.1	
hazardous waste generation	kt	70.5	74.2	68.3	-5.9	-7.9	
Non-mining waste & by-product recycled	kt	9,666.7	8,846.8	8,881.2	34.4	0.4	
Non-mining waste & by-product non-recycled	kt	538.7	591.2	661.6	70.4	11.9	
Non-mining waste recycling or re-use rate	%	104.7	111.3	105.2	-6.1	-5.5	
Mining waste	kt	169,569.5	232,004.5	198,827.7	-33,176.8	-14.3	
Mining waste used	kt	50,353.5	62,049.0	75,467.9	13,418.9	21.6	
Mining waste recycling or re-use rate	%	29.7	26.7	38.0	11.3	42.3	
<b>Environmental Management</b>							
Environmental commitments	US\$ million	102	121	198.6	77.60	64.1	a documented and approved by regulator liability to perform corrective actions to be in compliance with environmental requirements applicable to a specific facility Exchange rate as of 31 December report year
Environmental Liabilities (Site Restoration Provisions)	US\$ million	289	244	342	98.00	40.2	Site Restoration Provision – is a legal obligation associated with the retirement of a tangible long-lived asset (i.e. remediation work such as, land rehabilitation, removing underground fuel storage tanks, cleanup, etc.). The amount of Environmental Liabilities is calculated using discounted amounts of future cash flows and disclosed in the Financial Statements as Site restoration provision. Exchange rate as of 31 December report year
Environmental levies and fines for non-compliance	US\$ million	2.6	2.2	5.0	2.80	127.3	
Cost of environmental compliance	US\$ million	30.7	30.1	30.3	0.20	0.7	
Investments to improve environmental performance	US\$ million	28	29.8	28.8	-1.00	-3.4	
Material environmental incidents	cases	0	0	0	0.00	-	
Public complaints	cases	29	36	31	-5.00	-13.9	
Compliance with REACH requirements	cases of non-compliance	0	0	0	0.00	-	