## **Environmental** performance indicators



## Our reporting process

Environmental data is collected and reviewed on a quarterly basis. The 2021 environmental and resource data published in the Novartis in Society Integrated Report are actual data for the period from January through September and best estimates for the period October through December. This data has now been updated with actual data following the criteria set out by the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard.

Total scope 1 and scope 2 (market-based excluding offsets)'     876.1     713.8       Scope 1 and scope 2 (market-based excluding offsets)'     876.1     700.8       Scope 2, location-based     564.7     487.2       Scope 3, aptilal goods     371.7     278.7       Scope 3, aptilal goods     322.8     282.3       Scope 3, upstream transportation and distribution     308.5     319.9       Scope 3, all and energy related activities     327.1     68.3       Scope 3, upstream transportation and distribution     180.6     144.5       Scope 3, all ord-life treatment of sold products     134.5     124.5       Scope 3, all ord-life treatment of sold products     134.5     124.5       Total scope 1, scope 2 and scope 3 emissions     8.665.5     7.988.3       Offsets'     29.8     33.6       Emissions (market-based Scope 1 and Scope 2) (CO2e per FTE     8.4     6.6       SCop, Intensity per sales (ICO2e per million USD sales)     0.0     0.0       Otal scope 1 and (mortic Consol and (VOCs)     26.6     11.6       Consol addition addition and scope 2) (CO2e per million USD sales)     0.0     0.0       Operation Undexter L	8     632.       2     439.       0     5,958.       7     303.       3     255.       9     199.       9     26.       3     35.	700.8 487.2 5,754.0 278.7		•
Scope 2, location-based     5667.3     5.754.0       Scope 3, acipital goods     317.7     278.7       Scope 4, fuel and energy related activities     322.8     282.3       Scope 3, usite generated in operations     317.4     27.9       Scope 3, generated in operations     37.4     27.9       Scope 3, usites travel?     337.1     668.3       Scope 3, usites travel?     337.1     668.3       Scope 3, devines travel?     337.1     668.3       Scope 3, endployee commute     148.5     103.5       Scope 3, end-life treatment of sold products     134.5     124.5       Total scope 2 amissions <sup>3</sup> 7.776.9     7.274.5       Total scope 2 and scope 2 and scope 2) tCO2e per FIE     8.4     6.6       C91 intensity per sales (CO2e per million USD sales)     0.0     0.0       C92 intensity per sales (CO2e per million USD sales)     0.0     0.0       C91 intensity per sales (CO2e per million USD sales)     0.0     0.0       C91 intensity per sales (CO2e per million USD sales)     0.0     0.0       C91 intensity per sales (CO2e per million USD sales)     0.0     0.0	5     292.       8     645.       8     632.       2     439.       0     5,958.       7     303.       3     255.       9     199.       9     26.       3     35.	335.5 713.8 700.8 487.2 5,754.0 278.7	404.0 888.9	Scope 1, combustion and process
Total scope 1 and scope 2 (market-based excluding offsets)   88.9   713.8     Scope 1 and scope 2 (market-based excluding offsets)   876.1   700.8     Scope 2, location-based   5867.3   5.754.0     Scope 3, and services   5.867.3   5.754.0     Scope 3, sputhased goods and services   317.7   278.7     Scope 3, spit and energy related activities   322.8   282.3     Scope 3, spit and energy related activities   322.8   282.3     Scope 3, spit and energy related activities   337.4   27.9     Scope 3, spit and energy related activities   337.4   27.9     Scope 3, spit and energy related activities   337.4   27.9     Scope 3, spit and scope 1, scope 2 and scope 3 emissions   186.6   145.7     Scope 3, down of sold products   134.5   124.5     Total scope 1, scope 2 and scope 3 emissions   8.665.8   7.988.3     Offsets'   29.8   33.6   144.4     GHG emissions (market-based Scope 1 and Scope 2) (CO2e per FTE   8.4   6.6     Scope 1, scope 2 and scope 2 emillion USD sales)   0.0   0.0     Che emissions (market-based Scope 1 and Scope 2) (CO2e per FTE   8.4   6.6 <	8     645.       8     632.       2     439.       0     5,958.       7     303.       3     255.       9     199.       9     26.       3     35.	713.8 700.8 487.2 5,754.0 278.7	888.9	
Scope 1 and scope 2 from energy consumption (market-based excluding offsets)1     876.1     700.8       Scope 2, Location-based     5687.3     5774.0       Scope 3, jourchased goods and services     5.867.3     5774.0       Scope 3, jourchased goods and services     322.8     282.3       Scope 3, jourchased goods and services     322.8     282.3       Scope 3, supstream transportation and distribution     30.8     319.9       Scope 3, business travel <sup>2</sup> 337.1     668.3       Scope 3, supstream transportation and distribution     148.5     103.5       Scope 3, end-of-life treatment of sold products     142.5     169.6       Scope 3, sec is old products     124.5     174.5       Total scope 3 exis old products     124.5     144.6       Chester     29.8     33.6       Emissions (market-based Scope 1 and Scope 2) (CO2e per FTE     8.4     6.6       GO2, intensity per sales (CO2e per million USD sales)     0.0     0.0       Nor. Antecipy per sales (CO2e per million USD sales)     0.0     0.0       Stope raises     Coope of perime raises     6.6     11.6       Nor. Antecipy per sales (CO2e per milli	8     632.       2     439.       0     5,958.       7     303.       3     255.       9     199.       9     26.       3     35.	700.8 487.2 5,754.0 278.7		•
Scope 2, location-based     564.7     487.2       Scope 3, capital goods     317.7     278.7       Scope 3, capital goods     317.7     278.7       Scope 3, Luel and energy related activities     322.8     282.3       Scope 3, Jueis and energy related activities     322.8     282.3       Scope 3, Jueisment transportation and distribution     308.5     319.9       Scope 3, Jueismes travel <sup>2</sup> 337.1     66.3       Scope 3, Jueismes travel <sup>2</sup> 337.1     66.3       Scope 3, Jueismes travel <sup>2</sup> 337.1     66.3       Scope 3, end-file reatment of sold products     144.5     194.5       Total scope 2 and scope 2 and scope 3 emissions <sup>3</sup> 7.776.9     7.274.5       Total scope 1, scope 2 and scope 3 emissions     8.666.8     7.988.3       Offstat <sup>2</sup> 29.8     33.6       Emissions Intensity     29.8     33.6       Emissions in (market-based Scope 1 and Scope 2) (CO2e per FTE     8.4     6.6       Offstation (market-based Scope 1 and Scope 2) (CO2e per FTE     8.4     6.6       Ozone-depleting substances (OD5) emissions caused by losses (metric tons of R11 equivalent)     0.0     0	0 5,958. 7 303. 3 255. 9 199. 9 26. 3 35.	5,754.0 278.7	0/0.1	
Scope 3, capital goods     317.7     278.7       Scope 3, buel and energy related activities     322.8     282.3       Scope 3, upstream transportation and distribution     306.5     319.9       Scope 3, upstream transportation and distribution     307.1     66.3       Scope 3, usines stravel     337.1     66.3       Scope 3, outprises travel     337.1     66.3       Scope 3, outprises travel     134.5     103.5       Scope 3, outprises travel     134.5     124.5       Total scope 3 emissions <sup>3</sup> 7.776.9     7.274.5       Total scope 3 emissions <sup>3</sup> 7.776.9     7.274.5       Total scope 3 emissions intensity     22.8     33.6       Emissions Intensity     20.0     0.0     0.0       CNS intensity per sales (CO2e per million USD sales)     0.0     0.0     0.0       Non-halogenated Volatile Organic Compounds (VOCs)     26.6     11.6     Non-halogenated Volatile Organic Compounds (VOCs)     28.6     24.6     4.3       Nitrogen Could Collis Organic Compounds (VOCs)     28.6     11.6     Non-halogenated Volatile Organic Compounds (VOCs)     28.6     11.6	7     303       3     255       9     199       9     26       3     35	278.7	564.7	
Scope 3, Lust and energy related activities     322.8     282.3       Scope 3, Lust and energy related activities     308.5     319.9       Scope 3, Justies generated in operations     37.4     27.9       Scope 3, stugies generated in operations     37.4     27.9       Scope 3, stugies generated in operations     142.5     103.5       Scope 3, end-of-life treatment of sold products     142.5     109.6       Scope 3, end-of-life treatment of sold products     134.5     124.5       Total scope 3 emissions <sup>3</sup> 7.776.6     7.274.5       Total scope 1 scope 2 and scope 2 emissions     8.665.8     7.988.3       Offsets*     20.8     33.6       Emissions Intensity     20.8     33.6       CHG emissions (market-based Scope 1 and Scope 2) ICO2e per FTE     8.4     6.6       SO2, intensity per sales (CO2e per million USD sales)     0.0     0.0       Emissions inclussity     0.0     0.0     0.0       Emissions inclussity     26.6     11.6     14.4       SO2, intensity per sales (CO2e per million USD sales)     0.0     0.0     0.0       Usin unsity per sales (CO2e per million USD s	3 255 9 199 9 26 3 35		5,867.3	Scope 3, purchased goods and services
Scope 3, upstream transportation and distribution     308 5     319.9       Scope 3, usate generated in operations     374     27.9       Scope 3, subiness travel <sup>2</sup> 337.1     68.3       Scope 3, demotysteam transportation and distribution     148.5     103.5       Scope 3, demotysteam transportation and distribution     148.5     124.5       Scope 3, end-of-life treatment of sold products     134.5     124.5       Total scope 1, scope 2 and scope 3 emissions     8.665.8     7.988.3       Offsets <sup>4</sup> 29.8     33.6       CHG emissions (market-based Scope 1 and Scope 2) tCO2e per million USD sales     18.5     14.4       GHG emissions (market-based Scope 1 and Scope 2) tCO2e per FTE     8.4     6.6       SO2, intensity per sales (tCO2e per million USD sales)     0.0     0.0       Nov. hatogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Nor-halogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Nortalogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Nortalogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Nortalogenated Volatile Organic Compounds (VOCs)     26.6     11.6	9 199 9 26 3 35	282.3	317.7	Scope 3, capital goods
Scope 3, waste generated in operations     37 4     27.9       Scope 3, mulpoyee commute     337.1     68.3       Scope 3, genployee commute     148.5     103.5       Scope 3, send of sold products     142.5     169.6       Scope 3, use of sold products     142.5     169.6       Scope 3, use of sold products     134.5     124.5       Total scope 1, scope 2 and scope 3 emissions <sup>3</sup> 7.776.9     7.274.5       Total scope 1, scope 2 and scope 3 emissions     8.665.8     7.988.3       Offsets <sup>4</sup> 29.8     33.6       Emissions intensity     29.8     33.6       Chinesing intensity     29.8     33.6       Chinesing intensity per sales (ICO2e per million USD sales)     0.0     0.0       Nox, intensity per sales (ICO2e per million USD sales)     0.0     0.0       Chinesing in a for (metric tons)     4.6     4.3       Halogenated Volatile Organic Compounds (VOCs)     406.8     443.0       Norace (SO2)     406.8     54.7       Surface water (total)     4.3     4.5       Vitrogen Oxides (NOX)     236.3     212.0	.9 26 .3 35		322.8	Scope 3, fuel and energy related activities
Scope 3, business travel <sup>2</sup> 337.1     68.3       Scope 3, dynamic stravel <sup>2</sup> 337.1     68.3       Scope 3, dynamic stravel <sup>2</sup> 148.5     103.5       Scope 3, dynamic stream transportation and distribution     160.6     142.5     169.6       Scope 3, dynamic dynamic stream transportation and distribution     142.5     169.6     50.00     142.5     169.6     50.00     142.5     169.6     50.00     143.5     124.5     124.5     169.6     50.00     177.6     9     7.274.5     50.665.8     7.988.3     07.665.8     7.988.3     07.665.8     14.4     66     67.988.3     00.0     0.0 <td>.3 35</td> <td>319.9</td> <td>308.5</td> <td>Scope 3, upstream transportation and distribution</td>	.3 35	319.9	308.5	Scope 3, upstream transportation and distribution
Scope 3, employee commute     148.5     103.5       Scope 3, ed sold products     142.5     169.6       Scope 3, use of sold products     134.5     124.5       Total scope 3 emissions <sup>3</sup> 7,776.9     7,274.5       Total scope 1, scope 2 and scope 3 emissions     8,665.8     7,988.3       Offsets <sup>4</sup> 29.8     33.6       Emissions intensity     20.8     33.6       Emissions (market-based Scope 1 and Scope 2) ICO2e per rFTE     8.4     6.6       SO2, intensity per sales (ICO2e per million USD sales)     0.0     0.0       RO4 emissions (market-based Scope 1 and Scope 2) ICO2e per FTE     8.4     6.6       SO2, intensity per sales (ICO2e per million USD sales)     0.0     0.0       Nox, intensity per sales (ICO2e per million USD sales)     0.0     0.0       SO2, intensity per sales (ICO2e per million USD sales)     0.0     0.0       SO2 intensity organic Compounds (VOCs)     26.6     11.6       Non-halogenated Volatile Organic Compounds (VOCs)     236.3     212.0       Particulates     12.9     11.4       Water offilion m3)     9.1     7.0       Groundwa		27.9	37.4	Scope 3, waste generated in operations
Scope 3, downstream transportation and distribution     160.6     145.7       Scope 3, downstream transportation and distribution     160.6     145.7       Scope 3, sue of sold products     134.5     159.6       Scope 3, and-of-life treatment of sold products     134.5     124.5       Total scope 1, scope 2 and scope 3 emissions     8,665.8     7,998.3       Offsets*     29.8     33.6       Emissions (market-based Scope 1 and Scope 2) ICO2e per FTE     8.4     6.6       SO2, intensity per sales (ICO2e per million USD sales)     0.0     0.0       Nox, intensity per sales (ICO2e per million USD sales)     0.0     0.0       Nox, intensity per sales (ICO2e per million USD sales)     0.0     0.0       Nox, intensity per sales (ICO2e per million USD sales)     0.0     0.0       Ozone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Suffac value (ISO2)     4.6     4.3     11.0       Water (Million m?)     7.0     7.0     7.0       Total water with drawal from all areas <sup>5</sup> 66.8     54.7     5.9       Vater collected from rain (total)     9.1     7	5 127		337.1	Scope 3, business travel <sup>2</sup>
Scope 3, use of sold products     142.5     169.6       Scope 3, end-of-life treatment of sold products     134.5     124.5       Total scope 2 and scope 3 emissions     8,665.8     7,988.3       Offsets4     29.8     333.6       Enissions intensity     20.8     333.6       Enissions (market-based Scope 1 and Scope 2) tCO2e per rillion USD sales     18.5     14.4       GFG emissions (market-based Scope 1 and Scope 2) tCO2e per rFTE     8.4     6.6       SO2, intensity per sales (tCO2e per million USD sales)     0.0     0.0       NOX, intensity per sales (tCO2e per million USD sales)     0.0     0.0       Conce-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Suffur Oxides (NOX)     28.6     14.6     4.3       Nor-halogenated Volatile Organic Compounds (VOCs)     246.8     54.7       Suffur Oxides (NOX)     236.3     212.0       Particulates     12.9     11.4       Water (million m*)     10.0     0.0       Oral water withdrawal from all areas5     66.8     54.7       Sufface water (total)     9.1     7.0 <				
Scope 3, end-of-life treatment of sold products     134.5     124.5       Total scope 3 emissions <sup>3</sup> 7,776.9     7,274.5       Total scope 1, scope 2 and scope 3 emissions     8,665.8     7,988.3       Offsets <sup>4</sup> 29.8     33.6       Emissions Intensity     6HG emissions (market-based Scope 1 and Scope 2) tCO2e per FTE     8.4     6.6       CSO, intensity per sales (tCO2e per million USD sales)     0.0     0.0     0.0       SO, intensity per sales (tCO2e per million USD sales)     0.0     0.0     0.0       SO, intensity per sales (tCO2e per million USD sales)     0.0     0.0     0.0       Sons to air (metric tons)     46.6     11.6     Non-halogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Non-halogenated Volatile Organic Compounds (VOCs)     26.6     11.6     3.0       Surface water (NOX)     236.3     212.0     2.1       Particulates     12.9     11.4     4.6     4.3       Vitrogen Oxides (NOX)     236.3     212.0     2.1     2.0       Particulates     12.9     11.4     4.6     4.3     2.0				
Total scope 3 emissions <sup>3</sup> 7.776.9     7.274.5       Total scope 1, scope 2 and scope 3 emissions     8.665.8     7.988.3       Offsets <sup>4</sup> 29.8     33.6       Emissions (market-based Scope 1 and Scope 2) tCO2e per million USD sales     18.5     14.4       GHG emissions (market-based Scope 1 and Scope 2) tCO2e per FTE     8.4     6.6       SO2, intensity per sales (tCO2e per million USD sales)     0.0     0.0       NOx, intensity per sales (tCO2e per million USD sales)     0.0     0.0       Non-halogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Non-halogenated Volatile Organic Compounds (VOCs)     46.8     443.0       Ozone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Suffur Oxides (SO2)     4.6     4.3     21.0       Particulates     12.9     11.4       Water (million m <sup>3</sup> )     7.0     17.0       Groundwater (total)     9.4     5.9       Otal water total water (total)     9.4     5.9       Utater consumption <sup>6</sup> 11.2     8.4       Operational water (total)     9.4     5.9				
Total scope 1, scope 2 and scope 3 emissions     8,665.8     7,988.3       Offsets <sup>4</sup> 29.8     33.6       Emissions Intensity     33.6       Emissions (market-based Scope 1 and Scope 2) tCO2e per million USD sales     18.5     14.4       GHG emissions (market-based Scope 1 and Scope 2) tCO2e per FTE     8.4     6.6       SO2, intensity per sales (tCO2e per million USD sales)     0.0     0.0       NOx, intensity per sales (tCO2e per million USD sales)     0.0     0.0       Emissions to air (metric tons)     26.6     11.6       Halogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Non-halogenated Volatile Organic Compounds (VOCs)     406.8     443.0       Dozne-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Suffac Vides (SO2)     4.6     4.3     11.7       Particulates     12.9     11.4     48.4       Vitro Oxides (NOx)     236.3     212.0     29.8       Sufface water (total)     9.1     7.0     Groundwater (total)     9.4     5.9       Vater collected from rain (total)     0.0     0.0				
Offsets <sup>4</sup> 29.8     33.6       Enlissions intensity				
Emissions intensity     GHG emissions (market-based Scope 1 and Scope 2) tCO2e per FTE     8.4     6.6       GHG emissions (market-based Scope 1 and Scope 2) tCO2e per FTE     8.4     6.6       SO2, intensity per sales (tCO2e per million USD sales)     0.0     0.0       NOx, intensity per sales (tCO2e per million USD sales)     0.0     0.0       Emissions to air (metric tons)     26.6     11.6       Halogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Non-halogenated Volatile Organic Compounds (VOCs)     26.6     443.0       Ozone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Sulfur Oxides (NOX)     236.3     212.0     Particulates       Particulates     12.9     11.4       Water (million ms)     17.0     7.0       Groundwater (total)     9.1     7.0       Groundwater (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Vater collected from rain (total)     0.0     0.0       Operational waste? (thousand metric tons)     11.2     8.4       Operational wastegenerated				
GHG emissions (market-based Scope 1 and Scope 2) tCO2e per million USD sales     18.5     14.4       GHG emissions (market-based Scope 1 and Scope 2) tCO2e per FTE     8.4     6.6       SO2, intensity per sales (tCO2e per million USD sales)     0.0     0.0       Nox, intensity per sales (tCO2e per million USD sales)     0.0     0.0       Enlssions to air (metric tons)     116     0.0     0.0       Non-halogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Non-halogenated Volatile Organic Compounds (VOCs)     46.6     4.3       Ozone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Suffur Oxides (SO2)     4.6     4.3     212.0       Particulates     12.9     11.4       Water (million m*)     7.0     7.0       Groundwater (total)     9.1     7.0       Groundwater (total)     9.4     5.9       Water collected from rain (total)     9.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water discharged from all	.6 -34	33.6	29.8	
GHG emissions (market-based Scope 1 and Scope 2) tCO2e per FTE     8.4     6.6       SO2, intensity per sales (tCO2e per million USD sales)     0.0     0.0       NOs, intensity per sales (tCO2e per million USD sales)     0.0     0.0       Emissions to air (metric tons)     26.6     11.6       Halogenated Volatile Organic Compounds (VOCs)     406.8     443.0       Ozone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Sulfur Oxides (SO2)     4.6     4.3     3.212.0       Particulates     12.9     11.4     4.6       Vater (million m?)     236.3     212.0     11.4       Vater (million m?)     236.3     417.0     5.9       Vater water (total)     9.1     7.0     7.0       Groundwater (total)     9.4     5.9     9.4     5.9       Water collected from rain (total)     0.0     0.0     0.0       Total water discharged from all areas     66.7     55.5     46.1       Total water (total)     9.4     5.9     5.9     404     100.0     0.0     0.0     0.0 <td></td> <td></td> <td>10.5</td> <td></td>			10.5	
SO2, intensity per sales (ICO2e per million USD sales)     0.0     0.0       NOx, intensity per sales (ICO2e per million USD sales)     0.0     0.0       Pinsstons to air (metric tons)     26.6     11.6       Non-halogenated Volatile Organic Compounds (VOCs)     406.8     443.0       Dozner-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Sulfur Oxides (SO2)     4.6     4.3     3       Nitrogen Oxides (NOx)     236.3     212.0     11.4       Water (million m*)     236.3     212.0     11.4       Water (million m*)     9.1     7.0     7.0       Groundwater (total)     9.1     7.0     9.1       Groundwater (total)     9.4     5.9     9       Water collected from rain (total)     0.0     0.0     0.0       Total water oblected from rain (total)     0.0     0.0     0.0       Total water consumption <sup>6</sup> 11.2     8.4     0       Operational waste (throus and metric tons)     70.6     66.7     54.5       Total waste generated     170.6     130.6     <				· · · · · ·
NOx, intensity per sales (ICO2e per million USD sales)     0.0     0.0       Emissions to air (metric tons)				
Emissions to air (metric tons)     26.6     11.6       Halogenated Volatile Organic Compounds (VOCs)     406.8     443.0       Don-halogenated Volatile Organic Compounds (VOCs)     406.8     443.0       Dzone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Suffur Oxides (SO2)     4.6     4.3     4.3       Vitrogen Oxides (NOX)     236.3     212.0     246.1     4.3       Particulates     12.9     11.4     4.6     4.3     4.6     4.3     4.6     4.3     4.6     4.3     4.6     4.3     4.6     4.3     4.6     4.3     4.6     4.3     4.6     4.3     4.6     4.3     4.7     2.9     11.4     Vater (withdrawal from all areas <sup>6</sup> 66.8     54.7     5.9     5.7     5.4     7.0     66.8     54.7     5.9     Water collected from rain (total)     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0				
Halogenated Volatile Organic Compounds (VOCs)     26.6     11.6       Non-halogenated Volatile Organic Compounds (VOCs)     406.8     443.0       Dzone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Sulfur Oxides (SO2)     4.6     4.3     4.6     4.3       Nitrogen Oxides (NOx)     236.3     212.0     236.3     212.0       Particulates     12.9     11.4     Valer (million m9)     7.0       Columater withdrawal from all areas <sup>5</sup> 66.8     54.7     5.7       Surface water (total)     9.1     7.0     7.0       Groundwater (total)     9.4     5.9     9.4     5.9       Water collected from rain (total)     0.0     0.0     0.0       Total water discharged from all areas     66.7     54.5     5.5     46.1       Discharged directly to surface water (for cooling)     55.5     46.1     2.6     7.6     68.7       Total water consumption <sup>6</sup> 11.2     8.4     2.6     2.6     2.7     5.9     3.0     1.6     3.0     1.6     3.0	.0 0	0.0	0.0	
Non-halogenated Volatile Organic Compounds (VOCs)     406.8     443.0       Dzone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Sulfur Oxides (NOX)     236.3     212.0       Particulates     12.9     11.4       Water (million m3)     66.8     54.7       Total water withdrawal from all areas <sup>6</sup> 66.8     54.7       Surface water (total)     9.1     7.0       Groundwater (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water water (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste (thoru sand metric tons)     7.0     68.7       Total non-hazardous waste     70.6     68.7       Total non-hazardous waste     70.6     68.7       Total waste giverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     57.7     59.9 <	.6 0	11.0	26.6	
Ozone-depleting substances (ODS) emissions caused by losses (metric tons of R11 equivalent)     0.0     0.0       Sulfur Oxides (SO2)     4.6     4.3       Nitrogen Oxides (NOx)     236.3     212.0       Particulates     12.9     11.4       Water (million m³)     66.8     54.7       Total water withdrawal from all areas <sup>5</sup> 66.8     54.7       Surface water (total)     9.1     7.0       Groundwater (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste?     70.6     68.7       Total waste generated     70.6     68.7       Total hazardous waste     70.6     68.7       Total hazardous waste     70.6     68.7       Total hazardous waste     70.6     68.7       Total waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal				
Sulfur Oxides (SO2)     4.6     4.3       Vitrogen Oxides (NOx)     236.3     212.0       Particulates     12.9     11.4       Vater (million ms)     12.9     11.4       Total water withdrawal from all areas <sup>5</sup> 66.8     54.7       Surface water (total)     9.1     7.0       Groundwater (total)     48.3     41.7       Third-party water (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste?     170.6     130.6       Total non-hazardous waste     70.6     68.7       Total non-hazardous waste     100.0     61.9       Total non-hazardous waste     100.0     61.9       Total waste diverted from disposal     57.7     59.9       Mazer dous waste diverted from disposal     57.7     59.9       Mazer dous waste diverted from disposal     58.8     28				<b>o i</b> ( <i>i</i> )
Nitrogen Oxides (NOx)     236.3     212.0       Particulates     12.9     11.4       Water (million m <sup>3</sup> )     12.9     11.4       Total water withdrawal from all areas <sup>5</sup> 66.8     54.7       Surface water (total)     9.1     7.0       Groundwater (total)     48.3     41.7       Third-party water (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste <sup>2</sup> (thousand metric tons)     70.6     68.7       Total non-hazardous waste     70.6     68.7       Total hazardous waste     100.0     61.9       Total hazardous waste     100.0     61.9       Total hazardous waste     57.7     59.9       Hazardous waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal				
Particulates     12.9     11.4       Water (million m3)     1     70       Total water withdrawal from all areas <sup>6</sup> 66.8     54.7       Surface water (total)     9.1     70       Groundwater (total)     48.3     41.7       Third-party water (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water discharged firem all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste?     170.6     130.6       Total non-hazardous waste     70.6     68.7       Total non-hazardous waste     70.6     68.7       Total hazardous waste     100.0     61.9       Total waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     59%     46%       % hazardous waste diverted from disposal				
Water (million m³)       Total water withdrawal from all areas <sup>5</sup> 66.8     54.7       Surface water (total)     9.1     7.0       Groundwater (total)     48.3     41.7       Third-party water (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste <sup>6</sup> (thousand metric tons)     11.2     8.4       Total non-hazardous waste     70.6     68.7       Total non-hazardous waste     70.6     68.7       Total hazardous waste     100.0     61.9       Total waste diverted from disposal     116.5     88.5       % Waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     59.%     46%       % non-hazardous waste diverted from disposal     59.%     46%       % non-hazardous waste diverted from disposal				<b>o</b> ( )
Total water withdrawal from all areas <sup>5</sup> 66.8     54.7       Surface water (total)     9.1     7.0       Groundwater (total)     48.3     41.7       Third-party water (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste?     170.6     130.6       Total non-hazardous waste     70.6     68.7       Total non-hazardous waste     100.0     61.9       Total non-hazardous waste     100.0     61.9       Total waste diverted from disposal     68%     68%       Waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     59%     46%       % hazardous waste diverted from disposal     59%     46%       % hazardous waste diverted from disposal     54.1     42.1       % non-		11.4	12.0	
Surface water (total)     9.1     7.0       Groundwater (total)     48.3     41.7       Third-party water (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste <sup>7</sup> (thousand metric tons)     70.6     68.7       Total non-hazardous waste     70.6     68.7       Total hazardous waste     100.0     61.9       Total waste diverted from disposal     116.5     88.5       % Waste diverted from disposal     68%     68%       Non-hazardous waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     59%     46%       % hazardous waste diverted from disposal     59%     46%       % hazardous waste diverted from disposal     59%     46% <td>.7 47</td> <td>54.7</td> <td>66.8</td> <td></td>	.7 47	54.7	66.8	
Groundwater (total)     48.3     41.7       Third-party water (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste? (thousand metric tons)     70.6     68.7       Total non-hazardous waste     170.6     130.6       Total waste diverted from disposal     70.6     68.7       Total waste diverted from disposal     116.5     88.5       % Waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     59%     46%       Obtal waste diverted from disposal     59%     46%       Obtal waste diverted form disposal     59%     46%       Total hazardous waste diverted from disposal				
Third-party water (total)     9.4     5.9       Water collected from rain (total)     0.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste? (thousand metric tons)     70.6     68.7       Total non-hazardous waste     70.6     68.7       Total non-hazardous waste     100.0     61.9       Total waste diverted from disposal     116.5     88.5       % Waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     59%     46%       Total waste diverted from disposal     59%     46%       % hazardous waste diverted from disposal				, ,
Water collected from rain (total)     0.0     0.0       Total water discharged from all areas     66.7     54.5       Discharged directly to surface water (for cooling)     55.5     46.1       Total water consumption <sup>6</sup> 11.2     8.4       Operational waste <sup>7</sup> (thousand metric tons)     70.6     68.7       Total non-hazardous waste     70.6     68.7       Total non-hazardous waste     100.0     61.9       Total waste diverted from disposal     116.5     88.5       Waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     59%     46%       Non-hazardous waste diverted from disposal     59%     46%       Yotal waste diverted from disposal     59%     46%       Non-hazardous waste diverted from disposal     59%     46%       Yotal waste diverted from disposal     59%     46%       Yotal waste diverted from disposal     59%     46%       Yotal waste diverted for disposal	.9 5	5.9	9.4	
Discharged directly to surface water (for cooling)55.546.1Total water consumption®11.28.4Operational waste? (thousand metric tons)170.6130.6Total waste generated170.668.7Total hazardous waste100.061.9Total waste diverted from disposal116.588.5% Waste diverted from disposal68%68%Non-hazardous waste diverted from disposal57.759.9Hazardous waste diverted from disposal58.828.7% non-hazardous waste diverted from disposal58.828.7% hazardous waste diverted from disposal59%46%Total waste diverted from disposal59%46%Non-hazardous directed to disposal54.142.1Non-hazardous directed to disposal12.98.8	.0 0	0.0	0.0	
Total water consumption®11.28.4Operational waste? (thousand metric tons)Total waste generated170.6130.6Total non-hazardous waste70.668.7Total hazardous waste100.061.9Total waste diverted from disposal116.588.5% Waste diverted from disposal68%68%Non-hazardous waste diverted from disposal57.759.9Hazardous waste diverted from disposal58.828.7% non-hazardous waste diverted from disposal58.828.7% hazardous waste diverted from disposal59%46%Total waste diverted from disposal59%46%Non-hazardous directed to disposal54.142.1Non-hazardous directed to disposal12.98.8	.5 46	54.5	66.7	Fotal water discharged from all areas
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Total waste generated     170.6     130.6       Total non-hazardous waste     70.6     68.7       Total hazardous waste     100.0     61.9       Total waste diverted from disposal     116.5     88.5       W Waste diverted from disposal     68%     68%       Non-hazardous waste diverted from disposal     57.7     59.9       Hazardous waste diverted from disposal     58.8     28.7       % non-hazardous waste diverted from disposal     58.8     28.7       % hazardous waste diverted from disposal     59%     46%       fotal waste directed to disposal     59%     46%       Non-hazardous waste directed to disposal     54.1     42.1       Non-hazardous directed to disposal     54.1     42.1	.4 7	8.4	11.2	Total water consumption <sup>6</sup>
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Total waste diverted from disposal116.588.5% Waste diverted from disposal68%68%Non-hazardous diverted from disposal57.759.9Hazardous waste diverted from disposal58.828.7% non-hazardous waste diverted from disposal82%87%% hazardous waste diverted from disposal59%46%Total waste directed to disposal54.142.1Non-hazardous directed to disposal12.98.8	.7 66	68.7	70.6	Total non-hazardous waste
% Waste diverted from disposal68%68%Non-hazardous diverted from disposal57.759.9Hazardous waste diverted from disposal58.828.7% non-hazardous waste diverted from disposal82%87%% hazardous waste diverted from disposal59%46%Total waste directed to disposal54.142.1Non-hazardous directed to disposal12.98.8	.9 36	61.9	100.0	Total hazardous waste
Non-hazardous diverted from disposal57.759.9Hazardous waste diverted from disposal58.828.7% non-hazardous waste diverted from disposal82%87%% hazardous waste diverted from disposal59%46%Total waste directed to disposal54.142.1Non-hazardous directed to disposal12.98.8		88.5		
Hazardous waste diverted from disposal58.828.7% non-hazardous waste diverted from disposal82%87%% hazardous waste diverted from disposal59%46%fotal waste directed to disposal54.142.1Non-hazardous directed to disposal12.98.8				•
% non-hazardous waste diverted from disposal82%87%% hazardous waste diverted from disposal59%46%Total waste directed to disposal54.142.1Non-hazardous directed to disposal12.98.8				
% hazardous waste diverted from disposal     59%     46%       Fotal waste directed to disposal     54.1     42.1       Non-hazardous directed to disposal     12.9     8.8				•
Fotal waste directed to disposal 54.1 42.1   Non-hazardous directed to disposal 12.9 8.8				
Non-hazardous directed to disposal 12.9 8.8	% 47			•
Incineration 8.4 5.3				
1 1919 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	.8 10			
Landfilling 4.1 3.0	.8 10 .3 5			
Other disposal options 0.4 0.5	.8 10 .3 5 .0 4			
Hazardous waste directed to disposal 41.2 33.3	8 10 3 5 0 4 5 0	33.3		
	8 10 3 5 0 4 5 0 3 19			
Landfilling     0.4     0.4       Other disposal options     4.0     1.6	8     10       3     5       0     4       5     0       3     19       7     18	31.7	0.4	3

1. Scope 1 combustion, process, and vehicles; Scope 2: purchased energy

2021 data includes infract emissions from air travel, car rentals and hotel stays. The methodology changed in 2021, with previous years' data covering emissions from air travel only. This is part of a calculation effort to expand the Scope 3 category 6 emission activities reported and part of a wider Scope 3 calculation review that aims to increase the coverage to more than 90% of the overall Scope 3. New to 2021, air travel emissions now also cover radiative forcing, which multiplies the indirect emissions by 1.9.

Scope 3 emissions are reported in accordance with the GHG Protocol. Only the scope 3 categories which are material and relevant to Novartis are reported.
Offsets based on data provided by third parties. The Santo Domingo forest carbon offset project in Argentina is due to reach maturity; as projects near this phase, routine operations involve thinning and harvesting. These operations have therefore released CO<sub>2</sub>e emissions in 2021.

5. Sum of contact water and non-contact (cooling) water use 6. Water discharged via treatment and water lost

7. Operational waste excludes debris from the demolition or construction of new buildings and any other construction or landscape changes

Last update: October 2022