Greenhouse Gas Emissions Report

2022

Table of Contents

SAR Mission is more important then ever

Turning waste to value

Vision
Shaping the future through one team that is sought after globally for innovative, insightful, circular and safe waste solutions

Values:
Innovative
Serious
Structured
Flexible

1. Why we made this report **3**

2. Method **4**

3. Results **5**

3.1. Total SAR carbon footprint from Scope 1, Scope 2 & 3 5

3.1.1. Market-based 5

3.1.2. Location-based 6

3.2. Total SAR carbon footprint from Scope 1 Disclosure 7

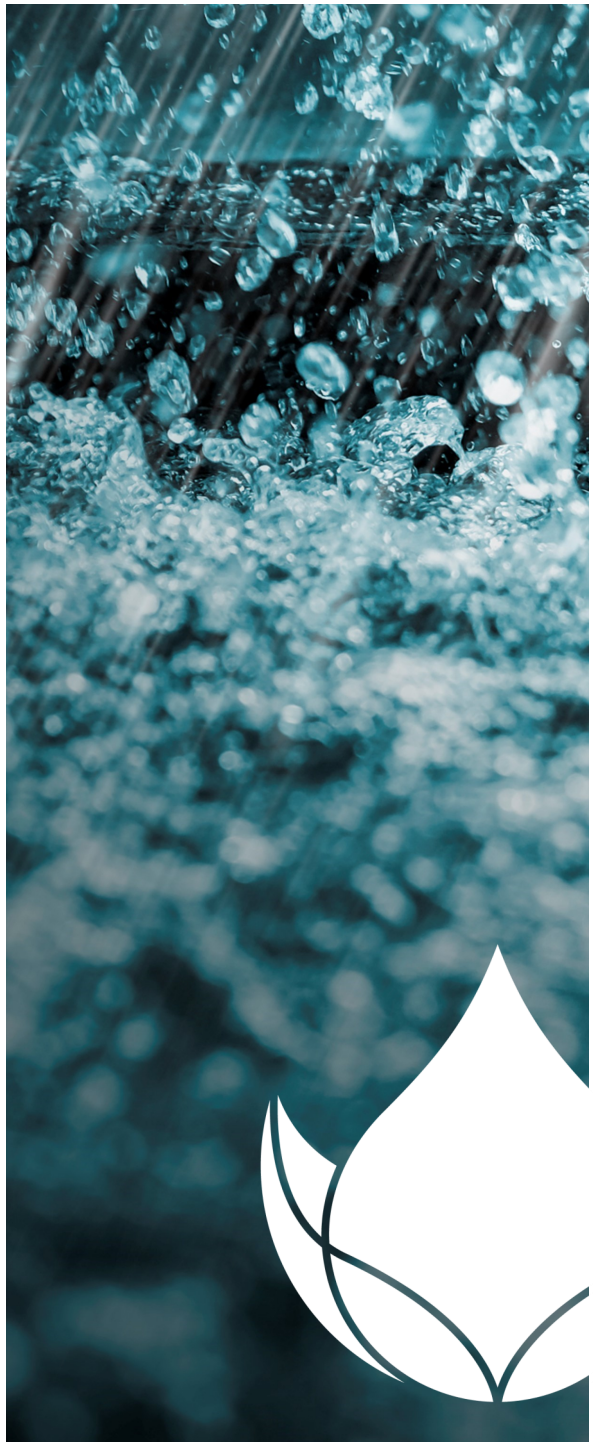
3.3. Total SAR carbon footprint from Scope 2 Disclosure 8

3.4. Total SAR carbon footprint from Scope 3 Disclosure 10

4. References **11**

Appendix

Auditors Report



1. Why we made this report

SAR offers complete waste solutions and handles all types of waste from offshore- and onshore industry. We offer customers a total solution for Waste Chain Management (WCM®) for handling and treatment of all types of waste.

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We turn waste into reusable resources, creating a circular economy which is in line with UN goal #12 "Responsible Consumption and production".

Sustainability is the core of our foundation. We recognise that every resource has a life cycle. The goal is to minimise the volume of waste generated and rather retain the resource for as long as possible through its lifecycle. Further by optimizing recycling of the resource and energy recovery we ensure that our customers reduce their environmental footprint.

We turn waste in to reusable resources, creating a circular economy which is in line with UN goal #12 "Responsible Consumption and production".

The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. The 17 goals address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice.

SAR's activities to recover and recycle waste involves significant energy consumption especially in the sea logistics between the departments of SAR and electricity at the treatment locations at Risavika, Averøy, Sandnessjøen and Hammerfest.

This report covers emission data connected to Service, Treatment, Logistics and indirect activity from SAR in Norway.

SAR has calculated Scope 3 emission on category 6 Business travel and category 7 Employee commuting for the 2022 report.

Further Scope 3 categories are not yet calculated as data sources of climate effect on waste handling and downstream treatment options are not standardised in the industry. SAR is involved in some projects to standardise such factors. We will continuously evaluate SARs climate footprint and will update the report for coming years when data is more available.

2. Method

This Climate Emission Report for 2022 represents the collected data within Scope 1, Scope 2 and Scope 3 (category 6 & 7) according to the Greenhouse Gas Protocol (GHG-Protocol). SAR has selected 2021 as base year since it was the first reporting year. The organizational reporting boundaries for this report are the operational control approach since SAR controls and operates most of the processes that are reported on.

General

SAR has improved its reporting & data quality between the 2021 and 2022 version of this Climate Emission report. SAR will continuously work with the improvement of its accounting and present the results in a transparent way.

Scope 1

This report includes now corrected Scope 1 emissions from 2021. Scope 1 emissions from Sea logistics in 2021 were double counted. The dataset had per order two registrations, one with the diesel price & volume and one with the CO_2 fee & volume. The volume was due to that double reported.

Scope 2

Two emission scenarios are presented in Scope 2, one for "market based" and for "location based" calculation on electricity consumption . The market-based method reflects emissions from electricity that companies have purposefully chose (or their lack of choice), while the location-based method reflects the average emissions intensity of grids on which energy consumption occurs". [1]

Scope 3

This report presents the emission scenarios for Scope 3, Category 6 Business travel by including aviation emissions with non-CO2 impacts and radiative forcing (RF). "Emissions from aviation have both direct (CO_2, CH_4 and N_2O) and indirect (non-CO_2 emissions e.g. water vapour, contrails, NO_x) climate change effects". This report will use for this purpose the factors developed from DEFRA and include the RF factor. Furthermore, does the air travel emissions data include emissions from Well-to-tank (WTT) activity which are emission related to the production and logistic of air travel fuel.

3. Results

3.1 Total SAR carbon footprint from Scope 1, 2, & Scope 3

3.1.1 Market- based Scope 2

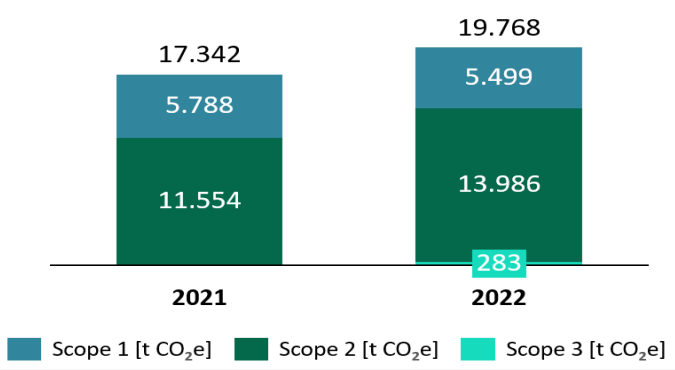


Figure 1: SAR Total Emissions, Market based Scope 2

	[t CO_2e]	
Gross carbon footprint -SAR AS	**2021**	**2022**
Scope 1 (direct emissions)	5 788	5 499
Scope 2 (indirect emissions, **Market-based**)	11 554	13 986
Scope 3 (value chain emissions)	NA	283
Total carbon footprint	**17 342**	**19 768**

Table 1: SAR Total Emissions, Market-based Scope 2

The total Gross carbon footprint from SAR has increased from 2021 to 2022 from 17.342 to 19.789 metric tons CO_2e which is an increase by 14% or 2.426 metric tons CO_2 e with the market-based scenario. SAR was able to reduce the emissions from Scope 1 from 5.788 to 5.499 metric tons CO_2 e.

Firstly, this increase comes especially from the increased Scope 2 emissions due to changes in the emission factors since SAR has reduced the energy consumption from 2021 to 2022. Secondly, the first-time reporting of Scope 3 added new emissions to the statistic.

> ***SAR always employ the Best Available Technology (BAT) and Best Environmental Practice (BEP).***

3.1.2 Location- based Scope 2

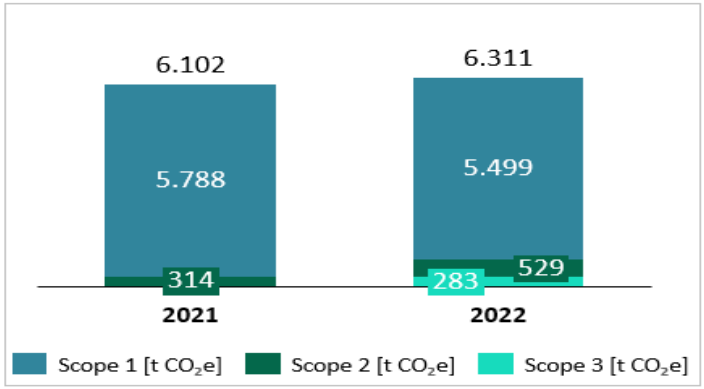
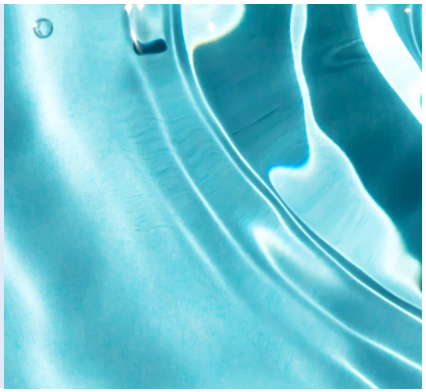


Figure 2: SAR Total Emissions, Location-based Scope 2

	[t CO_2e]	
Gross carbon footprint - SAR AS	**2021**	**2022**
Scope 1 (direct emissions)	5 788	5 499
Scope 2 (indirect emissions, **Location-based)**	314	529
Scope 3 (value chain emissions)	NA	283
Total carbon footprint	**6 102**	**6 311**

Table 2: SAR Total Emissions, Location-based Scope 2



With the location-based scenario the emissions have increased from 6.102 to 6.311 metric tons CO_2e which is an increase of 209 metric tons CO_2e and 3,4%. The new developed Scope 3 emissions with 283 metric tons CO_2e are a main driver to the total increase emissions increase.

Scope 1 emissions have decreased by 5% with 289 metric tons CO_2e from 5788 to 5499. Scope 2 emissions have increased by 41% with 215 metric tons CO_2e from 314 to 529 metric tons CO_2e.

SAR will prioritise sustainability in all the choices we make

3.2 Total SAR carbon footprint from Scope 1, Disclosure

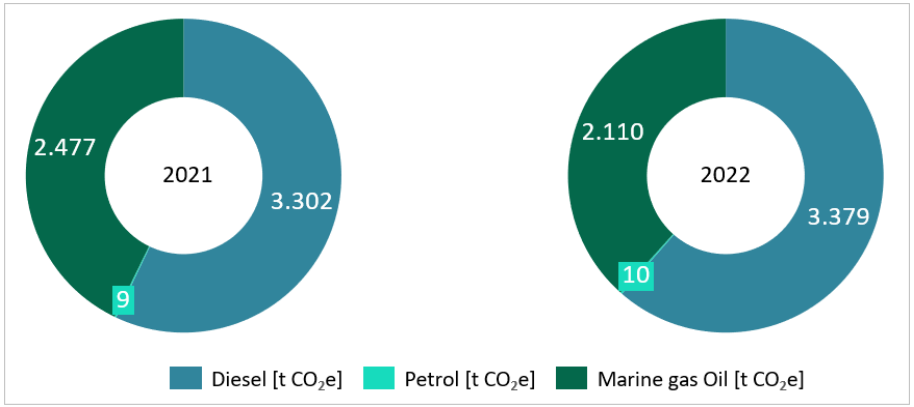


Figure 3: Scope 1 Emissions 2021 & 2022

Scope 1 Emissions have decreased from 2021 to 2022 by 289 metric tons CO_2e due to a significant reduction in Marine gas Oil from our Sea logistics. Emissions from Diesel have increased by 77 metric tons CO_2e from 2021 to 2022 and emission from Petrol consumption has increased by 1 ton CO_2e. Emissions from Marine gas Oil has been reduced by 367 metric tons CO_2e.

SAR is continuously upgrading its vehicle fleet to more environmental solutions.

The emission factor for Diesel has slightly increased from 2021 to 2022 whereas the factor for Petrol has been slightly reduced.

Scope 1 (direct emissions)	**2021 [litre)**	**2022 [litre]**	**Emissions 2021 [t CO_2e]**	**Emissions 2022 [t CO_2e]**
Fugitive emissions	-	-	-	-
Process emissions	-	-	-	-
Diesel	1 314 468	1 320 941	3 302	3 379
Petrol	4 185	4 734	9	10
Marine gas Oil Sea logistics	892 395	760 281	2 477	2 110
Total	**2 211 048**	**2 085 956**	**5 788**	**5 499**

Table 3: Scope 1 2021 & 2022

Fuel name	**2021**	**2022**
Diesel (average biofuel blend)	2,51233	2,55784
Marine Gas Oil	2,77539	2,77539
Petrol (average biofuel blend)	2,19352	2,16185

Table 4: DEFRA fuel factors [Kg CO_2e per Liter]

3.3 Total SAR carbon footprint from Scope 2 Disclosure:

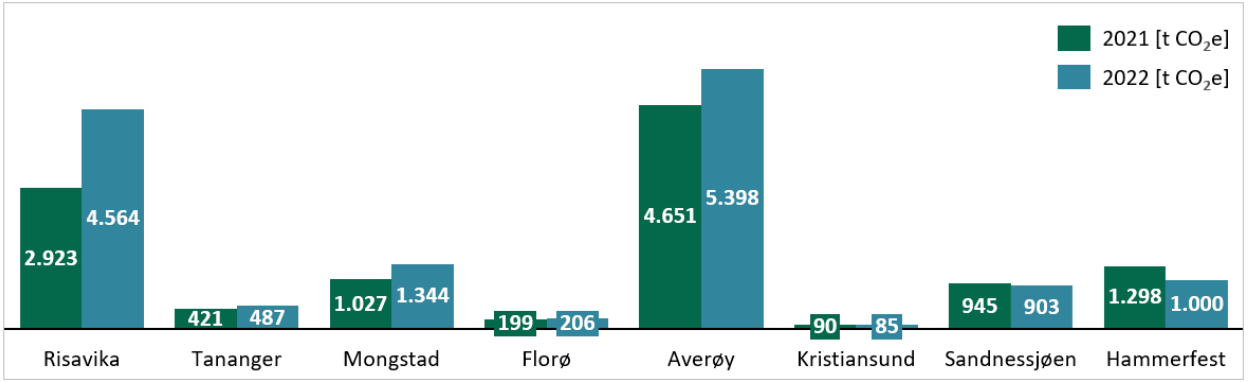


Figure 4: Scope 2 Market-based

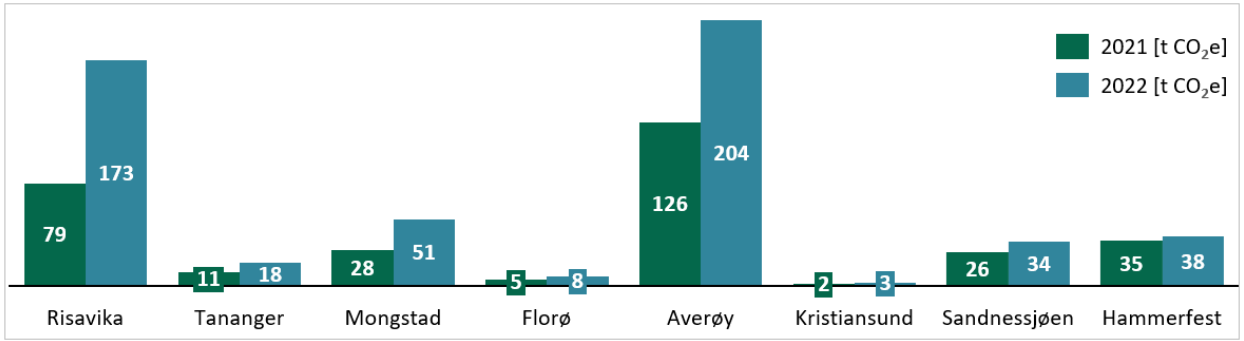


Figure 5: Scope 2 Location-based

Scope 2 emissions with the market-based approach have increased by 21% from 11.554 to 13.986 metric tons CO_2e, even though SAR has reduced the electricity consumption by 666.456 kWh from 2021 to 2022.

This increase in Scope 2 emissions is caused by the fact that the European energy mix factor has increased by 24% from 405 to 502 g CO_2e per kWh in 2022.

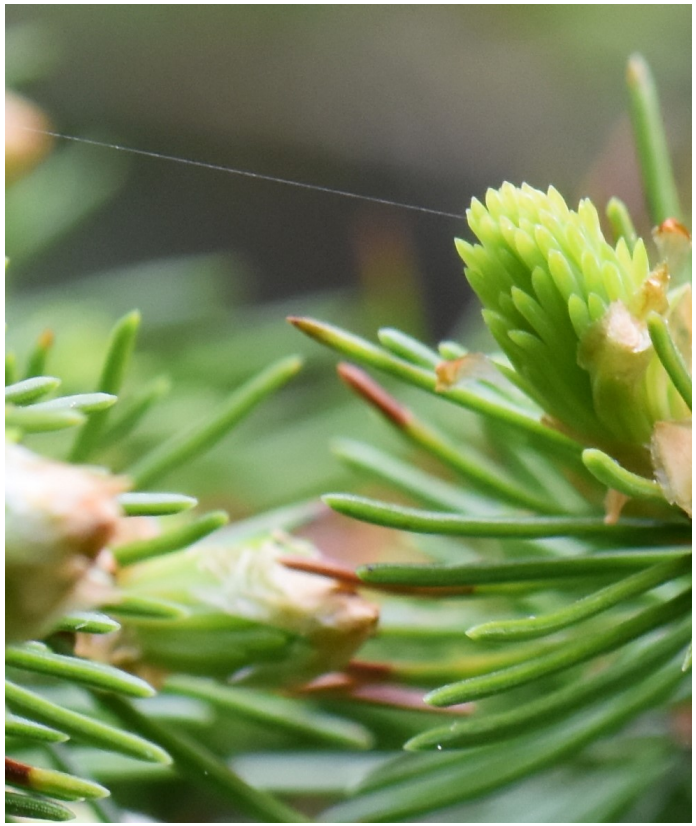
For the location-based method have the emissions increased by 68% from 314 to 529 metric tons CO_2e in 2022. This is due to an increase from the Norwegian energy mix factor from 11 g CO_2e to 19 g CO_2e per kWh which is an increase by 73% from 2021 to 2022.

	Electricity [kWh]		Emissions market based [t CO_2e]		Emissions location based [t CO_2e]	
Scope 2 (indirect emissions)	**2021**	**2022**	**2021**	**2022**	**2021**	**2022**
Risavika	7 217 991	9 091 161	2 923	4 564	79	173
Tananger	1 039 956	969 732	421	487	11	18
Mongstad	2 536 201	2 678 202	1 027	1 344	28	51
Florø	490 852	410 167	199	206	5	8
Averøy	11 482 916	10 753 250	4 651	5 398	126	204
Kristiansund	222 605	169 047	90	85	2	3
Sandnessjøen	2 333 521	1 798 116	945	903	26	34
Hammerfest	3 204 404	1 991 315	1 298	1 000	35	38
Total	**28 528 446**	**27 860 990**	**11 554**	**13 986**	**314**	**529**

Table 4: Scope 2 2021 & 2022

Emission factors	2021	2022
Market-based (European energy mix)	405	502
Location-based (Norway mix)	11	19

Table 5: Emission factors electricity [g CO_2e per kWh]



Variation in production hours and workload at the treatment facilities at Risavika, Mongstad, Averøy, Sandnessjøen and Hammerfest have the biggest contribution to changes in total electricity consumption.

SAR has in recent periods started to change to more efficient LED lighting systems to reduce electricity consumption. Additionally, have heating pipes been insulated to reduce energy loss. SAR has performed energy mappings at Averøy and Risavika and has planned further energy mapping of the location Mongstad to detect energy improvement opportunities.

SAR will continuously work with improvements opportunities to reduce energy & electricity consumption to reduce its CO_2e emissions.

3.4 Total SAR carbon footprint from Scope 3 Disclosure:

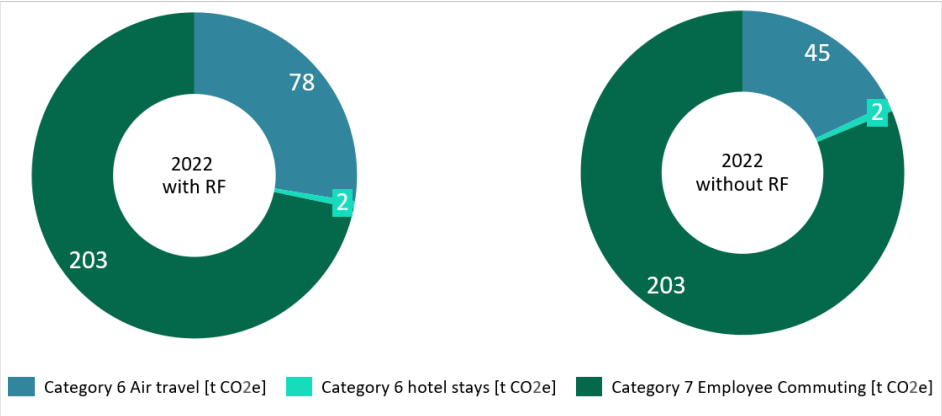


Figure 6: Scope 3 2022

	2022	
Scope 3 (indirect emissions)	**Emissions with RF [t CO_2e]**	**Emissions without RF [t CO_2e]**
Category 6 (Air travel)	78	45
Category 6 (hotel stays)	2	2
Category 7 (Employee commuting)	203	203
Total	**283**	**250**

Table 5: Scope 3 2022

SAR has reported 29.9372 Km of air travel and a total of 260 hotel stays in 2022 which gives for Category 6 a total of 80 metric tons CO_2e including indirect effect of non-CO2 emissions. The activity data for category 6 is collected from the travel agency that SAR uses and calculated with the emission factors from DEFRA and Chalmers University.

In 2023 SAR has started initiatives to avoid not necessary traveling by air and land.

Category 7 emissions from the employee commuting survey results in a total of 203 metric tons CO_2e. Category 6 & 7 combined gives a calculated Scope 3 emissions of 283 metric tons CO_2e for 2022.

SAR takes our responsibility very seriously to contribute to «The green transition».

4. References

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2 DEFRA (2022) Business travel- air;
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9 Chalmers University (2019) Semestern och klimatet, Metodrapport version 2.0 P.19;
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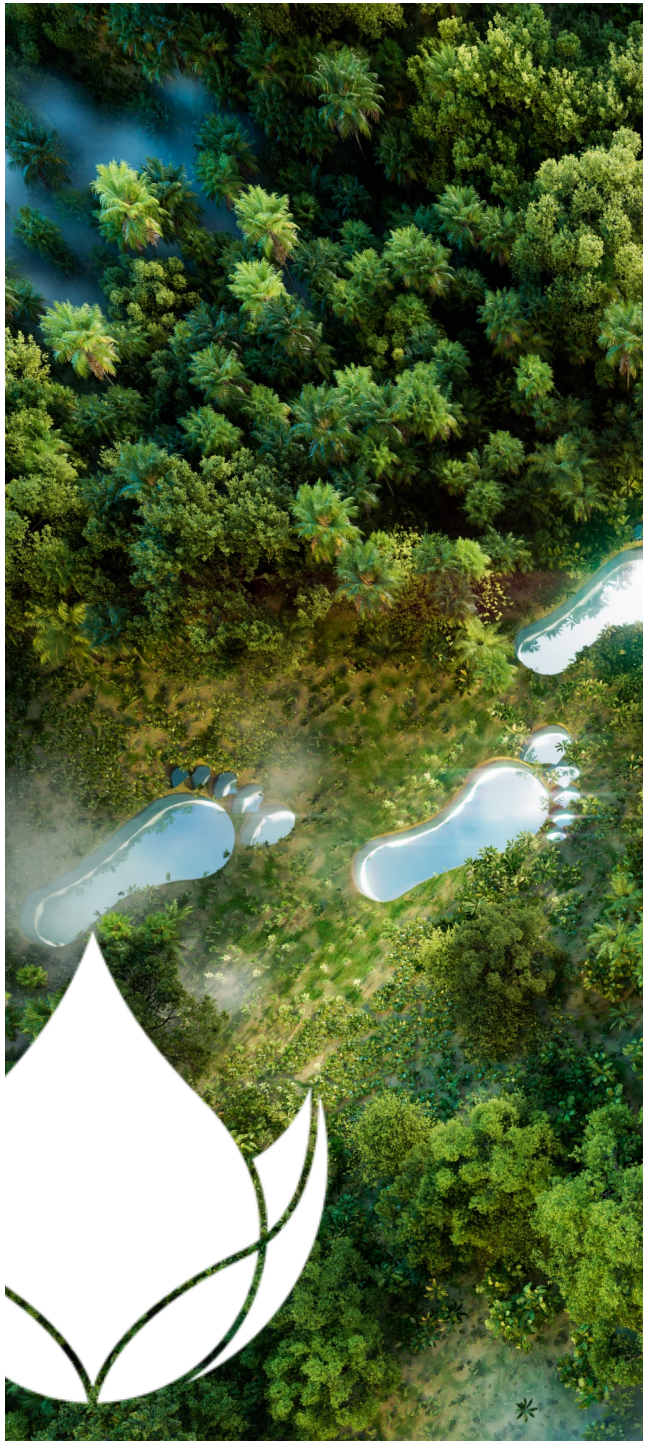
SAR prioritise sustainability in all the choices we make. This applies to both procurement, chemicals, equipment, energy consumption and carriers, emissions, and waste.



turning waste to value

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