

W0. Introduction

W0.1

(W0.1) Give a general description of and introduction to your organization.

Eti Soda has a partnership structure whose 74% share belongs to Ciner Group, being a leading organization in mining, energy and media sectors in Turkey and whose 26% share belongs to Eti Mining Corporation being a government entity.

The company is **the first natural soda production plant within Europe**. Eti Soda Inc. was established in 1998 to extract, operate and bring in economy TRONA MINE reserves, found during a routine coal boring operation carried out in Beypazarı, Ankara in 1979.

In order to reach the vision of becoming a world leading brand, Eti Soda is continuously improving product and service quality via **ISO 9001, ISO 14001, ISO 50001, ISO 27001, ISO 22000, ISO 45001, ISO/IEC 17025 management systems and certifications**. To provide safety of the chemical products exported upon the human health and environment, **Eti Soda has completed the regulations determined in the REACH Legislation**, which is effective in the European Union Countries.

TRONA MINE is extracted from the ground by the solution mining method, which is a **safe and environmentally friendly operating technique**.

The TRONA solution is taken into the monohydrate process and converted to the Sodium Carbonate and Sodium Bicarbonate products. The products of Eti Soda, which are used in many sectors such as glass production and baking powder, are exported all over the world, especially to European countries.

Eti Soda is a producer of Sodium Carbonate and Sodium Bicarbonate with an annual production of 1.95 million tonnes.

In 2010, we established a GHG management system in our facilities under our operational control. We calculated our Scope 1, Scope 2 and Scope 3 emissions per ISO 14064-1 standard. Since then, we are calculating our GHG emissions annually. For 2021 reporting period; we made our GHG emissions inventory calculated in 2018 version of ISO 14064-1 Standards additionally we had an onsite verification for our Category 1, 2, 3, 4, 5 and 6 emissions by a third-party authorized verifier.

Within continuous improvement perspective, Eti Soda added a new project among the social and environmental responsibility projects by obtaining an EPD (Environmental Product Declaration) certificate on 07.12.2017. Nowadays, the environmental details of products gain more and more importance in ensuring communication between organizations or manufacturer-consumers. With this regard, the EPD certificate constitutes a foundation for the evaluation of the environmental performances of the manufacturer and consumers. One of its most important contributions is that it supports Sustainable Production. The EPD certificate allows an environment friendly and more economic production in financial terms by ensuring the reduction of the use of resources in the production process. Eti Soda Inc., has become the first and only soda producer of the world which holds an Environmental Production Declaration Certificate in Sodium Carbonate and Sodium Bicarbonate production with the purpose of reinforcing its mission of "Introducing our high quality and natural products into economy by making use of an untouched equity of our country with an environment and human oriented approach, with the consciousness of our social responsibility, with a dynamic, productive and innovative team". The works of EPD – Environmental Product Declaration carried out by Eti Soda Inc. are prepared as per the ISO 14025 standard and ISO 14040/44 which is an LCA – Life Cycle Assessment standard, are approved by independent accredited validators and are published in The International EPD System platform which holds an international accreditation.

LCA studies and EPD certificates are living documents and valid for 5 years set for the EPD Programme Operators. Although it has been less than 3 years since the issuance of our first EPD certificate, we have renewed both our EPD and LCA studies in 2020. Our registered EPD certificate can be reached at: <https://www.environdec.com/Detail/?Epd=13275>

The environmental sustainability works we carry out are ranked (gold medal) by the EcoVadis sustainability platform, and these studies are shared publicly with our stakeholders in our corporate sustainability report.

For more information on Eti Soda: <http://www.etisoda.com/en/home-page/>

W-MM0.1a

(W-MM0.1a) Which activities in the metals and mining sector does your organization engage in?

Activity	Details of activity
Mining	Other mining, please specify (Trona Ore)

W0.2

(W0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date
Reporting year	January 1 2021	December 31 2021

W0.3

(W0.3) Select the countries/areas in which you operate.

Turkey

W0.4

(W0.4) Select the currency used for all financial information disclosed throughout your response.

TRY

W0.5

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

Companies, entities or groups over which operational control is exercised

W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

No

W0.7

(W0.7) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization.	Provide your unique identifier
No	<Not Applicable>

W1. Current state

W1.1

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital	Important	<p>Direct Use: We apply solution mining method; therefore, we need good quality water during the Trona mine extraction process. In addition to that, steam is used in sodium carbonate and sodium bicarbonate producing process. Therefore, availability of sufficient amounts of good quality freshwater is of vital importance for our operations.</p> <p>If sufficient amount of water is not supplied, the production activities will be directly affected negatively (Production capacity will decrease thus results in a financial impact). In case, no water will be supplied, then our production will stop after approximately 29 hours.</p> <p>On the other hand, water is an important asset for WASH purposes.</p> <p>As our mining methodology, the solution mining, will remain same in the future and our operational activities will be dependent on water, the importance of direct use of water will remain as vital.</p> <p>Indirect: Sufficient amounts of good quality freshwater availability is important for Eti Soda's suppliers and customers. However, our raw materials only make-up 4-5% of our total upstream impacts according to our Life Cycle Analysis, they are also dependent on water for both production and WASH purposes. This is why the indirect use importance rating is selected as important.</p> <p>For future scenarios, although climate scenarios predict an increase in water stress in most of the world, we believe the future water dependency importance rating will remain the same, as we always have an option to diversify our supply chain operations.</p>
Sufficient amounts of recycled, brackish and/or produced water available for use	Vital	Important	<p>Direct: Majority of the water we use is fresh surface water which we supply from a nearby dam. We also use recycled water, which we obtain via condensing the steam which is used in the process. Recycled water counts for 15-20% percent of our water demand. At Eti Soda, our water recovery/recycling volumes our operations are being monitored and recorded by water meters and flowmeters by 100%. As recycling reduces our withdrawal volumes from fresh surface water, thus mitigating our environmental footprint and costs, Additionally, it protects the water resources for future and for other stakeholders.</p> <p>On the other hand, water is an important asset for WASH purposes.</p> <p>Therefore, the importance rating is selected as "vital".</p> <p>As the water scarcity will increase in the near future and the stakeholder expectations will increase on water, we expect the importance rating to direct use of water will remaining vital.</p> <p>Indirect: Water is a precious resource which is gradually getting scarcer. More than half of the world population will be living with water shortage within 50 years because of a worldwide water crisis, according to a report issued by the United Nations Environment Program. In our value chain, however our product, being a raw material for many industries is at the very start of the life cycle. Both for our suppliers and our customers the efficient use of water is important. In addition to production, water is also important for WASH purposes. Therefore, our importance rating for the indirect use is important.</p> <p>As mentioned above, the water stress and scarcity are expected to increase year by year. For that reason, for both production and WASH purposes, we expect that the importance rating to will increase and reach to vital.</p>

W1.2

(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	100%	At Eti Soda, we have only one facility, and 100% of water withdrawals by total volume is measured continuously via water meters at our facility. The withdrawal volumes are recorded daily.
Water withdrawals – volumes by source	100%	Sariyar Dam is the only water source of Eti Soda. Therefore, we also measure 100% of water withdrawal volume by source continuously via water meters. The withdrawal volumes are recorded daily. As there is only one facility, 100% of the facility withdrawal volumes by source is measured and monitored.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sector]	100%	We have only one mining site, therefore 100% of the entrained water associated with our activities in this site is monitored. We use our own patented solution mining technology where we inject heated water into the underground ore body, which then dissolves the iron forming brine solution. The brine is then extracted to the surface, and pumped to a central processing facility. During this process the water entrained in the iron ore also mixes up with the brine. This amount is calculated using the molecular composition and molecular weight of the iron ore.
Produced water associated with your oil & gas sector activities - total volumes [only oil and gas sector]	<Not Applicable>	<Not Applicable>
Water withdrawals quality	100%	At Eti Soda, we only have one facility and we monitor the quality of 100% of the water we withdraw from Sariyar Dam at our facility. We analyze the water in our ISO 17025 certified laboratory. The chemical analysis of the water is performed daily, and microbiologic analysis are performed monthly. The analyzed parameters are: pH, conductivity, total hardness, p-m alkanite, sodium chloride, TOC, total iron, sulphate, silica, free CO2, Suspended solids, turbidity, total chlorine and e.coli.
Water discharges – total volumes	100%	At Eti Soda, we have an industrial wastewater treatment plant (WWTP) and a domestic WWTP. 100% of the total volume discharged from these two facilities are monitored continuously via flowmeters. The discharge volume is recorded daily from these flowmeters. All the water discharge at Eti Soda, is made from these two treatment plants.
Water discharges – volumes by destination	100%	As stated above we have two waste water treatment plants where all of our water is treated to be discharged. We continuously monitor 100% of our discharge volumes by destination via flowmeters. 100% of the water treated in our domestic WWTP is discharged to Beyseri River's dry waterbed, and 100% of the water treated in our industrial WWTP is discharged to Zaviye River's dry waterbed. We have no other discharge destination.
Water discharges – volumes by treatment method	100%	At Eti Soda, waste water from different processes is treated in different WWTPs. As stated above, we have an industrial waste water treatment plant (WWTP) and a domestic WWTP. Depending on the pollution load, different degrees of treatment may be required, hence separate WWTPs are a necessity. We continuously measure the amount of water treated at and discharged from these two WWTPs via flowmeters 100%. The meter readings are recorded daily by Eti Soda staff.
Water discharge quality – by standard effluent parameters	100%	At Eti Soda we have one facility and the water discharge volumes by effluent parameters are always monitored at this facility because we have to be in line with legal permits while discharging our waste water. The discharge water from both treatment facilities is analyzed weekly in our ISO 17025 certified laboratory, and water samples are also sent to an accredited independent laboratory for analysis. The external independent laboratory analysis is performed every 15 days for our industrial WWTP, and every 2 months for our domestic WWTP.
Water discharge quality – temperature	100%	At Eti Soda, we have two waste water treatment plants. The discharge water temperature from both of these treatment plants are monitored continuously 100% with online analyzers. The temperature measurements from both waste water treatment plants are recorded daily.
Water consumption – total volume	100%	At Eti Soda, we have only one facility and the water consumption in this facility is measured and monitored 100%. However, the measurement of consumption volumes is through a formula where we deduct the discharge volumes from withdrawal volumes to get the consumption figures. As withdrawal and discharge volumes are continuously measured and daily recorded, we also calculate and record our consumption figures daily.
Water recycled/reused	100%	At Eti Soda, water recovery by all our operations and 100% of facilities on a monthly basis are being monitored and recorded by water meters and flowmeters. Recycling is an important issue in our factory. This is stated in our company policy. Since 2015, steam losses in condensate tanks have been reduced by heat recovery heat exchangers, saving an average of 15,225,600 kWh/year of energy and avoiding 22,838 metric tons/year of CO2 emissions.
The provision of fully-functioning, safely managed WASH services to all workers	100%	At Eti Soda, access to clean water and a hygienic working environment are an integrated part of Health and Safety management approach. The primary concern is health of our workers and local people affected by our mining operation within the mining site. At Eti Soda we have a water softening plant, and the fresh surface water withdrawn from Sariyar Dam is treated in this plant before being sent to the facility to be used as tap water. The water produced at this softening plant is in compliance with the Regulation on Waters for the Purpose of Human Consumption. We always analyze the quality of withdrawn water and make sure that water that doesn't fit our high sanitation standards is not sent to tap water. Drinking water is also tested regularly.

W1.2b

(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, and how do these volumes compare to the previous reporting year?

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	3893.94	About the same	We withdraw water from Saryar Dam & the withdrawal volumes are measured continuously via flow-meters & recorded daily & these volumes are also checked & agreed upon by two state institutes for invoicing purposes. EUAS (Electricity Generation Company) is the state company that operates the Hydroelectric Power Plant to generate electricity from the Saryar Dam. As we are using the water of this dam, we annually pay a fee to EUAS for the loss of generation potential. DSI (State Hydraulic Works) also checks the withdrawal volumes & invoices Eti Soda annually. There is also entrained water associated with the mining activities, when the ore is dissolved in the heated water which is injected underground, the water entrained in the ore also mixes up with the brine. In the previous reporting period, we didn't include entrained water in our calculations, this year we have also calculated the value for 2021, the comparison is made with the revised withdrawal figure which includes the entrained water. In the reporting period withdrawals increased slightly (5.3%) from 3,698.28 ML in 2020 to 3,893.94 ML in 2021. The reason for this increase is, increasing of production. Our production processes are extremely water dependant. In the future, especially in 2022 we expect this volume to be slightly lower, as we will have less stops. Water management is the integral part of our risk management & production management approaches. Thresholds for comparison: In the 2022, we have redefined the threshold definitions to reflect our operational procedures better. +/-10% "about the same"; +/-10-25% "higher/lower" & over 25% change is classified as "much higher/much lower". As the increase in withdrawal volumes is only 5.3%, it is classified as "about the same" No significant uncertainty has been detected with the water withdrawal amount since our flow meters have always been calibrated.
Total discharges	731.88	Higher	The volume of water withdrawn had been increased related to increasing of membrane and resin pollution load. It should be necessary to change membrane and resin periodically for water usage efficiency. For the use of water as an efficiently, 120 number of membranes changed in 2021 and resin changing had been occur in 2020. At Eti Soda, Water discharges – total volumes at both industrial and domestic wastewater treatment plants are being measured continuously and recorded daily. When compared to the previous reporting period, our discharge volumes have also increased from 623.66 ML in 2020 to 731.88 ML in 2021 which equals to an increase of 17.35%. The reason for this increase is, increasing of production.. Natural Sodium Carbonate and Sodium Bicarbonate production highly depends on water. Water is an essential part of our processes. In the future, especially in 2022 we expect this volume to be slightly lower, as we will have less stops. Thresholds for comparison: In the reporting period, we have redefined the threshold definitions to reflect our operational procedures better. +/-10% "about the same"; +/-10-25% "higher/lower" and over 25% change is classified as "much higher/much lower". As the increase in discharge volumes is 17.35%, it is classified as "higher" No significant uncertainty has been detected with the water discharge amount since our flow meters have always been calibrated.
Total consumption	3162.05	Lower	At Eti Soda, water consumption defined as the volumes of water lost due to evaporation in the unit processes (e.g. calcination, crystallization). We calculate the consumption figure using the formula Consumption(C) = Withdrawal(W) – Discharge(D) In the previous reporting period, we didn't calculate the impact of the entrained water, so this year we have also calculated the water content of the ore and revised our calculations for 2019. When compared to the previous reporting period, our consumption figure has also increased slightly from 3,074.63 ML in 2019 to 3,162.05 ML in 2020 which equals to a 2.8% increase. The reason for this increase is, increasing of production. In the future, especially in 2022 we expect this volume to be slightly lower, as we will have less stops. Thresholds for comparison: In the reporting year, we have redefined the threshold definitions to reflect our operational procedures better. +/-10% "about the same"; +/-10-25% "higher/lower" and over 25% change is classified as "much higher/much lower". As the increase in consumption volumes is 2.8%, it is classified as "about the same". No significant uncertainty has been detected with the water withdrawal and discharge volumes since our flow meters have always been calibrated. Therefore as the consumption figure is calculated using these two continuously measured figures, it can be stated that there is also no significant uncertainty for the consumption figure as well.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	Yes	76-99	About the same	WRI Aqueduct	For the reporting period, 87.81% of our water withdrawals come from Saryar Dam which is about 30 kms South of Eti Soda. Saryar dam is primarily fed by Sakarya River, and 3 tributaries of Sakarya river, namely Aladağ, Kirmir and Gürleyik streams. Although Saryar Dam is 30 kms away from our facility as 87.81% of our water withdrawals come from this Dam, we used the location of this Dam in order to assess whether we are withdrawing water from water stressed areas. In WRI Aqueduct water risk atlas tool, for this location baseline water stress is given as Medium-High (20-40%) and overall water risk is also Medium High (2-3) however in future scenarios, both optimistic and pessimistic, the water stress levels are given as Extremely High (>80%).As a result of this assessment, it is obvious that 87.81% of our withdrawal volume is from a water stressed area. Remaining 12.19% is the entrained water which is naturally occurring in the trona ore. In the solution mining technology that we use, we inject heated water into the underground ore body, which then dissolves the trona ore, forming a brine solution. During this process, the water entrained in the ore also mixes up with the brine solution as it is being extracted to the surface. The water entrained in the ore is naturally occurring in the ore and cannot come from an underground stream, as trona is water-soluble. If there was a water-stream it would dissolve the ore and we would not be able to mine the ore. Therefore, we don't include the amount of entrained water into our water stress level analysis. As a matter of fact, as water is naturally occurring in the trona ore, it reduces our withdrawal volumes from fresh water resources. Also, with our LCA study water scarcity has been calculated in SimaPro LCA software via -Berger et al 2014 (Water Scarcity) which analyses the vulnerability of basins to freshwater depletion and via -Pfister et al 2009 (Water Scarcity). This water scarcity indicator (WSI) is based on a withdrawal to availability (WTA) ratio and modelled using a logistic function (S-curve) in order to fit the resulting indicator to values between 0.01 and 1 m3 deprived/m3 consumed. The curve is tuned using OECD water stress thresholds, which define moderate and severe water stress as 20% and 40% of withdrawals, respectively. Data for water withdrawals and availability were obtained from the WaterGap model. Results of this WSI are presented in our EPDs and our EPD certificate was verified and uploading phase of the report in progress. Check on our EPD and more information: https://www.environdec.com/Detail/?Epd=13275

W1.2h

(W1.2h) Provide total water withdrawal data by source.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	3419.3	About the same	We apply solution mining method; therefore, we need good quality water during the Trona mine extraction process. In addition to that, steam is used in sodium carbonate and sodium bicarbonate producing process. Therefore, availability of sufficient amounts of good quality freshwater is of vital importance for our operations. We withdraw water from Saryyar Dam, and the withdrawal volumes are measured continuously via flow-meters. The withdrawal amounts are recorded daily. In the reporting period the withdrawal figures increased slightly (7.34%) from 3,185.57 ML in 2020 to 3,419.30 ML in 2021. Thresholds for comparison: +/-10% "about the same"; +/-10-25% "higher/lower" and over 25% change is classified as "much higher/much lower". As the increase in withdrawal volumes is only 8.26%, it is classified as "about the same"
Brackish surface water/Seawater	Not relevant	<Not Applicable>	<Not Applicable>	Saryyar Dam, from which we supply fresh surface water, is the only Water Source of Eti Soda. Except from Saryyar Dam, the only relevant water source is the water that is entrained in the trona ore which is naturally occurring.
Groundwater – renewable	Not relevant	<Not Applicable>	<Not Applicable>	Saryyar Dam, from which we supply fresh surface water, is the only Water Source of Eti Soda. Except from Saryyar Dam, the only relevant water source is the water that is entrained in the trona ore which is naturally occurring.
Groundwater – non-renewable	Not relevant	<Not Applicable>	<Not Applicable>	Saryyar Dam, from which we supply fresh surface water, is the only Water Source of Eti Soda. Except from Saryyar Dam, the only relevant water source is the water that is entrained in the trona ore which is naturally occurring.
Produced/Entrained water	Relevant	474.63	About the same	We apply solution mining method, where the ore is dissolved in the water and the moisture content of the ore mixes up with the brine. We didn't include entrained water into our calculations in 2019. In 2021, we changed the entrained water account that we calculated in 2020. Thus, according to the production values in 2020, the amount of entrained water was calculated as 435.84 ML. According to these data, there was an 8.9% increase in 2021 compared to 2020. This increase is due to the increase in production. The reason for the decreasing depends on the efficient usage and steam use in the process. Thresholds for comparison: +/-10% "about the same"; +/-10-25% "higher/lower" and over 25% change is classified as "much higher/much lower". As the decrease in entrained water is only 7.38%, it is classified as "about the same"
Third party sources	Not relevant	<Not Applicable>	<Not Applicable>	Saryyar Dam, from which we supply fresh surface water, is the only Water Source of Eti Soda. Except from Saryyar Dam, the only relevant water source is the water that is entrained in the trona ore which is naturally occurring.

W1.2i

(W1.2i) Provide total water discharge data by destination.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	731.88	Higher	It should be necessary to change membrane and resin periodically for water usage efficiency. For the use of water as an efficiently, 120 number of membranes changed in 2021 and resin will be changed in 2022. At Eti Soda, we discharge to dry river beds (which is classified as fresh surface water). Water discharges – total volumes at both industrial and domestic wastewater treatment plants are being measured continuously and recorded daily. When compared to the previous reporting period, our discharge volumes have increased from 623.66 ML in 2020 to 731.88 ML in 2021 which equals to an increase of 17.35%. The reason for this increase is, increasing of production. Thresholds for comparison: +/-10% "about the same"; +/-10-25% "higher/lower" and over 25% change is classified as "much higher/much lower". As the increase in discharge volume is 17.35%, it is classified as "Higher"
Brackish surface water/seawater	Not relevant	<Not Applicable>	<Not Applicable>	We don't discharge to brackish surface water. Our discharge permit includes discharge to two separate dry river beds. In the previous years, we have mistakenly reported this discharge as "discharge to brackish surface water", this year we changed the discharge destination in order to reflect our processes.
Groundwater	Not relevant	<Not Applicable>	<Not Applicable>	We have two waste water treatment plants, and all our discharge is made from these two plants. Both plants discharge to dry riverbeds so we do not have any discharge to groundwater.
Third-party destinations	Not relevant	<Not Applicable>	<Not Applicable>	We have two waste water treatment plants, and all our discharge is made from these two plants. Both plants discharge to dry riverbeds so we do not have any discharge to third party destinations.

W1.2j

(W1.2) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	We do not have a tertiary treatment facility in our plant. We have two waste water treatment plants one is for domestic waste water and the other is for industrial waste water.
Secondary treatment	Relevant	57.91	Much higher	100%	We have secondary treatment in our domestic waste water treatment plant. The amount of water treated in this plant increased slightly from 34.68 ML in 2020 to 57.91 ML in 2021 (66.98% increase). The reason for this increase is, the hygiene practices caused by covid 19. The discharge standards are determined according to the relevant tables on "Water Pollution Control Regulation" depending on the discharge destination's profile and the characteristics of the discharge water. The discharge water is analyzed weekly at Eti Soda laboratories and a sample is also sent to an independent laboratory approved by the Ministry of Environment and Urbanization every two months. The analysis results are submitted to the MoEU's online system. The analyzed parameters are: pH, COD, BOD and Suspended Solids. Thresholds for comparison: +/-10% "about the same"; +/-10-25% "higher/lower" and over 25% change is classified as "much higher/much lower". As the increase in treatment volume is only 66.98%, it is classified as "much higher"
Primary treatment only	Relevant	673.96	Higher	100%	The volume of water withdrawn had been increased related to increasing of membrane and resin pollution load. It should be necessary to change membrane and resin periodically for water usage efficiency. For the use of water as an efficiently, 120 number of membranes changed in 2021 and resin will be changed in 2022. We have primary treatment in our industrial waste water treatment plant. The amount of water treated in this plant increased from 588.98 ML in 2020 to 673.96 ML in 2021 (14.43% increase). The reason for this increase is, increasing of production. The discharge standards are determined according to the relevant tables on "Water Pollution Control Regulation" depending on the discharge destination's profile and the characteristics of the discharge water. The discharge water is analyzed weekly at Eti Soda laboratories and a sample is also sent to an independent laboratory approved by the Ministry of Environment and Urbanization every two weeks. The analysis results are submitted to the MoEU's online system. Analysis parameters for industrial wastewater: pH, fish bioassay, oil-grease, COD, chloride, sulfate, iron Thresholds for comparison: +/-10% "about the same"; +/-10-25% "higher/lower" and over 25% change is classified as "much higher/much lower". As the increase in treatment volume is 14.43%, it is classified as "higher"
Discharge to the natural environment without treatment	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	We never discharge to natural environment without treatment. This is against our discharge permits.
Discharge to a third party without treatment	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	We don't discharge to any third-party destinations without treatment.
Other	Not relevant	<Not Applicable>	<Not Applicable>	<Not Applicable>	We don't have any other type of discharge.

W1.3

(W1.3) Provide a figure for your organization's total water withdrawal efficiency.

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	3150564687	3893.94	809094.307308279	We are expecting a positive trend in water efficiency for the next year.

W-MM1.3

(W-MM1.3) Do you calculate water intensity information for your metals and mining activities?

Yes

W-MM1.3a

(W-MM1.3a) For your top 5 products by revenue, provide the following intensity information associated with your metals and mining activities.

Product	Numerator: Water aspect	Denominator	Comparison with previous reporting year	Please explain
Sodium Carbonate and Sodium Bicarbonate	Total water withdrawals	Ton of final product	About the same	We apply solution mining method, where the ore is dissolved in the water and the moisture content of the ore mixes up with the brine. We didn't include entrained water into our calculations in 2019. When compared to 2020, amount of entrained water withdrawn has increased, from 435.84 ML to 474.63 ML, which translates to an increase of 8.9%. The reason for the decreasing depends on the efficient usage and steam use in the process. Thresholds for comparison: +/-10% "about the same"; +/-10-25% "higher/lower" and over 25% change is classified as "much higher/much lower". As the decrease in entrained water is only 7.38%, it is classified as "about the same"

W1.4

(W1.4) Do you engage with your value chain on water-related issues?

Yes, our suppliers

Yes, our customers or other value chain partners

W1.4a

(W1.4a) What proportion of suppliers do you request to report on their water use, risks and/or management information and what proportion of your procurement spend does this represent?

Row 1

% of suppliers by number

26-50

% of total procurement spend

51-75

Rationale for this coverage

In order for Eti Soda's business and operations to be continued with no interruption, we have to manage supply chain processes efficiently. To manage an efficient procurement process, we make regular supplier assessments.

We monitor our active suppliers (which make up 86% of our total procurement spend), on environmental issues, including water-related issues. In our active suppliers list, the suppliers that have over 1% share in our procurement spend, are prioritized in engagement activities, however we try to reach all of our active suppliers every year.

We engage our suppliers through our Procurement policy, our Sustainability Reports, Contract negotiations, and Supplier Sustainability Assessment Questionnaire. According to our procurement policy, a supplier has to complete our Supplier Sustainability Assessment Questionnaire. Our supplier engagement method creates an opportunity to better understand our influence over our supply chain and gives us an understanding of what is needed by our suppliers in terms of sustainability.

During the reporting period, the Supplier Sustainability Assessment Questionnaire was sent to all of our active suppliers, and 40% of them by number reported back sufficiently on water related questions.

As an incentive for the suppliers to report, the suppliers that have a sufficient score in their sustainability assessment questionnaire are qualified to be included in our "Approved Supplier List"

Impact of the engagement and measures of success

We request information from our suppliers about their company quality systems (ISO 9001, ISO 14001, ISO 22000, BRC, ISO27001 etc.) and their product certifications and water withdrawals by source by sending them questionnaires.

Those questionnaire results are evaluated by Eti Soda and site visits are arranged to control whether the information provided from our suppliers is correct and valid. According to our Procurement policy, we assess our suppliers per Supplier Sustainability Assessment Questionnaire results with 4 categories. We can find out Corrective and Preventive Actions (CAPA) for our suppliers and we give training at supplier engagement days.

Our suppliers are given time to accommodate the identified CAPAs. Also, we evaluate the information provided and determine whether we will continue to work with our suppliers according to questionnaire results.

The success of supplier engagement on water-related issues, is measured by percentage (by procurement spend) of the active suppliers sufficiently replying the Supplier Assessment Questionnaire, if the percentage is 50% or higher the engagement activity is evaluated as successful. For water related data the success of engagement is also the same, if the suppliers that make up more than 50% of our procurement spend send us water-related information, we accept the engagement activity as a success.

In 2021, 18 suppliers making up 51,2% of our procurement spent shared water related information.

Comment

W1.4b

(W1.4b) Provide details of any other water-related supplier engagement activity.

Type of engagement

Innovation & collaboration

Details of engagement

Educate suppliers about water stewardship and collaboration

% of suppliers by number

51-75

% of total procurement spend

51-75

Rationale for the coverage of your engagement

Each year we organize supplier engagement days. We invite all of our suppliers to these days where we educate our suppliers about sustainability related issues. Water stewardship is also a part of this training.

We also try to support our customers by explaining them about why we need the data that we request from them, and how working on water related issues will help them manage future risks.

Also according to our Procurement policy, we assess our suppliers according to Supplier Sustainability Assessment Questionnaire results with 4 categories, and according to the assessment results, suppliers with lower scores are trained if deemed necessary.

Impact of the engagement and measures of success

With this engagement activity we are trying to raise awareness on sustainability and water related issues. Suppliers that attend these events have a chance to learn about the sustainability, water and climate related standards, how they are applied, and also water and climate related risks that their operations may face in the not-so-distant future.

The success of supplier engagement is measured by percentage of the active suppliers attending these events.

In the reporting year we have reached 88% of our active suppliers which is a huge success. In the previous year this figure was 35%.

Comment

W1.4c

(W1.4c) What is your organization's rationale and strategy for prioritizing engagements with customers or other partners in its value chain?

We constantly engage with our customers, because for ETI SODA it is very important to identify the needs of our customers. Depending on the nature of our relationship with our customers, this engagement activity can be simply sharing product specifications and the environmental performance of our products, but it can also be taking part in their emission/water reduction projects, helping them develop strategies towards a low-carbon future and also helping them achieve their water and climate related targets.

We use several methods to engage with our customers:

To emphasize the low environmental impacts of natural soda ash production, we have performed an LCA study and published an Environmental Product Declaration (EPD). This study is renewed at regular intervals to reflect the improvements in our operational conditions. Our EPD is published on our website along with other certifications like ISO-14046. Anybody who visits our website can reach these documents. Sometimes our customers send us supplier assessment surveys, and we always participate in those surveys doing our best to meet their expectations. When requested we engage in projects led by our customers, to help them work on their targets and strategies, especially related to water security and climate-change. We use social media to emphasize the environmental benefits of our products and we also participate in World Soda Ash Conference which is a global event, where we have a chance to introduce our products to new customers.

We send customer satisfaction surveys to all of our customers to measure the impact of our engagement activities. Customer satisfaction rate in these surveys is a measure of success for ETI SODA. If the customer satisfaction rate is over 90%, we accept the engagement activities of that year as a success. Our customer satisfaction rate is increased as 4,3 percentage become 97% in 2021.

W2. Business impacts

W2.1

(W2.1) Has your organization experienced any detrimental water-related impacts?

No

W2.2

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

No

W3. Procedures

W-MM3.2

(W-MM3.2) By river basin, what number of active and inactive tailings dams are within your control?

Country/Area & River basin

Turkey	Sakarya
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Number of tailings dams in operation

0

Number of inactive tailings dams

0

Comment

Eti Soda does not have any active or inactive tailing dams.

W3.3

(W3.3) Does your organization undertake a water-related risk assessment?

Yes, water-related risks are assessed

W3.3a

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

Value chain stage

Direct operations

Coverage

Full

Risk assessment procedure

Water risks are assessed as part of an established enterprise risk management framework

Frequency of assessment

Annually

How far into the future are risks considered?

More than 6 years

Type of tools and methods used

Tools on the market

Enterprise risk management

International methodologies and standards

Databases

Other

Tools and methods used

WRI Aqueduct

ISO 31000 Risk Management Standard

Environmental Impact Assessment

Life Cycle Assessment

Regional government databases

Internal company methods

External consultants

Nation specific databases, tools, or standards

Contextual issues considered

Please select

Stakeholders considered

Customers

Employees

Investors

Local communities

NGOs

Regulators

Suppliers

Other water users at the basin/catchment level

Comment

Contextual issues considered ve Stakeholders considered kısmına maksimum puanı alacak şekilde giriş yapmalıyız.

Ecoinvent database is used for our EPD

Value chain stage

Supply chain

Coverage

Full

Risk assessment procedure

Water risks are assessed in an environmental risk assessment

Frequency of assessment

Annually

How far into the future are risks considered?

More than 6 years

Type of tools and methods used

Tools on the market

Enterprise risk management

International methodologies and standards

Other

Tools and methods used

SEDEX

WRI Aqueduct

ISO 31000 Risk Management Standard

Environmental Impact Assessment

Life Cycle Assessment

ISO 14001 Environmental Management Standard

ISO 14046 Environmental Management - Water Footprint

Internal company methods

Nation specific databases, tools, or standards

Contextual issues considered

Please select

Stakeholders considered

Please select

Comment

Ecoinvent database is used for our EPD

Value chain stage

Other stages of the value chain

Coverage

Please select

Risk assessment procedure

Please select

Frequency of assessment

Please select

How far into the future are risks considered?

Please select

Type of tools and methods used

Please select

Tools and methods used

<Not Applicable>

Contextual issues considered

Please select

Stakeholders considered

Please select

Comment

As our product has many application areas, with many different production processes and thus many different levels of water dependency, we are not able to include our customers in our water-related risk analysis.

W3.3b

(W3.3b) Describe your organization's process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.

At Eti Soda, water-related risks assessments are carried out as a part of our enterprise risk management activities under Environmental Risk Assessment within the scope of ISO 31000 Risk Management Standard.

The risk assessment calculations are made with the formula below.

Risk = Probability x Impact (5x5 matrix)

Risk rating is classified as;

- very high,
- high,
- medium,
- low,
- very low.

For the risks determined as medium and/or higher level, work programs (activity / action / responsible person / term and realization) are applied.

In addition, within the scope of ISO 14001: 2015 revision, procedures for company and process-based environmental risks and opportunities have been established and relevant assessments have been made in accordance with these procedures.

Direct Operations:

We use WRI Aqueduct Water Risk Atlas to assess the baseline and future water stress on our direct operations.

We also gather water-related data from regional databases for our direct operations.

As an example:

We use the regional database of Turkish Meteorological Institute and their climate projection studies in order to understand the future impacts of climate change on Turkey, especially the impact on precipitation patterns.

Our only water source is Sariyar Dam which is on the Sakarya River Basin. WRI Aqueduct Water Risk Atlas provides Overall Water Risk and baseline water stress in an explanatory way and helps to identify and respond to local water risks.

Turkey experienced the worst drought of the last 44 years in 2017 due to a substantial decrease in precipitation. In 2021, we calculated our water footprint and get verified by a third-party in order to manage the water related risk emerging from stakeholders, current regulations and reputational risks.

WRI Aqueduct Water Risk Atlas helps us to understand the significance of the impact.

The tool we use for our water footprint assessments, is a national standard; ISO 14046. This standard is used as a tool to assure transparency, consistency, reproducibility and credibility of our water footprint assessments.

Supply chain:

In order to understand and manage the water related risks on our operations as well as on our value chain, we started our LCA studies in 2017 and we have updated this study on 15.07.2020.

We use Berger et al 2014 (Water Scarcity) methodology for our supply chain water stress analysis. This method analyses the vulnerability of basins to freshwater depletion over our supply chain. Also, we use Pfister et al 2009 (Water Scarcity) method - water scarcity indicator (WSI) - which is based on a withdrawal to availability (WTA) ratio and modelled using a logistic function (S-curve) in order to fit the resulting indicator to values between 0.01 and 1 m³ deprived/m³ consumed. The curve is tuned using OECD water stress thresholds, which define moderate and severe water stress as 20% and 40% of withdrawals, respectively. Data for water withdrawals and availability were obtained from the WaterGap model.

This water risk approach enables us to early detect the any potential improvement over our suppliers.

The outcomes of the risk assessment performed using all the above-mentioned tools, especially WRI Water Risk Atlas Tool and our EPD Study, are used to inform our medium and long-term strategies and financial planning. According to WRI Water Risk Atlas Tool in the long-term, the water stress in our only water source Sariyar Dam will increase, which means we have to work on improving our water efficiency. This risk is also included in our long-term financial planning as we may have to pay more for our water withdrawals.

W4.1

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes, only within our direct operations

W4.1a

(W4.1a) How does your organization define substantive financial or strategic impact on your business?

By the view of the Board, substantive impact would be anything that can significantly affect our ability to meet business goals and material importance for our stakeholders. Water related risks are evaluated (in terms of violence / impact and probability) by analysing any expected and unexpected factors that may affect the company's achievement of its goals and objectives.

In Eti Soda, risks are governed with the following principle:

Define – Analyze – Plan – Monitor & Measure – React

After a risk is defined, the impact and probability of this risk is identified through analysis.

At Eti Soda Impact of the risks are analyzed under 13 main categories, the categories that are related to water risks and opportunities and their corresponding substantive impact definitions are given below:

1. Financial Loss: A water related price increase above 1,000,000 TL
2. Reputational Loss: Over 2.5% loss of market-share on a national level
3. Media Reflection: Short-term negative news on national or international media
4. Production/Work Loss: Unplanned stop of operations for over 1 week
5. Water Impacts:
 - Legal restriction of the amount of water required for production within the scope of prudent use of water
 - 5% restriction on the amount of water required for industrial production from surface freshwater sources and lakes
 - Failure to reach water within 2 days due to water supply failure

The above-mentioned definitions and thresholds are applicable to direct operations. The definitions for reputational loss and media reflection also apply to our value chain operations.

Example:

IPCC RCP 4.5 scenario projections foresee a decrease in mean precipitation levels and WRI Aqueduct Water Risk Atlas foresees an increase in water stress risk levels in Turkey. As a result of climate change induced stresses like increased frequency and severity of draughts, the government may impose statutory water withdrawal limits. Such a limit on water withdrawals will result in reduction or disruption in our production capacity as we are extremely dependent on water.

According to the protocol signed with DSI (State Hydraulic Works), our water usage as of 2021 is 30-40% below the agreed limit. In case of restrictions, we have a number of projects to further improve water efficiency. A possible worst-case scenario analysis example is given below.

If there is a reduction in the availability of water, our production capacity may decrease. We estimate that our currently agreed water withdrawal with can be reduced by approximately 40% without significantly impacting our operations, due to our current water efficiency and additional projects to improve water efficiency. Water reductions beyond this level would reduce production, and our annual income will decrease at the same rate.

If we anticipate a reduction of between 30% and 40% in our withdrawal limits, our production will decrease by 2-3%. This means a 2% (70 Million TL) and 3% (90 Million TL) decrease in our 2021 revenue (3,150,564,687 TL).

The probability of the risk occurring is low, but the impact it will have when it occurs is considered to be significant.

W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	1	100	We only have one facility; therefore, it represents 100% of our company-wide facilities.

W4.1c

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive financial or strategic impact on your business, and what is the potential business impact associated with those facilities?

Country/Area & River basin

Turkey	Sakarya
--------	---------

Number of facilities exposed to water risk

1

% company-wide facilities this represents

100%

Production value for the metals & mining activities associated with these facilities

3150564687

% company's annual electricity generation that could be affected by these facilities

<Not Applicable>

% company's global oil & gas production volume that could be affected by these facilities

<Not Applicable>

% company's total global revenue that could be affected

100%

Comment

The given figure is our revenue for the reporting year. All our revenue comes from our metals and mining sector activities.

W4.2

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Area & River basin

Turkey	Sakarya
--------	---------

Type of risk & Primary risk driver

Chronic physical	Water stress
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Primary potential impact

Increased operating costs

Company-specific description

According to the risk assessment we performed using WRI Aqueduct Water Risk Atlas, Sariyar Dam is located in an area with Medium-Low (20-40%) water stress. However, in both pessimistic and optimistic future scenarios, the water stress levels are increasing reaching up to extremely high (>80%) levels.

The increasing water stress may increase our water prices, which will result in an increase in operational expenses.

We withdraw water from a dam which is also used as a hydroelectric power plant and if we didn't withdraw that amount it would be used to generate electricity. This is why we also have to pay a fee for the amount of hydro-electricity not generated by the power plant operator.

This poses even a greater risk in our operational expenses, because with the increasing regulatory and physical stress related to climate change, it is expected that renewable energy will be in higher demand which will in turn increase the energy costs.

With increasing cost of energy, the fees we pay to the power plant operator have a potential to increase more than the price we pay to the State Hydraulic Works.

Timeframe

More than 6 years

Magnitude of potential impact

Medium-low

Likelihood

Very likely

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure - minimum (currency)

70000000

Potential financial impact figure - maximum (currency)

90000000

Explanation of financial impact

Water use is extremely important to our production process. A limitation on water withdrawals may result in a reduction or interruption of our production capacity. According to the protocol signed with DSI (State Hydraulic Works), our water usage as of 2021 is 30-40% below the agreed limit. For this reason, the risk of water restriction by DSI has been evaluated as low risk. In case of restrictions, we have a number of projects to further improve water efficiency and further mitigate this risk. A possible worst-case scenario analysis example is given below.

If there is a reduction in the availability of water, our production capacity may decrease. We estimate that our currently agreed water withdrawal with can be reduced by approximately 40% without significantly impacting our operations, due to our current water efficiency and additional projects to improve water efficiency. Water reductions beyond this level would reduce production, and our annual income will decrease at the same rate.

If 35%-40% water withdrawal restriction is imposed by DSI

Water withdrawal restriction of 35%: no financial impact

Water withdrawal restriction of 40%, after our planned water efficiency projects, there will be a production reduction of 2 - 3% compared to the use of approximately 2021.

Our revenue for 2021 : 3,150,564,687 TL

Max impact: 2 - 3 % of our income will decrease by 70,000,000 - 90,000,000 TL

Primary response to risk

Adopt water efficiency, water reuse, recycling and conservation practices

Description of response

We constantly work on projects to reduce water consumption and withdrawal. We have targets on reducing the solution required for production, which in turn reduces the amount of water used.

We are aware of this risk and we also include this risk in our long-term financial and strategic planning, so that we will be ready financially.

In case of restrictions, there are projects for water efficiency. We also look for ways to increase the amount of water recycled.

Cost of response

300000

Explanation of cost of response

In 2021 we changed the filtration system of our reverse osmosis membrane, which would impact our discharge amounts. The given cost of response was the cost of this investment.

Country/Area & River basin

Turkey	Sakarya
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Type of risk & Primary risk driver

Acute physical	Flood (coastal, fluvial, pluvial, groundwater)
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Primary potential impact

Increased compliance costs

Company-specific description

According to the risk assessment we performed using WRI Aqueduct Water Risk Atlas, Sarıyar Dam is located in an area with Medium-Low (20-40%) water stress.

However, in both pessimistic and optimistic future scenarios, the water stress levels are increasing reaching up to extremely high (>80%) levels.

We withdraw water from a dam which is also used as a hydroelectric power plant and if we didn't withdraw that amount it would be used to generate electricity. For this reason, we should keep our water consumption amounts at a minimum level and follow trends and price increases.

With increasing water stress levels, water prices are expected to increase as well. Rising water stress levels and increased energy demand may require us to pay higher prices for water. This increases our risk as we also have to pay for the electricity that is not produced. This causes an increase in operating expenses.

Scenario

If Eti Soda didn't withdraw that amount it would be used to generate electricity by the hydro-electricity power plant. This is why we also have to pay a fee for the amount of hydro-electricity not generated by the power plant. Because with the increasing regulatory and physical stress related to climate change, it is expected that renewable energy will be in higher demand which will in turn increase the energy costs. With the increasing energy cost, there is a potential to see a higher increase in the fees we pay to EÜAŞ compared to the price we pay to the State Hydraulic Works. This amount constitutes a small-scale risk in our operational expenses.

Timeframe

1-3 years

Magnitude of potential impact

Low

Likelihood

Very likely

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure - minimum (currency)

900000

Potential financial impact figure - maximum (currency)

2000000

Explanation of financial impact

"Financial impact of scenario

Amount Paid for Ungenerated Electricity Min. - Max.: 100% Raised Ungenerated Electricity Unit Price Increase Amount*Amount of Withdrawn Water =Min. Difference approximately 900,000 TL - 200% Incremented Ungenerated Electricity Unit Price Increase Amount*Amount of Water Drawn= Max. Difference approximately 2,000,000 TL
Difference in Raw Water Amount from Sarıyar Dam Lake Min. - Max.: DSI Unit Price Paid*Increase Percentage*Amount of Water Withdrawn= 200,000 TL - DSI Unit Price Paid*Percentage Increase*Amount of Water Withdrawn=500,000 TL

According to our material impact thresholds, a water-related price increase of more than 1 million TL is defined as a risk.

Significant impact. The magnitude of the impact was chosen as "medium-low" because the minimum potential financial impact is lower than our significant impact threshold.

Primary response to risk

Comply with local regulatory requirements

Description of response

We constantly work on projects to reduce water consumption and withdrawal. We have targets on reducing the solution required for production, which in turn reduces the amount of water used.

We are aware of this risk and we also include this risk in our long-term financial and strategic planning, so that we will be ready financially.

In case of restrictions, there are projects for water efficiency. We also look for ways to increase the amount of water recycled.

Cost of response

300000

Explanation of cost of response

In 2021 we changed the filtration system of our reverse osmosis membrane, which would impact our discharge amounts. The given cost of response was the cost of this investment.

Country/Area & River basin

Turkey	Sakarya
--------	---------

Type of risk & Primary risk driver

Regulatory	Regulatory uncertainty
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Primary potential impact

Increased operating costs

Company-specific description

Eti Soda uses the Sarıyar Dam as its water source (under the responsibility of DSI).

In case the DSI imposes a restriction on water consumption, it may be necessary to obtain water from another source (ASKİ). While production continuity can be ensured with restriction of up 5% below current consumption levels, it may be necessary to source water from another supply for a decrease of more than 5% below current consumption levels.

Timeframe

More than 6 years

Magnitude of potential impact

Medium-high

Likelihood

More likely than not

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure - minimum (currency)

4000000

Potential financial impact figure - maximum (currency)

8000000

Explanation of financial impact

"Minimum Limitation 5% Introduced by DSI: $3,419,308 \times 0.05 = 170,965$ m3

Maximum Limitation 10% Introduced by DSI: $3,419,308 \times 0.1 = 341,930$ m3

Minimum amount of water to be purchased from ASKİ: 170,965 m3

Maximum amount of water to be purchased from ASKİ: 341,930 m3

Minimum Invoice Payable to ASKİ: 4,000,000 TL

Maximum Invoice Payable to ASKİ: 8,000,000 TL"

Primary response to risk

Comply with local regulatory requirements

Description of response

We are aware of the risk and carry out long-term business strategy and budget planning by taking this risk into account.

Cost of response

5000000

Explanation of cost of response

The closest ASKİ water line to the facility is approximately 2 km away. The cost for the DN 200 pipe and labor, which is considered to be drawn, has been calculated as 5000000 TL.

Country/Area & River basin

Turkey	Sakarya
--------	---------

Type of risk & Primary risk driver

Acute physical	Drought
----------------	---------

Primary potential impact

Increased operating costs

Company-specific description

Our business meets its water needs from Saryar dam lake. The raw water quality we receive is controlled by daily analyses.

"Considering the WRI atlas, an increase in the water pollution load as a result of the decrease in water levels due to climate change is considered. In such a case, the pollution load of the raw water entering the plant will increase, the existing equipment will not be able to perform the required performance for raw water treatment, thus operating costs will increase or production loss may occur

Scenario 1: With the decrease in the water levels in the reservoir, the water pollution load is expected to increase. In case of further pollution in addition to the existing pollution, the treatment capacity of our unit will not be enough to treat the incoming water. Therefore, a new facility may be required.

Scenario 2: If the water level in the reservoir decreases, the water pollution load will increase. In this case, the equipment in our water treatment unit will require more frequent cleaning and our equipment washing times will likely be longer"

Timeframe

4-6 years

Magnitude of potential impact

Medium-high

Likelihood

More likely than not

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure - minimum (currency)

2764000

Potential financial impact figure - maximum (currency)

3540400

Explanation of financial impact

"Scenario 1:

The cost of the sand filter system is stated as 150,000 - 190,000 € (1,570,500 - 1,989,300 TL). (Euro rate 10.47 TL)

Scenario 2:

Reverse Osmosis and Washing Waste Amount in 2021: 215,728 m3 (215,728*DSI Raw Water Unit Price Paid + 215,728*EÜAŞ Paid Ungenerated Electricity Unit Price=100,000 TL)

min. Financial Impact Amount of Waste: 215,728 * 1.3 =280,446.4 m3

Max. Financial Impact Amount of Waste: 215,728 * 1.7 = 366,737.6 m3

Min Financial Impact Cost: (280,446.4 * DSI Raw Water Unit Price Paid) + (280,446.4 * EUAS Ungenerated Electricity Paid Price) = 130,000 TL (130,000 - 100,000 = 30,000 TL)

Max Financial Impact Cost: (366,737.6 *DSİ Raw Water Unit Price Paid) + (366,737.6 *EÜAŞ Ungenerated Electricity Paid Price) = 170,000 TL (170,000 - 100,000 = 70,000 TL)"

Primary response to risk

Develop drought emergency plans

Description of response

Water quality is continuously controlled by water analyzes carried out in the ETİ Soda laboratory, which has a continuous online system and daily accreditation certificate. In case of exceeding the determined limit values, operational measures are taken that will affect the system as little as possible.

Cost of response

1700000

Explanation of cost of response

As a result of the decrease in water quality due to the decrease in the water level that can be experienced in the Saryar Dam Lake, the treatment capacity of the enterprise may not meet the current pollution of the water. Considering such a situation, the estimated cost of extra filter installation is found in the cost of response section.

W4.2c

(W4.2c) Why does your organization not consider itself exposed to water risks in its value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact?

	Primary reason	Please explain
Row 1	Risks exist, but no substantive impact anticipated	<p>Overall water-related risks are evaluated for Eti Soda's value chain during the risk assessment procedure.</p> <p>Sufficient amounts of good quality freshwater availability is important for Eti Soda's suppliers and customers. However, from a life-cycle point of view, our product lies at the cradle stage for many products and although we also use some raw materials during extraction and production, our raw materials only make-up 4-5% of our total upstream impacts. Also we don't use any raw materials that are critical in such a way that we are dependent on a few suppliers around the world. As we always have an option to diversify our supply chain operations, the impact of water-related risks on our supply chain are assessed to be very low.</p> <p>Another important issue in our value chain is our customers, however as our products are used in many different sectors and applications, their dependence on freshwater availability differs from process to process. Therefore, we are unable to make a thorough assessment on water related risks of our customers. However, as our products have many application areas and we don't depend on a few customers, our customer-related impacts of water-related risks are also assessed to be low.</p>

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized

W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Type of opportunity

Efficiency

Primary water-related opportunity

Cost savings

Company-specific description & strategy to realize opportunity

Explanation of why this opportunity is considered strategic for the company:

We apply the solution mining method; therefore, we need water during the Trona mine extraction process. In addition to that, water vapour is used in sodium carbonate and sodium bicarbonate producing process.

We constantly work on improving the efficiency of our processes, with improved water efficiency, we will have the opportunity to reduce our operating costs as we will need less water.

Explanation of the action to realize the opportunity:

As the water used is circulated in the closed-circuit in the factory, the water loss is reduced to the minimum and the water-related expenses are minimized. We have a cogeneration plant which requires pure water. We condense water vapor in our processes to produce pure water recovering/recycling some of the water we use.

If we didn't have this technology, we would need to withdraw more water from Sarıyar Dam and we would need to purify the raw water, which would mean more water use and more energy use.

Example of the strategy:

In 2021, via the water recovery/recycle within the processes we have saved over 1,000,000 m3 freshwater withdrawal from Sarıyar Dam. When compared to 2020, our recycling/recovery rate has increased by %11 due to the number of stop in plant in 2021 was less than in 2020.

Estimated timeframe for realization

Current - up to 1 year

Magnitude of potential financial impact

Low-medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

5300000

Potential financial impact figure – maximum (currency)

5750000

Explanation of financial impact

As the water used is circulated in the closed-circuit in the factory, the water loss is reduced to the minimum and the water-related expenses are minimized. Less water consumption will result in less water withdrawal from the Sarıyar Dam.

Water withdrawal is monitored continuously and the cost of the consumption are calculated based on the volume of water saved. In 2021, we have saved over 1,000 ML of water and in 2020 we have saved around 980 ML of water.

The min financial impact is calculated with the current prices and the max. financial impact is calculated using the price projections we use for the future, which includes a higher price increase (200% increase) for electricity not produced and a lower price increase (100% increase) for the water we withdraw from Sarıyar Dam. DSI is also paid for unproduced electricity in addition to the money paid to EÜAŞ. The price increase projection for DSI is considered as 30% minimum and 70% maximum.

We use a higher price increase for electricity not produced because in our future projections we expect renewable energy prices to increase.

With these assumptions, the min. financial impact is calculated as 800,000 TL whereas the max. financial impact is about 1,250,000 TL.

In addition to the prices paid to DSI and EÜAŞ, there is also savings in treatment costs. As a result of the studies carried out, approximately 4,500,000 TL is saved in order to purify 1000 ML of water.

Although the financial impact of this opportunity is slightly lower than our substantive impact threshold, as water is a very vital resource for our operations, any initiative that results in water savings is important for us.

W5. Facility-level water accounting

W5.1

(W5.1) For each facility referenced in W4.1c, provide coordinates, water accounting data, and a comparison with the previous reporting year.

Facility reference number

Facility 1

Facility name (optional)

Eti Soda

Country/Area & River basin

Turkey	Sakarya
--------	---------

Latitude

40.183617

Longitude

31.859192

Located in area with water stress

Yes

Primary power generation source for your electricity generation at this facility

<Not Applicable>

Oil & gas sector business division

<Not Applicable>

Total water withdrawals at this facility (megaliters/year)

3893.94

Comparison of total withdrawals with previous reporting year

About the same

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

3419.1

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

474.63

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

731.88

Comparison of total discharges with previous reporting year

Higher

Discharges to fresh surface water

731.88

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

3162.05

Comparison of total consumption with previous reporting year

About the same

Please explain

At Eti Soda, water withdrawn, consumption and discharge by all our operations (100% of facilities) are being monitored and recorded by water meters and flowmeters. Only the entrained water is calculated using a mass balance equation with the molecular composition and molecular weight of trona ore extracted. In the reporting year our withdrawal volume has increased by 5.3%, discharge volume has increased by 17.35 %, and consumption figure has increased by 2.84%. The reason for this increase is, due to increase in production. Thresholds for comparison: In the 2022, we have redefined the threshold definitions to reflect our operational procedures better. +/-10% "about the same"; +/-10-25% "higher/lower" & over 25% change is classified as "much higher/much lower".

(W5.1a) For the facilities referenced in W5.1, what proportion of water accounting data has been third party verified?

Water withdrawals – total volumes

% verified

76-100

Verification standard used

100 % of our water withdrawals are verified according to, ISO 14046:2014.
Entrained water was not included in the total withdrawal volume but reported separately.
Please see page 12 of our verification report.

Please explain

<Not Applicable>

Water withdrawals – volume by source

% verified

76-100

Verification standard used

100 % of our water withdrawals by source are verified according to
ISO 14046:2014
Please see page 12 of our verification report.

Please explain

<Not Applicable>

Water withdrawals – quality by standard water quality parameters

% verified

Not verified

Verification standard used

<Not Applicable>

Please explain

Water discharges – total volumes

% verified

76-100

Verification standard used

100 % of our discharge volumes are verified according to ISO 14046:2014
Please see page 11 of our verification report.

Please explain

<Not Applicable>

Water discharges – volume by destination

% verified

76-100

Verification standard used

100 % of our discharge volumes by destination are verified according to ISO 14046:2014
Please see page 11 of our verification report.

Please explain

<Not Applicable>

Water discharges – volume by final treatment level

% verified

76-100

Verification standard used

100 % of our discharge volumes by treatment method are verified according to ISO 14046:2014
Please see page 11 of our verification report.

Please explain

<Not Applicable>

Water discharges – quality by standard water quality parameters

% verified

76-100

Verification standard used

100 % of the quality of our discharge water is verified according to ISO 14046:2014
Please see page 11 - 12 of our verification report.

Please explain

<Not Applicable>

Water consumption – total volume

% verified

76-100

Verification standard used

100% of our withdrawal and discharge values are verified according to ISO 14046:2014. As Consumption = Withdrawal – Discharge, our consumption volumes are also verified.

Please explain

<Not Applicable>

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?

Yes, we have a documented water policy that is publicly available

W6.1a

(W6.1a) Select the options that best describe the scope and content of your water policy.

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of business impact on water Description of water-related performance standards for direct operations Description of water-related standards for procurement Reference to international standards and widely-recognized water initiatives Company water targets and goals Commitment to align with public policy initiatives, such as the SDGs Commitments beyond regulatory compliance Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action Acknowledgement of the human right to water and sanitation Recognition of environmental linkages, for example, due to climate change	Our water policy covers all our operations and as we operate in only one location, the scope of every policy that we publish including our water-policy, is company-wide. Our process is extremely dependent on water as we use it for our mining and processing operations, therefore this dependency is clearly identified in our policy. In the policy we acknowledge the basic human right to water & sanitation, and it also emphasizes our commitment to set targets and goals to reduce our water intensity. We calculate and manage our water footprint according to ISO 14046 and assess our water-related risks using WRI Water Risk Atlas Tool. We recognize that water stress is directly related to climate change, therefore we also do our best to reduce our climate related impacts. We are aware that we have to comply with water-related regulations, but in our water policy we also commit to go beyond this target, we have commitments to comply with CEO water mandate and other initiatives like water-related SDGs. We include of water-related standards in our procurement processes, and we always commit to water stewardship so that we can be a good example for our value chain partners. Water-related innovation studies are also very important to us as we see technology as a way to reduce our water intensity.

W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?

Yes

W6.2a

(W6.2a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Board Chair	<p>Water-related issues are integrated aspects of Eti Soda management approach and a very significant strategic issue due to the company's responsible management code. The Board is the highest level of authority and decision-maker at Eti Soda and responsible for reviewing water related policies, strategies and targets.</p> <p>Our Board Chairperson, who is also the Glass and Chemicals CEO of Ciner Group (which is the mother company and 74% shareholder of Eti Soda), is the highest-level individual on the Board with responsibility for water-related issues.</p> <p>All of the water-related decisions including strategies, major plans of action, management strategies for risks and opportunities and business plans are approved by our Board Chairperson. Our Board Chairperson (hence our Board) is informed about all of the water-related issues through the Sustainability Committee.</p> <p>One of the major decisions approved by our Board Chair was cooling tower improvement. In order to reduce the amount of waste water and to save energy, a cooling tower improvement study was decided. Other decision approved by our Board Chair was the endorsement of CEO Water Mandate in 2020. For Ceo Water Mandate we present the progress report of every year. A major decision approved by our chairperson is the commitment to Science Based Targets Initiative and UNGC. The application process for both programs have been initiated in 2021. In order to ensure supplier participation, it was decided to invite them to the sedex (inc. environmental assessment) platform.</p>
Board Chair	<p>Our chairperson of the Board of Directors and has the highest responsibility for sustainability and climate change related topics. Board Chairperson is also the CEO of the Eti Soda A.Ş. The determination of policies and strategies related to environmental, social and economic studies carried out within the scope of sustainability is conducted by the Sustainability Committee under the CEO. In addition, monitoring of sustainability performance and management of sustainability issues are also carried out by the Sustainability Committee.</p>
Board-level committee	<p>Our Sustainability Committee reports directly to the (CEO) Chairperson of the Board Sustainability Committee consists of a director, who is a Board Member, General Manager, Vice General Manager, QA/QC HSE Department Manager. The Sustainability Committee is responsible for reviewing and deciding sustainable development-related policies, strategies and targets. Considering the climate risks and opportunities that the company may expose, offering quality and environmentally friendly sustainable products to the world market by considering life cycle perspective are also in its duties and responsibilities.</p> <p>At Eti Soda, operational management of climate change and other environmental issues are coordinated by Sustainability Team carried out under the leadership of Sustainability Committee. Sustainability team is responsible for conducting studies about climate change and reporting to the committee. Leadership of the Sustainability Team is QA/QC and Occupational Health, Safety and Environment (OHSE) Department. Sustainability Team includes Management System Department, Brand and Sustainability Department, Environment Department, Occupational Health Department, Quality Control Department, Water Supply and Treatment Department, Human Sources Department, Training Department, Customer Relations Department, Energy System Department, Electrical Operational and Maintenance Department, Instruments Control Department, Purchasing Department, Accounting Department, Process Control Department.</p> <p>Supplier Code of Ethics is prepared and approved by the Sustainability Committee in 2021.</p> <p>In 2021, 2 of our suppliers were audited on-site for quality, environment, OHS, and ethics. 55 suppliers were informed about their SEDEX membership, and 7 suppliers participated in the SEDEX platform. It is aimed to increase the number of SEDEX member suppliers in 2022 [Source Doc.26]</p>
Chief Executive Officer (CEO)	<p>CEO of the Eti Soda A.Ş. is also the chairperson of the Board of Directors and has the highest responsibility for sustainability and climate change related topics. The determination of policies and strategies related to environmental, social and economic studies carried out within the scope of sustainability is conducted by the Sustainability Committee under the CEO. In addition, monitoring of sustainability performance and management of sustainability issues are also carried out by the Sustainability Committee.</p>

W6.2b

(W6.2b) Provide further details on the board's oversight of water-related issues.

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - all meetings	<ul style="list-style-type: none"> Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Reviewing and guiding annual budgets Reviewing and guiding business plans Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy Reviewing innovation/R&D priorities Setting performance objectives 	<p>Our Board has the highest level of responsibility on water-related issues, in order to be able to perform elegantly, our Board is assisted by the Sustainability Committee on climate-related decision-making processes.</p> <p>Our Sustainability Committee consists of one Board member, a director who is the Board member, Deputy General Manager, QA/QC Department Manager, HSE Department Manager, Brand & Sustainability Supervisor, Management System Supervisor, Environmental Engineers, Water Supply and Treatment Supervisor and Customer Relations Supervisor.</p> <p>Examples of our Sustainability Committee decisions in 2021 are as follows;</p> <ul style="list-style-type: none"> -In addition to the biodiversity inventory study completed in 2021, a recommendation was made that it would be beneficial to conduct an aquatic environment inventory and monitoring study for our only water source, Sarıyar Dam Lake. - In order to enhance the works of the Sustainability Committee, the Board has decided to receive support from experts and academicians. - In order to support the sustainability committee, it was decided to establish a sustainability team that includes direct or indirect process responsables. Sustainability Committee organizes regular meetings with these experts results of which are directly reported to the Board. <p>The Sustainability Committee, suggests water-related strategies, major plans of action, risk management policies, business plans, targets and performance objectives to be reviewed by the Board.</p> <p>These items are a regular agenda item in all scheduled meetings of our Board. All of the suggestions of the Sustainability Committee shall be reviewed and approved by the Board before being a part of the company policies/actions/culture.</p> <p>The Board also oversees major capital expenditures, progress against goals and implementation of performance objectives. Having the Board's support on all of these decisions, enables us to act swiftly on any kind of water-related issue.</p>

W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

	Board member(s) have competence on water-related issues	Criteria used to assess competence of board member(s) on water-related issues	Primary reason for no board-level competence on water-related issues	Explain why your organization does not have at least one board member with competence on water-related issues and any plans to address board-level competence in the future
Row 1	Yes	<p>Our Board member is also the president of our Sustainability Committee, and he has been working for 25 years in the sector. Thanks to his vision and accumulated experience in the sector, our BoD has a leading role in our sustainability initiatives & actions.</p> <p>The chairperson of the sustainability committee is the general manager of our company. During his long-term work in our company, he served as production manager, assistant general manager and general manager. Thanks to his previous duties, he is fully equipped in Production Processes, Sustainability Processes, Quality Assurance Processes, Quality Control Processes, Environmental Processes, Occupational Health and Safety Processes, Water Supply Treatment Processes, Logistics Processes, Maintenance Processes Human Resources Processes, Finance Processes, Administrative Affairs Processes, Other units/processes in the Organizational Structure, Mine Planning Process, Mineral Production Process, Energy Production Process. He has received many trainings and certificates in order to carry out environmental processes.</p> <p>Our Sustainability Committee Deputy Chairperson is serving as Assistant General Manager in our company. Thanks to his previous duties, he is fully equipped in Sodium Carbonate and Bicarbonate Production Process, Quality Assurance Processes, Quality Control Processes, Environmental Processes, Occupational Safety Processes, Workplace Medicine Processes, Water Supply Treatment Processes. Also he received many trainings and certificates in order to carry out environmental processes. These trainings;</p> <p>TS EN ISO 50001 Energy Management System Training TS EN ISO 14001 Environmental Management System ISO 14001 Risk Assessment Training Certificate OHSAS 18001 Risk Assessment Training Certificate Process Management, Interaction and Improvement Techniques Training Certificate Hazard Awareness Risk Assessment and Work Permits Training Participation Certificate Zero Waste and Environmental Awareness Education Principles of Ethical Behavior and Modern Slavery ISO 14046 Water Footprint Training ISO 14064 Carbon Footprint Training SBTi – Science Based Targets Initiative</p>	<Not Applicable>	<Not Applicable>

W6.3

(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).

Name of the position(s) and/or committee(s)

President

Responsibility

Assessing future trends in water demand
 Assessing water-related risks and opportunities
 Managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain

Our President (General Manager) who is also a Member of the Board is the highest management-level position with responsibility for water-related issues.

Our president is the co-chair of the Sustainability Committee (SC), through which the Board manages all the water-related issues at regular meetings.

All water-related issues like risks, opportunities, targets, etc. are reported to the Board by our President and who is also a member of the board. Sustainability is a regular agenda item in our Board Meetings.

Our President reports directly to the Chairman of the Board.

The water-related responsibilities of our President include, but not limited to:

- Assessing and managing water-related risks and responsibilities
- Monitoring and overseeing progress against goals and targets
- Informing the Board about water-related issues

Name of the position(s) and/or committee(s)

Sustainability committee

Responsibility

Assessing water-related risks and opportunities
 Managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain

In line with the basic principles and policies of Eti Soda, the Sustainability Committee (SC) was established and appointed by the Board of Directors (BoD) to determine short, medium- and long-term objectives and to regulate the methods and resources to be followed to achieve these objectives.

SC is co-chaired by our President and our Deputy GM & consists of QA/QC Dept. Manager, HSE Dept. Manager, Management System Supervisor, Environmental Engineers, Water Supply & Treatment Supervisor, Brand & Sustainability Supervisor & Customer Relations Supervisor.

SC is responsible for the control, monitoring of water-related issues, the performance report to the Board, the planning and reporting of the Management Review meeting, and the monitoring the water-related issues such as expectation from suppliers & customers, local people, stakeholder communication, legislative risks and opportunities.

Name of the position(s) and/or committee(s)

Other, please specify (Water Supply and Treatment Department)

Responsibility

Assessing water-related risks and opportunities
 Managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain

Water Supply and Treatment Department is responsible to Establish a system for the determination of methods and controls for the supply of water to be supplied to the plant and production processes (Mining, Process, Energy) in the specified conditions and amounts and to ensure production by following technological developments and conducting research and development activities.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	Yes	We have an active employee incentive system that is based on KPIs.

W6.4a

(W6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues (do not include the names of individuals)?

	Role(s) entitled to incentive	Performance indicator	Please explain
Monetary reward	Board chair Corporate executive team Chief Purchasing Officer (CPO) Other, please specify (President)	Improvements in efficiency - direct operations	At Eti Soda, water is a vital resource for our operations. Our Board Chair, President and our Corporate Executive team has targets to improve efficiency during mining operations by reducing the solution used / production and these targets are included in their KPIs. The solution we use for mining is around 85% hot water, and reducing the solution amount will help us reduce both our water use and our energy use. If they achieve those targets, they are incentivized in the form of a bonus or a raise. In our organization chart we don't have the position of Chief Procurement Officer, but our Purchasing Manager equals to that position and reports directly to our President. Our Purchasing Manager has targets related to inclusion of environmental criteria in purchases and engagement with our suppliers. Attainment of these targets are rewarded in the form of a bonus or a raise in its remuneration during its annual performance assessments.
Non-monetary reward	Please select	Please select	

W6.5

(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?

Yes, direct engagement with policy makers

W6.5a

(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

We have a Water Policy which includes our water-related working principles and commitments. Our water policy is a public document and is known by the employees of Eti Soda.

Water-related legislation is followed-up by the relevant departments according to the area of responsibility. In case of a change in legislation, the management and the sustainability committee are informed. If the new/revised legislation has any elements that may conflict with our water policy commitments, our water policy is revised to be in line with the legislation, as compliance with water-related regulations is one of our priorities. Legislative issues are also followed by the members of the sustainability committee (Water Supply and Treatment, Environment, Management Systems).

All activities that are seeking to influence policy are made by the process managers in accordance with the communication instructions of ETI SODA, with the approval of the management.

It is already stated on our water policy that, if any inconsistencies occur, between our water policy commitments and the actions of our employees to influence policy, corrective action is implemented as soon as possible to end the relevant situation, and the effectiveness of the measures taken is monitored.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?

No, but we plan to do so in the next two years

W7. Business strategy

W7.1

(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	> 30	<p>Since water is a vital resource, water-related issues are integrated in our long-term business objectives for over 30 years.</p> <p>The issues integrated in our long-term business objectives are:</p> <p>Baseline and future water stress which is analyzed using WRI Aqueduct Water Risk Atlas Tool</p> <p>Regulatory risks – like statutory water withdrawal limits</p> <p>Water quality on both withdrawal and discharge.</p> <p>Examples of how these issues are integrated to our water management strategy: At Eti Soda, a company-wide Water Management Strategy Plan has been developed and it consists of a SWOT analysis (strengths-weaknesses-opportunities-threats), targets and strategies.</p> <p>Water Management Strategy Plan articulates our water commitments and challenges. The challenges include water related risks like future water stress and statutory water withdrawal limits and their management strategies. The plan includes a roadmap on how to carry out the studies to be conducted in accordance with the strategic plan, methods to be followed, to carry out coordinated works in cooperation with all units, to develop a strategy for the next 30 years and to determine goals and act in line with this strategic plan.</p>
Strategy for achieving long-term objectives	Yes, water-related issues are integrated	> 30	<p>Water is a vital source for our operations, therefore in order to achieve our long-term business objectives, we have to be aware about the water-related risks and how they may impact our operations. It is of utmost importance for us to strategize accordingly.</p> <p>Water-related risks at all stages of our operations including our supply chain, direct operations and customers are included in our strategy in order to achieve long-term business objectives.</p> <p>Examples of how these issues are integrated to our water management strategy: At Eti Soda, a company-wide Water Management Strategy Plan (WMSP) has been developed and it consists of a SWOT analysis, targets and strategies.</p> <p>WMSP articulates our water commitments and challenges. In order to achieve our long-term business objectives, we must determine our water-related risks and manage them as best as we can. Our water management strategy plan, includes these water related risks and their management strategies for medium and long term.</p> <p>The plan also complies with the Sustainability Committee's corporate sustainability expectations.</p> <p>In this plan 6 principles have been identified,</p> <ul style="list-style-type: none"> • OHS and environmental requirements, • employee awareness training, • changes of the system according to the variability of raw water parameters, • to protect water source and prevent pollution, • to ensure the elimination of washing wastewater without disturbing the ecological balance, • providing uninterrupted water supply.
Financial planning	Yes, water-related issues are integrated	> 30	<p>Since water is one of the resources that is vital for the continuation of our operations, water-related issues are always integrated in our short-medium and long-term financial planning.</p> <p>We have only one water resource which is Sarıyar Dam, and this puts us in a risky position, as the loss of this precious resource may have devastating implications on our business.</p> <p>Therefore, we use WRI Aqueduct Water Risk Atlas tool to identify future water risks, and include the possible financial implications of these risks in our long-term financial planning.</p>

W7.2

(W7.2) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

Row 1

Water-related CAPEX (+/- % change)

0

Anticipated forward trend for CAPEX (+/- % change)

100

Water-related OPEX (+/- % change)

42

Anticipated forward trend for OPEX (+/- % change)

55

Please explain

No capex expenditure was made in 2021. However, it will be a capex cost due to the cooling tower strengthening in 2022. So the capex change is 0% for 2021; It is specified as 100% for the anticipated trend.

From 2020 to 2021, opex data increased by 42%. This increase was also influenced by the increase in energy cost prices and the improvement efforts. In 2021, the unit price paid dsi increased by 7.4% and per electricity not produced to EÜAŞ increased by 62.5%. Moreover, reverse osmosis membrane was replaced in 2021 to decrease discharge amount. In 2022, resin and membran will be changed.

W7.3

(W7.3) Does your organization use scenario analysis to inform its business strategy?

	Use of scenario analysis	Comment
Row 1	Yes	

W7.3a

(W7.3a) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization’s business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row 1	Other, please specify (RCP4.5)	Mixed scenario	<p>We have used the study “Climate Change Projections for Turkey: Three Models and Two Scenarios” published by the Turkish Meteorological Institution, to better understand the impacts of climate change on Turkey.</p> <p>According to the temperature and precipitation projections produced using HadGEM2-ES based on the RCP4.5 scenario;</p> <p>The most relevant impacts between the 2016 and 2040 period</p> <ul style="list-style-type: none"> • The warming is generally limited to 2 C, and this warming will be 2-3 C in the Marmara and Western Black Sea regions in summer, • As for precipitation, an increase is observed in the Coastal Aegean, Eastern Black Sea and Eastern Anatolia during the winter months, while it is predicted that the precipitation will decrease by 20% in a significant portion of the country, except for the Coastal Aegean and Eastern Anatolia, during spring. 	<p>Cooling tower improvement work will be carried out in order to reduce the cooling tower waste water generation and to ensure energy efficiency. It is aimed to use the pools with a total capacity of 5000 m3 continuously and to circulate and renew the water by using it continuously, in order to avoid possible problems in accessing water and to increase the amount of stock we have. In addition, reverse osmosis membrane replacement and resin replacement will be carried out in the facility. Along with these, the amount of waste water produced will be reduced.</p>

W7.4

(W7.4) Does your company use an internal price on water?

Row 1

Does your company use an internal price on water?

Yes

Please explain

Being a vital resource for our operations, we use internal water price especially for the calculation of water related risks.

W7.5

(W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Primary reason for not classifying any of your current products and/or services as low water impact	Please explain
Row 1	Yes	Production of sodium carbonate and sodium bicarbonate. Within this product group, sodium bicarbonate is considered as a low water effective product. In addition, the ISO 14040 - 14044 EPD (Environmental Product Declaration) study was completed with the cradle to gate approach of our products. The quantitative effect is included in the report. The EPD report can be accessed at www.environdec.com/library/epd1129	<Not Applicable>	While 2 bar steam requirement is common in sodium carbonate and bicarbonate production, there is an extra 11 bar steam requirement in sodium carbonate production. Therefore, bicarbonate is less water effective than sodium carbonate. In addition, natural soda production with solution mining technique is a production technique with low water effect compared to other production techniques.

W8. Targets

W8.1

(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Business level specific targets and/or goals Site/facility specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	<p>Water-related issues are integrated aspects of Eti Soda management approach and a very significant strategic issue due to the company's responsible management code. The Board is the highest level of authority and decision-maker at Eti Soda and responsible for reviewing water related policies, strategies and targets.</p> <p>Through the Sustainability Committee, the Board manages all the water risk topic at regular meetings. Sustainability Committee Director reports directly to the (CEO) Chairman of the Board. The Boards tasks include considering the social, environmental and economic interests of the company as well as the water related risks and opportunities that the company will face.</p> <p>Water is a vital component of the company strategy and managed at the highest level at Eti Soda. Therefore, company-wide targets&goals are assessed by the SC and evaluated by the Board in the regular meetings. Likewise, monitoring of water-related goals and targets is carried out via the STRATEGIC TARGET TRACKING FORM within our WATER MANAGEMENT STRATEGY PLAN.</p> <p>The progress for all company-wide targets and goals and monitoring results are reported in the internal MANAGEMENT REVIEW PERFORMANCE REPORT. Water related goals and targets that are company-wide, business level and facility/site level are set through the following policy as stated in the WATER MANAGEMENT STRATEGY PLAN.</p> <ul style="list-style-type: none"> > Establishing a system for the determination of methods and controls for the supply of water to be supplied to the factory and production processes (Mining, Process, Energy) in the specified conditions and amounts, > To ensure production by following technological developments and conducting research and development activities, > Ensuring the detection and control of risky situations in our activities and preventing the occurrence of occupational accidents, ensuring that the personnel of the unit are trained to raise OHS awareness, > To fulfil the responsibilities regarding the environment and to carry out the necessary works to prevent environmental pollution, > To protect water resources and to minimise water withdrawal, > To ensure the disposal of washing wastewater without disturbing the ecological balance, > To ensure the goals and targets cover the climate related scenario analysis water related results and potential water risks.

W8.1a

(W8.1a) Provide details of your water targets that are monitored at the corporate level, and the progress made.

Target reference number

Target 1

Category of target

Supplier engagement

Level

Company-wide

Primary motivation

Water stewardship

Description of target

Goal: We have a goal to ensure 80% of our critical suppliers to start reporting their water-related data including their risks, opportunities, management policies. This goal is important for Eti Soda, because we acknowledge our potential impact as a customer for our suppliers. We also want to improve water-related awareness in our supply chain. Although we constantly work on reducing our water-related impacts, it is our duty to the environment to try to do more. To implement this goal, we organize supplier engagement days, send sustainability questionnaires to our suppliers, and train our suppliers on water-related issues. As their awareness on water-related issues increase, their will to identify their impacts on water, their water risks and their water footprint will also increase.

Quantitative metric

% increase in number of suppliers engaged

Baseline year

2020

Start year

2019

Target year

2030

% of target achieved

47.5

Please explain

Our goal is o increase the ratio of suppliers providing water dats by 10% each year. We have 45 approved suppliers in total. The ratio of approved suppliers providing water dats (17 approved suppliers) (stating risks, opportunities and targets related to water) was 28% in 2020 and 38% in 2021. With these data, the target of 10% increase has been reached. 47.5% of the total target was achieved in 2021.

Target reference number

Target 2

Category of target

Water use efficiency

Level

Company-wide

Primary motivation

Reduced environmental impact

Description of target

It is a short-term target to reduce the amount of water we use per ton of product in our production activities by 8% from 2020 to the end of 2022.

Water is critical to our production. It is used in many areas from the preparation of the solution to the steam required for production. Therefore, increasing the efficiency of our operations will help reduce our water consumption and environmental impact. This target is also included in the KPIs of our Chairman, President and Corporate governance team and is directly related to our monetary reward system.

Quantitative metric

% increase in water withdrawal efficiency (i.e. revenue generation per water withdrawal volume)

Baseline year

2020

Start year

2020

Target year

2022

% of target achieved

100

Please explain

To reduce water use, which is 1.81 m3 water / tonne of product in 2020, by 10 percent in 2022. In 2021, this value is 1.75 m3 water / tonne of product; In the first 6 months of 2022, this value has been determined as 1.63. Before the end of 2022, the target set in the first 6 months has been achieved.

Along with the energy efficiency and insulation studies, steam usage, which was 0.59 tons/ton soda in 2020, decreased to 0.56 in 2021 and 2022. Detailed cleaning was carried out in the systems during the shutdowns caused by the pandemic that took place in 2020. Due to the increase in heat transfer efficiency in the heat exchangers, the steam requirement of the systems has been reduced. In addition, a total of 3,000,000 - 4,000,000 TL insulation investments were made in the system in 2020 and 2021.

Target reference number

Target 3

Category of target

Water discharge

Level

Company-wide

Primary motivation

Reduced environmental impact

Description of target

Water is a critical chemical for our business. Especially reducing the amount of waste water produced from pure water used in steam production and soft water used in cooling equipment is an important activity in terms of operational efficiency and continuity.

This is a short-term target to reduce the amount of wastewater per tonne produced from the softening unit and reverse osmosis membranes 10% in 2022 compared to 2020.

Quantitative metric

% reduction per product

Baseline year

2020

Start year

2020

Target year

2022

% of target achieved

100

Please explain

Our waste water rate from reverse osmosis and softening unit, which was 0.186 m3/tonne of product in 2020, decreased to 0.182 m3/tonne in 2021 and to 0.167 m3/tonne in the first 6 months of 2022. There was a 10.21% decrease from 2020 to the first 6 months of 2022. Reverse osmosis membrane replacement and resin replacement in the softening unit have an effect on this decrease.

W8.1b

(W8.1b) Provide details of your water goal(s) that are monitored at the corporate level and the progress made.

Goal

Engagement with suppliers to help them improve water stewardship

Level

Company-wide

Motivation

Water stewardship

Description of goal

Target: We have a goal to ensure 80% of our critical suppliers to start reporting their water-related data including their risks, opportunities, management policies.

This goal is important for Eti Soda, because we acknowledge our potential impact as a customer for our suppliers. We also want to improve water-related awareness in our supply chain.

Although we constantly work on reducing our water-related impacts, it is our duty to the environment to try to do more.

To implement this goal, we organize supplier engagement days, send sustainability questionnaires to our suppliers, and train our suppliers on water-related issues. As their awareness on water-related issues increase, their will to identify their impacts on water, their water risks and their water footprint will also increase.

Baseline year

2020

Start year

2019

End year

2030

Progress

In 2019 we have sent the survey to all 35 of our approved suppliers and none of them sent their water-data. In 2021 as a result of our engagement efforts 17 of our suppliers sent their water data, which makes $(17/45) \times 100 = 38\%$ of our approved suppliers.

We have achieved $(38/80) \times 100 = 47,5\%$ of our goal already. The threshold for success was to achieve at least 10% of this goal, because this was our first year of monitoring the progress of this goal.

Keeping in mind that 2021 was an extraordinary year due to Covid-19 related restrictions, having 17 of our approved suppliers report on their water-related data including their management methods, is a huge success for us.

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

Yes

W9.1a

(W9.1a) Which data points within your CDP disclosure have been verified, and which standards were used?

Disclosure module	Data verified	Verification standard	Please explain
W1 Current state	<p>Comparisons related to the water withdrawal volume changes as 2018,2019 ,2020 and 2021 withdrawal volumes are stated on our verification report.</p> <p>Entrained water volume were calculated as 474.63 ton in 2021.</p> <p>Primary discharge volume was 673.96 ML and secondary discharge volume was 57.91 ML.</p> <p>W-MM1.3a-Water intensity for 2020 and 2021 Water intensity was calculated in 2020 1,81 m3/total production and in 2021 1,75 m3/total production.</p> <p>All of the above data can be found on page 12 of our verification report. The verification of our water related data which is given under section 5.1a of this report can also be found at page 12 of the same report.</p>	Other, please specify (ISO 14046:2014)	Verification is performed by BSI according to ISO 14046:2014 criteria.

W10. Sign off

W-FI

(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

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W10.1

(W10.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category
Row 1	Board chair	Board chair

W10.2

(W10.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

Yes

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms