

## Water Management

ENKA is aware that water is the most important natural resource for life. For this reason, it manages its use of water responsibly, efficiently and effectively.

ENKA is carrying out projects in regions that vary widely in their geographical characteristics, and access to water in these regions differ accordingly. In projects carried out in Africa and the Middle East, where access to clean water is particularly restricted, the need arises for special solutions. In some places, the solution is to transport clean water to the sites of work and accommodation; in others, drinking water is obtained through advanced purification techniques such as reverse osmosis. Since transporting water creates additional risks and increases environmental impacts, clean water wells are opened at appropriate points after obtaining the necessary permits from the local authorities. When water is not at the desired quality

standard, it is subjected to appropriate purification processes before it is used.

In ENKA projects, water is consumed mostly in irrigation to prevent dust emissions, in the production of materials such as concrete and asphalt at the worksites, and for purposes of domestic usage. Before starting work on any construction project, ENKA conducts a detailed Environmental Impact Assessment. Its first preference is to use the water resources that are found to be sufficient in quality and quantity. If the water is withdrawn from natural resources, the capacity and quality of the source are monitored regularly, and in the event of any change, discussions are held with the relevant authorities to find a solution. The proper infrastructure systems and highly efficient equipment are used in order to reduce water losses to a minimum. If an infrastructure system exists, waste water is discharged into the system in a manner

compatible with ENKA procedures and the local legislation. If there is no infrastructure system, treatment systems are established in order to be able to discharge water of an appropriate quality. Accredited laboratories test samples of water obtained and discharged regularly.

Depending on the type of activity that is being carried out, treated water can be recycled for use in the irrigation to prevent dust emissions, after concrete casting process, or re-used to irrigate green areas. In this way, the total amount of water used can be reduced. In cases where the nature of a project requires that a water course such as a river, streams or irrigation canal on the worksite needs to be crossed, pipes of appropriate dimensions are positioned at the crossing point and the necessary filling work is carried out in order to ensure that the water continues to flow and to preserve the bed of the water course and the quality of the water.

Due to its field of activity, ENKA Power, one of ENKA's subsidiaries, requires considerable quantities of water for use in the production of energy. At the Izmir plant, the need for water is particularly high as a wet cooling system is used. The water is drawn in a controlled manner, taking all necessary precautions to protect the Gulf of Izmir, and in line with a philosophy of not causing any damage to wildlife. At the Adapazarı plant, ground water is used in accordance with the permission granted. Care is taken to draw off less than the allocated amount, once again with the philosophy of protecting the basin. All drawings of water are metered and the amounts are recorded.

ENKA's other subsidiaries are also working to protect water resources, depending on their fields of activity. For example, ENKA TC makes use of grease traps to collect the waste oils of tenants providing services in the restaurant sections of its buildings, and has these cleansed and maintained regularly by authorised firms. Cimtas Pipe has started to make use of a siphonic rainwater collection system in order to reduce its water consumption. Çimtaş Precision Machining is aiming to put its rainwater collection system into operation in 2018, enabling it to meet 100% of its needs for water for siphons and garden watering using rainwater.

Water efficiency and conservation training is regularly held for employees throughout the ENKA group.

### Amount of Water Withdrawal by Source

ENKA began work on measuring its water footprint systematically in 2017. The table next page lists the subsidiaries and sites that were included in this study in its first year.

The total amount of main water used in 2017 was 903,238m<sup>3</sup>, the amount obtained from surface waters such as rivers and lakes was 27,853,364m<sup>3</sup>, and the amount of groundwater drawn was 745,957m<sup>3</sup>. The total water consumption of the ENKA group companies and projects included in the study was 29,502,559m<sup>3</sup>, and their total discharges of waste water added up to 21,198,890m<sup>3</sup>.



Subsidiary/Plant/Project	Water Withdrawal by Source			Total Amount of Discharged Waste Water (m <sup>3</sup> )	Point of Discharge
	Municipal Water (m <sup>3</sup> )	Surface Waters (Rivers, Lakes, etc.) (m <sup>3</sup> )	Groundwater (m <sup>3</sup> )		
Cimtas Boru İmalatları vTicaret Ltd. Şti.	37,605	-	-	20,918	Municipal Waste Water Treatment Plant
Çimtaş Çelik İmalat Montaj ve Tesisat A.Ş.	-	-	21,398	7,541	Sea of Marmara
ENKA Power Plants	Adapazarı	-	134,264	134,264	Municipal Waste Water Treatment Plant
	Gebze	-	268,528	268,528	Municipal Waste Water Treatment Plant
	Izmir	-	27,853,364	30,715	19,781,418
ENKA Pazarlama İhracat İthalat A.Ş.	12,386	-	-	12,386	-
Istanbul ENKA Schools	10,887	-	-	8,710	Municipal Waste Water Treatment Plant
ENKA Sports Club	39,566	-	-	37,481	Municipal Waste Water Treatment Plant
City Center Investment (CCI)	192,780	-	-	192,780	Municipal Waste Water Treatment Plant

Subsidiary/Plant/Project	Municipal Water (m <sup>3</sup> )	Surface Waters (Rivers, Lakes, etc.) (m <sup>3</sup> )	Groundwater (m <sup>3</sup> )	Total Amount of Discharged Waste Water (m <sup>3</sup> )	Point of Discharge
ENKA TC Limited Liability Company	449,093	-	-	449,093	Municipal Waste Water Treatment Plant
Moskva Krasnye Holmy	59,217	-	-	59,217	Municipal Waste Water Treatment Plant
Hotel Moskva Krasnye Holmy	49,225	-	-	49,225	Municipal Waste Water Treatment Plant
ENKA Headquarters	13,041	-	-	12,771	Municipal Waste Water Treatment Plant
SCPX	SCPX-CSG-1	-	128,410	61,190	Municipal Waste Water Treatment Plant
	SCPX-CSG-2	-	117,270	57,996	Municipal Waste Water Treatment Plant
	SCPX-Area 81	-	45,372	45,372	Soil
Kashirskaya Multi-Functional Trade Center	39,438	-	-	-	Municipal Waste Water Treatment Plant
<b>TOTAL (m<sup>3</sup>)</b>	<b>903,238</b>	<b>27,853,364</b>	<b>745,957</b>	<b>21,198,890</b>	



### Determination of Water Shortage and Water Pollution Risks

Within the context of the work on water footprint measurement and water risks assessment that ENKA embarked upon in 2017, the risks of water shortage and water pollution were identified for the facilities surveyed. For this purpose, the coordinates of the facility sites were compared with maps showing water shortages and water pollution, and those water resources that might be affected significantly by the drawing off of water were identified.

The risk of water shortage for a facility increases with the degree of water shortage. In places where water shortage is a major issue, challenges in obtaining water will increase in the short and medium term, the groundwater level will decrease, and water prices are also very likely to rise.

The degree of water shortage is high at the sites of all the companies and institutions in Turkey. This means that the risks of obtaining water for these facilities are high. In order to reduce the risk of water shortages at the facilities to a minimum, work needs to be done to reduce their blue water footprints.

Major outcomes of the water footprint studies are as follows.

- Most of the facilities included in the study use groundwater. It is important to monitor groundwater levels for the continuity of supply from these sources.
- Efforts to measure and keep track of the water consumption of the facilities need to be stepped up.
- An examination of the levels of nitrogen and phosphorus pollution in water in the regions where the facilities are located points to a high risk of water pollution at the facilities in Turkey and Russia. In these places, nitrification pollution is very noticeable. These findings signal that the level of nitrogen pollution in the groundwater will increase in the short/medium term and that clean water resources will therefore decline.

In the foreseeable future, ENKA will shape its water management actions while taking these outcomes into consideration.

## Levels of Water Shortage and Water Pollution in the Regions where the Facilities are Located

Company / Institution / Project	District/City	Country	Water shortage degree	Nitrogen pollution level	Phosphorus pollution level	Water shortage risk	Water pollution risk
Adapazarı Elektrik Üretim Ltd. Şti.	Adapazarı	Turkey	High	High	High	+++	+++
Cimtas Boru İmalatları ve Ticaret Ltd. Şti.	Gemlik	Turkey	High	Medium	Medium	+++	++
City Center Investment B.V.	Moscow	Russia	Medium	High	Medium	++	+++
Çimtaş Çelik İmalat Montaj ve Tesisat A.Ş.	Moscow	Russia	Medium	High	Medium	++	+++
ENKA Headquarters	Istanbul	Turkey	High	High	Medium	+++	+++
ENKA Pazarlama İhracat İthalat A.Ş.	Istanbul	Turkey	High	High	Medium	+++	+++
ENKA TC Limited Liability Company	Moscow	Russia	Medium	Low	Low	++	+
ENKA Sports Club	Istanbul	Turkey	High	High	Medium	+++	+++
Gebze Elektrik Üretim Ltd. Şti.	Gebze	Turkey	High	High	High	+++	+++

Company / Institution / Project	District/City	Country	Water shortage degree	Nitrogen pollution level	Phosphorus pollution level	Water shortage risk	Water pollution risk
Istanbul ENKA Schools	Istanbul	Turkey	High	High	Medium	+++	+++
İzmir Elektrik Üretim Ltd. Şti.	Izmir	Turkey	High	High	High	+++	+++
Moskva Krasnye Holmy	Moscow	Russia	Medium	High	Medium	++	+++
Hotel Moskva Krasnye Holmy	Moscow	Russia	Medium	High	Medium	++	+++
Kashirskaya Multi-Functional Trade Center	Moscow	Russia	Medium	High	Medium	++	+++
SCPX-Area 81 Site	Meskhetian	Georgia	Low	Low	Low	+	+
SCPX-CSG- 1 Site	Meskhetian	Georgia	Low	Low	Low	+	+
SCPX-CSG-2 Site (main camp)	Meskhetian	Georgia	Low	Low	Low	+	+
SCPX-CSG-2 Site (route camp)	Meskhetian	Georgia	Low	Low	Low	+	+
SCPX-CSG-2 Site (crushing plant)	Meskhetian	Georgia	Low	Low	Low	+	+

+: Low Risk, ++: Medium Risk, +++: High Risk