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CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

Standing Committee

41st meeting
Strasbourg, 29 November – 3 December 2021

Other Complaint: 2021/01

Alleged threats to marine turtles due to a new coal-fired power plant at Sugözü Beach (Turkey)

- REPORT BY THE GOVERNMENT -

Document prepared by
the Ministry of Agriculture and Forestry, Turkey

REPUBLIC OF TURKEY

MINISTRY OF AGRICULTURE AND FORESTRY

06.08.2021

Government Report on Complaint No. 2021/01: New Complaint: Turkey: Alleged threats to marine turtles due to a new coal-fired power plant at Sugözü Beach

Background Information:

This complaint was submitted by Çevre ve Tüketiciyi Koruma Derneği (ÇETKO) and some other supporting organizations on 20.01.2021. Turkish government authorities (focal point for the Bern Convention) received the related letter on 22.02.2021. The complainant claims that a new coal-fired power plant which is being constructed at Sugözü Beach, next to the Yumurtalık Lagoon in Adana Province, is threatening the vulnerable nesting beaches of green turtles (*Chelonia mydas*) and loggerhead sea turtles (*Caretta caretta*). The first report for the 1st Bureau meeting was presented on 31.03.2021. It was evaluated in the meeting on 14-15 April 2021. The Bureau requested further information on the mitigation measures to override the effects of heating of water and sand. The Bureau also requested that the Turkish authorities consider the possible negative effects of the power plant on other species including birds, and report to the Bureau any assessment done in this respect. Further, the Bureau asked the authorities to clarify the timeline for the power plant construction and the envisaged start of the operational phase. This report includes additional information on the specific requests and should be evaluated together with the measures presented in the 1st government report.

Sugözü Beach and Construction of a Power Plant

First of all we would like to emphasize that power plant project is not within the Specially Protected Area as stated in the letter. This was clearly explained in our previous report that the project is within the sea turtle nesting area and the reason and how this was allowed to built was explained in detail in our previous report.

With respect to question about the increase in water and sand temperature, the coal to be used in the facility will be burned in the fluidized bed boiler with "Ultra Super Critical" technology, and there is no heat transfer from the boiler to the soil in any way. On the other hand, sea water will be used as turbine cooling water. There is no chimney in the facility, instead of the chimney a cooling tower is used. The cooling tower will serve both the cooling of the water coming from the turbine and the chimney. The name of this technology is "Flue Gas Cooling Tower" and it is a technology invented by the Belgians. Flue Gas Cooling Tower Technology is used in the facility for the first time in our country. Since it is a cooling tower, the amount of water to be discharged to the sea is very low in comparison to counterparts and it will be discharged to the sea at a temperature of only 1 °C higher than the temperature of the water taken from the sea. For this reason, it is estimated that the sea water temperature will not change at all even in the place where the water is discharged. However, the environmental regulation allows the sea water temperature to rise by +2 °C at the point where the water is discharged. Despite all the high technology used in the construction of the facility, after the facility starts operating, the sea water temperature will be constantly controlled and reported to the Ministry of Environment

and Urbanization. However, at the same time, the officials of the MoEF will periodically check the sea water temperature changes as well.

The investment actually started with the land arrangement works on 16 July 2018. Infrastructure works, which started in January 2019, were completed on 30 August 2019. On September 5, 2019, the superstructure works started with a ceremony. The facility consists of two units with a power of 660 MW. The first unit will actually start production in March 2022, and the second unit in October 2022.

The nesting on Sugözü beach have been monitored since 2002 regularly. The data shows clear fluctuations throughout years and did not present any clear increasing or decreasing pattern so far (Figure 1). However, based on the agreement between Ministry and the investors sea turtle monitoring and conservation program will be continued by sea turtle experts at least 5 years more after the start of operational phase.

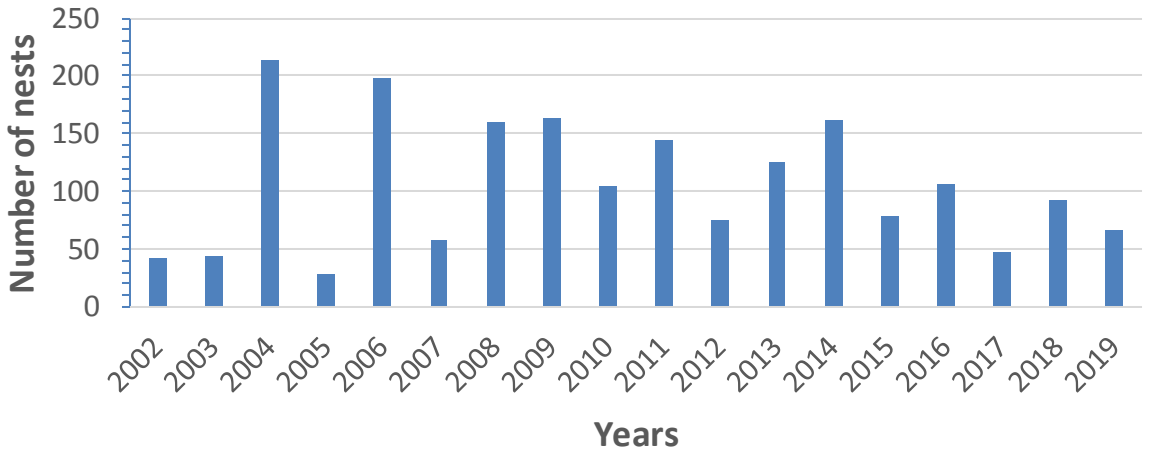

Figure 1. *Numbers of nests recorded on Sugözü nesting beaches (Nest numbers covers overall subsections including Akkum subsection where the power plant was contructed at the hinterland)*

Sugözü beaches have been monitored by sea turtle experts and the nest numbers and other population parameters also been recorded regularly. These reports are submitted to our Ministry annually. Additionally two satellites were deployed to nesting females during this season to monitor the movements of female sea turtles for two years (Please see Figure 2 and 3). The numbers of the satellites will be increased in order to monitor movements of the sea turtles after the power plant construction.

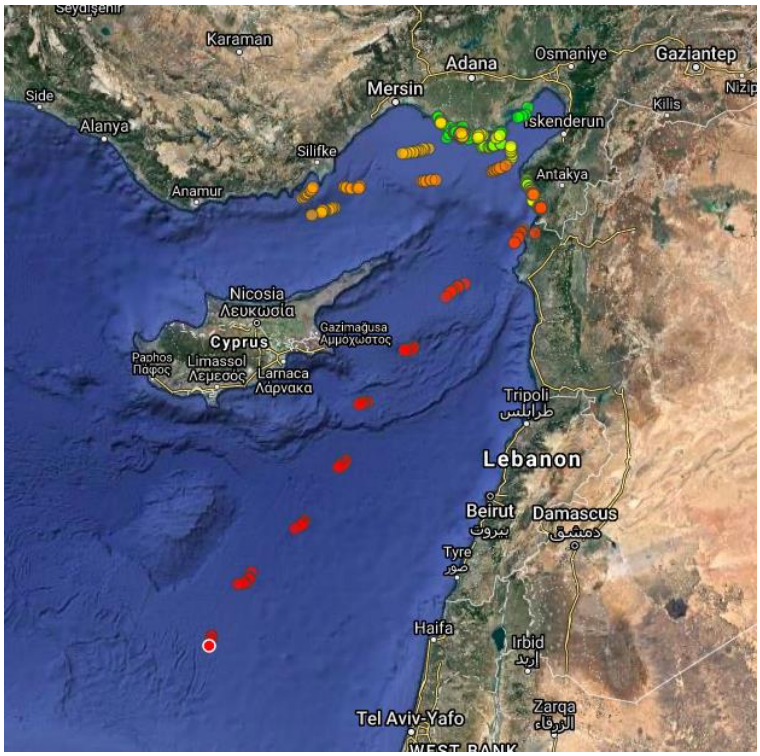

Figure 2. *Nesting and post nesting movements of female sea turtle from Sugözü beach*

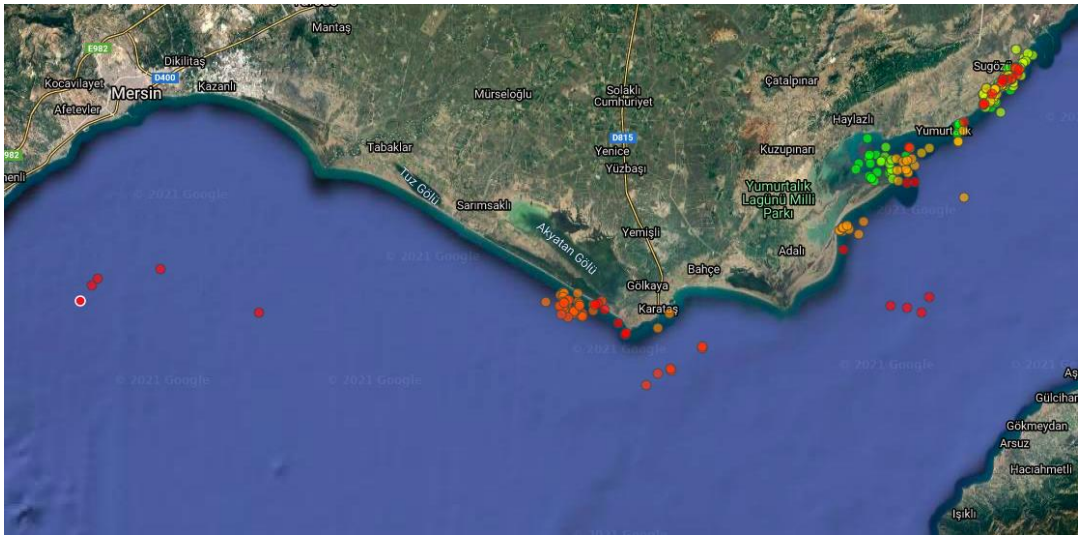

Figure 3. *Nesting and post nesting movements of female sea turtle from Sugözü beach*

As a response to Bureau's concerns about the bird and other species around the facility, we would like to remind once more that the EIA of the project was carried out in a comprehensive manner. As it was stated above, since the facility will have no regular chimney, there will be no air pollution that will affect the surrounding fauna elements.

REPUBLIC OF TURKEY

MINISTRY OF AGRICULTURE AND FORESTRY

31.03.2021

Government Report on Complaint No. 2021/01: New Complaint: Turkey: Alleged threats to marine turtles due to a new coal-fired power plant at Sugözü Beach

Background Information:

This complaint was submitted by Çevre ve Tüketiciyi Koruma Derneği (ÇETKO) and some other supporting organizations on 20.01.2021. Turkish government authorities (focal point for the Bern Convention) received the related letter on 22.02.2021. The complainant claims that a new coal-fired power plant which is being constructed at Sugözü Beach, next to the Yumurtalık Lagoon in Adana Province, is threatening the vulnerable nesting beaches of green turtles (*Chelonia mydas*) and loggerhead sea turtles (*Caretta caretta*).

General Information on Protection of Marine Turtles in Turkey

Two sea turtle species nest in the Mediterranean; the Loggerhead turtle (*Caretta caretta*) and the green turtle (*Chelonia mydas*). In Turkey, sea turtle conservation and monitoring activities have been continuing for almost in the last 40 years.

A total of 21 sea turtle nesting beaches was designated in Turkey so far. These beaches from west to east are; Ekincik, Dalyan, Dalaman-Sarıgerme, Fethiye, Patara, Kale-Demre, Finike-Kumluca, Çıralı, Tekirova, Belek, Kızılot, Demirtaş, Gazipaşa, Anamur, Göksu Deltası, Alata, Davultepe, Kazanlı, Akyatan, **Sugözü**-Yumurtalık and Samandağ beaches (see Figure 1).

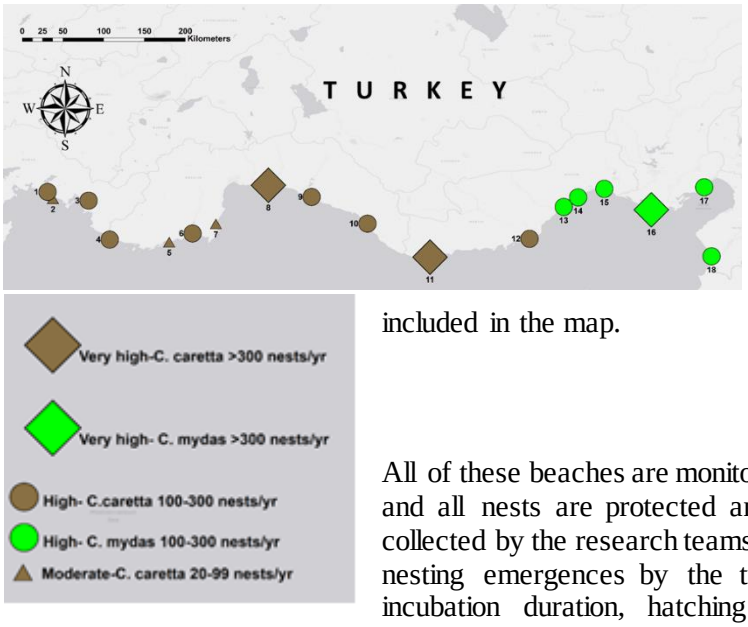

Figure 1. The nesting grounds of sea turtles in Turkey.1. Dalyan, 2. Dalaman, 3. Fethiye, 4. Patara, 5. Kale-Demre, 6. Fenike-Kumluca, 7. Çıralı, 8. Belek, 9. Kızılot, 10. Demirtaş, 11. Anamur, 12. Göksu Delta, 13. Alata, 14. Davultepe, 15. Kazanlı, 16. Akyatan, 17. Sugözü, 18. Samandağ. Ekincik, Gazipaşa and Tekirova beaches those of which have nesting density below 20 nest/year were not included in the map.

All of these beaches are monitored on a daily basis during the nesting season and all nests are protected and the necessary scientific information were collected by the research teams and volunteers. The number of nests and non-nesting emergences by the turtles, their biological information such as incubation duration, hatching success and predation rates are recorded annually. In addition to standart beach monitoring and conservation activities scientific studies that wil contribute to the conservation and management of sea turtles are being carried out such as population genetic structure, multiple paternity, sex ratios and impact of climate change. The results of long term monitoring studies on nesting beaches showed either increasing trend or steady rate. Similarly, a considerable increase was provided in the sea turtle populations globally with the help of conservation studies (Mazaris et al. 2017). We observe the similar case clearly for the Mediterranean populations. In the recent review of Mediterranean, %47 and %26 increase were observed in the number of *Chelonia mydas* and *Caretta caretta* nests respectively (Casale et al. 2018).

Sugözü Beach and Construction of a Power Plant

The complainant claims that "*regardless of the nest presence on this beach, protection measures are not implemented for this area, regardless of existing legal framework, namely the Circular no. 2009-10 on the*

Protection of Sea Turtles issued by the Directorate General of Nature Conservation and National Parks (DKMP), therefore violating Articles 4 and 6 of the Bern Convention by allowing direct construction along a sea turtle nesting site"

As it was stated above in the general protection measures part, the government of Turkey closely monitors all of the important nesting sites on Turkish coasts. Sugözü Beach is one of the important sites and the protection measures will be explained in this report.

The above mentioned construction application has gone through an Environmental Impact Assessment procedure and was approved on 21.07.2015. Within the scope of the project; a chimney with 180 m height, an ash storage area with a capacity of 210.000 m3 / year (378.000 tons / year), 2 fully closed dome type coal stockpile area with a capacity of 170.000 tons / year each, 100.389 m2 fill area and 1.755 m long pier, water intake and discharge structures are planned to be built.

The Yumurtalık Region was declared as an industrial and energy area on 9th March, 2009, before it was declared as one of the nesting areas for sea turtles. In 2015, it was revised with the Presidential Decree and renewed as an Industrial and Energy area in the Iskenderun Bay Integrated Coastal Areas Plan.

Sea turtles are under protection within the scope of Bern, CITES and Barcelona agreements, which are among the international conventions to which Turkey is also a party, and also with national legislation (Land Hunting Law No. 4915, Environment Law No. 2872, Aquaculture Law No. 1380 and Circular on the Protection of Sea Turtles No. 2009/10). The Hunutlu Project site is located in the Akkum sub-region of Yumurtalık Sugözü Beaches, which is one of the 21 Important Sea Turtle Areas in Turkey declared as a result of scientific studies. Since this area is one of the important nesting areas of the green turtle (*Chelonia mydas*), any activity planned to be carried out in the area must be in line with the Circular No 2009/10, published by the Ministry of Agriculture and Forestry. They also must be in accordance with the issues identified in EIA report and zoning plans.

In this area, under the coordination of the Ministry of Agriculture and Forestry, academicians have been conducting conservation and research activities on sea turtle nesting beaches, including the Akkum beach. As a result, in relation to the sea turtles nesting areas and the activities planned to be carried out in areas in a close vicinity, the Protection-Use Conditions in the annex of the Circular No. 2009/10, in the clause "a" of the 1st Protection Zone in Terrestrial Environment; it states; "In this area; the type of structures, their characteristics and usage purposes (specified in Articles a, b and c) defined in Article 6 of the Coastal Law No.3621 and Articles 13 and 14 of the Coastal Law Implementation Regulation are determined and, if deemed appropriate by the Sea Turtles Scientific Commission, they can be built with the approval of the Ministry of Agriculture and Forestry."

Accordingly, as a result of the scientific report prepared by the members of the Sea Turtles Scientific Commission, the Ministry of Agriculture and Forestry - General Directorate of Nature Conservation and National Parks determined the conditions to be followed during the construction and operation stages of the activity, taking into account the Circular No. 2009/10.

Article 12 of the Circular states that new industrial facilities and energy investments to be established on the nesting beaches are not allowed, and that they should receive an appropriate opinion regarding the investments planned in the immediate vicinity from the Ministry of Agriculture and Forestry. Sea turtle nesting beaches are divided into 4 zones with this Circular, namely the 1st Protection Zone, the 2nd Protection Zone, the Buffer Zone and the Impact Zone, and it is clearly stated what can and cannot be done in each zone. In this context, the area where the power plant construction will take place remains within the buffer zone and impact area, while the area where the pier will be built is within the 1st Protection zone. In this case, as the power plant construction remains within the impact area, there is no legal obstacle in terms of the construction of a power plant in this area, referring to the article that it can be built in accordance with the zoning plan, provided that the matters specified in articles b, c and d of the buffer zone in the relevant Circular. However, according to the Coastal Law (article 5) and considering the Sea Turtle Circular, other additional structures of the relevant project can approach the shoreline at most 50 m. In the same Circular issued on sea turtles, it is possible to build fixed piers for nesting beaches only for the purpose of swimming and sunbathing, among the structures defined in Article 6 of the Coastal Law No. 3621 and Article 13 and 14 of the Coastal Law Implementation Regulation (a, b and c). It is also stated that these must be planned with a project in a way that lighting must not be used, they must not be used at night, and they must not prevent sand movements.

However, in the paragraph b of Article 6 of the Coastal Law, it is stated that "structures and facilities with characteristics such as shipyard, ship dismantling place and aquaculture production and breeding facilities, which cannot be built anywhere else from the shore due to the characteristics of their activities", can make piers in line with the implementation zoning plan. Considering the operating conditions in the EIA report of the thermal power plant planned to be built, it is stated that the coal needed by the power plant will be brought to the power plant twice a month by ships and this coal will be transferred to the power plant through the pier to be built here. In this case, it is not possible to build thermal power plants from a place other and riparian habitats due to cooling problems. In this respect, the construction of the pier is seen in accordance with Article 6 of the coastal law. However, the pier to be built must not create a barrier for sea turtles and other creatures on the beach and in the sea. For this reason, piled scaffolding instead of filled pier will allow the passage of animals and create a corridor for them. On the other hand, it is important to comply with the conditions specified in the Circular on the grounds that the area is a sea turtle nesting area. In order to fulfill the conditions set by the Circular, a report was prepared by the members of the Sea Turtles Scientific Commission. The following points are stated in the report:

The Report of the Sea Turtle Scientific Commission Members:

During construction and operation activities, there is a possibility of encountering *Caretta caretta* (loggerhead sea turtle) and *Chelonia mydas* (Green turtle) in terrestrial and marine zones. It is predicted that this encounter will be predominantly during the nesting season. For this reason, it is recommended to be sensitive during the construction works to be carried out at sea, especially in April and May, and to carry out the work during the daytime as much as possible. In the construction works to be carried out at night, studies should be carried out under the supervision of a specialist consultant who has a doctoral level in sea turtles, and have worked in the field or in its close vicinity. Within these dates and within 1 mile from land to sea, sea vehicles must not be used at high speeds. If these conditions are followed, it is thought that an unwanted encounter will not occur. Despite all precautions, in case of a boat or propeller strike that may occur, an intervention should be made in accordance with the opinion of the expert responsible from the inspection of the works. No activity must be carried out within 1 mile from June until mid-August when nesting is still in progress. After obtaining the expert opinion that the hatching in the nests is completed, the works can be continued.

In the terrestrial zone, there was a plan about constructing a pier-conveyor system with a piled structure in the 1st Protection zone. However, within the scope of the Circular on the Protection of Sea Turtles numbered 2009/10 of the General Directorate of Nature Conservation and National Parks, a change was requested by the General Directorate. It has been requested that the pier-conveyor system to be passed over the beach will pass without using the pile system. It is a very appropriate practice to cross the beach part with this system as there will be no structures on the beach.

On the other hand, the fill area of 17 m width, starting from the sea and extending along the first protection zone in the terrestrial zone, must be completely removed before the nesting season. However, if this is not technically possible to realize the newly planned system that will pass the beach without using piles, the landfill in the 1st protection zone must be removed before the nesting season, and the remaining part in the sea must be completely removed after the season.

After the filling is removed, the relevant area must be followed closely. If necessary, the parts that are destroyed and eroded due to the change of the flow regime must be rehabilitated. Scientific data must be collected about whether the area has regained its natural structure by following the start of re-nesting in the rehabilitated areas. In addition, vegetation should be followed up in the relevant sections.

The temperatures of the nests in the areas under the shadow of the conveyor system that will pass over the beach after construction must be monitored. Because, temperature dependent sex determination (TSD) is seen in sea turtles. The temperature to which the nest is exposed during the 2/3 of the incubation period determines the sex of the offspring. Any practice that will affect the natural sex ratios of this species, which faces global warming threat, must be avoided. Shaded nests may need to be translocated if necessary.

Sea turtle breeding activities on the Akkum nesting beach have been monitored by research teams for many years. In this context, it is important to provide the necessary support for the continuation of these monitoring activities and to support the monitoring of this area for at least 5 more years from the start of the operation phase, including the construction phase. In this way, it will be possible to compare the data obtained before the establishment, using parameters such as the number of turtles that reach out to the beach, the number of

nests made and the number of hatchlings. In this way, the effect of the facility on the nesting beach can be evaluated.

Macro pollution that will occur during all project activities must be kept under control as much as possible. Waste must be away from the beach zone. Beach cleaning must be done under the supervision of experts who conduct turtle monitoring studies, especially before and during the nesting season. Leveling equipment and mechanized equipment must not be used during beach cleaning. Cleaning must be done manually, based on manpower.

Recreational activities, human activities, as well as any vehicle activities must not be carried out on the beach, especially during the nesting and hatching season. Except when it is mandatory to use them outside of this season, the vehicles must not be used, and in case of necessity, the effects that will occur must be rehabilitated. It must be taken into consideration that the destruction of the dunes, the destruction of the dune plants, the destruction of the nests and even the tire marks that will appear by the use of vehicles on the beach will constitute obstacles especially for the hatchlings to head towards the sea.

The charging and discharging waters likely to be used in the project phases must not be left to the coastal current and must be as far away from the coastal zone as possible. The parts where these intake channels open to the sea must be closed with a grid system of appropriate width. In this way, it will be possible to prevent both adult and juvenile individuals from being damaged. Especially these areas can be seen as resting areas for adults, and the entry of adults into these pipes may cause undesirable and negative situations.

The most intensive construction activity in the marine area is the establishment of the pier. During this activity, the reproduction period of the sea turtles must be taken into consideration. After the pier is set up, the lighting must be screened so that it is not visible from the sea. Because, especially in sea turtle juveniles, there is an orientation to light. If the pier lights are visible, the hatchlings coming out of the nest will turn to these lights. As it is known, predator fish also concentrate around these lightings. Due to this effect of the lighting, the pier can turn into a feeding station where sea turtles are hunted by predators. For all these reasons, it is of great importance to screen the pier lights.

In addition to the negative effects of the orientation to artificial light sources in the marine zone, there will also be negative effects in the lighting to be used in the terrestrial zone. When these lightings are visible on the beach, the hatchlings from the nest may die by moving to the terrestrial area rather than the sea, or they may spend longer time on the beach due to their disorientation. In both cases, it will increase the probability of the juveniles being hunted by natural factors found in the wildlife of the area, such as the sand crab, which is a predator of hatchlings on the beach. Facility lights must not be visible from the beach. This situation is of great importance for adults as well as hatchlings. Due to these effects, proper use of artificial light sources is critical to the survival of sea turtles.

During all stages of the project, such as the construction and operation phase, the beach and its surroundings must be screened daily during the nesting season, the nests must be protected and the necessary precautions must be taken with a team that is experienced in the region under the supervision of a doctoral level expert on sea turtles. The sea traffic, which will increase especially during the construction and operation periods, will put pressure on adult individuals. In terms of possible adult injuries due to sea traffic, a first aid unit for sea turtles must be established in a suitable area close to the beach.

The beach must never be used as a recreational area during all phases of the project, such as the construction and operation phase. Establishment of usage areas such as social facilities, umbrellas and sun loungers on the beach and its immediate surroundings must be avoided.

In addition to the suggestions given for the current plan, all suggestions in the evaluation report given in line with the project's first development plan should also be fulfilled. Apart from these suggestions and applications, it is recommended to carry out the necessary studies and take measures in line with the expert opinions, in order to solve the problems that may arise regarding the subject. If the recommendations presented under this title are implemented, the negative effects of the facility to be established on sea turtles will be minimized.

Upon receiving expert reports before the constrution phase the relevant company hired 2 sea turtle experts who are also the member of Sea Turtle Scientific Committe of the Ministry and company started to get consultancy during the construction. The Hunutlu Power Plant Project was brought into the agenda of 2019 meeting of

Scientific commitee and discussed broadly. The commitee members including stakeholders representatives agreed on the regular monitoring of the beach. The consultant experts are still monitoring the beach regularly and reporting to company and the ministry for actions needed. The experts are training the personnel of the construction on regular basis about sea turtles and their conservation. The beach is also monitored regularly during the breeding season on daily basis for collecting data on the reproductive biology of the species. Furthermore, with the consultancy of experts the company used avoidance, minimize, restore and offset tools for the conservation and management of the sea turtles in the area. For instance, during the breeding season no construction activity occured on the beach and no lights were used. They minimized all coastal activities during the breeding season. The beach was restored to original structure with the help of experts. As an offset the company is supporting beach monitoring project and will attach 2 satellite tracking devices this year.

In the light of the above report; the relevant company has been given permission on the condition that it takes the necessary preventive measures which are presented as the mandatory principles in the EIA report. This project was planned according to the current national legislation and scientific reports and will be monitored for at least 5 years.

The photos of the pileless pier-conveyor structure, which is completed within the scope of the related report and will not prevent the turtle nesting on the beach in any way, are presented in the attachment.

Kindly submitted to the Bureau's attention.

Attachments: The most recent pictures from the beach (19 March 2021)