Preventive conservation of the human environment

6. Architecture as an element of the landscape

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Memory of the landscape: revelation through architecture and built environment at the Çamaltı Saltern

Işılay Tiarnagh Sheridan

1. Sea Salters and Landscape

Once human beings changed their diet after the Neolithic Revolution, they began looking for salt to add to their food because they were eating less meat. In time, it became so vital that civilisations fought over its sources. It was often referred as the “white gold” and being such an important matter, it gained a great symbolic importance in many cultures all around the world, prospering nations with its economic value at the same time. In this way, salt became one of the first industries with its trade, and thus, the first state monopoly. This industry relied on two main techniques in obtaining the salt from nature; mining the rock or evaporating the brine. These sources are abundant all around the globe. The latter involves the solar evaporation of brine and creating above ground landscapes. It also depends on suitable weather conditions. Therefore, the Mediterranean and its surrounding regions were and still are among the most appropriate places to perform this evaporation process which is bound to heat and wind. There have always been many salterns operated dominating the landscape of the region and for this reason it is often stated as the common cultural heritage of the Mediterranean.

2. The Evolution of the Salt-scape and Salina-polis

The Çamaltı Saltern, situated to the north of İzmir, Turkey, is one of the last remaining 170 detectable coastal salt works in the Mediterranean basin and the only preserved example in the country. It is located in part of the vast Gediz Delta (also referred as Menemen Plain) where in which 52 small salterns once existed. One fifth of this important plain is made up of coastal areas and these parts are characterised by salt marshes and wetlands housing many important species in their fresh and salty waters. The Homa Lagoon, Çilazmak Lagoon and Kirdeniz Lagoons are the three important areas among these wetland ecosystems that are of high importance. The values of these ecosystems are widely known and accepted. The site is registered as a RAMSAR Area, Special Bird Area, Important Natural Area, Wildlife protection Area, and 1st Degree Natural Site. Moreover, there was once a city called Leukai within the current boundaries of the saltern dating back to the 4th century BC. The only written source about this city states that its name meant “the white ground” and it might have been given this name due to the salt concentration around the site. It is possible that the inhabitants of the city used and traded this salt. Today it is protected as a 1st Degree Archaeological Site. However, the salt production centre of 73 km² in the middle of all these conservation measures mainly based on the natural properties of the site has been highly neglected in terms of conservation actions (Fig. 1).

Although it is accepted that the Çamaltı Saltern’s history dates back to the ancient times, there is no specific information on the remnants of such prolonged production. It was operated during the reign of the Macedonian Empire, the Seljuk Empire, the Byzantine Empire, and the Ottoman Empire before the establishment of the Turkish Republic. Since the saltern was government property until 2010 and then privatised and given to a company, entrance to it has always been forbidden. Therefore, there is a lack of awareness of the heritage potential of this site and it is generally perceived as a modern facility. With the analysis that was performed during the study in 2016, the long history of the landscape and its material evidences were revealed through a study on the natural

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1 Kurlansky 2003.
2 Kurlansky 2003.
3 The term is coined by the author.
4 Only 90 of them are still operating. For more information see Internet: http://www.aegean.gr/alas/medsalinas.htm, accessed July 2016.
5 Karatosun Bahtiyar 2008.
7 Tuna 2013: 301–327.
and built landscapes of the area, which aimed to confirm the cultural heritage potential of the site.

As mentioned above, the earliest record of the possible salt production in Çamlı Saltern can be traced back to 4th century BC with the ancient city of Leukai, although there is no concrete evidence of ancient salt production surviving up to present. A further record in the reports of the archaeological site survey which was conducted on the prehistoric and protohistoric periods of the Mene- men region, states that the formations of salterns and lagoon fishing must have started during the Roman Period at the latest. Moreover, it adds that the later 13th century written sources mention the flow of the Gediz River towards the sea and the existence of lagoons with salterns all over the shores of the Gediz Plain.9 The name of the saltern was known as “Halike” during this Byzantine Period. 10 The saltern was also used by the Seljuks after their conquest of the area.11 However, during our studies we found no available illustrations for these periods. The first appearance of the saltern on a document related to the Ottoman Empire is on a map in the world-famous book of Kitab-ı Bahriye by Piri Reis, geographer, admiral and cartographer of the Ottoman Empire. In his book, finished in 1521, we can see the possible location of the saltern in an almost crescent shaped feature near the old bed of Gediz River. Although Piri Reis only labelled the area as “Menemen Sığları” meaning the “Menemen shallows”12 and he visualised differently from regular

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9 Çınardalı-Karaaslan 2016.
12 The text was translated by Dr. Funda Adıtatar, İzmir Institute of Technology.
sea shores indicating a pool-like structure. This shape might be the sign of a lagoon in a marshland where salt production becomes naturally possible since such coastal salt lagoons were one of the main means of production even during the prehistoric period and such places can be seen all around the Mediterranean (Fig. 2).

It has been known that for ages, before the successive pools present today, people collected the salt typically through enclosing brine in lagoons or built pools. Therefore, it is possible that Çamaltı Saltern was once a natural lagoon and people used it to obtain salt. During the Ottoman Period, documents state that there were many small and large pools around the region that were operated by different individuals. The property mainly belonged to the government, and investors usually rented their plots for 3 years. There are many documents during the Ottoman Empire stating that the Çamaltı Saltern was operated in this way. However, in 1863, Italians bought the right of the salt operation and this led to the construction of the first successive pool system. A map of the Gulf of İzmir dated to 1888 and prepared by the French Navy verifies the possible lagoon theory by showing both the lagoon’s boundaries and the successive pool systems built by the Italians. The name of the study was Atlas des Ports Etrangers, Smyrne, 1888, Cinquième Livraison, 1889. From this map it can be deduced that another lagoon existed between the Homa and the Çilazmak Lagoons, which can correspond to the Piri Reis’s indication of a crescent, and the Çamaltı Saltern was established by dividing this natural pool into pans for salt production. There is no name for the salt pans on the map; however, while all the lagoons were named as pécherie (meaning the fisheries), the word débarcadère (meaning the port) is written in front of the salt-pans and it was possibly used for the transportation of salt. The northern corner of the first core of the saltern and its rather straight shoreline might be derived from the boundaries of this supposed lagoon (Fig. 3).

These boundaries can be traced from the aforementioned map onwards in 1907 and 1925 maps corresponding more or less to each other. However, beginning with 1863, the architecture and landscape of the Çamaltı Saltern started to change in a much different way than before. Change in the ownership, state debts, modernisation, wars, the establishment of the Turkish Republic and further political and economic factors induced this change which can be grouped in four periods as 1863–1923, 1923–1960, 1960–1983, and 1983–2016. The traces of the evolution of the landscape through these periods can still be observed upon overlapping the maps

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13 Şahin 2011.
14 Harding 2013.
16 Atay 2003: 53.
of these periods and it creates an important data in reading the history of the production landscape (Fig. 4).

During the first period, documents point out two phases of construction both done by Italian teams. After the first construction in 1863, the Gediz River flooded in 1902 destroying most of the rather small salterns in the area. After this unfortunate event, a decision was made to have one single saltern instead of small ones in the region. As a result, a larger Çamaltı Saltern was established in its former position in 1906 with a team from Italy and with the Italian technology\(^\text{17}\) with 12 of its buildings that have been preserved up to present. In 1907, new industrialised landscape of the Çamaltı started its operation and one of the first electric plants in the Ottoman Empire’s lands was established in the area to support the water circulation system. We see this stage of the landscape from this 1907 map of irrigation. Although it does not directly focus on the Çamaltı Saltern, it depicts the pools and gives the name clearly for the first time (Fig. 5).

The second period started with the foundation of the Turkish Republic in 1923 and it took the industrialisation actions as the basis of its newly declared independency. Therefore, it assessed a specific focus on enhancing the working conditions of the existing industrial facilities previously owned by foreign investors\(^\text{18}\), as in the case of Çamaltı Saltern operated by Italians. Two 1925 maps obtained from SALT Online showing the areas of Tuzla Burnu and Tuzçilli give the earliest clear evidence of the historical core that is preserved today (Fig. 6). The area has a regularised pool system and indication of the existing architectural edifices giving more information about the site. In 1925, we only see the Italian buildings, such as the tympana, ports and factory buildings. However, in 1936 project drawings, it can be seen that a hospital, a school, lodgings for workers and new factory buildings for technical support were beginning to be built. The most important salt bed in the newly established Republic was İzmir Çamaltı Saltern in 1931\(^\text{19}\), and thus, projects started for the workers living in the area immediately, as in the examples of model industrial towns. The main point in creating these towns was to establish dependency between workers and the factory by means of providing desirable conditions for an industrial community. With these paternalistic instincts and aims to create a community, lodgings, a hospital and a school with five classrooms were built as well as

\(^{17}\) Doğruel and Doğruel 2000: 110–129.

\(^{18}\) Bozoğan and Akcan 2012: 94.

\(^{19}\) İnan 1988: 174.
the ateliers in Çamaltı Saltern in 1936. Another establishment was the new tram line built in 1935 for the transportation of the salt inside the saltern\textsuperscript{20}. Moreover, in 1947 there was a Marshall Plan to support the countries that suffered through the war. With the help of the aid received, the saltern was expanded in between 1950–1952.\textsuperscript{21}

With further additions after the 1960s, 128 buildings exist at the site today. The buildings of this landscape include 9 administration buildings, 5 dormitories, 33 lodgings, 1 hospital, 1 mosque, 1 primary school, 8 social buildings, 4 tympana, 54 technical support buildings. The original functions of the other 12 buildings are unknown. 52 out of 128 were built during the first two periods that reflect important historical data of the Italian technology and the ideals in creating model industrial towns during the Early Republican Period. 39 of these edifices are abandoned and in a derelict state. This “Salina-polis” has been mostly abandoned since the workers were forced to leave the site due to the change in technology and decrease in the need of manpower after the privatisation in 2010. Today, workers only live there during the harvest season from August to December. They use the newly built prefabricated buildings, and there are no current measures to conserve this important industrial heritage. During the study, it was revealed that 34 buildings have already been demolished and there is a danger that the other 52 buildings and other traces of the landscape could share the same destiny since they are not accepted as part of the natural and cultural heritage of the area.

\textsuperscript{20} Egemen 1946.
\textsuperscript{21} Doğruel and Doğruel 2000: 110–129.
3. The Collaboration of the Natural Landscape with Man

The area of the Çamlıti Saltern with salina-polis and the salt pans is the combination of natural and man-made landscapes. Unlike other types of industries, the solar salt production is the only type of industry that reinforces the biodiversity in delicate marshlands, and therefore, the relationship between the built and the natural landscape is actually a unique one.

The area has geological properties of a wetland, and related to this, it has abundant source of impermeable clay to be used for the construction of salt pans, optimum weather conditions, efficient amount of salt in the sea water and effective breeze for the evaporation of brine. Mankind learnt how to value these properties of the nature and created a production landscape around it with a unique process. The salt pans of the saltern are the representatives of a factory assembly line with the tympana. The edifices that were built are usually only supporters of the system; they do not directly affect the production process. The pans are constructed by lowering the marshes, building an embankment around the site and compressing the clay found at the site so that that it is impermeable. The borders between these pans are created by the use of wooden planks supported with wooden stakes and the space in between them is filled with clay. Water channels are created in the same way, unless they were built with concrete beforehand. These channels are supported with wooden joists at intervals throughout the channels. Surrounding these pools at intervals, there are embankments that are supported with the border system on their facades interacting a salt pan. In this system, there are also wooden canal locks all around in order to direct the water between the pools. In this system, the traditional and current cultivation of salt from the sea water starts in March or April. The previous season’s residues are taken away first and then the

Fig. 5. Slope altitude map of the Gediz River showing the early boundaries of the Italian landscape of the Çamlıti Saltern in 1907 (source: Ottoman State Archive. HRT_h_01074_00001. Gediz Çayı Meyil Rakımının Haritası, scale 1:100.000. Document translated by L. Etyemez Çıplak; Çamlıti Saltern marked with a square by the author)
waste water is channelled to the sea. The surfaces of the pools are covered with a special type of impermeable clay that is found at the site. This clay is flattened with rollers and if any damage occurs, these are fixed before taking the sea water inside. With the help of a pump, sea water is taken into the cold-water pools in March. Once it is in the crystallisation pools, the water is kept up to 28.5 degrees baumé to let the salt’s sedimentation happen. The tympana are used to direct the water into the channels reaching out to the related pools. All the water flowing during this procedure is based on gravity, not on a mechanical process. There are different levels in the channels and in the pools in order to use the power of gravity for the easy channelling. At the end of this process, the concentrated salt is collected with the help of the seasonal workers and machines. Today, the collection in the pools is performed by salt collecting machines transferring the raw salt to the rows of conveyor belts that eventually deliver it to one of the elevators. The gathered salt is then formed into large heaps with triangular sections. Since the factory is focused solely on raw salt production, it performs no other process than gathering. Those who buy the salt from the factory in order to refine it transport the salt from the salt stacks via trucks.

The product of this industrialised process not only feeds mankind, but also site-specific species with its salt as it has done for thousands of years. There are three lagoons around the saltern: Homa Lagoon, Çilazmak Lagoon and Kirdeniz Lagoons. These are not only important for natural wildlife but for the fishing as well. It is currently the largest natural wildlife areas in Europe and the only conservation area in Turkey within this category.
Moreover, there is a flamingo breeding island in one of the salt pans that is the largest artificial reproduction habitat in the world. In 2016, it is estimated that around 14,000–15,000 baby flamingos were born in the area. There are more than 270 different species of birds, 80–120 thousand of waterfowls, more than 700 different types of plant species, numerous fish, invertebrates and mammals that live in the Gediz Delta. Therefore, it currently represents a high degree biodiversity. The Çamaltı Saltern and its salt production facilities support this high biodiversity. Some of the endangered species visit the saltern every year, including its trademark flamingos that depend highly on salty water ecosystems. These uniquely beautiful creatures gain their colour by feeding themselves with Dunaliella Salina, an invertebrate that grants the salterns their vivid eye-catching colours all around the world. As a result, the local flamingos redden since the Dunaliella Salina is high in β-carotene.

As seen, throughout this time line, the continuity and the developments in salt cultivation and entrapment of brine have enabled the reinforcement of the unique man-made ecosystem depending on the salty water. It is both the result of geological character of the site and the man’s collaboration with the natural resource. In this way, built industrial and natural landscapes have progressed hand in hand mutually for a very long time creating an important cultural landscape.

4. CONCLUSION

Çamaltı Saltern stands at a unique position today compared to the other salt-scapes or industrial landscapes around the world. It is not only a traditional salt-scape legacy, a natural conservation site, a wildlife protection area, an archaeological site but also the representative of an industrial landscape with its late Ottoman and early Republican heritage. However, it is not being perceived as such, and it has been under protection only due to its natural properties, that in fact, depends highly on the dynamics of salt production. The newly emerging understanding of the cultural significances of such industrial sites is not apparent to people in general in Turkey. Therefore, the collaboration of the salt landscape and industry should clearly be identified, interpreted and explained in order such sites, where the mutual relationship of nature and industry prevail, to be protected.

In such a delicate environment, the saltern, with its long history in salt cultivation, has now become a palimpsest on which different stories have been written over and over again through centuries. Today, it has its multi-layered history conserved in its built landscape and enables the revelation of this through its conserved properties without destroying the nature around itself. It is one of the finest examples of the collaboration of man and nature. The natural landscape enables the production of a vital everyday commodity while its production reinforces the bio-diversity. Therefore, it becomes clear that in order to protect this heritage from perishing day by day, the new story on this palimpsest has to be written by the conservation actions. It is aimed that from now on the area will be preserved in terms of both its natural and built characteristics in order to protect the traces of its history in this delicate cultural landscape.

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