The Lost Streams of Ankara: A Case Study of Bentderesi

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Abstract. This paper aims to provide a critical overview of the management of Ankara’s streams in the historical context of the city’s urbanization process and focuses on one particular example Bentderesi (Bent stream). Prior to Ankara’s declaration as a capital city and during the early periods of the young Republic of Turkey, the streams and creeks of the city were the significant destinations for public recreation and they were also used for freshwater supply and fishing. However, ironically, these streams had caused the most damage to their surroundings due to floods several times. For instance, in 1957, the flood along the Hatip Stream affected many areas along its bed, including Mamak, Saimekadın, Gülveren, Bentderesi, Dişkapı, Kazıklıci vegetable gardens and Akköprü which led to many casualties and serious physical damage. At the same time, some of these streams had been highly polluted and literally had become open sewers. These all led to a drastic change in the urban landscape of Ankara; many streams and creeks were channelized and paved over. Bentderesi was one of them. Actually, Bentderesi (meaning barricaged creek) is part of the Hatip Stream. It takes this name near the old settlement area, the Ankara Citadel. According to the literature, Bentderesi name comes from the dam structures on the creek built in Roman times. Unfortunately, the ruins had not been protected or conserved and are invisible today. Currently, vehicle traffic flows along “Bentderesi Street” which was built overtop the channelized river. Although the first plans for the newly established capital made use of Bentderesi and its surroundings as green spaces for leisure and ecological benefits, it became a slum area after it had been channelized. Today, Ankara is facing with water supply problems and the global climate change scenarios do not seem promising as well. Furthermore, there has been a rise in floods occurring in the urban fabric due to the increased impermeable paved surfaces overtop the creek and streams and their beds. Restoring and re-discovering the lost stream landscapes of the city would be a major, but at the same time an incredibly exciting challenge for Ankara and its urban landscape in terms of both ecological and social sustainability. In this regard, this paper will address to the conflicts between policies and the need for conservation of water surfaces of Ankara within the specific example of Bentderesi.

1. Introduction

Ankara is located at Ankara plain - formed by Ankara Stream and its branches [1]- and at an altitude of 850 meters. Ankara plain is defined by a parallel ridge of mountains that extend from west to east [2] and is closed at the northern, southern and eastern edges [3]. There are many streams and creeks that flow along the valleys between these mountains which protrude towards the city [4]. From northeast Çubuk Stream runs in a valley towards the city. From east Hatip Stream and from southeast İncesu Stream arc and flow through valleys that wedge to Ankara plain. These three streams merge and form Ankara Stream which flows towards the western opening of Ankara plain. There are also many creeks, which are sometimes dry, within the drainage watershed of Ankara Stream (Figure 1).
Figure 1. Ankara Stream and its network (based on EU-Hydro River Network data provided by Copernicus) [5]

The existence of two baths in Roman Ankara suggests that a considerable amount of water was supplied, but archaeological and historical findings still cannot explain how and from where this water was supplied [4]. However, historical maps clearly show that water bodies and geomorphological structure have been influential in settlement pattern during Ankara’s history as a settlement, as seen in Figure 2. Prior to Ankara’s declaration as a capital city and during the early periods of the young Republic of Turkey, the streams and creeks of the city were the significant destinations for public recreation and they were also used for freshwater supply and even for fishing. However, most of these streams and creeks are either invisible or little seen within the urban landscape today as a result of urban and water policies implemented since Ankara became the capital city of Turkey in 1923.

Figure 2. Angora Map dated 1919 from General Command of Mapping Collection [6]

Ankara has a first degree mesothermal semi-arid climate with intensive water shortage in summer months according to the Thornthwaite classification [7]. Therefore, water is an important and limited resource for Ankara. As of 23 March 2019, the ratio of water availability in Ankara’s dams is only
Accordingly streams of Ankara, their valleys and drainage watersheds are crucial components of urban landscape for sustainable urban planning. Ironically, these streams also caused the most damage to their surroundings due to floods several times throughout the history (Table 1). For instance, in 1957, the flood along the Hatip Stream affected many areas along its bed, including Mamak, Saimekadin, Gülveren, Bentderesi, Dişkapı, Kazıkiçi vegetable gardens and Akkopru which led to many casualties and serious physical damage. At the same time, some of these streams had been highly polluted and literally had become open sewers. These all led to a drastic change in the urban landscape of Ankara; many streams and creeks were channelized and paved over such as Bentderesi, Hoşdere creek, Kavaklıdere creek.

| Date         | Flood location                        | Casualties |
|--------------|---------------------------------------|------------|
| 7-8 May 1947 | Hatip Stream                          | 3 dead     |
| 4 May 1946   | Hatip Stream-Bentderesi                | 1 dead     |
| 11 September 1957 | Hatip Stream                  | 169 dead   |
| 18 June 1961 | İncesu Stream, Hatip Stream, Çubuk Stream and Dikmen Creek | 3 dead     |
| 12 March 1968 | Hatip Stream and Çubuk Stream         | 7 dead     |
| 28 December 2001 | Çubuk Stream                           | N/A        |

This paper aims to provide a critical overview of the management of Ankara’s streams in the historical context of the city’s urbanization process, and focusing on one particular example Bentderesi. Bentderesi (meaning barraged creek) is part of the Hatip Stream, one of the main branches that feed Ankara Stream. It arises in the Hüseyingazi Mountain and passes through Kayaş and Mamak and then enters into a V shaped valley before approaching Ankara Citadel. It takes this name near this region where old city is. Today, the name Bentderesi is used as the name of the neighbourhood where once the stream itself flowed freely on the surface.

2. Past and present of Bentderesi

2.1. Spatial History of Ankara.
Prior to the historical evaluation of Bentderesi, a summary on Ankara’s spatial history could be useful in order to better understand the urbanization process of the city. Located at the central Anatolia, the city has been inhabited continuously from the antiquity. The first known settlers of the region are the Hittites in Bronze Age, followed by the Phrygians, Lydians, Persians, Galatians and Romans [9]. Ankara’s importance declined significantly following the decline of Roman Empire and of Silk Road commerce [2,9]. During the Ottoman Empire period, Ankara remained as a small town as the centre of the Empire was İstanbul.

Following the First World War, the fall of the Ottoman Empire gained speed and at the end of the War of Independence the Republic of Turkey was founded in 1923 by a military group led by Mustafa Kemal Atatürk. Ankara was chosen as the capital city of the new nation and its strategic location was clearly one of the reasons behind this decision. However, Ankara, as a small town, was in a deprived condition. As Paul Genzington reported to the French newspaper “Temps”, the town was “dying in agony” [9]. The settlements were concentrated around Ankara Citadel, which dates back to Roman times, the town had a railway connection, but it lacked the infrastructure and qualified public services. Atatürk initiated the planning process of Ankara as an example and a modern capital for the new
Republic and architects -mostly German and Swiss- performed many studies on reshaping the town during the first years after Turkish Republic was established. The first plan for the city was prepared by C.C. Lörcher in 1924. The plan proposed a compact city and a new city center around the central train station [2]. However, in 1927 it was decided that Lörcher’s plan was not adequate due to increasing population and a new masterplan was needed for Ankara. H. Jansen won the planning competition for Ankara in 1927 and prepared a plan influenced by the “Garden City” movement. Jansen’s open-green space system along the stream valleys and the Atatürk Forest Farm have contributed to the identity of Ankara through shaping urban form, recreational opportunities, urban agriculture practices and conservation of natural landscape characteristics. Jansen’s plan has lost its validity due to various reasons and following plans failed to present a similar approach- highlighting the city’s natural landscape characteristics. Following Jansen’s plan, Uybadin & Yücel’s plan for Ankara transformed the garden-city into an apartment city and squatter housing became a texture of the city [2].

Ankara has experienced a dramatic growth since it became the capital city. Today, the city’s population is over 5 million and the urban pattern expanded enormously. As Yalçıner Ercoşkun states insufficient guidance of development plans and the population growth has led to an oil-drop form expansion in the west and northwest [10].

2.2. Bentderesi in pre- and early Republican Period
The historical city center and Ankara Citadel are located at the hilltop and between the İncesu Stream and Hatip Stream. The Hatip Stream has been known as Bentderesi in this region. According to the literature, Bentderesi name comes from the dam structures on the creek built in Roman times [4]. Unfortunately, the ruins had not been protected or conserved and are invisible today. Özand states that the ruins of the Roman dam were still visible until 1935 when a modern dam was constructed at the same place, and the modern dam was also demolished in 1957 [4]. The landscape is characterized with steep hills, rising from the stream bed up to the Citadel. This deep valley opens into a plain in the northwest of the Citadel where once was Kazıkiçi vegetable gardens next to Bentderesi. Leather and mohair production as commercial activities in the pre-republican period was also common along the Bentderesi, near the Citadel region.

One of the most radical proposals for the streams in the Ankara’s planning history was creating a pool on the Bentderesi where the historical Roman dam was once located by Jansen (Figure 3 and 4). He also proposed gardens and recreational activities along the stream. It is also known that Bentderesi was already a popular place for recreational activities in the early 1920’s and the traditional leisure life of Ankara consisted of coffee houses and picnics on the Bentderesi and Hatip Stream [11]. In Jansen’s plan, an urban park (Cumhuriyet Bahçesi) was located on the banks of Bentderesi next to the Tabakhane neighbourhood and vegetable gardens were located on the basin floor towards north [12]. However, General Directorate of Water (Sular Umum Müdürlüğü in Turkish), refused Jansen’s proposal for the pool based on the water analysis report which stated that the water in the stream had been highly polluted by agricultural activities and sewage released into the stream [13].

The Uybadin-Yücel plan also expressed concerns on the negative sanitary conditions of Bentderesi, as well as İncesu Stream and suggested enhancing the sanitary conditions of the inner-city streams [12]. However, the plan’s proposals had not been implemented and squatter settlements started to surround Bentderesi. Following the flood disaster on 11 September 1957 and existing insanitary conditions of the stream, Bentderesi were channelized and culverted.
Figure 3. Jansen’s drawing of his Bentderesi proposal [14]

Figure 4. Jansen’s plan for the natural pool on Bentderesi [15]

2.3. Bentderesi today.
Currently, vehicle traffic flows along “Bentderesi Street” which was built overtop the channelized and culverted stream (Figure 5). Although the first plans for the newly established capital made use of Bentderesi and its surroundings as green spaces for leisure and ecological benefits, it became a squatter settlement area after it had been culverted.

Due to the legal brothel in the area, Bentderesi and its surroundings have had a controversial reputation for years. In 2005, the Municipality of Altındağ started a “urban transformation” project in the Bentderesi neighbourhood and began to demolish the illegal buildings and structures. The brothel was closed and demolished in 2013 as well. In the east of the neighbourhood, mass housing projects have been launched. There are many demolition contractor’s yards –where construction materials recovered from buildings are stored and sold- along the Bentderesi street. On the other hand, not even a single current project or a policy refers to the stream that gave the neighbourhood its name. Only, a preservation plan for Ulus Historical City Center, prepared by Hassa Architecture, suggested revival of the Bentderesi again in 2006. Although the plan was approved by the Ankara Metropolitan Municipality,
Chamber of City Planners sued against the approval of the project because of the preparation and approval processes and they won the case.

![Figure 5. Bentderesi in 2019 (produced with Google Earth data) [16].](image)

3. Results and discussions
The population dynamics have always been an influential factor in the development of urban morphology of Ankara. However, geomorphology and other natural landscape forces have been clearly neglected in shaping the urban form of Ankara, as seen in the Bentderesi case. Although Jansen and Uybadin-Yücel plans emphasized the protection of inner-city streams as green corridors, implementing and policy actors have failed to realize the enhancement of natural assets of the Ankara’s landscape. As Yavuz says “the characteristic geomorphological attributes were dissolved and the urban development surpassed the defined geomorphological space of calyx” [12]. Similarly, Yalçın Ercoşkun concluded that urban development of Ankara seems quite unsustainable [10].

Although ecological impacts of the transformation of streams were not evaluated in this study, Çiçek and Turkoglu concluded that the increasing effect of urbanization on the heavy precipitation days brings about the problem of floods in Ankara [7] and there has been an increase in the number of flash floods occurred in Ankara recently due to the increased impermeable paved surfaces. Even though floods on the streams of Ankara caused detrimental effects in the history, keeping and maintaining streams are more beneficial than constructing rainwater sewage systems when stream landscape is properly planned and designed.

As for Bentderesi, the natural landscape of the stream was totally demolished. There are no gardens nor recreational activities where once the Bentderesi meandered and flowed. The urban transformation project in Bentderesi causes more densely populated areas in the region and more vehicle traffic on Bentderesi street. Although the project aims to re-generate the historic fabric, Bentderesi neighbourhood will never gain its historic fabric back without the revival of the stream, Bentderesi. Municipalities eager to design and implement artificial water bodies throughout Ankara while their urban policies ignore the landscape’s natural character and once-existing creeks and streams.

4. Conclusions
Water is a crucial element for all living organisms and water features are significant landscape features which have many ecological, economic and cultural values. They are important ecological corridors for living organisms and they provide regulating, provisioning, supporting and cultural ecosystem services to societies and, thus, improve the quality of life in urban realm. There are successful examples of
revitalization and restoration of rivers in the world. With the recent developments in construction and engineering technology and landscape ecology science, it is possible to re-earn the culverted or channelized rivers, streams and creeks as key assets for urban landscape. Unfortunately, restoration or revitalization of Ankara’s streams as public assets does not seem to be happening in the near future. Water resources and their sustainable management should be a priority in urban policies, especially in regions where water is evidently a limited resource, like Ankara.

Finally, landscape is a dynamic and an ever-changing phenomenon. Therefore, interventions on landscapes require understanding and recognition of the processes behind the dynamics. Today, landscape planning is still not an integral part of the legal spatial planning system in Turkey. Since the consequences of neglecting landscape patterns and processes have started to represent itself, policy makers and governmental authorities should immediately adopt and embrace landscape planning within the spatial planning practices.

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