The International Journal of Ancient Iranian Studies
July 2024, VOL. 4, NO. 7: 19-36. OPEN ACCESS
https://doi.org/10.22034/pa.2023.415153.1060

PERSICA ANTIQUA

RESEARCH ARTICLE

Archaeological Research to Delimit the Core Zone and Suggest the Buffer Zone for the Chiasi Site in Kuhdasht, Lorestan

Seyed Mahmoud Mireskandari[1]

Abstract

The ancient site of Chiasi, located in Kuhdasht, Lorestan province, boasts a diverse cultural sequence spanning from prehistoric times to the Islamic era. Initial information about this site was first published in Goff's archaeological reports in 1971, which highlighted the presence of surface materials belonging to the Chalcolithic Age and the Uruk period. Unfortunately, Tepe Chiasi has suffered significant damage over time, primarily due to natural erosion and, more recently, human activities. As a result, many of its cultural contexts have been lost irretrievably. To prevent further destruction caused by urban development in Kuhdasht, extensive archaeological studies were conducted at the Chiasi site. The research project began with a systematic survey of the site, followed by the excavation with 18 trenches measuring 1.5 × 1.5m to delimit the core zone and suggest the protective buffer zone. The analysis of the collected data revealed a lengthy cultural sequence at the site, ranging from the Neolithic Age to the fourth and fifth centuries AH.

Keywords: Chiasi Site; Kuhdasht; Systematic Survey; Excavation; Chronology.

[1] Iranian Center for Archaeological Research, Tehran, Iran. mahmoudmireskandari@yahoo.com
Article info: Received: 6 September 2023 | Accepted: 1 October 2023 | Published: 1 July 2024
Citation: Mireskandari, Seyed Mahmoud. (2024). "Archaeological Research to Delimit the Core Zone and Suggest the Buffer Zone for the Chiasi Site in Kuhdasht, Lorestan". *Persica Antiqua*, Vol. 4 (7): 19-36.
https://doi.org/10.22034/pa.2023.415153.1060

Introduction

The settlement patterns and spatial distribution of sites, as well as various human activities, have been significantly influenced by environmental factors. The natural potential of each region such as water resources, fertile soil, fauna and flora, have been instrumental in determining the subsistence systems adopted by communities, leading to the emergence and evolution of comparable cultures (Sahlins, 1963; Smyntyna, 2003; Ghobadizadeh *et al.*, 2021). For example, flat plains exhibit greater agricultural suitability compared to terrain with slopes. This factor has led individuals who opted to reside in plains and alluvial fans to transition into sedentary farming practices, while those who consciously or out of necessity settled in mountainous regions have had embraced a nomadic pastoral lifestyle.

Proximity to natural routes and access to raw materials have been significant factors in selecting the location of human settlements (Redman, 1978; Bintliff, 2012). Natural events such as severe earthquakes that affect the geomorphology and the course of rivers, as well as climatic hazards such as floods and droughts, usually have caused the abandonment and relocation of settlements (Shishegar, 2005: 17; Chaychi and Shaikh Baikloo, 2020).

The initial instances of both temporary and permanent human settlements have been discovered within the cultural region of Central Zagros. Consequently, this local populace consistently occupied a distinctive position within the realm of archaeological research in Iran (Henrickson, 1985; Abdi, 2003; Darabi, 2012; Matthews *et al.*, 2013; Alibaigi & Salimiyan, 2020). The geographical attributes of the studied region, along with influential factors such as arable land, conducive flora, the presence of enduring water reservoirs, and natural pathways (Shadmehr, 2008: 32), served as compelling incentives for ancient societies to opt this region as habitation.

One of the key archaeological sites of Central Zagros, which was inhabited by prehistoric communities for thousands of years, is Chiasi located in Kuhdasht, west of Lorestan province. However, in recent years, the urban development of Kuhdasht has posed a threat to the preservation of Tepe Chiasi. More importantly, not only Chiasi but also other archaeological sites located within the urban area are not specified in the project of Hadi and the comprehensive urban project of Kuhdasht. Thus, it is considered essential to preserve Chiasi as one of the most important ancient sites of Kuhdasht. According to archaeological studies and the distribution of surface cultural materials, the Chiasi site belongs to the Neolithic Age, Chalcolithic Age, Bronze Age, Iron Age, Parthian period, Sasanian period, and 4th and 5th centuries AH. The detailed study of these data can certainly be very valuable and effective in recognizing and reconstructing the cultural situation of this region. Based on this, Lorestan Cultural Heritage, Handicrafts and Tourism Organization, to further protect this archaeological site against the threats and damage resulting from urban development, provided the necessary grounds for the implementation of an excavation project in the Chiasi site. The main purpose of this field research

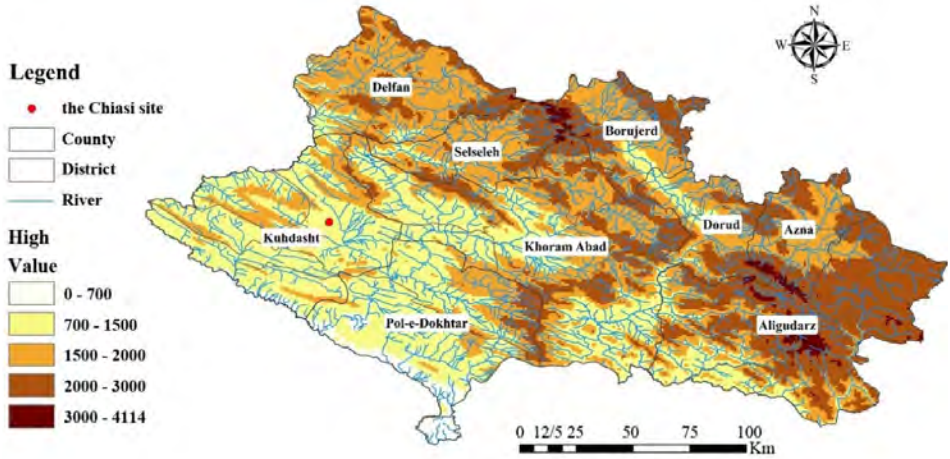

Fig. 1. The Geographical Condition of Lorestan Province and the Location of the Chiasi Site in Kuhdasht County

has been to determine the core zone and the buffer zone of the site so that in addition to solving the mentioned problems and threats, an impressive step can be taken in the direction of studying and introducing the cultural materials of this ancient settlement.

Geography and Climatic Condition of Kuhdasht

The Kuhdasht county is located in the geographical area of Tarhan Kohan, one of the inter-mountainous areas in the west of Central Zagros. Kuhdasht has a mild and semi-arid climate. The annual precipitation there is about 450 mm, which mostly occurs from late November to late April. The average temperature of the area is at least -7°C in January and +46°C in July (Mansouri, 2019).

The pastures of Kuhdasht have provided suitable conditions for nomadic pastoral communities. In addition, the fertile soil and the high potential of agriculture have created suitable environmental conditions for rural communities. Therefore, due to its favorable habitat, the Kuhdasht area has been attracting large populations for a long time (Stein, 1938: 332-333).

In the geographical area of Kuhdasht, there are many rivers, the most important being Seimare, Kashkan, Khosrava, Madian Roud, Siav, and Viar Pahn. The Viar Pahn River, which flows in the center of Kuhdasht, originates from the northwestern heights of Kuhdasht and is joined by springs and seasonal rivers. This river flows 300m north of the Chiasi site. Currently, due to the illegal use of underground water resources and the excessive lowering of the Kuhdasht aquifer level, most of the springs and rivers that irrigated the Kuhdasht plain in the past have dried up (Fig. 1).

Name and Location of Chiasi Site

According to local people, Tepe Chiasi has been called by the same name for a long time (at least from about a hundred years). In Laki literature, the word “Chia” (or Chogha) means mound, and “si”

means black, because most of the surface soil of the mound is black and gray. Thus, the name Chiasi (Black Mound) is derived from this natural feature.

The oval and almost conical mound of Chiasi is located in the geographical coordinates of 33°31′44″N and 47°33′57″E, at a distance of 2 km west of Kuhdasht city (Fig. 2). This archaeological site is situated between the sites of Sorkhdom Lori, Sorkhdom Laki, and Tepe Malmir. The distance of the mound from the connecting road of Kuhdasht city to the Zanugeh junction (the exit of Kuhdasht city towards Kermanshah and Khuzestan) and from the village of Tazeh Abad Malayekeh on the way of this road is less than one kilometer. Based on the distribution of surface cultural materials, the area of the site is about three hectares (east-west 200 m and north-south 150 m). The highest point of the mound, with a height of 1214 meters above sea level, is about 11m higher than the surrounding land. Except for the conical mound, other parts of the site are under irrigated and rainfed cultivation by Kuhdasht farmers (Fig. 3).

Threat and Destruction Factors

The natural factors effective in the destruction of an archaeological site are high humidity, temperature changes, precipitation, and weathering processes (Carroll & Aarrevaara, 2018). These factors have damaged Tepe Chiasi over time. Apart from that, continuous plowing and agricultural activities on the site have caused the loss of many cultural evidences. Parts of the west, southwest, and east of the mound have been leveled by farmers, and a side road also passes 50m north of the site. During the 1950s and 1960s, the villagers living in the western and northwestern areas of Tepe Chiasi used a large amount of soil from the mound to build their houses, which led to the destruction of the northern and northwestern parts of the site. Therefore, these actions have caused damage to the cultural layers of the site. Currently (2015), the effects of destruction are visible. The Chiasi site witnessed continuous human habitation until the end of the Pahlavi eraq, after which, it was deserted. At the top of the mound, vestiges of a concrete platform remain, which served as a platform for the installation of air defense systems during the Iran-Iraq war. During the 1980s, Amraaie, one of the proprietors of Chiasi, established an industrial cattle farm in the eastern sector of the mound, an activity that had a detrimental impact on the site's integrity. Moreover, frequent irrigation of agricultural fields and the excavation of substantial pits by illicit traffickers of cultural artifacts across the entire site have inflicted severe harm upon the archaeological strata and cultural deposits therein (Fig. 4).

Literature Review

For the first time, Claire Goff mentioned the Chiasi site and its surface artifacts belonging to the Chalcolithic Age and the Uruk period (Goff, 1971). This site was registered in the country's national heritage list on Feb. 12, 2007, with the number 17213 (Parviz, 2006). Archaeological studies were conducted by Mireskandari in August 2015 to delimit the core zone and suggest the buffer zone for the Chiasi site. In the surface level survey, cultural materials belonging to prehistoric, his-

Fig. 2. Aerial Photo of the Chiasi site and its Surroundings

torical, and Islamic eras were identified (Mireskandari, 2015).

Archaeological Field Research

The Chiasi site's excavation plan provided a suitable opportunity for comprehensive studies of this ancient site. Therefore, we tried to conduct this field research in a detailed and specialized manner. In the following, the different stages are explained.

Fig. 3. Tepe Chiasi Among Farms and Residential and Industrial Constructions

Systematic Survey of the Site

The initial phase of the Chiasi site's investigations involved the delineation of an extended area beyond the core zone, encompassing surface archaeological evidence. The entirety of this expanse, spanning approximately 16 hectares (400m in the north to south direction and 400m in the east to west), encompasses the complete surface area of both the mounds and their surroundings. After specifying the study area, its entire surface was mapped and divided into 100×100m grids (16 grids). Systematic survey was done in all 16 grids. The grids were surveyed from west to east in direction of south to north, with an average distance of 3m. The most important reasons for creating grids with dimensions of 100×100 m can be mentioned due to the vastness of the study area and the low distribution of cultural materials (Fig. 5).

Description of Grids

The grids covered flat agricultural lands and sometimes under cultivation (corn). The slope of the land was very gentle and only increased near the ancient mound. No architectural monuments were observed on the surface of the grids, but in most of the grids, potsherds and stone tools with different densities were found. The stone tools were all small broken blades and chips belonging to the Chalcolithic Age (Table 1, Fig. 6).

A1: This grid was located in the southwestern part of the gridded area. Potsherds were found on the northeastern edge of the grid, where it had not been cultivated.

A2: This grid was located in the southwestern part of the gridded area. The density of surface potsherds increased from southwest to northeast.

A3: This grid was located in the southeastern part of the gridded area. The den-

Fig. 4. Large Holes Excavated by Smugglers on the Surface of the Mound

sity of surface potsherds increased from south to north.

A4: This grid was located in the southeastern part of the gridded area. A water channel with a north-to-south route passed through the center of the grid. A low mound (less than 0.5 m) with a northeast-to-southwest direction passed through the southern half of the grid. The density of surface potsherds increased from south to north.

B1: This grid was located in the southwestern part of the gridded area. In the eastern part of the grid, the slope gradually increased. Its southwest corner was cultivated (corn). There was a mound in the eastern half of the grid, which was considered the extension of the cultural layers of the site. No potsherds were found on the surface level.

B2: This grid was located in the southwestern part of the gridded area. In the eastern part of the grid, the slope gradually increased. Its southwest corner was cultivated (corn). There was a mound in the eastern half of the grid, which was an extension of the cultural layers of the site. A number of cultural materials were found at the northeastern edge of the grid where there was no cultural activity.

B3: This grid was located in the southeastern part of the gridded area. The slope in the northwestern part gradually increased. This grid consisted of three parts: the northwestern part included a part of the main mound; the northeastern part included the cattle farming; the southern half had been completely plowed. More potsherds were found on the hillside. In the central part, several smuggling holes were visible.

B4: This grid was located in the southeastern part of the gridded area. In the northwestern part of the grid, the slope

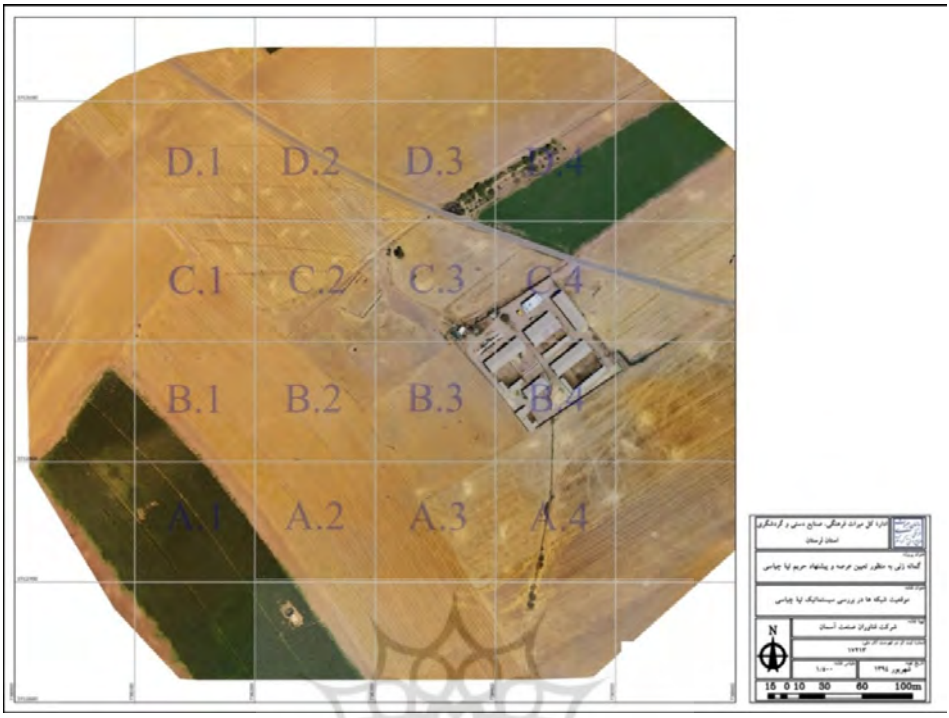

Fig. 5. The Position of Grids in the Systematic Survey of the Chiasi Site

gradually increased. This grid consisted two parts: the northern portion includes a part of cattle farming; the southern half had been completely plowed. In the center of the southern half, a water channel with a north-south direction was visible. Most of the potsherds were found from the south of the cattle farming.

C1: This grid was located in the northwestern part of the gridded area. In the western half of the grid, an L-shaped road could be seen. No potsherds were found on the surface.

C2: This grid was located in the northwestern part of the gridded area. In the southeastern part of the grid, the slope gradually increased. In the southeast corner, the architectural remains of a ruined building were visible. A mound was located in the northeast-southwest direction in the southeastern half of the grid, which was considered an extension of the cultural layers of the site. Potsherds were found on the hillside, where it had not been cultivated.

C3: This grid was located in the northeastern part of the gridded area. Due to the existence of the mound, the slope increased in the southeastern part. Part of a ruined building (continuation of the grid C2 architectural remains) was located in the center of the west side. In addition, there was part of the cattle farming and a pool to the southeast of the grid. In the same section, there was a channel with a width of 2m and a depth of 1.5m in the northeast-southwest direction, parallel to the cattle farming. An asphalted road also crossed through the northeast corner of the grid in a northwest-southeast direction. A semicircular cement chan-

Table 1. Characteristics of Grids

Grid	Steep direction	Location	Density of pottery	The number of index pots	Number of stone tools
A1	North to South	In the buffer zone	One piece per 5 m²	3	-
A2	Northwest to Southeast	Partly in the core zone and completely in the buffer zone	One piece per 2 m²	6	1
A3	Northwest to Southeast	Partly in the core zone and completely in the buffer zone	One piece per 2 m²	6	3
A4	Northwest to Southeast	A part of the buffer zone	One piece per 4 m²	6	-
B1	North to South	Partly in the core zone and completely in the buffer zone	-	-	-
B2	North to South	In the core zone	One piece per 1 m²	3	1
B3	Northwest to Southeast	In the core zone	One piece per 1 m²	15	2
B4	Northwest to Southeast	Partly in the core zone and completely in the buffer zone	One piece per 5 m²	2	-
C1	Northeast to Southwest	Partly in the core zone and the buffer zone	-	-	-
C2	Southeast to Northwest	Partly in the core zone and completely in the buffer zone	One piece per 1 m²	12	1
C3	West to East	Partly in the core zone and completely in the buffer zone	One piece per 1 m²	42	3
C4	West to East	Partly in the core zone and the buffer zone	One piece per 1 m²	5	-
D1	Southeast to Northwest	Partly in the buffer zone	One piece per 5 m²	8	1
D2	Southwest to Northeast	Partly in the buffer zone	One piece per 5 m²	8	1
D3	Southwest to Northeast	Partly in the buffer zone	One piece per 10 m²	3	1
D4	West to East	It is not on the site	One piece per 10 m²	3	-

Fig. 6. Surface Potsherds Found in Archaeological Surveys

nel was located in the western half of the grid. Most of the potsherds were found on the northeastern edge of the grid, on the hillside.

C4: This grid was located in the northwestern part of the gridded area. This grid consisted of two parts: the southern part included a section of cattle farming; the northern half, except for the surface of the asphalt road, was completely plowed and cultivated. In the center of the western half, a water channel with a width of 2m and a depth of 1.5m was visible parallel to the wall of the cattle farming in the northeast-southwest direction. The asphalted road also passed through the northeast corner of the grid in the northwest-southeast direction. More potsherds were found south of the cattle farming.

D1: This grid was located in the northwestern part. An asphalted road in the northwest-southeast direction crossed through the northeast corner of the grid.

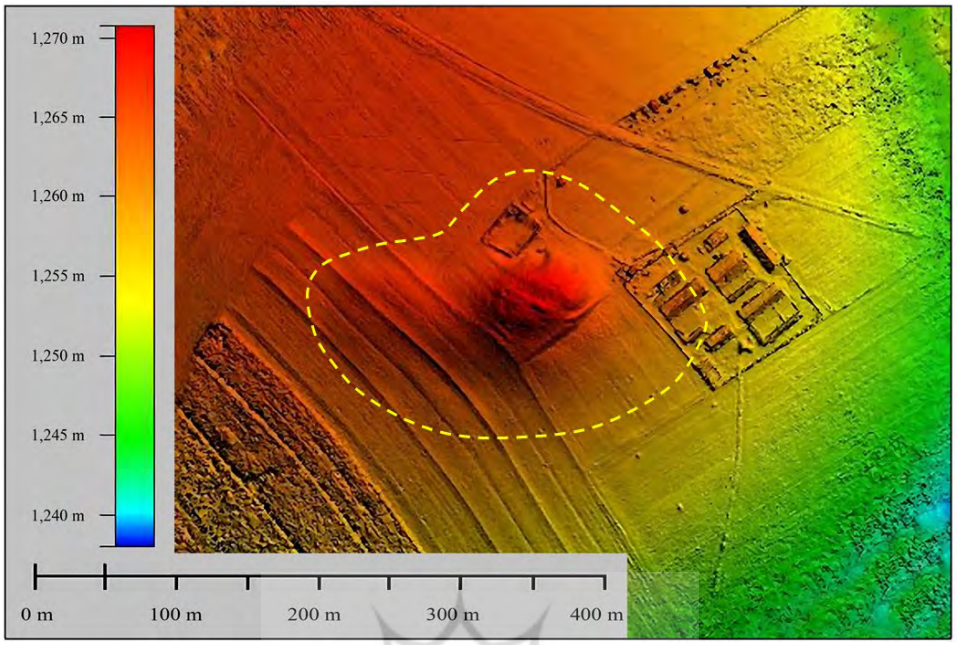

Fig. 7. Determination of the Apparent Core Zone of the Chiasi Site

D2: This grid was located in the northwestern part. An asphalted road in the northwest-southeast direction passed through the center of the grid.

D3: This grid was located in the northeastern part. An asphalt road in the northwest-southeast direction crossed through the southwest of the grid. Parts of a garden covered the southeast corner of the grid.

D4: This grid was located in the northeast. Parts of a garden covered the central part of the western half of the grid. This grid was not located on the Chiasi site.

Determination of Site's Apparent Core Zone

As a result of the systematic survey, how to distribute cultural materials and architectural remains in the Chiasi site was determined. To specify the site's apparent core zone, all artifacts, and cultural materials were meticulously recorded on maps, ensuring minimal margin of error. In addition, aerial images were captured using a quadcopter to provide a comprehensive visual representation of the site. After careful analysis, the apparent core zone of the site was determined to be an oval-shaped area measuring 270m in length from east to west and 150m in width from north to south, encompassing a total area of 4.05 ha (Fig. 7).

Excavations to Delimit Core Zone and Suggest Buffer Zone

Excavations were conducted considering the site's apparent core zone, which was determined during the systematic survey with high accuracy (at least 80% confidence). For this purpose, sounding was carried out by the method + and × relative to the fixed point of the site. To implement this method, the positions of trenches were initially marked on maps and aerial images in four main direc-

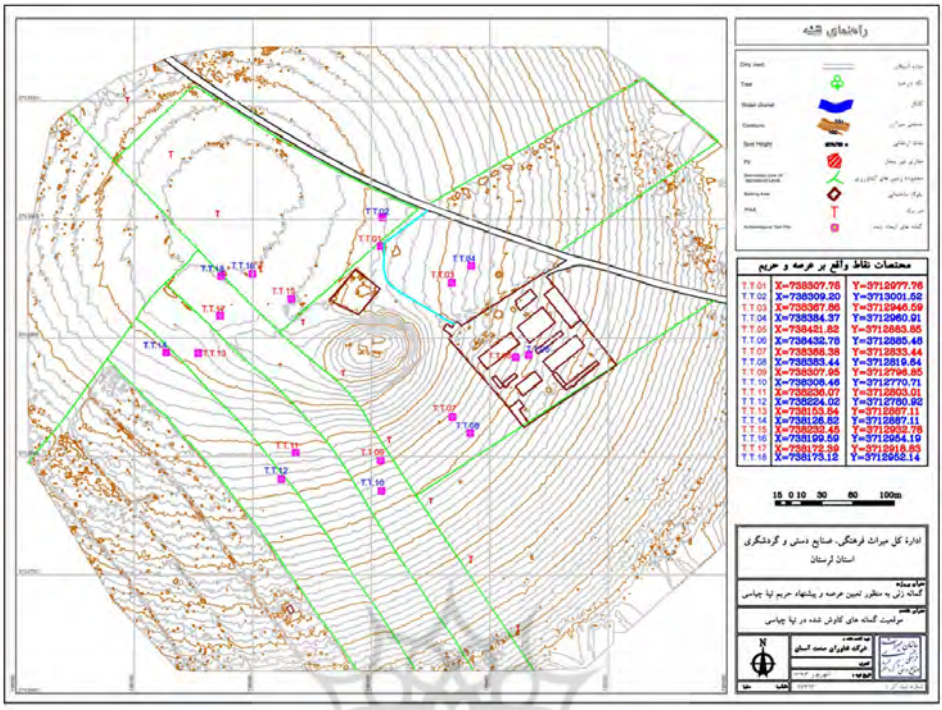

Fig. 8. Coordinates of Excavated Trenches in the Core Zone and Buffer Zone of the Chiasi Site

tions (+) and four secondary directions (×). Subsequently, other locations were identified within the spaces between the main and secondary directions (+ and ×) based on factors such as the core zone's location, the density of cultural materials, and the distribution of architectural remains. The location of the trenches was chosen so that the first row was on the line of the apparent core zone, i.e. where there was a possibility of discovering the cultural layer. The subsequent row was 15 to 30m away from the line of the apparent core zone, i.e. where there was a possibility of reaching virgin soil. The trenches were located clockwise from the northern part of the mound (Sadeghi Rad, 2015: 9) (Figs. 8, 9, Table 2).

The trenches were excavated in dimensions of 1.5 × 1.5m and in the north-south direction (all four sides in the four main directions). Each trench was named T.T (Test Trench) along with a two-digit code from 01 to 18 (according to the time order of excavation). Explorations were done by the context method and registration in a context specification form. A number was considered for each context (C), for example, C1. The numbering was in the order of exploring the layers and from top to bottom.

In summary, a total of 18 trenches were excavated during the study: nine were specifically dug to delineate the true core zone, while the remaining nine were intended to suggest the buffer zone. Among these, nine trenches yielded cultural deposits, while the other nine did not exhibit any cultural strata. Eight trenches presented two distinct contexts, while 10 trenches

Table 2. Technical characteristics of the trenches excavated at Tepe Chiasi

Trench	Number of contexts	Depth (cm)	Cultural layer	For identification of	Number of potsherds
T.T-01	1	50	*	Core zone	2
T.T-02	1	80	-	Buffer zone	-
T.T-03	1	60	*	Core zone	15
T.T-04	2	62	-	Buffer zone	-
T.T-05	2	70	*	Core zone	6
T.T-06	2	70	-	Buffer zone	3
T.T-07	2	58	*	Core zone	8
T.T-08	2	70	-	Buffer zone	5
T.T-09	1	52	*	Core zone	12
T.T-10	2	58	-	Buffer zone	4
T.T-11	1	60	*	Core zone	3
T.T-12	2	82	-	Buffer zone	9
T.T-13	1	61	*	Core zone	15
T.T-14	1	85	-	Buffer zone	-
T.T-15	2	65	*	Core zone	13
T.T-16	1	60	-	Buffer zone	-
T.T-17	1	60	*	Core zone	7
T.T-18	1	68	-	Buffer zone	-
Total	26				102

contained only one context each. In total, 26 separate contexts were identified, with cultural artifacts, including 102 potsherds, discovered in 15 of these contexts. Notably, all the trenches containing cultural deposits were located within the apparent core zone. The excavation depths varied, from 85cm for T.T-14 to shallowest at 50cm for T.T-01, and the average depth across all trenches being 65cm.

Real Core Zone

After exploring the trenches and defining the boundaries of the archaeological site, the shape and location of the trenches were placed on the site map, and the real core zone was determined. The real core zone of this site covers the entire apparent core zone and part of cattle farming. The real core zone, which has a shape resembling an irregular oval in the west-east direction, covers an area of approximately 47024m² (4.7 ha). Its dimensions are maximum 300m in the east to west direction and 210m in the north to south direction. The real core zone extends towards the farms from the north, west, and south, while it borders the cattle farming area to the east (Fig. 10).

Protective Buffer Zone

Using information obtained from the apparent core zone and the real core zone,

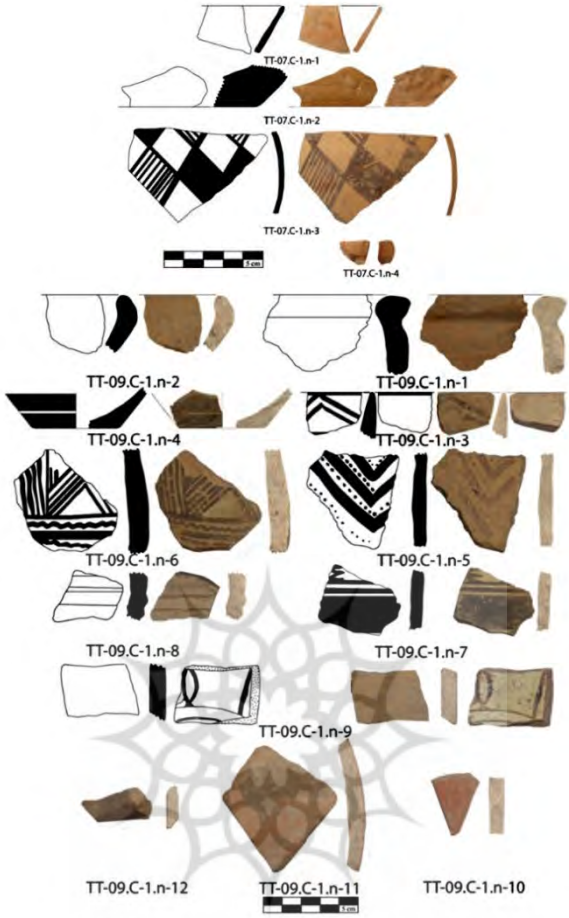

Fig. 9. Potsherds Found in Archaeological Excavations

the proposed buffer zone for the Chiasi site was determined. The buffer zone covered an area of about 14.14 hectares (max. 380m in the northeast to southwest direction and max. 430m in the northwest to southeast direction). This zone, which is considered based on the difference in artificial complications and the height of Tepe Chiasi (7.5m), has expanded outward from the border of the real core zone. Based on this, from the distance of approximately 50m north of the mound, which is the border of farms, to the distance of 40m east of the mound and parallel to the eastern side of the asphalt road, the buffer zone of the northeastern part was considered. Then, according to the land slope and with an average distance of 100m from the core zone, from the edge of the asphalt road to the well chamber in the south of the mound, it was determined as the buffer zone of the southern part of the site. This range continued from the well chamber in the south to the west of the mound and from there it was connected to the first point

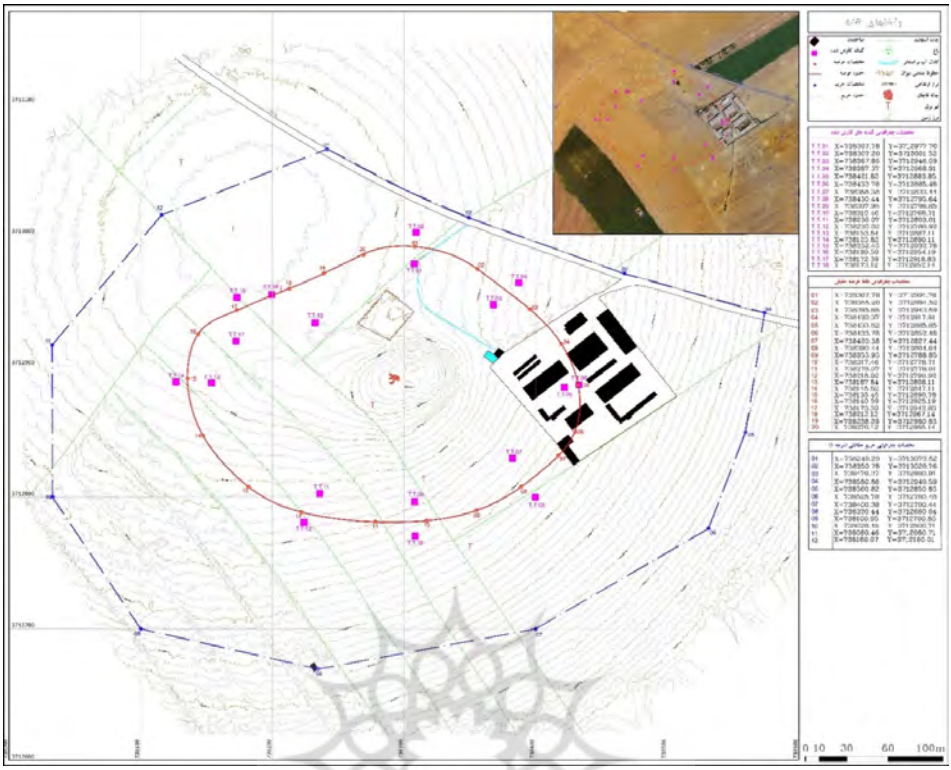

Fig. 10. Delimitation of the Real Core Zone and the Protective Buffer Zone of the Chiasi Site

in the north of the hill with a distance of 100m from the core zone. This area was designated as the protective buffer zone of the Chiasi site, aiming to preserve and safeguard the site's cultural and archaeological significance (Fig. 10).

Chronology and the Settlement Pattern of the Chiasi Site

Tepe Chiasi is an oval-shaped ridge that stretches from east to west. The highest height of the mound from the surface of the surrounding farms is 7.5m in the east. The height of the mound gradually decreases from east to west and continues until the westernmost part of the mound becomes at the same level as agricultural land. The studies conducted at the Chiasi site indicate that the settlement started for the first time in the Neolithic Age, in its eastern part. The cultural layers of this part continued until the Iron Age. During the 4th and 5th centuries AH, settlement on this site was extended to the west and the northwest of the mound. After this period, a long-term settlement break is observed. This interruption continued until about a hundred years ago (probably the early 20th century) when houses in Chiasi village were built in the northern and northwestern parts of the mound. During the construction there, parts of the mound were cut and used as clay and mudbrick. However, these buildings were eventually abandoned and gradually destroyed during the 1960s and 1970s. In the northwest part of the site, all the abandoned structures were leveled and added to agricul-

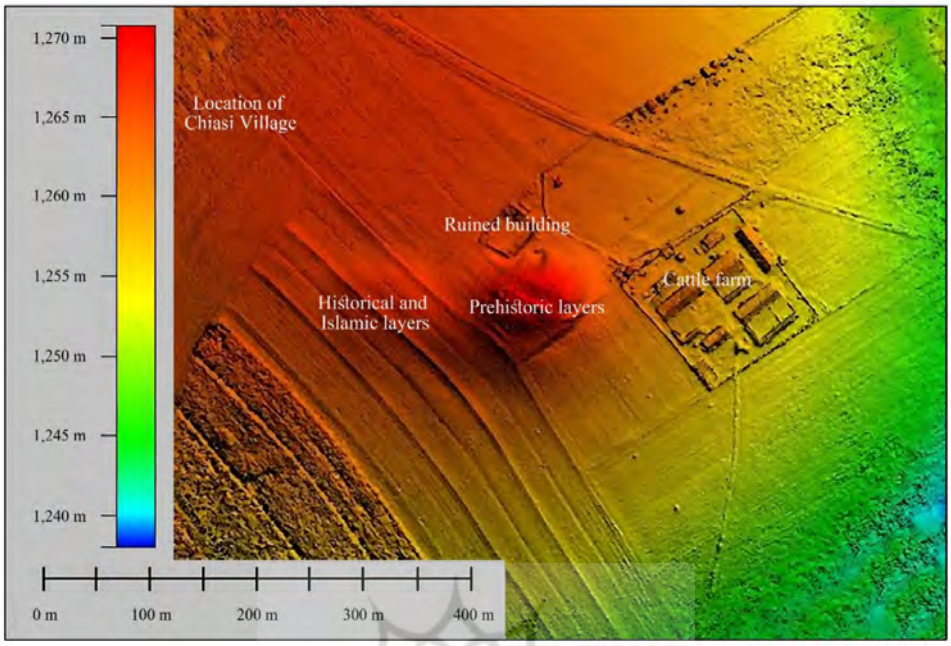

Fig. 11. Settlement Pattern of the Chiasi Site

tural lands. Today, the remains of one of the ruined buildings can still be seen in the north of the mound. In the 1980s, a cattle farm with an area of one hectare was established in the east of the mound, indicating further human activity in the area. The leveling to build the cattle farm in the east of the mound resulted in the destruction and excavation of approximately 3700m² of the Chiasi site's real core zone. This loss of archaeological material hampers our understanding of the settlement pattern and history of the site. To gain a more comprehensive understanding of the Chiasi settlement pattern and to gather additional information about the site, an extensive exploration and excavation in different parts of the site would be necessary. This would involve conducting archaeological surveys, excavations, and analysis of the recovered artifacts and features (Fig. 11).

Conclusion

The Chiasi site, situated in Kuhdasht, Lorestan, boasts a rich cultural stratigraphy spanning various periods, including the Neolithic Age, Chalcolithic Age, Bronze Age, Iron Age, Historical (Parthian and Sasanian) period, and the Islamic era (4th and 5th centuries AH). Over the course of time, this site has endured substantial damage resulting from environmental erosion and human interventions, including residential and industrial developments, soil excavation for agricultural and construction purposes, as well as illicit excavations conducted by cultural artifact smugglers.

In the year 2015, a research project was undertaken with the primary objective of delimiting the core and buffer zones of Tepe Chiasi. This field research was aimed at identifying the various cultural periods of this archaeological settlement and,

equally importantly, to mitigate further degradation of the Chiasi site. To this end, an extensive and systematic survey and the excavation of eighteen trenches were conducted. Ultimately, the research team succeeded in establishing the site's chronological sequence and identifying the apparent core and the real core zone. Besides, for the preservation of the site, a protective buffer zone spanning approximately 14.14 hectares was carefully defined.

Acknowledgments

I express my sincere gratitude to the dedicated team of archaeologists who actively contributed to the realization of this field project. Their invaluable presence was indispensable to the successful execution of this research endeavor. A comprehensive list of team members can be found in the survey and excavation report at Tepe Chiasi, a document referenced in this article.

Bibliography

Abdi, K. (2003). "The early development of pastoralism in the Central Zagros Mountains". *Journal of World Prehistory* 17: 395-448. https://doi.org/10.1023/B:JOWO.0000020195.39133.4c

Alibaigi, S. & A. Salimiyan, (2020). "The Archaeological Landscape of the Neolithic Period in the Western Foothills of the Zagros Mountains: New Evidence from the Sar Pol-E Zahāb Region, Iran-Iraq Borderland". *IRAQ* 82: 15-39. https://doi.org/10.1017/irq.2020.7

Bintliff, J. (2012). *The complete archaeology of Greece: from hunter-gatherers to the 20th century AD*. John Wiley & Sons.

Carroll, P. & E. Aarrevaara, (2018). "Review of potential risk factors of cultural heritage sites and initial modelling for adaptation to climate change". *Geosciences* 8(9): 322. https://doi.org/10.3390/geosciences8090322

Chaychi Amirkhiz, A. & B. Shaikh Baikloo Islam, (2020). "Climatic Hazards of Fourth Millennium BC and Cultural Responses of Human Societies, Case Study: Tehran Plain and Qomroud-Gharachay Basin". *Journal of Research on Archaeometry* 6(1): 67–80. http://dx.doi.org/10.29252/jra.6.1.67

Darabi, H. (2012). "Towards reassessing the Neolithisation process in Western Iran". *Documenta Praehistorica* 39: 103-110. https://doi.org/10.4312/dp.39.8

Ghobadizadeh, H., Niknami, K. A. & S. Alibaigi, (2021). "Ancient Metalworking Sites in the Landscape of Kuhdasht and Presenting a Predictive Model for Central Zagros". *Journal of Research on Archaeometry* 7(1): 125-144. http://dx.doi.org/10.52547/jra.7.1.125

Goff, C. L. (1971). "Lūristān before the Iron Age". *Iran* 9(1): 131-152. https://doi.org/10.1080/05786967.1971.11834810

Henrickson, E. F. (1985). "The early development of pastoralism in the Central Zagros Highlands (Luristan)". *Iranica Antiqua* 20: 1. https://doi.org/10.2143/IA.20.0.2014076

Mansouri, A. (2010). *Investigating the plaster art of the Sassanid period* (*the case study of the ancient site of Barzgavele, Kuhdasht, Lorestan*). Tehran: Islamic Azad University, Central Tehran Branch.

Matthews, R., Matthews, W. & Y. Mohammadifar, (eds.). (2013). *The earliest Neolithic of Iran: 2008 excavations at Sheikh-e Abad and Jani* (Vol. 1). Oxbow Books.

Mireskandari, M. (2015). *Archaeological research in order to delimit the core zone and suggest the buffer zone of Tepe Chiasi, Kuhdasht*. Khorramabad: General Directorate of Cultural Heritage, Handicrafts and Tourism of Lorestan Province.

Parviz, A. (2015). *The registration report of Tepe Chiasi, Kuhdasht*. Tehran: Organization of Cultural Heritage, Handicrafts and Tourism of the country.

Redman, C. L. (1978). *The rise of civilization: From early farmers to urban society in the ancient Near East*. Freeman.

Sadeghi Rad, M. (2015). *Archaeological research in order to delimit the core zone and suggest the buffer zone of Cheshmeh Chelvar* (*Andika - Khuzestan*). Ahvaz: Document Center of the

General Administration of Cultural Heritage, Handicrafts and Tourism of Khuzestan (unpublished).

Sahlins, M. D. (1963). *Culture and environment: The study of cultural ecology*. Voice of America, US Information Agency.

Shadmehr, A. K. (2008). *Acquaintance with the Research Institute of the Organization of Cultural Heritage, Handicrafts and Tourism along with the performance of the Research Institute in 2007*. Tehran: Research Institute of Cultural Heritage, Handicrafts and Tourism Organization.

Shishehgar, A. (2005). *Excavation report at the Sorkhdom Laki site, Kuhdasht, Lorestan.* Tehran: The Organization of Cultural Heritage, Handicrafts and Tourism of the country; Iranian Center for Archaeological Research.

Smyntyna, O. V. (2003). "The environmental approach to prehistoric studies: concepts and theories". *History and Theory* 42(4): 44-59. https://doi.org/10.1046/j.1468-2303.2003.00256.x

Stein, A. (1938). "An archaeological journey in western Iran". *The Geographical Journal* 92(4): 313-342. https://doi.org/10.2307/1787218