

Gandara, A Newly Discovered Ancient Port Site on the Southern Coast of Sri Lanka

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ABSTRACT

This paper deals with Gandara Sea Port, located on the southern coast of Sri Lanka. In March and April 2022, an underwater archaeological impact assessment (UAIA) was undertaken by the Underwater Archaeology Unit (UAU) of the Department of Archaeology and the Maritime Archaeology Unit (MAU) of the Central Cultural Fund as the Ministry of Fisheries of Sri Lanka proposed to begin the Gandara Fisheries Harbor Development Project (GFHDP) for developing this natural port site at Gandara. The antiquity laws in the country require such AIAs. During the UAIA, the survey team prepared a virtual grid (50m x 50m) for the port area by using Arc GIS and Google Earth and established buoys at the main points on the grid for identifying the survey area. All grids in the port site have been surveyed using line, secular, and underwater searching methods. Six circular and square stone anchors that contain inner circular or square holes and one cannon were uncovered through the surveys in the inner and outer areas of the port. Similar stone anchors have been found at ancient Godavaya and Galle ports on the southern coast of Sri Lanka and in the Andhra, Odisha, and West Bengal areas of the Indian subcontinent. These stone anchors and metal artifacts discovered from the port site indicate Gandara as an ancient seaport that had connections with the external world during the historical period of Sri Lanka.

Keywords: Sri Lanka, Gandara, Stone anchors, International trade

LIST OF ABBREVIATIONS

UAIA	Underwater Archaeology Impact Assessment
UAU	Underwater Archaeology Unit
CCF	Central Cultural Fund
MAU	Maritime Archaeology Unit
GFHDP	Gandara Fisheries Harbor Development Project
GND	Grama Niladhari Division (Smallest Rural Administration Divisions in Sri Lanka)

LIST OF FIGURES AND TABLE

Figure 1: Location of the Gandara Fisheries Harbor in a natural bay at the most southern tip of Sri Lanka

Figure 2: Proposed Gandara port, Surveyed Area and artifacts found from Gandara port (based on the map of Ministry of Fisheries of Sri Lanka)

Figure 3: Pictures and plans of the Artifacts found from Gandara Port

Table 1: Description of the Artifacts found from the Gandara Harbour

1. INTRODUCTION

Gandara is a small, local fisheries harbor located in Gandara Eastern, Gandara Southern and Gandara Central Grama Niladhari divisions (GND), Devinuwara Divisional Secretariat, Matara District, and Southern Province of the Island of Sri Lanka (Figure 1).

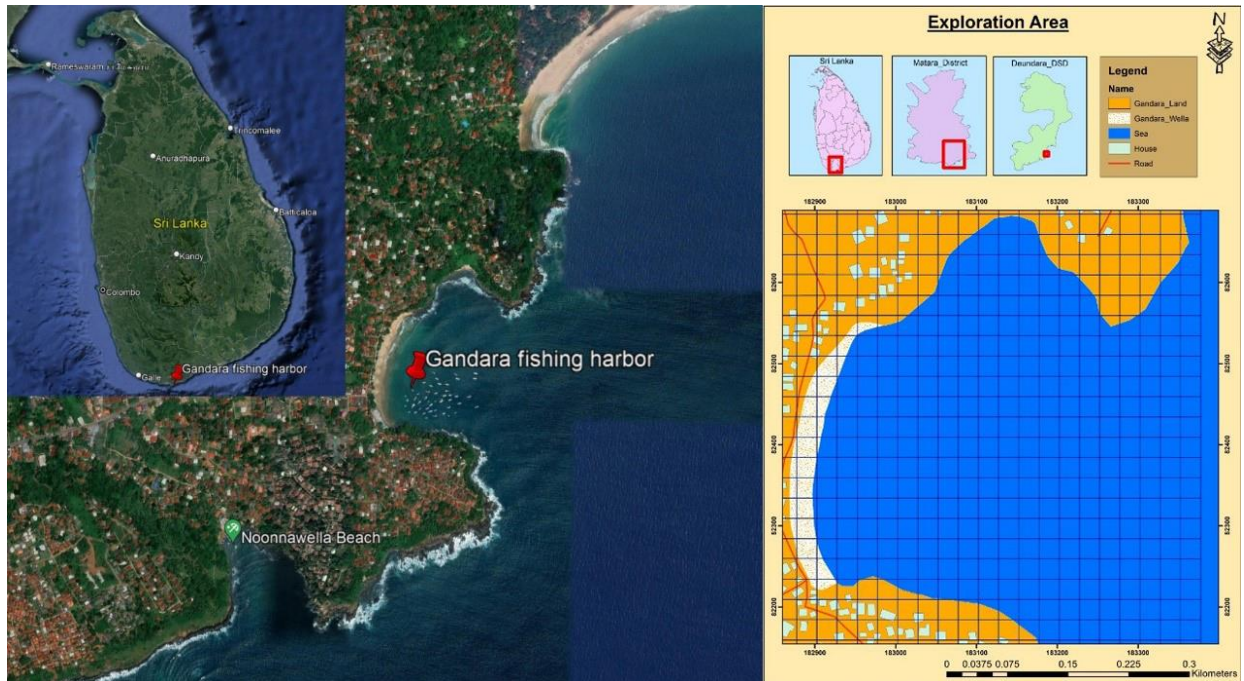


Figure 1: Location of the Gandara Fisheries Harbor in a natural bay at the southernmost tip of Sri Lanka (based on Google earth and Arc GIS)

2. OBJECTIVES OF THE RESEARCH

This paper deals with Gandara Sea Port, located on the southern coast of Sri Lanka. In March and April 2022, an Underwater Archaeological Impact Assessment (UAIA) was undertaken by the Underwater Archaeology Unit (UAU) of the Department of Archaeology and the Maritime Archaeology Unit (MAU) of the Central Cultural Fund. This was undertaken as the Ministry of Fisheries of Sri Lanka proposed to begin the Gandara Fisheries Harbor Development Project (GFHDP) for developing this natural port site at Gandara. The antiquity laws in the country require such UAIA's.

According to the Antiquities (Amendment) Act, No 24 of 1998 (Annex 02), the authorized body concerned with archaeological evidence on the land and under the terrestrial sea of the country is the Department of Archaeology. Since there is a vast array of archaeological data scattered all over the country, whenever any development, industrial scheme, or project is proposed by the government, or any other institution or person, such scheme or project shall not be approved or permitted until a report is submitted by the Director General of Archaeology in Sri Lanka as to the effects the implementation of such scheme or project may have upon such land or any antiquities within it. Finally, every development project on the island should be subjected to an Archaeological Impact Assessment (AIA) or Underwater Archaeological Impact Assessment (UAIA). The project proponent must allocate a sum not exceeding one per cent of the total cost of the project to the AIA. These regulations are proclaimed in terms of provisions in the Antiquities (Amendment) Act, No. 24 of 1998 (Annex 02) and the Antiquity Ordinance 2000 (Annex 03).

The basic aim of this UAIA is to get a preliminary idea of the underwater archaeological potential of the proposed area of GFHDP as quickly and efficiently as possible. The survey of the area was conducted using diver search methods and remote sensing methods to identify endangered underwater archaeological sites

within the development area of GFHDP. This survey is aimed at submitting some conditions and alterations to the Director General of the Department of Archaeology to recommend, object to, or to recommend subjecting such conditions and alterations to the proposed GFHDP.

3. METHODOLOGY

3.1 Literacy survey

Almost all accessible relevant literature was referred to before to the field work in the proposed area to obtain an idea of the history of the Gandara port and surrounding area. Previews of research and public works that were done within and in the suburbs of the current survey area in different aspects were studied. Our team referred to ancient maps, paintings, and photographs of the Gandara port. And also, topographical maps and nautical charts also were studied.

Local fisherman, villagers, and scholars of the area were interviewed to obtain information on submerged shipwrecks and other archaeological remains in the area. Weather reports for the particular area were obtained from the Department of Meteorology to select the proper time period for the survey.

3.2 Survey design

The area of GFHDP to be developed was divided into sub-squares of 50m x 50m by laying out a virtual grid using Google Earth and ArcView software (Figure 1). It was made to gently handle the field survey and the observed data in the field. Possible sub-squares were observed by using diver search methods.

3.3 Divers search methods

The towed diver search method and the circular search method have been used as diver search methods for surveying the seabed in GFHDP. In the towed diver search method, the diver holds a five-meter-long, heavy GI pipe that has a direct connection with the boat through a rope. The speed of the moving boat was kept below five km/h to enhance the effectiveness of the towed diver search. Divers used rope signals to control the speed and even stop the forward movement to observe the potential remains in the seabed.

The circular search method was occasionally used to determine the extension of a site and understand its context. The findings were recorded by drawings, videos, and photographs, and the GPS locations of the underwater archaeological remains that were found while carrying out the above diver search methods.

4. FIELD RESULTS

Over 4.8 ha. of the sea basin of Gandara port have been observed by using diver search methods. Approximately 150 square grids were surveyed by the team. We unearthed a total of six stone anchors and one cannon during the survey in the inner and outer areas of the Gandara port (Figure 2 and 4, Table 1).

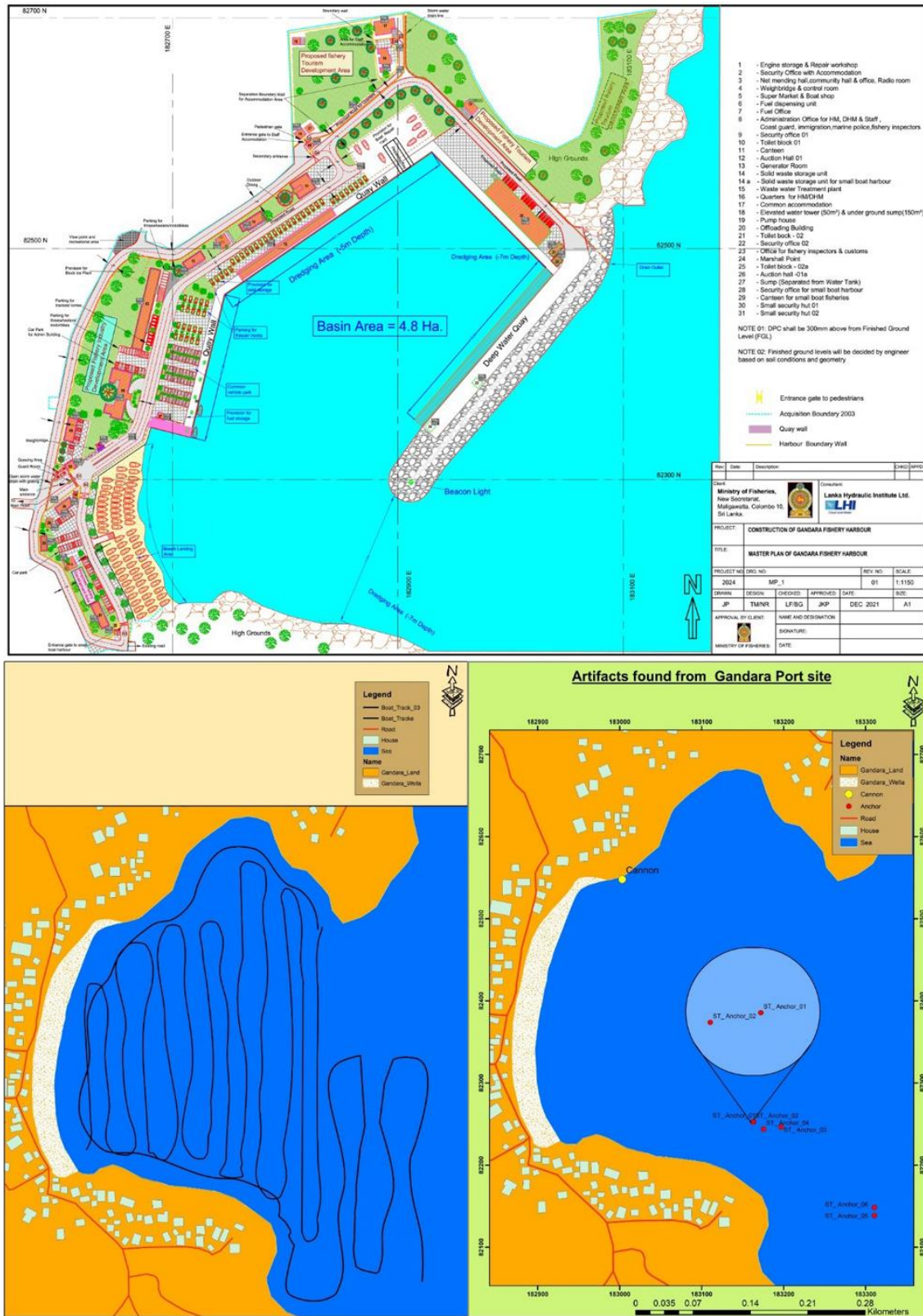
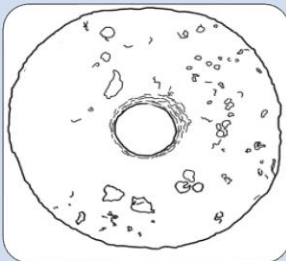


Figure 2: Proposed Gandara port, Surveyed Area and artifacts found from Gandara port (based on the map of Ministry of Fisheries of Sri Lanka)

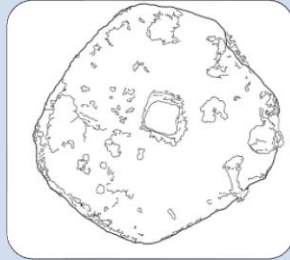
Table 1: Description of the Artifacts found from the *Gandara* port

[site ID] Stone anchor	Artifact Name	Shape	Circumference/ length (M)	Diameter (CM)	Diameter of Inner Hole (CM)	Thickness (CM)
001	Rings stone Anchor	Circular	2.2	60	18	12
002	Single Hole Stone Anchor	Circular/ Pentagon	2.06	50	13x13	17
003	Single Hole Stone Anchor	Circular	1.68	73	12x12	13
004	Rings stone Anchor	Circular/ Hemisphere	2.5	48.20	20	20
005	Rings stone Anchor	Circular	2.22	70	16	19
006	Single Hole Stone Anchor	Square	-	57 x 63	16x16	20
007	Cannon	Normal	1	15,42, 62,85,90	-	-

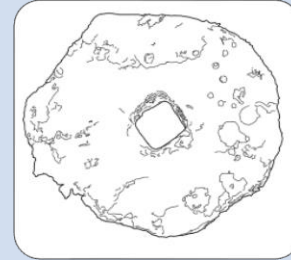
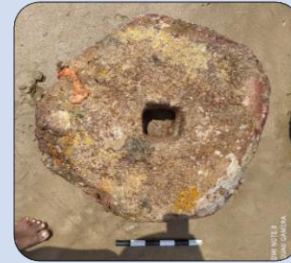
Stone Anchor 1



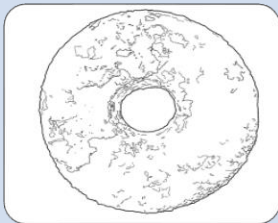
Stone Anchor 2



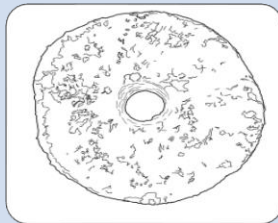
Stone Anchor 3



Stone Anchor 4



Stone Anchor 5



Stone Anchor 6

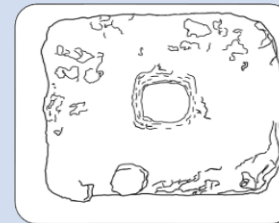


Figure 3: Pictures and plans of the Artifacts found from the Gandara Port

4.1 Rings stone and single-hole stone anchors found at the Gandara port

An anchor is a heavy object attached to a cable or chain and used to moor a ship or boat to the sea bottom. They are considered symbols of the maritime world (Bowens 2009, 198), and they are one of the main implements used in navigation (Gaur et al. 2002, 390). Stone anchors are classified according to character, shape, and region. In general, stone anchors have been classified as composite, Indo-Arabian, Rings stone, and single-hole stone anchors (Tripathi 2014, 980).

Six stone anchors were unearthed from the Gandara port at five to 12 m in depth (See Figure 2). Three of them are Rings stone anchors, and the other three are single-hole stone anchors. Circular-shaped anchors are known as Rings stone anchors or mushroom anchors (Tripathi 2014, 973–986). The distinctive feature of the ring stone type of anchor is that they are circular in shape, have a flat base, taper upward to a certain height, and have a wide hole. In shape, they appear like mushrooms. Single-hole stone anchors are made of thick, flat blocks of different sizes. The hole is found either in the center or upper portion of the block. The size of the hole used to be smaller than that of the stone block (Tripathi 2014, 980).

One "rounded stone" (No. GHP 76) anchor has been found near the Black Fort area (Kamba Bandina Gala) in Galle Harbour, Sri Lanka, in 1996 (Souter 1998, 331). Another triangular-shaped single-hole anchor was found in the sea near the Godavaya fishing village in 2003 (Muthucumarana 2010; 2009, 24–25). One hole in a rectangular stone anchor was found by the MAU team around 2015, in front of the ancient jetty in Galle Harbour. During the underwater survey in Godavaya area, the team of MAU of CCF unearthed a similar ring stone anchor from Ibbagala area of Godavaya ancient port in 2017. Two similar single-hole stone anchors (with circular square-shaped holes) were found in front of Ussangoda Sea, about two km from Ussangoda National Park, located near the ancient Godavaya Sea Port (about two km from the ancient Godavaya Port), during the underwater exploration in March 2023 that was conducted by the Underwater Archaeology Unit of the Department of Archaeology and MAU of CCF, Sri Lanka.

Rings stone anchors and single-hole stone anchors have been unearthed from various seas and coastal areas of the Indian subcontinent. Ring stone anchors from the Gujarat and Goa coasts and single-hole anchors from both the east and west coasts of India have been discovered (Tripathi 2014, 973–974). Rings stone anchors have been found from Bet Dwarka (1), Dwarka (24), Miyani (4), Visawada (1), Ghumli (1), and Somnath (35) in the Gujarat coastal area, and Sunchi Reef (1) in Goa (Tripathi 2014, 986). Single-hole stone anchors were unearthed from Dwarka (1), Visawada (1), Harinarayanpur (1), Chilika Lake (1), Kottapatnam (1), Andhra Pradesh; Manapad (5), and Periapattinam (1) in Tamil Nadu, in the East and West of India (Gaur and et al. 2002, 390–404; Tripathi 2014, 986).

35 Rings stone anchors have been found from Somnath in Gujarat, West India. According to their appearance, they are similar to the Rings stone anchor 4 found from Gandara port in Sri Lanka, and Rings stone anchors 1 and 5 are similar to the Rings stone anchor found from Sunchi reef in Goa, Maharashtra, West India. Five single-hole stone anchors were found off Manapad, Tamil Nadu coast. The appearance of single-hole stone anchors 2, 3, and 6 found from Gandara port is similar to theirs. According to Sila Tripathi, all these Manapad anchors serve as moorings for small fishing boats. These anchors are made of sandstone, and chisel marks were visible on some anchors (Tripathi 2014, 978). But size is different; the Gandara anchor is larger than theirs, and this Gandara anchor cannot be used for small fishing boats because it is very heavy.

The stone anchors of Gandara were discovered without any archaeological context, and it is difficult to date them. According to the study of Rings stone found from Dwarka and Somnath, Gujarat, on the west coast of India, A.S. Gaur, Sundaresh, S. Tripathi, and S.N. Bandodkar of the National Institute of Oceanography have given a probable date for the Rings stone anchors as the eighth century to the seventeenth century CE (Gaur et al. 2002, 403). Rings stone anchor 4 found from Gandara is more similar to the Dwarka and Somnath anchors; rings stone anchor numbers 10, 13, and 14 found from Somnath waters (Gaur et al. 2002, 400) are more similar (shape and size) to the rings stone number 4 found from Gandara port. According to this reason, probably the Gandara Rigstone 4 anchor can also be dated to the above period. The Rings stone anchor (Artifact No. Qal 18/19) found from Qalhat, Oman (Vosmer et al. 1998, 34-52) is more similar (in shape and size) to the Rings stone anchor 4 discovered from Gandara port.

The largest number of ring stones have been reported from Somnath and Dwarka in India, and a few from Oman and the Maldives. There have never been any records of ringtone anchors in Sri Lankan waters before. Carioli Souter recorded one stone anchor from near Blackford, Galle, Sri Lanka; he named that anchor rounded stone (No. GHP 76) (Souter, 1998). Gaur and his team identified it as a ringtone anchor with a square axial hole (Gaur et al. 2002, 402). But this anchor can be identified as a single-hole stone anchor with a square axial hole. Today, this single-hole stone anchor is displayed in the Maritime Archaeology Museum, Galle, Sri Lanka.

4.2 Cannon found at the Gandara port

The cannon, 1m in length, found at the Gandara port (Figure 2), dates to the colonial period of Sri Lanka (1505–1945 CE). This small cannon has been highly corroded and is unable to be identified by its surface or inner characteristics; most probably, it belongs to the British period of Sri Lanka (1796–1948 CE). Like this common cannon, it is found in all coastal areas of Sri Lanka.

4.3 Folk lore

According to the chronicles of Sri Lanka, King Dappula I (AD 659) established his kingdom in Devinuwara, which is located about four km from the Gandara port. Gandara was one of the main sea entrances for this kingdom.

The following information was gathered by the first author of this paper through interviews with the local community: Traders from the Maldives came to Sri Lanka through the Gandara port until 1960; they used this port to anchor their small vessels. They sell one of the foods called *Bonda haluwa* or *boda haluwa*, *umbalakada* or Maldives fish, and *diyahakuru* (a reddish drink, some people say fish blood) for the local people of Gandara and around. These traders speak Malei bhasha (Maldivian), and most of the terms that they use can be understood by the local community. Local people were very friendly with the traders; some people played jokes with them; they asked, ‘*tamange hodiyaata kalu ballan dakkanai*’, Can I send blackish dogs for your hut? Because Maldivian traders were more afraid of the dogs. They also use broken Sinhala to communicate with the local community. Some traders came to the Puliyadiya Jumma Mosque at Gandara town for praying, and especially Islam Maldives teachers also came to this mosque.

‘One of the small Indian ships came to the Gandara harbor around 1940; this ship is very beautiful. It is very colorful, and light filled. I reached this ship with my father by a small boat; we rowed our boat around this beautiful ship; it was a very happy day’

(by Wijesiri Manage, Villager of Gandara).

There is a Muslim village in the Gandara area with 60–70 families; the ancestors of this village came from Morocco through this Gandara port.

5. SUMMARY AND CONCLUSION

According to the terrestrial and maritime archaeological exploration from Ambalangoda to the Hambanthota coastal line, Ambalangoda, Galle, Weligama, Matara, Devinuwra, and Godavaya ports confirmed their important role in the history of maritime activities in the southern coastal area of Sri Lanka. This maritime archaeological exploration in Gandara port brought to light for the first time the remains of ancient periods dating back to the eighth century CE to the seventeenth century CE. The first discovery of the stone anchors in the Gandara port signifies the importance of Gandara as an active sub-centre of maritime activities in the past.

Rings stone anchor 4 is a remarkable artifact that illustrates the international trade network between Sri Lanka, Medetaraniyan, and the Indian subcontinent; reporting similar Rings stone anchors from the Indian subcontinent and Oman is a better example of it; 67 Rings stone anchors from India, six from Oman, and one from the Maldives have been discovered (Vosmer et al. 1998, 32- 37; Gaur et al. 2002, 402; Tripathi 2014, 986).

A small cannon from the port depicts the maritime relationship in the colonial period of Sri Lanka. According to the above information, Gandara was a remarkable small port site on the southern coast of Sri Lanka. Under the supervision of the Director General of the Department of Archaeology, Sri Lanka Six stone anchors and the cannon found from Gandara port have been lifted by air bag and kept in the MAU of the CCF in Galle for conservation. After the conservation activities, selected anchors will be displayed in a suitable museum. Further investigations on artifacts that were found at Gandara Port will provide valuable information for rebuilding the maritime history of the port site.

BIBLIOGRAPHY

Bowens, A. *Underwater Archaeology - The NAS Guid to Principles and Practice*. Portsmouth: Nautical Archaeology Society, 2009.

Gaur, A.S, Sundaresh, Tripathi, S., and S.N Bandodkar. "Rings stone anchors from Gujarat West coast of India." *The Mariner's Mirror*, (2002): 390-404.

Muthucumarana, R. *archaeology.lk*. 2010. www.archaeology.lk (accessed May 19, 2023).

Muthucumarana, R. "Godawaya: An Ancient Port City and the recent discovery of the unknown wooden wreck." *AIMA Newsletter*, 03 (2009): 28-33.

Souter, C. "Stone anchors near Black fort Galle, Sri Lanka." *International Journal of Nautical Archaeology*, (1998): 331-342.

Tripathi, S. "Stone anchors of India: findings, classifications and significance." *Proceeding of the 2nd Aisa Pacific Regional Conference on Underwater Cultural Heritage*. Hawai (2014): 973-986.

Vosmer, T., Agius, D., Baker, P.E., Carpenter, J., and S. Cave, *Oman Maritime Heritage Project Field Report 1998*. 1998.