



## CHRONOLOGY AND VARIABILITY OF THE FINDINGS IN STONE GRAVE SITES IN THE SOUTHERN PART OF SANGIHE ISLAND

### *Kronologi dan Variabilitas Temuan Situs-Situs Kubur Batu di Pulau Sangihe Bagian Selatan*

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Received: 23/11/2020; revision: 21/10-16/11/2021; accepted: 17/11/2021

Published online: 25/11/2021

#### **Abstrak**

*Kubur batu merupakan tinggalan megalitik yang sangat menonjol di Pulau Sangihe bagian selatan, sampai saat ini tercatat di 45 lokasi situs, 2 lokasi sumber bahan, dan jumlah kubur batu 699. Variabilitas temuan lainnya yang konteks dengan kubur batu, ditemukan pada saat survei yakni fragmen tembikar, keramik dan logam. Tulisan ini akan mengetengahkan tentang analisis laboratoris temuan tembikar, keramik dan logam tersebut. Kajian data berdasarkan penelitian survei dan ekskavasi dan kemudian dilanjutkan dengan analisis laboratoris melalui uji XRF dan sayatan tipis untuk temuan fragmen tembikar dan logam. Tembikar yang ditemukan berupa tembikar polos dengan bentuk wadah berupa periuk dan mangkuk. Berdasarkan analisis laboratorium dapat diketahui tembikar dari Pulau Sangihe kemungkinan merupakan tembikar produksi lokal. Analisis keramik diketahui berasal dari Cina, Cina Selatan, Eropa, dan Jepang. Kronologi keramik hasil penelitian dari abad ke 15–19 Masehi.*  
**Kata Kunci:** kubur batu, tembikar, besi, keramik asing, Sangihe.

#### **Abstract**

Stone graves are prominent megalithic remains in the southern part of Sangihe Island. They are distributed in 45 site locations and 2 material source locations. The number of the stone graves is 699. Pottery, ceramic and metal fragments in the same context as the stone graves were found during the survey. This article will report the results of a laboratory analysis of the pottery, ceramic and metal findings. The data collected during the survey and excavation underwent a laboratory analysis. The pottery and metal fragments were tested by using the XRF technique and the thin section method. The pottery fragments found are plain pots and bowls. Based on the laboratory analysis, it is supposed that the pottery found in Sangihe Islands was locally produced. The analysis indicates that the ceramic fragments originated in China, South China, Europe and Japan. Chronologically, the ceramic fragments originated in the 15<sup>th</sup>-19<sup>th</sup> centuries.

**Keywords:** stone graves, pottery, iron, foreign ceramics, Sangihe.

## INTRODUCTION

Studies on the distribution of archaeological remains originating in the time when the veneration of the dead started to develop in Sangihe Island have been conducted by the Archaeological Center of North Sulawesi since 2016. The studies found stone graves distributed in the southern part of Sangihe Island. Early writings on stone grave remains were produced by Alffian Walukow, a scholar of Sangihe culture. He informed that prehistoric relics of dolmens are distributed in Pantai Pananualeng, Tamako, Kalinda, Pananaru, Dagho, and Lapango (Walukow, 2009). Some stone graves were found in house yards, but most of them were found on hill slopes used for farming.

Archaeological remains of megalithic culture distributed on Sangihe Island include a stone mortar (dakon stone) chiseled on an irregularly shaped boulder. The mortar has four big holes and one small hole. It is situated on Pensu Hill, Pananekeng Village, Tahuna Barat Sub-district. Other remains are a dakon stone in Kauhis Village, Tamako Sub-district, and two menhirs in Mala Village, Manganitu Sub-district (Fahrani, 2019; Sandy et al., 2019, p. 60; Sriwigati, 2018).

Stone graves on Sangihe Island are known as *lebbing*. One part of the stone graves in the area is a box-shaped stone that is flat, level and not too thick. Two sides of it are short and the other two sides are long. The walls of a stone grave are made of flat stones, natural stones, or a combination of natural stones and flat stones. The upper part functions as a cover and is made of a flat stone. Some stone graves do not have walls. The size of a stone grave is adjusted with the age of the person whose body is buried in it: a child or an adult.

A 2019 survey recorded 45 stone grave sites. The number of the stone graves is 699 and they are distributed in two sub-districts, i.e. Manganitu Selatan Sub-district (Lapango Village and Lapango 1 Village),

and Tamako Sub-district (Makalekuhe Village, Bebu Village, Kalinda Village, Kalinda 1 Village, Pananaru Village, and Mahumu Induk Village (Mahumu Island)). It is expected that there are still more stone graves because there are many distribution areas that have not yet been surveyed (Sriwigati et al., 2019). Material sources have been recorded in two locations, namely Makalekuhe Village in Tanjung Tatonaha and Nagha II Village in Tanjung Lelapide. Both villages are in Tamako Sub-district. Materials for the stone graves are sheet joints on andesite igneous rocks. The topography of the material source locations tends to be strongly wavy, making the process of transporting stone materials difficult because it involved only human power.

Research excavation was carried out in two site locations, namely Makalekuhe 2 Site and Tatonaha Site. In Makalekuhe Site, two excavation grids (TP 1 and TP 2) covering two uncovered stone graves situated in the middle of a human settlement were opened. Two other grids (TP 1 and TP 2) were opened in Tatonaha Site situated in a plantation area owned by local villagers. The soil in each grid consists of two layers. The first layer is humus. It is brown in colour and thin. The second layer is reddish brown in colour and quite thick. In grid TP 2 in Tatonaha Site, at the depth of 110 cm (the second soil layer), some human bones were found. They are decayed due to the high acidity in the soil, causing them difficult to analyze. Some carbon from the same depth as the bones was taken as a sample for carbon dating analysis. Based on the analysis, the bones are dated at 1750±30 BP (Sriwigati et al., 2019; Sriwigati & Aziz, 2019, p. 88).

Steps for the research have been conducted in the past three years and produced quite a lot of data that can be processed to answer the research questions. Along with the development of the research, we have developed new important interpretations of the collected data related



**Figure 1.** Location of the research on the map of Kepulauan Sangihe Regency (Source: Map & Art the Thematic Map of Indonesia 2013, with some modification)

to the contextual findings of the ceramic, pottery and metal fragments in the stone grave sites. This article will identify the chemical elements of the pottery and metal artifacts and explain the chronology of the uses of ceramics on Sangihe Island.

Sangihe-Talaud Islands, which is situated in the northern part of Sulawesi, is an area rich in archaeological sites (Figure 1). There has been human occupation in the

area since 30,000 years ago (Simanjuntak & Siswanto, 2008,p. 137; Tanudirjo, 2007,p. 17). The pottery fragments found in stone grave sites in Sangihe-Talaud Islands are containers in the forms of round crocks, three-legged crocks, clay boxes, jugs, bowls, small round containers. Red slip pottery has also been found in the area. Most of the decorated pottery fragments found in

Sangihe-Talaud are classified into the type of Rarangunusa (D. A. Tanudirjo, 2001).

Rarangunusa pottery was developed in the 2<sup>nd</sup> century and used until the 20<sup>th</sup> century (Bellwood, 1976:282). The pottery is distributed widely, especially in the southern part of the Philippines (Ono et al., 2013:14) and Sangihe-Talaud Islands (Ono et al., 2013:14; Tanudirjo, 2001). The pottery fragments, together with Chinese ceramic fragments, were found at the upper layers in the stone grave sites (Bellwood, 1976:281).

Pottery has often been found in megalithic sites. They usually functioned as a sarcophagus and cemetery supplies. Pottery remains have also been found in former settlements, which are distributed evenly across North Sulawesi. Some of the megalithic sites are the Sites of Leang Buidane (Bellwood, 1976; Bulbeck, 2017: 148), Tanjung Rarangunusa (Bellwood, 1976; Tanudirjo, 2001), Leang Balangingi, Leang Arandangana, Leang U Pua (D. A. Tanudirjo, 2001), Binuanga, Tumpa (Sriwigati & Aziz, 2019: 85-86), Matuluntung, Woloan (Fahriani, 2019: 69), Guaan (Fahriani, 2019: 67; Simanjuntak & Siswanto, 2008: 136), Telling, and Paso (Simanjuntak & Siswanto, 2008, p. 136).

Based on the results of the research, we have made a database of the distribution of the contextual findings of the stone graves, which may provide important information on the distribution of cultures in the past in Sangihe. In addition, the contextual findings of the stone graves, such as pottery, metal, and ceramic artifacts may provide some information on the interrelationships among the cultural remains in the stone grave sites in Sangihe. A preliminary study in the form of a classification of the contextual findings of the stone graves will not only provide important information on the history of the local culture, but also contribute to the understanding of the relationships between

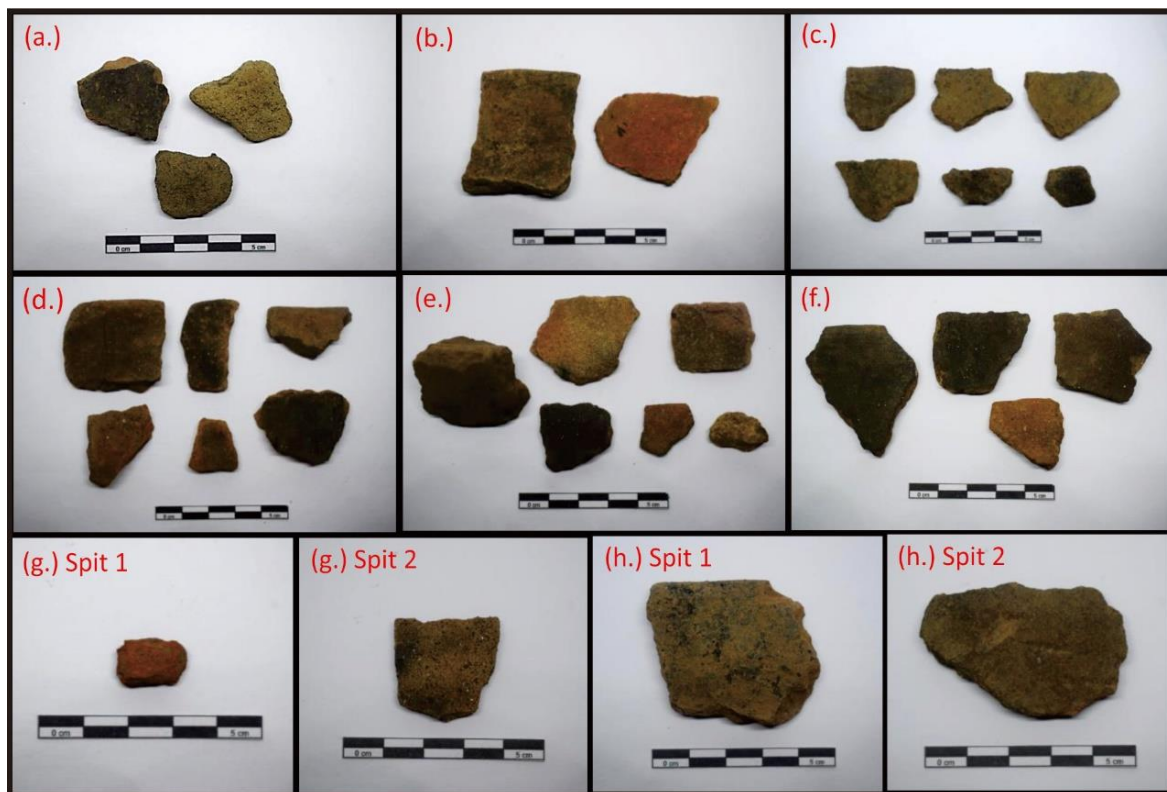
the local culture and foreign cultures in Southeast Asia and Pacific regions.

## **METHOD**

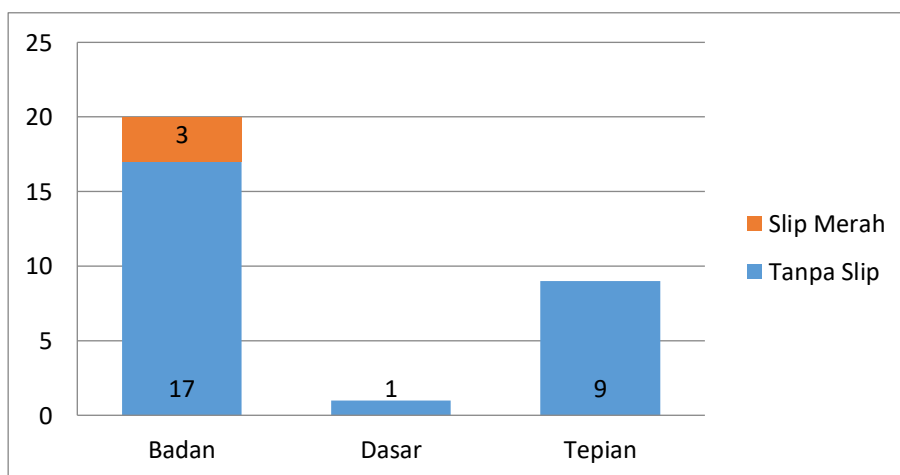
This study used data collected during the surveys and excavations carried out by the Archaeological Center of Manado Province. The study used the methods of classification of findings and laboratory analysis. Classification of findings was applied to the pottery and ceramic findings. Laboratory analysis was applied to the contextual findings of pottery and metal artifacts. The XRF (X-Ray Fluorescence) technique was applied to analyze the chemical composition and the chemical element concentrations in the pottery and metal artifacts. Thin-section petrography analysis was conducted to find out the composition of the clay raw materials and other materials that functioned as a temper in the pottery findings. The analysis results will be useful for interpreting the origins of the pottery: whether it was locally produced or from other places. Such information will be useful for explaining group mobility, individual mobility, social contact, and the relations between humans and natural environment when the artifacts were made and used.

## **RESULTS AND DISCUSSION**

Besides stone graves, other archaeological remains which are in the same context as them, are pottery, ceramic and metal artifacts. Pottery artifacts were found during surveys on the soil surface and also in early excavation spits. In the stone graves, ceramic and metal fragments were found in the space between the grave walls and the grave cover. They were also found around the stone grave. Among the pottery, metal and metal fragments, ceramic fragments were the most collected ones. The dates obtained through the analysis of the research results show that the time spans among the three artifacts are quite long, but it can be explained that the artifacts are



**Figure 2.** Pottery fragment findings (a.) Bio Site, (b.) Kareta 7 Site, (c.) Makalekuhe Site (surface finding), (d.) Tabadi 1 Site, (e.) Tabadi 3 Site (grave no. 3), (f.) Tabadi 3 Site (grave no. 8), (g.) Tatonaha Site, and (h.) Makalekuhe Site (Source: Sriwigati, 2020).



**Figure 3.** Percentage of the use of slip on the pottery surface (Source: Sriwigati, 2020)

surface findings and the stone grave sites are now still used as places for megalithic traditions. It is possible that the artifacts functioned not only as grave supplies, but also as ritual tools, because the artifacts, which are still intact and contained betel, nut

and cigarettes, were related to megalithic rituals.

The pottery fragments found in the research area are excavation findings and surface findings. The excavation findings come from two sites, namely Tatonaha Site

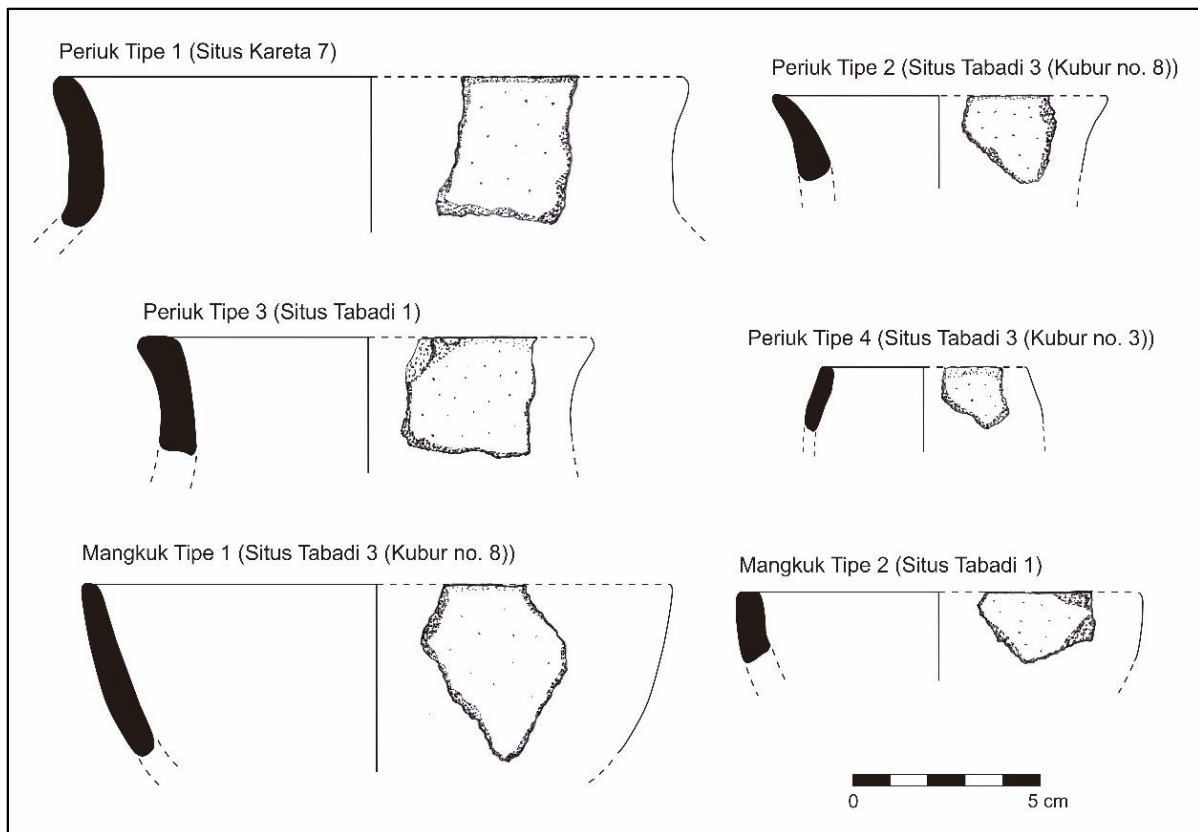
(TP1 grid) and Makalekuhe Site (TP1 grid). The surface findings come from the Sites of Makalekuhe, Bio, Tabadi 1, Tabadi 3 (all on Sangihe Island) and Kareta 7 (on Mahumu Island). The pottery fragments were found until the depth of 20 cm in Spit 2 in the Sites of Tatonaha and Makalekuhe (Figure 2).

Most of the pottery fragments found are body fragments (20). The rest are 9 edge fragments and 1 base fragment (Figure 4). The pottery fragments are sherds of small and medium sized containers, with the thickness being between 2 mm and 10 mm. All the pottery fragments are from plain pottery. 3 fragments are red-slip pottery, and the other 27 fragments are slipless pottery.

Based on the analysis of the pottery edges, it can be seen that the pottery sherds are from open containers and covered containers. It is possible that they are sherds

of pots and bowls. The containers' diameters are between 5 cm and 19 cm. The pottery sherds are classified into six edge types, i.e. two types of bowl edges and four types of pot edges (Figure 4). The following are descriptions for each of the types:

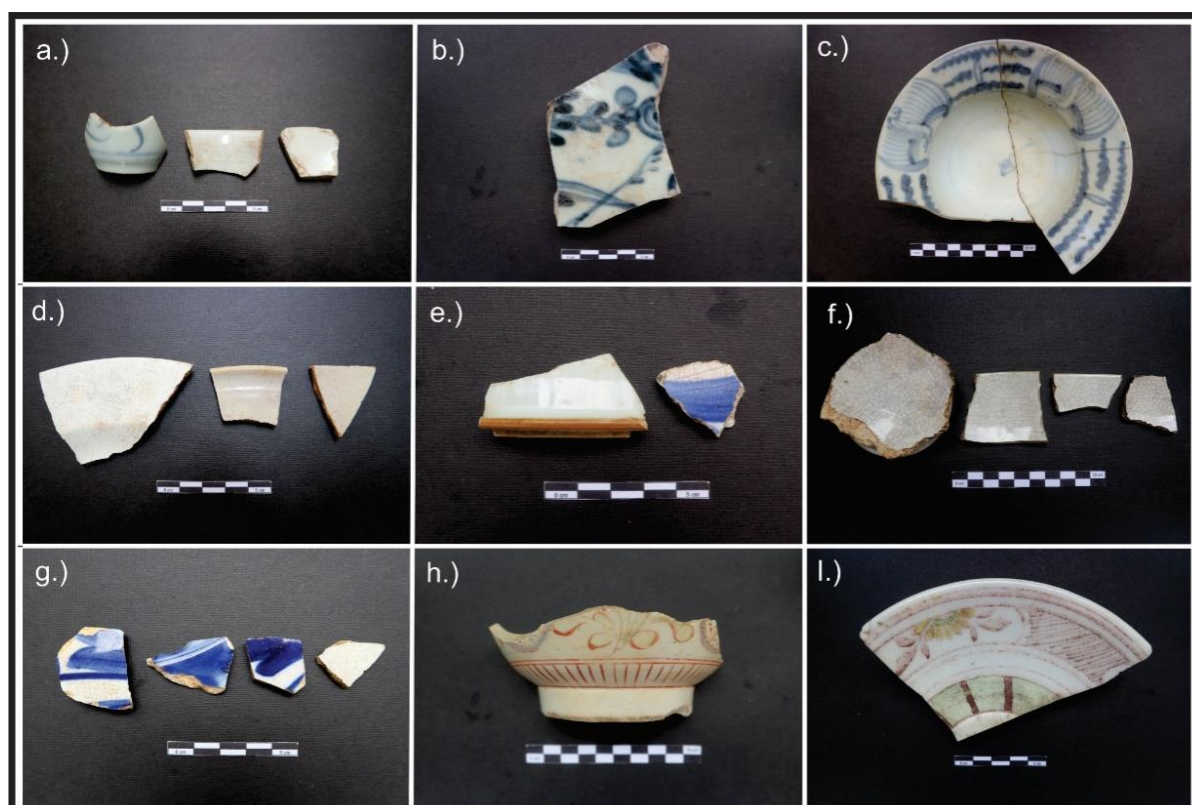
- a. Bowls
  - Type 1: Orientation of the edge is open and curved; profile of the edge is parallel; and profile of the edge lips is round.
  - Type 2: Orientation of the edge is open and curved; profile of the edge is parallel; and profile of the edge lips is flat.
- b. Pots
  - Type 1: Orientation of the edge is closed and curved towards the outside direction to the edge end; profile of the edge is



**Figure 4.** Reconstruction of the pottery's shapes  
(Source: Sriwigati, 2020)

**Table 1.** Ceramic findings from stone grave sites on Sangihe Island

Origin of the ceramics	Name of the Site							Number
	Bio	Kareta 1	Kareta 7	Mea 1	Mea 2	Tongengbobong	Towo'e	
Europe		2		3	3		1	9
Japan	1				1			2
Ming Swataw					1	1		2
Qing	1	3				1		5
Unidentified			2					2
<b>Total</b>	<b>2</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>20</b>



**Figure 5.** Foreign ceramic fragments: (a.) Bio Site (Japan, the 19<sup>th</sup> century), (b.) Kareta 1 Site (Europe, the 18<sup>th</sup> century), (c.) Kareta 1 Site (Qing, the 17<sup>th</sup> century), (d.) Kareta 7 Site, (e.) Mea 1 Site (Europe, the 18<sup>th</sup> century), (f.) Towo'e Site (Europe, the 18<sup>th</sup> century), (g.) Tongengbobong Site (Ming Swataw, the 15<sup>th</sup> century), (h.) Mea 2 Site (Japan, the 19<sup>th</sup> century), and (i.) Mea 2 Site (Ming Swataw, the 15<sup>th</sup> century). (Source: Sriwigati, 2020)

- parallel; and profile of the edge lips is round.
- Type 2: Orientation of the edge is closed and curved towards the outside direction to the edge end; profile of the edge is parallel; and profile of the edge lips is tapered.
- Type 3: Orientation of the edge is closed and curved towards the outside direction to the edge end; profile of the edge is more thickened at the lips; and profile of the edge lips is flat.
- Type 4: Orientation of the edge is closed and curved; profile of the edge is

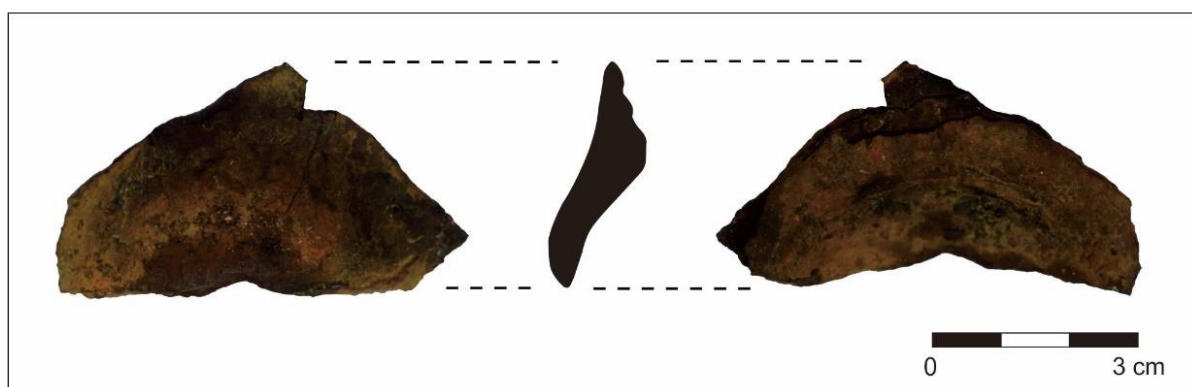
parallel; and profile of the edge lips is flat.

Most of the foreign ceramic fragments found and identified during the archaeological research in North Sulawesi - in the Sites of Bio, Kareta 1, Kareta 7, Mea 1, Mea 2, Tongengbobong, and Towo'e in Kepulauan Sangihe Regency - were found in fragmented forms, being parts of the bodies, edges, and bases of plate bowls.

No intact ceramics was found. The quality and chronology of the ceramic findings can be identified. The found ceramic fragments originated in China (7). 5 fragments originated in the Ching dynasty in the 17<sup>th</sup> century. They are decorated with plain, dark blue motifs. 2 fragments originated in the Ming and Ming Swatow dynasties. They were produced in South China in the 15<sup>th</sup> century. They are decorated with blue geometric flora and fauna motifs. 9 fragments originated in Europe and were produced in the 18<sup>th</sup> century. They are body, base and edge fragments and decorated with blue and plain flora motifs. 2 fragments originated in Japan and are decorated with flora motifs with the color combinations of red-green, green-red, and green-yellow (Figure 4). They were produced in the 19<sup>th</sup> century. The chronology of the ceramic fragments found during the archeological research in Manado is the 15<sup>th</sup> – 19<sup>th</sup> centuries (Tabel 1 and Figure 5).

The foreign ceramic fragments found during the 2020 archaeological research are proofs that ceramics traders from foreign countries came to North Sulawesi to sell their ceramics, which certainly were not locally produced. Such archaeological objects as foreign ceramics prove that the port in the area flourished at the time, and such archaeological objects help us establish the chronology of the port.

Foreign ceramic fragments found during the archaeological research in North Sulawesi originated in the 15<sup>th</sup> century. This indicates that the chronology of the fragments is 5 centuries older than that of the fragments found in South Sulawesi Selatan. The fragments found in those two areas also indicate that they originated in various foreign countries. It is possible that many ceramic fragments found in North Sulawesi were found during illegal excavations, which can be seen from their fragmented forms. Many of those fragments are kept in Manado Museum and not all of them are exhibited. Today, to see the ceramic fragments in the museum, we have to show an assignment letter. The other museums in Indonesia also apply this rule. Many of the ceramic fragments found in archaeological research projects since the establishment of the Archaeological Center of Manado in North Sulawesi have not yet been analyzed.



**Figure 5.** A Sample of Metal Fragment Finding  
(Source: Sriwigati, 2020)



Therefore, their chronologies and countries of origin still remain unknown.

Some metal artifacts found in other areas in Indonesia are associated with megalithic remains and functioned as grave supplies. This is also the case with a metal artifact found in the southern part of Sangihe Island. The iron artifact was found in a stone grave in Tabadi 1 Site. The artifact is a surface survey finding. Its length is 61.39 mm. Its thickness is 34.1 mm. Its weight is 34.58 gr (Figure 6).

Since a long time ago, in Sangihe Island, there have been industries manufacturing metal products, especially sharp objects such as knives, machetes, spearheads, and sickles. Even in Lenganeng Village, most of the male villagers work as a blacksmith. This profession has been passed down through generations. In Makalekuhe 5 Site, the blacksmith workshop that is still active is located in the same area as the stone grave.

### **Laboratory Analysis**

All the found pottery fragments are parts of plain pottery. Some of them are parts of red-slip pottery. Results of the edge reconstruction show that the fragments are parts of bowls and pots. It is possible that the bowls and pots functioned as ritual tools because they were found in a large number. Of all the pottery findings, 3 samples were selected for thin-section analysis and XRF analysis. The sample selection was based on the aim to compare the compositions of the pottery fragments found on the surface and those found in the excavation box. The selection was also based on the aim to find out the differences between the compositions of the pottery fragments found on Mahumu Island, which is separated by the sea from Sangihe Island. The three selected samples are one sample found in the excavation box of TP 1, Spit 2, Tatonaha Site; one sample found on the surface in Tabadi 3 Site, Grave No. 8; and one sample found on Mahumu Island, Kareta 7 Site.

Results of the thin-section analysis show that in general the pottery samples contain volcanic rock fragments, quartz, hornblende, biotite, orthoclase, opaque minerals and igneous rocks with clay minerals. These minerals are found in all the samples. The sample from Kareta 7 Site is unique in that it contains muscovite (5-7%), which is not found in the other two samples. The matrixes of the three samples are almost the same. All the matrixes consist of fine-grained clay materials, microcrystalline biotite minerals, hornblende, orthoclase and quartz. These minerals are typically found in volcanic rocks. Sample 3 is a little different. It contains some muscovite mica. The inclusions of the three samples are the same. All of them consist of stone fragments and grains (minerals and sediment particles). Stratigraphic classification in the research location was done to the rocks of Sahendaruman volcano (QTsv). The rocks found in the area are tufa, volcanic brexi, andesite, and alluvium. Results of the petrologic classification show that quartz, hornblende and biotite are some of the main minerals that form the rocks in the research location.

Results of the analysis of the pottery samples show that in general the compositions of the chemical compounds of the samples are the same. The chemical compounds contained in the samples are aluminium oxide (Al<sub>2</sub>O<sub>3</sub>), silicone dioxide (SiO<sub>2</sub>), ferri oxide (Fe<sub>2</sub>O<sub>3</sub>), calcium oxide (CaO), titanium oxide (TiO<sub>2</sub>), potassium oxide (K<sub>2</sub>O), manganese dioxide (MnO), and some other supporting compounds. Two compounds are dominant in all the samples, i.e. aluminium oxide (Al<sub>2</sub>O<sub>3</sub>) with the percentage of 47-48 % and silicone dioxide (SiO<sub>2</sub>) with the percentage of 39-42%.

Results of the XRF analysis of the pottery sample (sample code: XRF TP1) found in Tatonaha Site, Grid TP 1, Spit 2, show that quantitatively it contains 12 chemical elements, i.e. Al, Si, Fe, Ca, Ti, K, Mn, Cu, Sr, V, Zr, and Zn. Of the 12

**Table 2.** The chemical elements contained in the pottery samples.

No.	Chemical element	XRF TP1	XRF ST3	XRF SK7
1.	Al <sub>2</sub> O <sub>3</sub>	48.108 %	47.621 %	47.051 %
2.	SiO <sub>2</sub>	39.837 %	42.033 %	41.573 %
3.	Fe <sub>2</sub> O <sub>3</sub>	7.885 %	6.297 %	7.564 %
4.	CaO	2.835 %	2.619 %	2.512 %
5.	TiO <sub>2</sub>	0.705 %	0.574 %	0.615 %
6.	K <sub>2</sub> O	0.354 %	0.565 %	0.431 %
7.	MnO	0.145 %	0.176 %	0.133 %
8.	V <sub>2</sub> O <sub>5</sub>	0.041 %	0.020 %	0.019 %
10.	SrO	0.027 %	0.027 %	0.025 %
11.	CuO	0.027 %	0.038 %	0.039 %
12.	ZnO	0.009 %	0.010 %	-
13.	ZrO <sub>2</sub>	-	0.019 %	0.017 %
14.	Ag <sub>2</sub> O	0.029 %	-	-
15.	PdO	-	-	0.022 %

chemical elements, aluminium is the most dominant (48.108%), followed by silica (39.837%), iron (7.885%), calcium (2.835%), titanium (0.705%), potassium (0.354%), manganese (0.145%), vanadium (0.041%), silver (0.029%), copper (0.027%), strontium (0.027%), and zinc (0.009%). What is interesting about the pottery sample from Tatonaha Site is that it contains silver (0.029%) (Table 2).

Results of the thin-section analysis and the XRF analysis show that the three samples contain the same dominant minerals and compounds. The analysis results show that the main material sources of the samples are the same. Quartz, hornblende and biotite are the main minerals forming the stratigraphic rocks of Sahendaruman volcano (QTsv). Aluminium oxide (Al<sub>2</sub>O<sub>3</sub>), silicone dioxide (SiO<sub>2</sub>), feri oxide (Fe<sub>2</sub>O<sub>3</sub>), and calcium oxide (CaO) are minerals that are often found in areas with volcanic activities.

Volcanic ash contains silica and aluminium oxide as its main components. Aluminium oxide (Al<sub>2</sub>O<sub>3</sub>), silicone dioxide (SiO<sub>2</sub>), feri oxide (Fe<sub>2</sub>O<sub>3</sub>), and calcium oxide (CaO) are contained in volcanic ash

soil (Kusumastuti, 2012). Most of the chemical compounds found in the pottery samples are commonly contained in volcanic ash. This is reasonable due to the location of Sangihe Islands on a volcano path.

There is a possibility that the pottery samples were manufactured in two different processes. The pottery sample from Kareta 7 Site on Mahumu Island is different from the other two samples in that it contains muscovite, which is not found in the other two samples. In addition, the pottery sample from Kareta 7 Site contains minerals that are commonly on the colour continuum between reddy brown and gray, while the other two samples from Tatonaha Site and Tabadi Site contain minerals that are commonly on the colour continuum between blacky brown and gray.

It is possible that the pottery samples were locally produced considering that Sangihe Island is in an area where an active colcano is situated. This needs to be corroborated with the results of a comparative analysis of the soil samples from the surrounding locations and the pottery that is locally produced today.

**Table 3.** The chemical elements contained in the metal artifact

<b>Chemical element</b>	<b>Total of ppm (part per million)</b>	<b>Percentage (%)</b>
<b>Fe</b>	473684	47.3 %
<b>Mn</b>	1721	0.17 %
<b>Ba</b>	1507	0.15 %
<b>Ti</b>	1384	0.13 %
<b>Ca</b>	1282	0.12 %
<b>Zn</b>	231	0.023 %
<b>Bi</b>	41	0.004 %
<b>Mo</b>	33	0.003 %
<b>Sr</b>	31	0.003 %
<b>Zr</b>	27	0.002 %
<b>Nb</b>	22	0.002 %

There is one metal fragment found in Tabadi 1 Site. To determine the chemical elements contained in it, the fragment was analyzed with the X-Ray Fluorescence (XRF) technique by using Portable X-Ray Fluorescence (P-XRF). The analysis was carried out at Geochemistry and Mineralogy Laboratory, Geological Engineering Department, Hasanuddin University.

Results of the analysis of the metal sample show that it contains 11 chemical elements. The most dominant element is iron (Fe) (47.3%), while the least element is Niobium (Nb) (0.002%) (Table 3).

## CONCLUSION

Results of the laboratory analysis of the pottery and metal artifacts show that the dominant chemical elements contained in the pottery artifacts are aluminium oxide (Al<sub>2</sub>O<sub>3</sub>) with the percentage of 47-48 % and silicone dioxide (SiO<sub>2</sub>) with the percentage of 39-42%. The large amount of these chemical elements in the artifacts indicates the possibility that they were locally produced, which is natural since Sangihe Island is situated in an area where there is an active volcano. Results of the analysis of the metal findings prove that metal products have been known for a long time on Sangihe Island. The ceramic fragments found are

parts of the body, edge, and base of plate bowls. Results of their identification show that they originated in China, Europe, and Japan. The chronology of the ceramic fragments is the 15<sup>th</sup> – 19<sup>th</sup> centuries.

It is highly possible that the pottery, ceramic, and metal artifacts were not used as grave supplies. Results of the excavation carried out by the Archaeological Center of Manado Province on the soil layer where a human skeleton was found show that there was not any grave supply on the layer. It is possible that the artifacts functioned as ritual tools, because they were found (in the intact condition) in the space between the grave walls and the grave cover. Furthermore, some megalithic ritual remains in the forms of intact containers with betel, nut, and cigarettes being inside them were found in the site. The chronology of the stone grave sites in the southern part of Sangihe Island is around 1750+/-30 BP. It has not yet been confirmed whether the chronology proves that those stone graves are evidence of the oldest uses of stone graves in the area. More samples need to be analyzed to confirm that.

## Acknowledgment

This article is the result of a desk research titled “Classification of the Contextual Findings of Stone Graves as a Preliminary

Study for the Compilation of Distributed Database” conducted in 2020. We would like to thank all the team members who

actively participated in the data collection, the analysis, and the writing of the article.

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