

**VESTIGE OF THE HOMINID AT THE PLEISTOCENE ANCIENT
ESTUARINE FOSSILS BEARING SITE OF CISAAR VALLEY,
SUMEDANG, WEST JAVA**

***Jejak Hominid di Situs Estuarin Purba Pengandung Fosil Berumur Plistosen
di Lembah Cisaar, Sumedang, Jawa Barat***

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Abstrak

Penelitian di Jawa Barat tentang lingkungan manusia purba di umur plistosen masih sangat terbatas, dengan dasar ini penelitian dilakukan. Salah satu lokasi situs plistosen di Jawa Barat yang memiliki potensi dalam penelitian lingkungan purba adalah Lembah Cisaar. Lembah Cisaar berada di bagian timur dari Kabupaten Sumedang, Provinsi Jawa Barat. Lembah ini berada dekat dengan perbatasan Kabupaten Sumedang-Majalengka. Wilayah lembah ini didominasi oleh batuan-batuan sedimen batupasir dan batulempung yang tersingkap cukup baik di singkapan-singkapan batuan di sepanjang lembah Cisaar. Batuan-batuan sedimen ini disimpulkan berumur Pliosen-Plistosen dari formasi batuan Formasi Kaliwangu dan Citalang. Data diambil dari literatur terpilih dan dari pengukuran-pengukuran stratigrafi di sepanjang sungai Cisaar dan anak-anak sungainya yang berada di kampung Cibengkung dan Cirendang, Desa Jembarwangi. Paling tidak pada masa lalu ada tiga lingkungan pengendapan yang pernah ada di lembah Cisaar ini, dari tua ke muda yaitu: lingkungan laut dangkal, estuarine, dan lingkungan pengendapan sungai menganyam. Ciri bagian bawah, tengah dan atas dari suatu lingkungan estuarin dijumpai di lembah Cisaar ini sebagai bukti pernah ada proses regresi atau susut laut di masa lalu di daerah ini. Dijumpai dua horison fauna unit di Lembah Cisaar yaitu Fauna Cisaar yang berumur lebih dari satu juta tahun yang lalu dan Fauna Trinil berasosiasi dengan artefak batu yang berumur 1-0,9 juta tahun yang lalu.

Kata kunci: lingkungan purba, lembah Cisaar, fosil, artefak batu, Sumedang, Jawa Barat

Abstract

Research about Pleistocene human environments in West Java is still limited, based on this fact our study was conducted. One of the Pleistocene sites in West Java that has the potential for studying paleo-environmental is the Cisaar Valley. Cisaar Valley is located on the east part of the Sumedang Regency in West Java Province. The area is close to the boundary of the Sumedang-Majalengka Regency. In this location, the sandy and clay dominated the sedimentary rocks which are well exposed along the outcrops in the Cisaar Valley. These sedimentary rocks are inferred from Pliocene-Pleistocene deposits from Kaliwangu and Citalang Formation. Data obtained from selected references and measuring stratigraphic sections along Cisaar River and its tributary rivers in Cibengkung and Cirendang hamlets, Jembarwangi village. There are at least three depositional paleo-environments which from oldest to the youngest age are: shallow marine, estuarine and fluvial braided channel depositional paleo-environment. Characteristics of the lower, middle and upper of the estuarine environment were found on Cisaar Valley as the evidence of the oceanic regression processes which was happened in the past in this area. Two horizons of the fauna units in the Cisaar Valley are found, namely the Cisaar fauna which is its age more than one million years ago and the Trinil fauna associated with stone artifacts that were around 1-0.9 million years ago.

Keywords: paleoenvironment, Cisaar Valley, fossil, stone artifact, Sumedang, West Java.

INTRODUCTION

Exploration and research related to prehistoric human and Pleistocene hominid fossils have been done by many researchers in Indonesia. So far artifacts as strong evidence of human existence have been recovered from Java (Simanjuntak, 2013), Sulawesi (Heekeren, 1985), and the islands of Eastern Nusa Tenggara, Flores (Brumm *et al.*, 2006). From all these islands, Java is the richest island in prehistoric human and Pleistocene hominid fossil discoveries.

Java is an island located in the west region of the Indonesian Archipelago, and formed part of the Sunda volcanic island chain, almost midway between the Asian and Greater Australian continents. Although the hominid fossils are generally believed widely spread in Java. In West Java, the data about this fossil is still limited. At least a hominid incisor was reported discovered from

West Java, where the exact location is at Ranca, Tambaksari, West Java (Kramer *et al.*, 2005). Anyway hominid was living in a certain environment. It is why the paleoenvironment reconstruction is important to learn the hominid life in the past.

Despite the study on the Pleistocene period was not as intensive as in the areas of Central and East Java, West Java was the area first identified by European geologists in the early 20th century focusing on the Pleistocene geological layers which containing fossils (Zwierzycki, 1926). Over the last century, several Pleistocene fossil-bearing sites are reported from West Java, for example, Subang (Koeningswald, 1935); Ciamis (Koeningswald, 1933), and Sumedang (Zaim, 1999). However, the information of the Pleistocene paleoenvironment is very few in West Java, especially places that showed transitional characteristics

between marine and alluvial depositional systems. In this paper, we report our study about the Pleistocene paleoestuarine sediment deposit from Cisaar Valley, Sumedang, and West Java.

Physiographically, the Sumedang and its surrounding areas are situated in the boundary of the Bogor Zone in West Java and the North Serayu Zone in Central Java. These two physiographic zones reflect a deposition basin area where its geometry extends trending to almost west-east (Martodjojo, 2003). Bemmelen (Bemmelen, 1949) and Djuri (Djuri, 1973) argued that at Miocene, the Sumedang area is still a part of the North Serayu Zone, so its geological setting should follow the North Serayu basin while at Pliocene and Pleistocene it's become a part of Bogor Zone. Martodjojo (Martodjojo, 2003) believes that the Sumedang area and its surrounding area are not a part of the North Serayu zone, but a part of Bogor Zone so that all geological setting conditions that occur in the area in the Tertiary and Quaternary age should follow the Bogor Zone.

Geological fieldwork to make a geological map in this area previously was conducted by Djuri (Djuri, 1973) and Rizal (Rizal *et al.*, 2009). Our study used Djuri's map for regional study. Field observations and excavations were undertaken to identify local geological fieldwork and fossil evidence and analysis were conducted to identify and map the location of sediment rock layer outcrops. Regarding the latter, various data obtained during the study are integrated.

DISCUSSION AND RESULTS

Sumedang area is a part of the Bogor Anticlinorium in West Java (Prasetyo, Aswan, Zaim, & Rizal, 2012). This

anticlinorium is characterized by tertiary sedimentary rocks that have been faulted and folded strongly (Magetsari, 1993). In Cisaar Valley, the early quaternary deposits also faulted and folded strongly. The result of this condition makes Cisaar Valley topography became rough.

Cisaar Valley lies in the boundary area of Sumedang and Majalengka Regency. It 2.8 km long and 2 km wide, within the 5.6 km² with a sigmoidal shape (Figure 1). Cisaar Valley is located between 6° 48' 25" - 6° 50' 02" S and 108° 07' 25" - 108° 09' 45" E, and is bounded to the west by the Pasir Cariang Hill, to the east by the Pasir Malati Hill, to the north by Cilutung River, and to the south by the hills in Cipicung Village. The Cisaar Valley sediment deposit is mainly a contribution of the Cisaar River. Based on this condition it is important to see detail about this valley and river.

The topographic conditions of the Cisaar Valley and its villages, in general, can be divided into two morphological units, namely hilly morphological unit and lowland morphological unit with land cover types are field, farm, and forest. Hilly morphology unit shows variation in slopes from low to high steep slopes ranging from 100 to 250 meters above sea level (asl) composed by sedimentary rocks and igneous rocks. Lowlands's type is arranged by loose material in the form of alluvial rivers and terrace deposits found throughout the river.

The river system that flow in the Cisaar Valley area is the Cisaar River with its tributaries that flows into the Cilutung River. The surface drainage pattern of the river in the study area generally flows from the south to the north except for the tributaries that flow from west to east and

from east to west which then join into the main river. The entire river in the study area (large rivers and small rivers) provides a dendritic drying pattern. Cisaar River is a periodic river because it still has a large volume of water during the rainy season, even though in the dry season the volume is small. On the opposite, the Cisaar tributaries are the episodic (intermittent) river, which is the river that only flows in the rainy season and tends to dry during the dry season.

As an old stadium river, Cisaar River is characterized by vertical erosion no longer playing a role and is replaced by lateral erosion. The process of deposition of Cisaar is so large that many river bends are formed. The cross-section of the river is U-shaped with floodplains, whose width exceeds meanders. Sand deposits in river bends or on the sand bar on the Cisaar River indicate that they move frequently.

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or on the sand bar in Cisaar River indicate that this river is move frequently. The outcrops in this study are found alongside this river and its tributary.

Stratigraphy

Previous studies stated that the lithology units in the study area from old to young consisted of claystone from the Subang Formation which was characterized by a bluish-gray color containing microfossils foraminifera plankton, which was deposited in the marine environment (Djuri, 1973), (Djuhaeni dan Martodjojo, 1989) and (Martodjojo, 2003). This unit then overlays by the sandstone-claystone unit of the Kaliwangu Formation which is characterized by the grayish-green color containing a lot of mollusks and almost does not contain foraminifera (Aswan and Zaim, 1998). The Kaliwangu Formation then unconformity overlaid by sandstone of Citalang Formation where vertebrate fossils were found in this sandstone unit (Marino & Zaim, 2002). The Citalang Formation sandstone unit is deposited

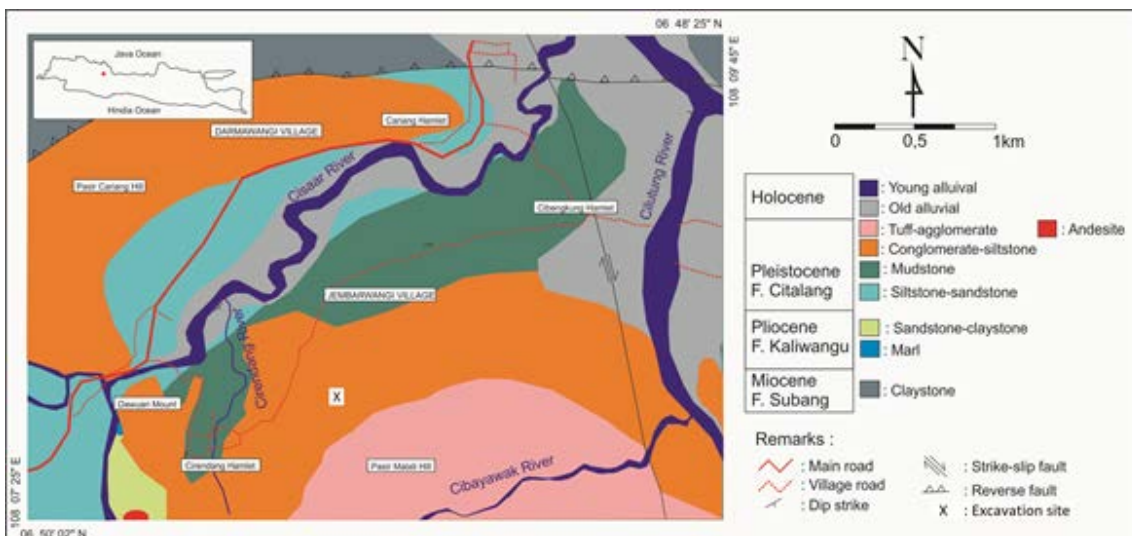


Figure 1. Geological map of Cisaar Valley (Source: Modified from Ferdianto, 2018).

in a fluvial (land) environment. The youngest rock unit is alluvial deposits.

The interesting things in the Cisaar Valley area are that we can find layers of black clay contain fossils of freshwater mollusks and conglomerate layers containing fragments of vertebrate fossils. Based on this condition, it is necessary to make a stratigraphic to determine the position of the layers. The dipping trend generally from west to the east so that in the area study the order of lithology layers from old to young sequentially is from west to east. Based on the stratigraphic sequence, the lithology units found from the oldest to the youngest are:

- ***Claystone unit***

Claystone units are non-carbonated dark gray with thin sand intercalation of about 3-5 cm. This unit is equivalent to the Late Miocene-Pliocene Subang Formation or about 10 million years ago as proposed by Djuhaeni and Martodjojo (1989).

- ***Sandstone-claystone unit***

The claystone and sandstone are in gray. Sandstone is present as a dominant interbedded compared to breccia and marl. It is medium to coarse sand size, good sortation, and porosity, compact, carbonaceous, fragments angled to rounded, consisting of igneous rocks, quartz, feldspar, calcite, and crystal crystals. Found a type of marine mollusk *Pecten* sp. and echinoderms spicula.

- ***Siltstone-Sandstone unit***

This unit consists of interbedding sandstones and siltstone with intercalation of claystone and breccia, as well as conglomerate lenses which are thought

to be paleochannels in the sandstone layer. Sandstones are gray to medium brown color and medium to coarse size, medium to bad sortation, good porosity, angular to rounded fragments, consisting of quartz, mafic sand with thicknesses varying from 3-20 cm. The sedimentary structures are graded bedding, parallel laminates, and cross-bedding. The siltstone is light gray to dark brown, compact with fossils of freshwater found in the dark brown layers. At the upper of this unit, the lapilli and tuff layers are found with a thickness of around ± 1 m. In this lithology unit Ferdianto (2019) also found vertebrate fossils that still don't know what animal bones belong to. Based on this data this lithology unit is the oldest lithology vertebrate fossil-bearing layer from Cisaar Valley area. The oldest vertebrate fossil in the North West Java Area for instant Pasir Cabe, Subang was reportedly equivalent to Cisaar fauna of Java vertebrate biostratigraphy (Wibowo, Setiyabudi, & Kurniawan, 2018). Consider that so the oldest fossils of Cisaar Valley in this sandstones-siltstone unit might be equivalent to Cisaar fauna.

- ***Mudstone unit***

This unit is generally outcropped on the tributaries of the east side of the Cisaar River characterized by tuff and mudstone. Tuff is white to bright yellow color while mudstone is presented as the dominant lithology with light brown to dark color. In the middle part of this unit, there are black mudstone layers rich of freshwater mollusks such as *Bellamyia Javanica* and *Melanesoides* sp. with the sandstones and tuff intercalations with a thickness of tuff layer varying from about 3-10 cm. This lithology is outcropped on the cliffs

of the Cirendang River. In the middle of the unit, the tight tuff layers about 1,5 m consists of fossilized freshwater mollusk of *Melanesoides* sp. also found in these layers.

In this mudstone unit, an almost complete *Stegodon* mandible has been found (Hertler, Rizal, & Zaim, 2007). The *Stegodon* mandible fossil was discovered in mudstone lithology. The location rediscovered based on Mr. Oma information, a local informant from Cirendang Hamlet, Jembarwangi who participated in the excavation at the time it discovered, so that the stratigraphy position of this *Stegodon* mandible could be known.

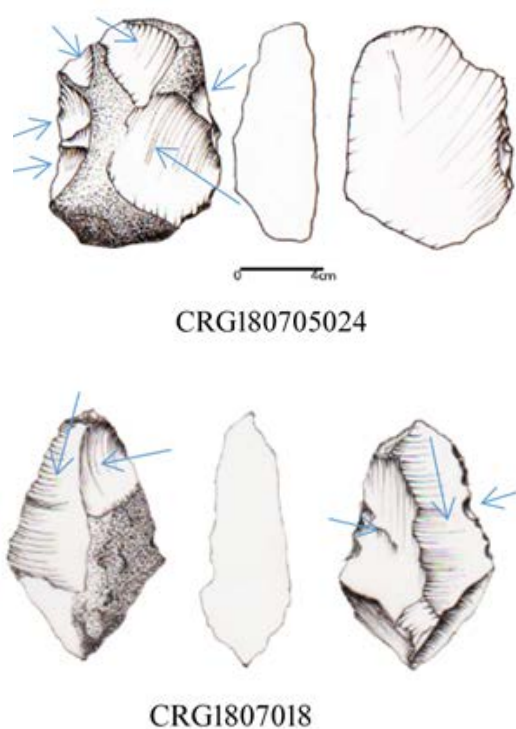


Figure 2. Two flakes artifact that found in conglomerate of Cisaar Valley. (Source: Ferdianto, 2018).

- **Conglomerate-siltstone unit**

This unit consists of interbedding of silt, sandstones, and conglomerates. Silt is

brownish gray while sandstone is brownish-gray with good to medium porosity. Conglomerates present as one of the dominant lithologies in the form of a dark-black polyimic conglomerate consisting of sandstone, andesite, quartz, jasper, mafic crystals, charcoal, and vertebrate fossil fragments. In this lithology unit, Ferdianto (2019) found vertebrate fossils as survey and excavation specimens such as *Stegodon trigonocephalus*, *Rhinoceros* sp., *Artiodactyla*, cervid, bovid, Suidae, *Crocodylus* sp. and *Mecaca* sp. Either fossils, Ferdianto (2018) also found CRG180705024 and CRG1807018 as two flakes stone artifacts in his excavation (Figure 2). These two stone artifacts are jasper flakes that have been cut on its sides.

- **Tuff-agglomerate unit**

This unit is characterized by tufa and agglomerates with the intercalation of volcanic breccias, conglomerates, sandstones and clay stones. Tufa is generally yellowish-white with red-colored weather. Volcanic breccia is found locally with gray colour and pebble size fragments.

- **Andesite unit**

Andesite black to dark gray color, considered as an intrusion, with aphanitic to fine crystal size.

- **Old alluvial unit**

This unit occupies regions near the Cisaar river flow characterized by plain morphological expression. This unit is composed of consolidated alluvial deposits consisting of lump-sized polyimic material to sand.

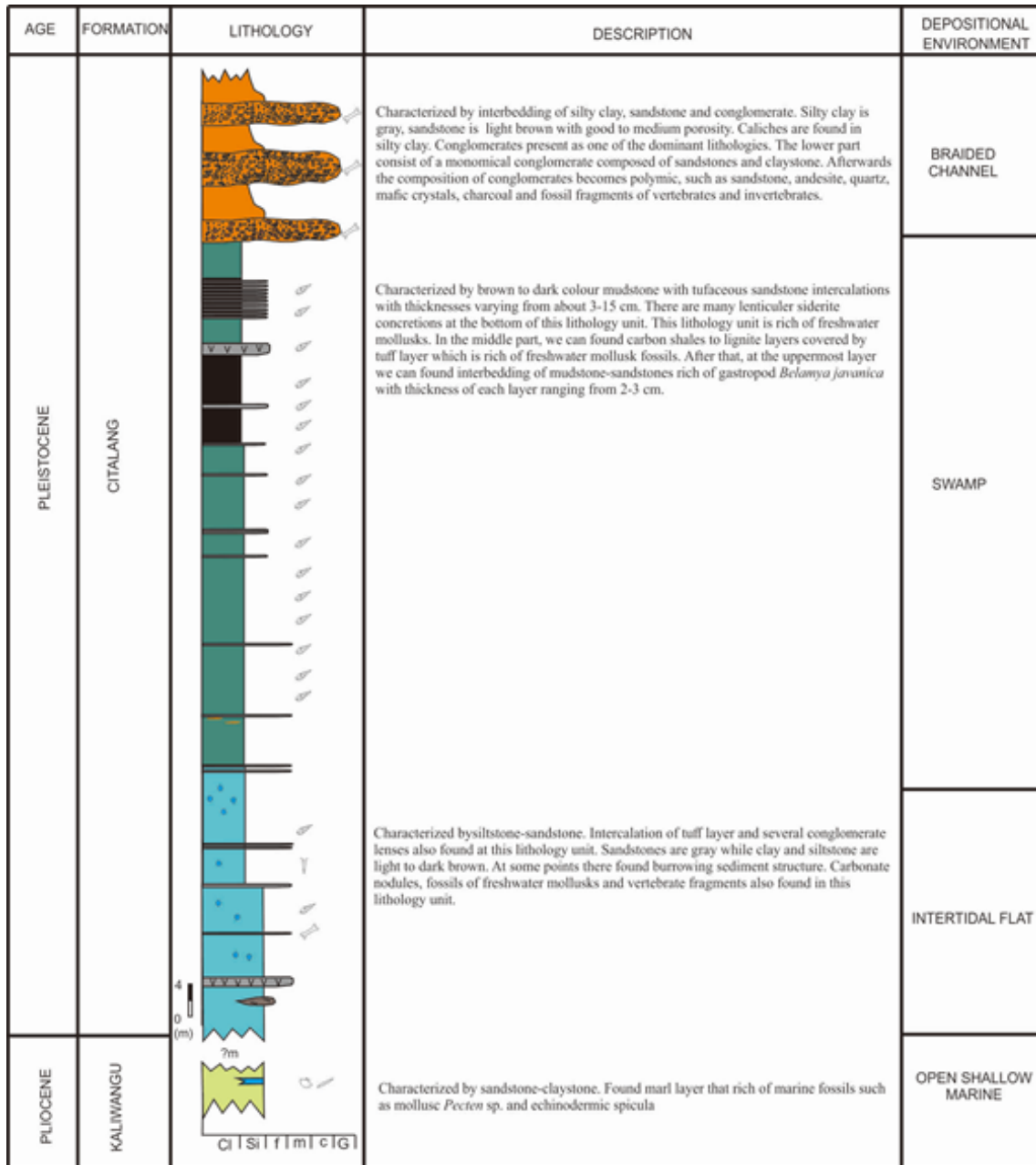


Figure 3. Stratigraphy of Cisaar Valley. Outcrops from Dawuan hill and Cirendang River. (Source: Modified from Ferdianto, 2018).

• **Young alluvial unit**

This unit is found along the Cisaar River in the form of unconsolidated river deposits consisting of igneous rock and sedimentary rock fragments.

Paleoenvironment

Dalrymple et al (1992) said that estuarine is “a seaward portion of drowned valley system which receives sediment from both fluvial and marine sources and

which contains facies influenced by tide, wave and fluvial processes". In Cisaar Valley we some depositional channel depositional environment, there are open shallow marine, intertidal flat, swamp and braided.

- ***Open Shallow Marine***

Characterized by marl that rich in marine fossils such as mollusk *Pecten* sp. and Echinodermata spicula (figure 4). The outcrop of this lithology is can be found at 6° 49' 43" S; 108° 07' 44, 5" E, on the east riverbank of the Cisaar River. *Pecten* sp. is a tectonic marine mollusk which means it needs an open marine environment. The association of *Pecten* sp. and Echinodermata shows that this marl was deposited at the open shallow marine environment.

- ***Intertidal Flat***

Characterized by siltstone-sandstone. Intercalation of the tuff layer and several conglomerate lenses also found in this lithology unit. Sandstones are gray while clay and siltstone are light to dark brown. At some point, there are found burrowing sediment structures such us Thalassinoides and Skolithos. Based on the bioturbated structure, it can be seen that this sediment is formed in a tidal or transitional environment, where at certain times, the organism can move above the surface of sediment and is not affected by waves. Carbonate nodules, fossils of freshwater mollusks and vertebrate fragments also found in this lithology unit.

- ***Swamp***

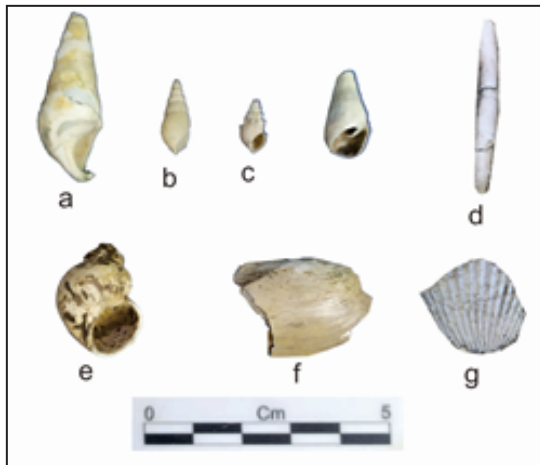
Characterized by brown to dark color mudstone with tufaceous sandstone intercalations with thicknesses varying

from about 3-15 cm. There are many lenticular siderite concretions at the bottom of this lithology unit. This lithology unit is rich with freshwater mollusks. In this swamp environment, several layers of primary tuff were found indicating volcanic activity increased at that time.

The Concretion is a material found in sedimentary rock layers in the form of small chunks formed due to diagenetic processes (pressure and temperature) which cause some to become denser than others. The concretion found in this outcrop is the siderite (FeCO₃). This siderite is formed under reduced conditions, where the oxygen content at the time of deposition is reduced because it does not get oxygen supply. Sometimes it founded as layers which often associated with clay, shale, or coal. The occurrence of siderite supports the conclusion that this mudstone was deposited in the swamp environment.

In the middle part, we can find carbon shales to lignite layers overlaid by the tuff layer which rich in freshwater mollusk fossils such as *Brotia testudinaria*, *Melanoides fennemai*, *Sulcospira foeda*, *Thiara scabra*, and *Belamya javanica*. All of these mollusks is comes from the same group, which is gastropod (figure 4). Bivalve mollusk also found in this mudstone, which is Unionidae freshwater mussel. In Cisaar Valley mudstone, we identify Unionidae that still in pair condition shells as *Elongaria Orientalis* (figure 4). The Unionidae usually prefer to live in a quiet (lotic) environment at the mud bottoms (Plaziat & Yuonis, 2005). At the uppermost layer, we can found interbedding of mudstone-sandstones rich of gastropod *Belamya javanica* with a thickness of each layer ranging from 2-3 cm. *Belamya javanica* is a large viviparid

snail, living in quiet freshwater. It lives on the bottom muds of ponds, marshes and marsh channels. When viviparid died, its empty shells will float and easily accumulate. Sometimes as estuarine shore deposits (Plaziat & Yuonis, 2005). It is the way we usually found the accumulation of viviparid shells as layers.



a. *Brotia testudinaria*
 b. *Melanoides fennei*
 c. *Thiara scabra*
 d. *Sulcospira foeda*
 e. Spicula of echinod
 f. *Belamya javanica*
 g. *Elongaria orientali*
 h. *Pecten* sp.

Figure 4. Invertebrate fossils of Cisaar Valley.
 (Source: Modified from Ferdianto, 2019).

- **Braided Channel**

Characterized by interbedding of silty clay, sandstone, and conglomerate. Silty clay is gray, sandstone is light brown with good to medium porosity. Caliches are found in silty clay. The occurrence of caliches indicates that at some point the Cisaar Area was in arid climate condition. Conglomerates present as one of the dominant lithologies. The lower part consists of a monomial conglomerate composed of sandstone and claystone. Afterward the composition of

conglomerates becomes polymic. The deposit has more varied components such as claystone, sandstone, andesite, jasper, bone fragments, charcoal, mafic stone, shellfish fragments, and others. Some things should be noted that the sediment component in this sediment component has a blackish shiny oxidized appearance. It is suspected that this condition might be caused by the effect of intrusion. There is no flood plain deposits found in this lithology unit. The absence of flood plain deposits indicated that this fluvial system is a braided channel.

Tidal estuary fills deposits showing an upward fining succession (Siddiqui, Rahman, Sum, Yusoff, & Ismail, 2017). Overall, Cisaar estuary fill deposits' showing an upward fining succession before becomes a fluvial environment. Based on the data, the paleoestuarine documented in Cisaar Valley is interpreted as a tidal dominated estuarine. Modeling of the tidally dominated estuary can be seen in figure 5).

The climate and environment on the peninsula of Southeast Asia have evolved and through several cycles, especially in the early Pleistocene period. The process of increasing and decreasing sea levels causes sinking and the emergence of land at that time. The process resulted in changes in the landscape from the hinterland to the coastal area and vice versa (Simanjuntak & Sémah, 2005). Environmental change plays an important role in the migration process, especially in the Pleistocene period. Geological changes in the Pleistocene period showed that there were some significant changes in sea level, especially at the end of the mid-Pleistocene to the end of the Pleistocene and these changes could occur several times that

makes Sunda Shelf several times exposed. During this period, the migration of fauna into Indonesia, especially on Java, was marked by the arrival of fauna from Asia mainland which might also be followed by migration of hominids. In Java, research on the distribution and migration of early hominids has contributed greatly to Indonesia. Java also provides evidence of human occupation before the late Pleistocene period (Bellwood, 1997). In early settlements theory, there is a change in occupational orientation from *Homo erectus* with open landscape occupation and *Homo sapiens* that use caves and niches as a place to carry out various activities (Simanjuntak & Sémah, 2005). In our study, the data shows that in the past Cisaar also an open landscape environment.

Around 10 million years ago, Cisaar Valley area is an open shallow marine that then undergoes regression. The regression causes the coastline to retreat towards the marine. The regression that occurred during the Pliocene continued into the early Pleistocene Period. This condition

is clearly seen in Cirendang Hamlet at Cisaar valley. Ancient Cisaar Valley was repeatedly inundated by shallow marine and swamp which deposited sand and mud/clay sediments.

This condition makes the depositional environment of the Jembarwangi area which was gradually changing from open shallow marine to become an estuarine environment (indicated by tidal flat and swamp environment). The tidal flat is characterized by the occurrence of freshwater mollusks in interbedding of sand, silt, and clay. From the tidal flat, the depositional environment changes to the swamp environment indicated by mudstone and carbon shale containing freshwater mollusk fossils. This happened looks like at the late Pliocene to early Pleistocene.

After the estuarine environment, the depositional environment in Jembarwangi and its surroundings changes again into a braided channel fluvial environment. This is indicated by interbedding between massive silt and conglomerate sandstones in this region. The possibility of this

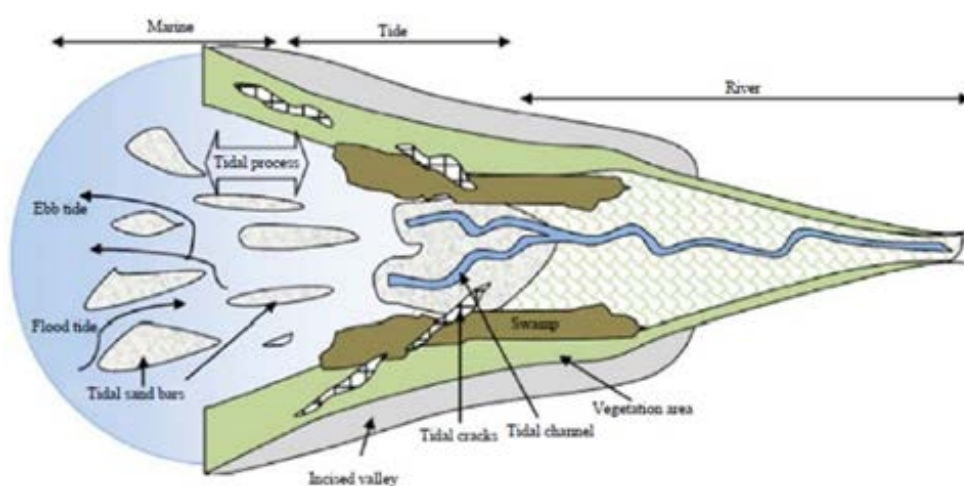


Figure 5. Modelling of the tidal dominated estuary. (Source: Siddiqui, Rahman, Sum, Yusoff, & Ismail, 2017).

braided river environment occurred in the early-middle Pleistocene. At present the depositional environment is dominated by the activity of the Cisaar River as the main river that flows in the Cisaar Valley area.

The Proto-Cisaar Valley where the Citalang Formation was deposited has existed since the early Pleistocene. Setiadi (Setiadi, 2001) said that Citalang Formation was deposited at Pliocene to early Pleistocene. At this Plio-Pleistocene, maybe around 2.5 million years ago the proto-Cisaar valley was developed in this area as an open landscape niche. Most of the area is still a shallow marine and coastal marshes. The area is very fertile, many plants and animals live there. Within that period, deposits were formed, known as the Kaliwangu Formation. As shown in the resulting study, the proto-Cisaar Valley depositional environment here is the tidal dominated estuarine. This environment is suitable for living various fauna because of its fertile and open environment.

Zaim and Marino (2002) and (Hertler et al. (2007) found several vertebrate fossils originating from the Pleistocene period in Cisaar Valley. As mention previously that Ferdianto (2019) found the oldest vertebrate fragments fossil of Cisaar Valley in the sandstones-siltstone unit might be equivalent to Cisaar fauna. In his excavation (2018-2019), he also found fossils of *Stegodon trigonocephalus*, *Rhinoceros* sp., *Artiodactyla*, cervid, bovid, Suidae, *Crocodylus* sp. and *Mecaca* sp. These faunas are equivalent to the Trinil fauna of Java vertebrate biostratigraphy which was estimated to have lived from 1.1 to 0.9 million years ago, so based on it we concluded that the faunas in this lithology

unit were the same age as the Trinil fauna (Figure 6). In Sangiran, a hominid fossil discovered on the same layers with fauna fossils. Regarding the Cisaar stone artifacts that found associated with Trinil fauna, it could be assumed that hominid lived here in the early-middle Pleistocene.

In the perspective of Java vertebrate biostratigraphy, the presence of *Stegodon* is often associated with *Homo erectus*. This can be seen in Ngandong, Kedung Brubus, and Trinil HK fauna groups. For short, fauna groups associated with *Stegodon-Homo erectus* usually slightly uniform in fauna compositions. Differences sometimes occur due to differences in migratory waves that occur (Sondar, 1984). On Java, the sites containing *Homo erectus* fossils are mostly found in sedimentary deposits of low land, estuarine and river systems (i.e. Sangiran, Trinil, Kedungbrubus, etc). Therefore, based on similarities in the characteristics of environmental history, the association of vertebrate fossils and the existence of stone artifacts, the Cisaar valley should have the potential to study the initial period of occupancy, especially by early hominid in Java Island in general and particularly in West Java.

CONCLUSION

Based on the field data, before becomes a structural valley, the proto-Cisaar valley was a transitional environment from the open shallow marine to a tidal dominated estuarine and braided river system at the age of Plio-Pleistocene. At present, the condition of the deposition environment is dominated by the activities of the Cisaar River as the main river that flows in the Jembarwangi area that forms the Cisaar Valley landscape.

Two horizons of the fauna unit in the Cisaar Valley are found, namely the Cisaat fauna which is its age more than one million years ago and the Trinil fauna which is around 1-0.9 million years ago and artifacts that found should be from early-middle Pleistocene age. This research provides evidence of occupancy by the early fauna of the vertebrae and the possibility of hominid in the early-middle Pleistocene period in the Cisaar Valley region.

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