





Sustainable Conservation of Malay Traditional Architecture East Sumatera Indonesia

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ABSTRACT

Over time, physical and non-physical changes can affect the existence of Traditional buildings. The current phenomenon begins with a social shift in society that is inseparable from the influence of several factors. First, advances in communication technology make humans live in practicality. Second, is the influence of foreign cultures (Westernization). Building conservation can be an option in maintaining and improving the preservation of Traditional Buildings by paying attention to the usefulness, social function, and cultural meaning behind the pattern or style of the building. This study aims to determine the existence of Malay Traditional Buildings and Houses that have decreased conditions and even are almost extinct, so it is necessary to carry out sustainable conservation to maintain the existence of buildings or improve building conditions. The variables raised relating to the approach of aspects that influence the decision to conserve traditional buildings are; classification of structures, construction philosophy (ethics, thinking, existence, time, meaning, and value), the structural strength of the material, material components, the concept of preservation, and community empowerment. The research location is the Malay Traditional Building in East Sumatra, Serdang Bedagai Regency, which is still lived by the owner or his relatives. Research data consists of resources that exist at the research site, both physical data and non-physical data. First, physical data is obtained through the existence of Traditional buildings along with building components. Second, non-physical data can be known through local people's knowledge of culture in development to get supporting factors for conservation. The analysis is carried out using descriptive qualitative methods. Data was collected with literature reviews, interviews, and observations at several Traditional Building locations to obtain data on Traditional buildings. The discovery will result in how much influence these supporting factors have on preserving Traditional Houses, especially in East Sumatra, Indonesia

Keywords: conservation, Malay traditional, sustainable

1. Introduction

East Sumatra is a historical area that has the art and culture of the community. It has traditional buildings that have the potential to be preserved because it is one of the highest cultural representations, with the characteristics of building the area for generations, which is relevant to local wisdom and has an essential meaning from a historical perspective. The problems that generally arise in building maintenance are related to the historical value, architecture, the city, and culture of a nation that has to deal with several functions,

technical and performance of buildings, and even ownership. The research location is in East Sumatra in the community housing area of Serdang Bedagai Regency, which is included in the cultural heritage category with traditional Malay building types.

The Burra Charter 2013 states that there are five stages of conservation, one of which is preservation, which is to maintain the authenticity of the condition of the existing building or area from the damage. Based on the Law of the Republic of Indonesia Number 11 of 2010 concerning preservation, namely protecting, developing, and utilizing it, and also Medan City Regional Regulation No. 2 of 2012 concerning Preservation of Buildings and, or Cultural Heritage Environment.

In Chapter 2, Article 2 concerning *Objectives and Scope*, the preservation of buildings and/or cultural heritage environments aims to maintain and restore the authenticity of structures and surroundings that possess historical, scientific, and cultural values. This effort includes protection and maintenance to prevent buildings and their environments from damage or destruction caused by human activities or natural factors. Furthermore, preservation is directed toward positioning cultural heritage buildings and environments as valuable cultural assets that are properly managed, developed, and utilized to their fullest potential, thereby strengthening the positive image of the area as a competitive cultural tourism destination.

Meanwhile, Chapter 7, Article 18 Paragraph (1) emphasizes that the designation of an environment or building as cultural heritage must meet certain criteria. These requirements include a minimum age of fifty years and the presence of significant values encompassing aspects of history, architecture, science, socio-culture, education, and religion. These values form the foundation for strengthening national identity and character through the preservation of cultural heritage, ensuring that each building and cultural environment is not merely regarded as a relic of the past, but as an integral part of sustainable development and the cultural identity of the people of Medan City.

Comparable area-based practices in Indonesia highlight the importance of transferring traditional construction knowledge and revitalizing local technologies as foundations for preservation; this is exemplified by efforts to conserve Dayak traditional architecture in Central Kalimantan through the dissemination of diverse construction forms and traditional building technologies as vehicles for heritage transmission and identity strengthening [16]. Consequently, managing “historical centres” requires synergy between protecting residual cultural values and activating tourism strategies grounded in local distinctiveness. At the same time, the study of locally grounded structural design in traditional houses of Kota Sambas, West Kalimantan, affirms that local principles can be realized in buildings that are functional, aesthetic, and contextually aligned with the surrounding culture [17]. To prevent preservation efforts from remaining at a purely local level, protection strategies should be positioned within the horizon of world cultural heritage conservation, thereby opening opportunities for broader recognition of traditional architectural heritage (e.g., by UNESCO) [18].

According to the WHC World Heritage Convention Implementation Operational Guidelines. 1/12 July 2012 by UNESCO's World Heritage Centre, one of the areas that can be proposed as cultural heritage objects are: Historical cities and urban centres, both inhabited and uninhabited, in the form of cities that are typical of a particular period or culture; a town that develops according to its characteristics. A "historical centre" that includes depictions of the same territory as ancient cities and is now enclosed in modern cities; and isolated areas or sectors, even part of the remaining evidence of the existence of a surviving state, that provides coherent proof of the character of the lost historic city. In addition, conservation activities are carried out so that urban areas can increase the interest of domestic and foreign tourists to visit. However, in some areas there is still minimal interest so that the place is not well maintained. The activities that can be done to increase the interest of domestic and foreign tourists in urban areas can be carried out conservation activities. This is inseparable from the role of local governments, as conveyed by [6] The Government must also further improve the nature of conservation-based policies so that all tourism actors are willing to comply with the rules to help maintain cleanliness, quality assurance, safety, and quality in tourist destinations. Therefore, strengthening governance at the district/city scale particularly in city centers is crucial, as demonstrated by urban heritage studies in Manado's Old Town, where conservation issues arise from land-use conversion pressures, inadequate

maintenance, and low public awareness; these conditions demand integrated policies and functional adaptation (adaptive reuse) at the precinct level [14].

Preserving architecture is a detailed explanation of authenticity, especially on the physical elements of both architectural forms, spatial patterns, and spatial structures, as well as the constituent parts of architectural designs [15]. This preservation can be done by taking a sustainable conservation approach. As stated by [12], a historical building or neighbourhood that is worthy of protection has criteria for assessment, namely, aesthetics, cruelty, scarcity, historical role, strengthening the image of the region, and superactivity (privilege). According to [2][3], The sustainable conservation approach is to assess and evaluate buildings based on the age of the building, historical value, aesthetics, privileges, functions, and uses, as well as the image of the local area, with approach 1.) Planned conservation (material part); 2.) Community empowerment (intangible component). Besides that [11] states that building materials are not durable, owners' tastes, the lack of legal devices, the lack of care, damage due to the development of economic buildings, and socio-cultural, become a factor in conservation. Meanwhile, according [12], buildings for traditional communities are seen from cultural and environmental factors such as construction, building materials used, how to build, and climate. So that, the selection of traditional building architectural materials, naturally and based on selectiveness (quality control), with consideration of the structural 'meaning' and 'strength' of the material. [11][5]. It is also supported [15], by maintaining caring for, preserving, and maintaining its original form, the way of installation, the materials used, the story, the history, the understanding of myths, and the meaning contained therein. [1] state that Sustainable Architecture is an approach covering economic development, social development, and environmental preservation, which are interrelated to form the concept of sustainable development, (sustainability). Directions of physical preservation are carried out on the basis of the classification of the assessment of the cultural meaning of buildings, to determine which buildings are objects of preservation according to their conditions and degree of importance. So, to improve tourist attractions, it is necessary to have a distinctive feature of the place. According to [9], it is necessary to have distinctive characteristics that show the identity of the place, for example, the attractiveness of natural scenery, culture, and traditional buildings. Consequently, our study foregrounds both district-level governance (learning from urban heritage cases) [14] and house-level material/craft logic (learning from traditional selection principles) [13] to inform conservation of Malay houses in Serdang Bedagai.

Malay architecture is a work of traditional architecture in an area it has characteristics dominated by the Malay community, which is an ethnic community that comes from an Austronesian family, as one of the treasures and heirlooms that needs to be explored in depth. Using the philosophy and meaning adapted from the Malay way of life, which is influenced by cultural and environmental factors, including family values, customs, religion, community customs, construction, building materials, how to build, and the climate itself in designing Residential Malay buildings. It is described [4], Malay vernacular housing both horizontally related to the pattern and hierarchy of space, and the vertical division of space. Residential orientation is more distinguishing in the design of spatial arrangement and the existence of a porch/terrace and the location of the stairs. Malay architecture also has its own characteristics from the physical construction, namely: in the form of a stage, the form of a gable roof, has ornaments and various decorations, beautiful carvings, carved motifs, which also have a deep philosophy and meaning behind it. Therefore, this study aims to determine the existence of traditional Malay buildings in East Sumatra and to preserve them by applying supporting factors for sustainable conservation. With these supporting factors, the existence of traditional buildings in Serdang Bedagai Regency, East Sumatra can survive and be maintained.

2. Method

To keep records of the architecture that wants to preserve, qualitative methods with the method of analyzing case studies are used. The data collection process carried out, namely:

a. In-Depth Interview

Carried out to respondents, directly involved with the informant's life by face-to-face and conversation through question and answer, partly using interview guides, to obtain data on conservation approaches that have been carried out, and also the material conditions of traditional houses and their environment. Sources of data (informants) that will be interviewed by researchers include: Interviews with building owners, traditional leaders, local communities, members of community organizations, governmental officials and the Urban Planning Board, experts, and architectural conservationists.

The interview questions were focused on exploring data related to the history, construction, and cultural values of traditional houses. The aspects discussed included the building's age, the construction process and those involved, as well as the maintenance and modifications that have been carried out. In addition, the interviews examined the year the study site was established, the environmental conditions in the past, and comparisons between the lifestyles of past and present communities. Informants were also asked to describe the essential aspects of traditional house construction, their involvement in the building or renovation process, and the distinctive cultural characteristics and lifestyles of the local community that reflect the identity of traditional architecture.

- b. The observation process was carried out through several connected stages to obtain complete and accurate data. The first stage was Field surveys, which involved field data measurements, sketches, photographs, and drawings regarding tread conditions, topographic conditions, then data processing, and analysis to understand the spatial characteristics of the research area. Furthermore, the researcher conducted identification of the building and the local material used, the researcher made observations on the physicality of traditional buildings with the adaptation of the buildings that have been carried out, to the structure and the types of damage to the material, consisting of floors, walls, foundations, posts, beams, doors, windows, stairs, and roofs. In addition, non-physical building of the Traditional House is in the form of observing the environment, social, and culture of the community. The method of observation carried out is a method of participant observation by staying at the research site for a certain period. The observation tools needed are; a tape recorder for recording speech, cameras for visually recording various activities, film or video to audiovisually record the activities of the object of study, books, MacBooks, pens, pencils, and rulers or measuring instruments.
- c. Historical evidence documentation. This stage involves the collection of documents, archives, and historical records that are relevant to the traditional buildings and their surrounding environments being studied.
- d. Study literature to get an overview of research data, comparison of library sources to identify architectural elements, and explain their relationship with local culture and beliefs.

The parameters used in this study encompass several key aspects that serve as the basis for assessing the value and sustainability of traditional buildings. The architectural parameter includes indicators such as style, construction, period or age, architect, design, and interior, which reflect the physical and aesthetic characteristics of the structure. The historical parameter considers the building's connections with historical figures, events, and broader historical contexts that contribute to its cultural significance. The environmental parameter focuses on sustainability, spatial layout, and the presence of symbols or landmarks that define the relationship between the building and its surroundings. The utilization parameter assesses the building's conformity to its function, adaptability, public accessibility, practical utility, and financing aspects. Lastly, the integrity and authenticity parameter evaluates the site's position, the extent of alterations, and the current structural condition, all of which determine the building's originality and preservation status.

The method of determining research variables to answer the question of how a sustainable conservation approach can contribute to the successful preservation of traditional buildings is designed to guide the systematic collection of preliminary data that evolves alongside field findings. This process focuses on

identifying and analyzing several key aspects, including the potential value and classification of traditional buildings, which relate to their historical, cultural, and architectural significance. It also examines the meaning and structural strength of the materials used, highlighting their durability, authenticity, and relationship to local craftsmanship. Furthermore, attention is given to the concept of preservation and community involvement, emphasizing the social dimension of conservation efforts and the role of local participation in maintaining cultural heritage. Finally, the analysis includes the material components related to community empowerment and construction philosophy, which explore how traditional building practices reflect collective values, local wisdom, and sustainable principles in architectural development.

The necessary data are community habits, community building theory, building authenticity, building age, historical value, privileges, functions, the image of the area, regulations in force at the time of construction; data on natural conditions, structure, architecture, ornaments, utilities, drawings of traditional houses, the location of the mass of buildings to the lot, the orientation of the group of buildings to the environment.

How to identifying the observed population using a literature review as the study population. This study intends to investigate and explore the phenomenon of conservation of the sustainability of traditional buildings so that preservation of these buildings can be carried out. From the existing phenomenon, it is determined that the study population is a conventional house building in the urban area of East Sumatra, the capital of Tanjung Balai, Asahan Regency, which includes the Serdang Bedagai Regency. The features most similar to the physicality of traditional Malay homes were used to choose the samples. The instruments carried out are literature studies based on the history and building of traditional houses and the regulation of SUMUT Regional Regulation No. 2 of 2012.

Sample determination is carried out using Non-Probability Sampling (NonRandom Sample), namely purposive selection, with a sampling quota technique which is a sampling method by determining the characteristics until the number of quotas is determined by the sample criteria.

The selected traditional house buildings are located in urban settlement areas in East Sumatra, specifically in Serdang Bedagai Regency, and have been inhabited for fifty years or more. These houses are privately owned to ensure freedom in their use and the application of traditional construction techniques. Permission is obtained from the owners for the houses to be used as research objects, ensuring ethical and responsible data collection. Additionally, the traditional houses are still inhabited by their owners or relatives, which allows for the observation of living traditions and cultural continuity. Each selected house also possesses characteristics that correspond to the architectural identity of traditional Malay houses, reflecting local wisdom, cultural values, and environmental adaptation.

The key respondents or informants in this study consist of several groups directly related to the existence and preservation of traditional houses. They include homeowners, who provide first-hand information about the history, maintenance, and modifications of the buildings; traditional leaders and local government representatives, who offer insights into cultural values, customary laws, and regional policies concerning heritage preservation; and residents who live permanently in traditional houses, not temporary occupants, whose daily lives reflect the ongoing traditions and cultural practices embedded within the architectural and social context of the community.

Establish the number of samples can use the formula by the purposive sampling method to establish the number of pieces can use the procedure by the purposive sampling method (Zainuddin, 2002:58).

$$n = \frac{Z^2 \alpha/2 p(1-p)N}{d^2 (N-1) + Z^2 \alpha/2 p (1-p)} \quad (1)$$

Information:

n = sample count

$Z \alpha/2$ = Z value at the degree of trust $1-\alpha/2$

P = proportion of population

d = Desired level of trust or provision

N = population numbers

This re-examination process is carried out to find out whether the selected sample is correct so that it can answer the problem of supporting factors for the conservation of buildings and Traditional Houses as the basis for prioritizing the implementation of conservation. The detailed explanation is presented in Table 1.

Table.1 Indicators and variable

No.	Variable	Indicators					
		Sulaimaniyah Mosque	Darul Arif Palace	Residents' Homes	Surau Nahdhatul Amin	Jami' Ismailiyah Mosque	The House Left by Mr. Syekh Zainudin
1	Building Age	128 Years	It was founded in 1889, but the original palace was destroyed in 1946. Then, a replica of the Darul Arif Palace was built and inaugurated in 2012.	+ 100 Years	± 50 Years	140 Years	+ 100 Years
2	Historical Value	Evidence of the legacy of the Serdang sultanate in broadcasting Islam in East Sumatra	Replica palaces were built to commemorate the prosperity of the serdang sultanate which prioritized the welfare of the people.	As a place of residence and a place of worship for the Islamic religion which is built with a typical Malay pattern.	It was once a place of worship for the surrounding community	The mosque is a historical relic of the Bedagai Kingdom. This mosque is also a royal mosque because there is a palace on the left side of the mosque (south)	According to the results of an interview with one of the people around the building, in the past the building could be said to be a holy house because those who occupied the building were sheikhs.
3	Preservation of Buildings and the Environment	Restoration has been carried out on the outside of the mosque, floor, and roof.	The original Darul Arif Palace no longer existed because it had been destroyed by the Dutch in its time. The current building is a replica of	House 1 has been repainted on wooden walls and moved the position of the stairs. House 2 has been replaced with materials on the windows	Cared for by the current inhabitants who are disciples of Khadirun Yahya	The mosque has undergone restoration twice, such as the replacement of the roof, the position of the mosque being elevated, the	The building was not preserved, there was a lot of damage to the building.

No.	Variable	Indicators					
		Sulaimaniyah Mosque	Darul Arif Palace	Residents' Homes	Surau Nahdhatul Amin	Jami' Ismailiyah Mosque	The House Left by Mr. Syekh Zainudin
			the Darul Arif Palace, which is thus one of the preservation of the Darul Arif Palace building.	and in the kitchen area has been replaced with stone material. House 3 no maintenance done		dome being replaced with a larger size, replacing the floor.	
4	Aesthetic	In terms of building style, roof, pattern, and color still have a distinctive malay will	The building has a thick Malay pattern and the roof is carved with Malay wood.	The building is in a typical Malay style and applies Malay ornaments	Still with the original shape that has a characteristic malay style.	The architectural style of this mosque building, namely Arabic and Turkish, can be seen from the carvings and reliefs of the name of Allah on each pillar on the terrace of the Mosque.	The building has a Dutch architecture mixed with Malay ornaments.
5	Privilege	Has distinctive characteristics that can be represented by factors of building age, shape and size, as well as shades and colors.	Has distinctive features that can be represented by shape and size, history, as well as shades and colors	Has distinctive features that can be represented by the form, history, as well as patterns and ornaments applied	The building is still in the same shape as it used to be and still functions as a place of worship, only not for the public, only for current residents	Mosque building materials come from Penang Island (Malaysia)	The building looks still sturdy even though many parts of the building have been damaged and there is still a peculiarity of the shape of the building.
6	Architectural Literature Studies	Mediacenter. (2021), "Masjid Sulaimaniyah, Warisan Kesultanan Serdang". <i>Artikel</i> https://mediacenter.serdangbedagaikab.go.id/2021/12/23/masjid-sulaimaniyah-warisan-kesultanan-serdang/	Pariwisata mut. (2020), "Istana Darul Arif, Replika Kediaman Kesultanan Serdang". <i>Artikel</i> https://www.pariwisata mut.net/2020/08/istana-darul-arif-kesultanan-serdang.html	-	-	Mediacenter . (2021), "Mampir ke Masjid Jamik Ismailiyah". <i>Artikel</i> . https://mediacenter.serdangbedagaikab.go.id/2021/12/23/mampir-ke-masjid-jamik-ismailiyah/	-

No.	Variable	Indicators					
		Sulaimaniyah Mosque	Darul Arif Palace	Residents' Homes	Surau Nahdhatul Amin	Jami' Ismailiyah Mosque	The House Left by Mr. Syekh Zainudin
7	Functions and Regions	In the area of the Medan-Tebing tinggi cross path and serves as a Muslim place of worship	Replica of this palace building is used as the office of the Youth, Sports, Tourism, and Culture Office of Serdang Bedagai Regency and there is a museum.	In a residential area and serves as a residential house for residents	As a place of worship and buildings are in the residential area	The mosque serves as a place of worship and is in the area of residence, which was once the area of the Bedagai Kingdom	The building serves as a residence and is in the residential area
8	Regional Imagery	The Sulaimaniyah Mosque can be said to be a 'landmark' because the physical condition of the building is different from the surroundings.	It is located in an office area and has a shape like the condition of the original building.	The residential area can be said to be a historical area because there are still several typical Malay residential houses there.	Located in a residential area where there are also several houses with Malay characteristic s.	The mosque can be said to be a 'landmark' because the physical condition of the building is different from the surrounding s.	It is located in a shopping area, but only this building has a different shape from other buildings.

From the observations, the results of the survey and the literature study carried out, the buildings in Serdang Bedagai Regency, East Sumatra, have been researched by researchers before, but in community residential buildings, there is still not much research has been carried out. So this study raised the building and linked it to the supporting factors for the implementation of sustainable conservation in traditional Malay residential buildings.

3. Results and Discussion

East Sumatra (NST) was one of the countries that became independent from the Republic of Indonesia and the Kingdom of the Netherlands from December 25, 1947, to 1950. Due to the many complex factors that formed an anti-republican alliance consisting of Malay nobles, mostly the king of Simalungun, some Karo tribal chiefs, and most Chinese chieftains, and also the desire to protect their assets from the targets of outsiders, in January 1948, a state was formed led by a Mayor or President named Dr. Tengku Mansoer from the Sultanate of Asahan, who was also the Chairman of the East Sumatra Unity Organization. The Decree of the Emergency Government of R.I. on December 17, 1949, was formed by Aceh Province and Tapanuli Province. Then, with a Government Regulation instead of Law No. 5 of 1950 on August 14, 1950, the decree was revoked and reformed North Sumatra Province. (T. Alkisah Led Analisa daily 2016) Member of the North Sumatra Regional Parliament Muslim Simbolon 2013 said that East Sumatra is one of the nine former residencies on the island of Sumatra. It is now in the territory of North Sumatra Province. The development and changes in the East Sumatra region have begun to shift. Currently, East Sumatra Province, the capital of Tanjung Balai, includes six regencies/cities, namely: Langkat Regency (I), Deli Serdang Regency (II), Karo Regency (III), Simalungun Regency (IV), Serdang Bedagai Regency (V), Batu Bara Regency (VI), Asahan Regency (VII), North Labuhan

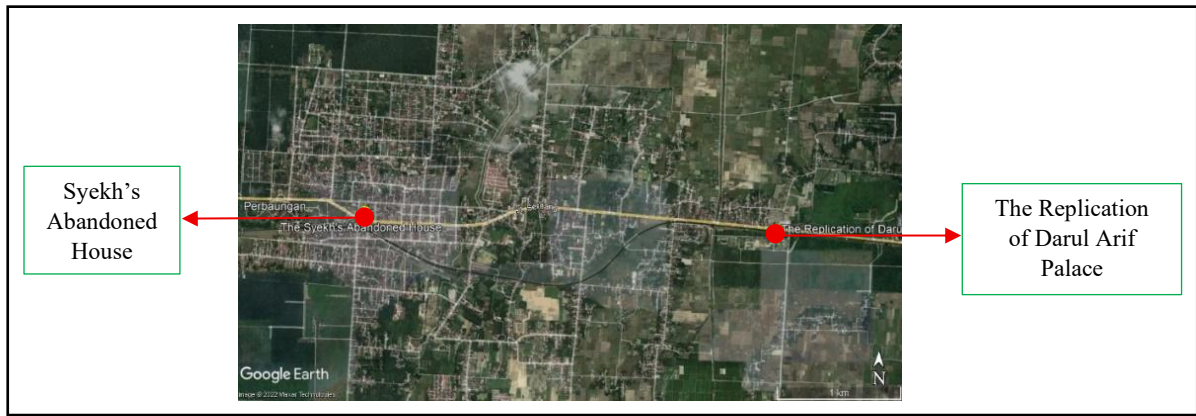


Figure 3. The Syekh Abandoned house and the replication of Darul Arif's location map
(Source: Personally processed data)

The Jami' Ismailiyah Mosque is located in Pekan Village, Tanjung Beringin District, Serdang Bedagai Regency, North Sumatra, an area commonly referred to as "Pekan Tanjung Beringin." The surau is situated in the same village, as are several traditional Malay houses documented in this study. All of these locations are shown in Figure 4.



Figure 4. Location map of Isma'iliyah Mosque, Surau Panca Budi, and resident's home
(Source: Personally processed data)

The Sulaimaniyah Grand Mosque is located in Kota Galuh, Perbaungan District (formerly Serdang), Serdang Bedagai Regency, North Sumatra, right on the roadside at the Medan–Tebing Tinggi crossroads. The location is shown in Figure 5.



Figure 5. Perbaungan's and Tanjung Beringin's area map
(Source: Personally processed data)

Traditional Malay buildings in Serdang Bedagai Regency include:

Sulaimaniyah Mosque, Serdang Bedagai

The Sulaimaniyah Grand Mosque was founded by Sultan Serdang Syariful Alamsyah in 1894. The pattern and colour of the building are still thick with Typical Malay with yellow figura and green roof [8]. The roof on the mosque's terrace is pyramid-shaped, elongated quadrangular, and above it is the symbol of the crescent moon and stars. The Sulaimaniyah Grand Mosque is shown in Figure 6.



Figure 6. Sulaimaniyah Mosque
(Source: Tribun Medan, 2019)

Darul Arif Palace

It was founded on July 29, 1889, and it was built by Sultan Sulaiman Shariful kalamshah, the fifth king in the genealogy of the Sultanate of Serdang. However, the beauty of the Palace could not be enjoyed, because of the destruction of the building in 1946 [10], which had something to do with the East Sumatran revolutionary movement (Figure 7a). Currently, there is a replica of the Darul Arif Palace, which this building is used as the office of the Youth, Sports, Tourism, and Culture Office of Serdang Bedagai Regency (Figure 7b). On the top floor of the left side of the building, there is a museum with which the beauty of the Darul Arif Palace can still be enjoyed through this replica building.



Figure 7. Darul Arif Palace and replica of Darul Arif Palace
(Source: Kota perbaungan, 2014 and author documentation)

Residents' Homes

Mrs Nurul (65 years old), who occupies the house, is already the fifth derivative where the house is more than 200 years old, and the construction of this house also does not use nails to connect the joints only by the method of connecting wood to wood. The addition of the house is found in the kitchen and front porch, the colour in the place used to be colourless and used batik wallpaper still, but now it is white on the inside and yellow on the outside (figure 9a, dan 9b).



Figure 8. Traditional house, Serdang Bedagai
(Source: Author documentation)

The ornaments on the Malay house remain in place today. They do not replace it because it will be a characteristic of the Malay house itself as well as with the shape of the terrace and the fence that is slightly curved not to lose its Malay features (Figure 8a). The area around the house is prone to flooding, the form of the steps has also been changed, where there used to be two stairs on the right and left, now it is replaced with only one staircase at the front (Figure 8b). This traditional house did not get special attention from the Government. The terrace used to be made of wood but will not last long as it is exposed to rain. The house was rehabilitated by the owner in 2014. The roof was used also used Nipah, but for fear of leaking, Mrs. Nurul replaced it with zinc to make it more durable.



Figure 9. Traditional house, Serdang Bedagai.
(Source: Author documentation)

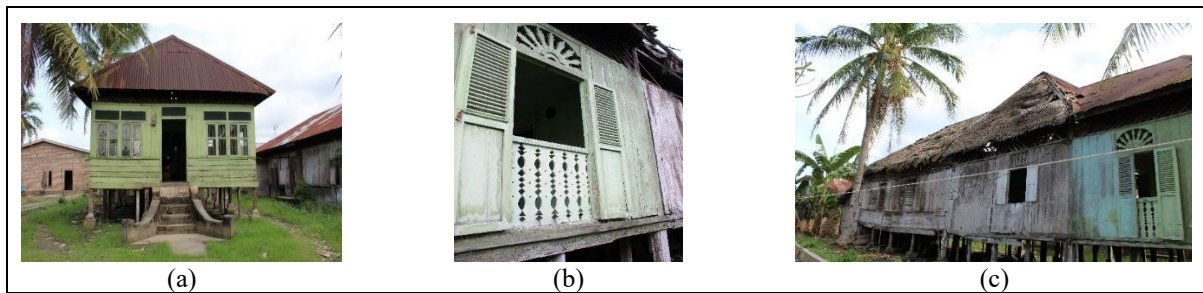


Figure 10. Traditional house, Serdang Bedagai
(Source: Author documentation)

The house was built in 1938 and completed construction in 1948. The roof is still made initially of Nipah. There has been a change of material on the window parts carried out in the 1950s. In the kitchen area, the condition of the building has been replaced with stones. In the neighbourhood, only this house is a Malay house. The house was once used to shoot one of the tv series. Its current condition is very concerning, as shown in Figures 10a, 10b, and 10c.



Figure 11. Rumah tradisional, serdang bedagai
(Source: Author documentation)

The house is already more than 100 years old. The house can still be occupied, but the condition has been damaged. The owner is a descendant of King Mandailing. Malay-style place because it follows the customs of the surrounding environment. Visible Malay ornaments include a comb-shaped window (*jendela sisir*) with two outward openings (Figure 11a) and bee-hanging carvings (*lebah bergantung*) on the house's fascia board (Figure 11b). Never got any help from the Government for the care of the traditional home.

Surau Nahdhatul Amin

Surau is no longer active, whose users are only family. The occupants are from Tanjung Balai and are disciples of Khadirun Yahya. There are still many photos of Khadirun Yahya in the Surau. Surau was his asset and then incorporated into the Foundation's assets. Because there was no owner before, the Surau was filled with items such as meth. Its condition can be seen in Figure 12a, 12b, and 12c.

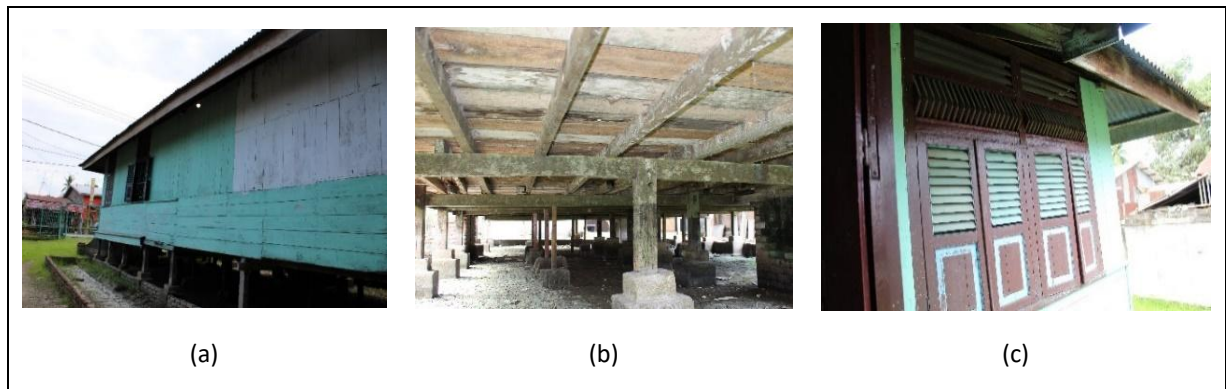


Figure 12. Surau Nahdhatul Amin, Serdang Bedagai.
(Source: Author documentation)

Jami' Ismailiyah Mosque

The Jami' Ismailiyah Mosque was built in 1882 and ordered its construction by Tengkoa Ismail, the first son of the Sultan of Deli named Soeltan Osman (Prince Niara Kelana Negeri Bedagai) [7]. The pulpit and also the entire contents of the mosque have not changed. It is still the same from the beginning of the establishment of the mosque built (Figure 13b).

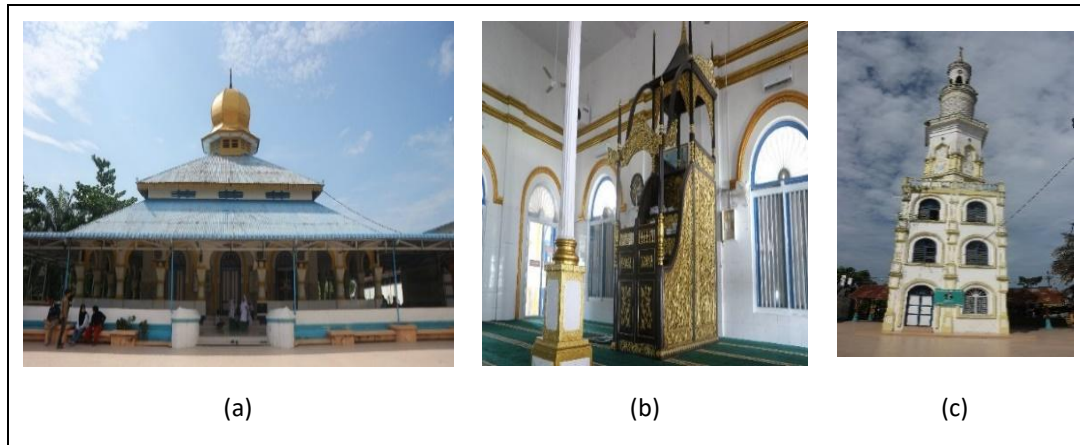


Figure 13. Jami' Ismailiyah Mosque and the pulpit, Serdang Bedagai.
(Source: Author documentation)

However, the mosque has undergone restoration twice. In 1937, the replacement of the roof that was initially made from tile was later replaced with zinc. In addition, its position was elevated to the point of exceeding the palace building that at the time was still standing. The dome was also replaced with a larger size. The shape of the roof is overlapping as before. In 1982, a minaret was built, and the replacement of the floor on the inside of the mosque was (Figure 13a). The original floor of the tile was 30 x 30 cm, which is still visible in the foyer and the back of the mosque building (Figure 13c). Next, the tile is replaced with ceramics. This mosque is a royal mosque because the Palace (Figure 14) is on the left side of the mosque, which is currently only used as a brick structure (Figure 15a, 15b, and 15c). The courtyards to the south and west are filled with the tombs of Sultan Bedagai and his family.



Figure 14. Negeri Bedagai Palace potrait
(Source: Author documentation)

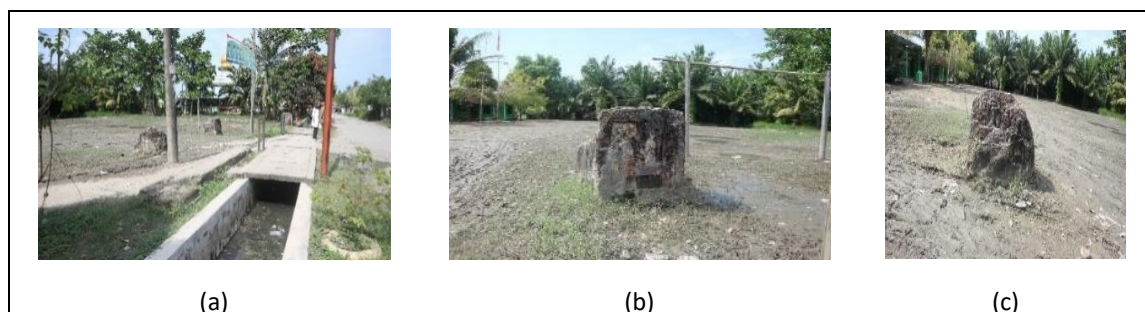


Figure 15. Brick structure left over from the palace
(Source: Author Documentation)

The house left by Mr Sheikh Zainuddin

This house is located in Simpang Tiga Pekan, Perbaungan District. It is now occupied by the niece of Mr Sheikh Zainuddin, her name is Siti Nuraini. According to information from Mrs Siti Nuraini, Sheikh Zainuddin was one of the Mufti of the Serdang Sultanate (head of the religious affairs office) during the

leadership of Sultan Sulaiman Shariful Alamshah. Although at first glance, it looked dull and unkempt, this old building still stands firmly with the characteristics of the Dutch architectural style mixed with Malay ornaments (Figure 16a, and 16b), . In the house, there are not many classic items from the history of this building.

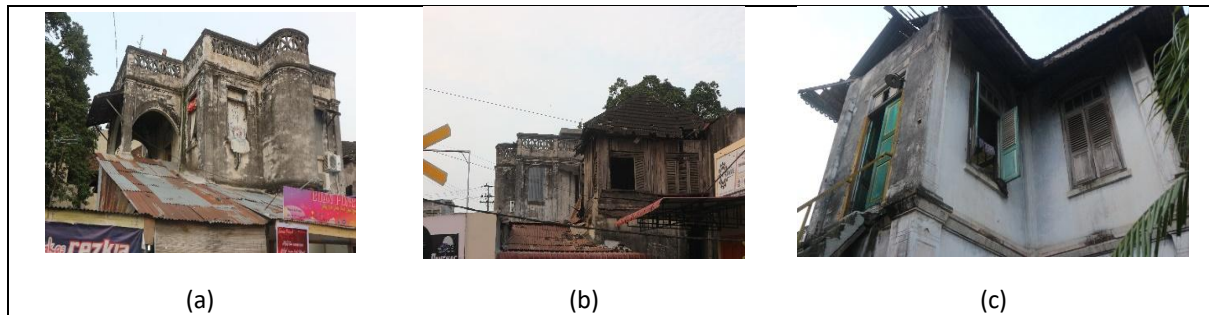


Figure 16. The house left by Mr. Sheikh Zainuddin
Source: Author Documentation

With the results of the documentation carried out, it was found that the buildings looked dull and there was damage on all sides and points of view, this could have happened due to the absence of costs, the lack of government attention to the assets of the traditional Malay buildings. When viewed from the history of the formation of the East Sumatra region, it can be seen that the building tends to lead to traditional Malay buildings, this can be seen from the presence of ornaments on each side of the building, especially on the façade of the building (Figure 16c), also with the characteristics of stage buildings that use a foundation in the form of wooden poles which are currently deiganti with many concrete poles.

4. Conclusion

Several architectural evaluation methods for the conserving of buildings and traditional environments are references in this study and can answer the problems of construction and environmental conservation later. Examining the development of sustainable conservation approaches in successfully preserving traditional buildings and environments is very interesting to discuss. The research object in the Serdang Bedagai Region has historical relics of the existence of East Sumatra, ranging from historical buildings, Traditional Houses, and their environment. These physical and non-physical condition has a considerable influence on the existence of the traditional house. To obtain these preservation standards, several studies were conducted with an overview of the age of the building, the designation of the building, changes in the identity of the shape of the building, the layout of the house, the structure, the construction, building materials, and the variety of decorations. These changes are supported by environmental, and social factors, foreign cultural influences (westernization), advances in communication technology, technical innovation, and transferability. The purpose of the study is to find out what kind of sustainability conservation can be done in Traditional Houses in East Sumatra, especially in Serdang Bedagai Regency. This data collection technique is to answer the formulation of problems regarding sustainable conservation approaches to the successful preservation of traditional buildings and answer about traditional Malay house buildings in urban environments and importance of conservation.

The purpose of the study is to find out what kind of sustainability conservation can be done in Traditional Houses in East Sumatra, especially in Serdang Bedagai Regency. However, buildings in some areas look unkempt and unfit for use. The authenticity of the materials from the building has also been replaced due to the weather and climate. The building is still used and maintained but there is a lack of information about the existence of the building so that the building is less known and does not attract tourists. Awareness of the uniqueness of traditional architecture can be developed through making people aware of the uniqueness of buildings from the view of the tourist market. Thus, awareness of cultural values is formed from daily life and the environment is created so that it can develop cultural tourism potential in the Serdang Bedagai regency of East Sumatra.

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6. Conflict of interest

The authors declare that there are no conflicts of interest, either financial or non-financial, related to this research on the conservation of traditional Malay architecture. All stages of the study from field data collection, architectural analysis, to manuscript preparation were conducted independently without any influence or intervention from governmental bodies, private institutions, or commercial sponsors. The authors' affiliated institution provided only academic and research support without affecting the interpretation or outcome of the findings. The authors also confirm that they have no personal, political, or institutional relationships that could compromise the objectivity and scientific integrity of this work. Therefore, this research fully represents the academic perspective and scientific observation of the authors, emphasizing the preservation of traditional Malay architecture as an important element of cultural heritage in East Sumatra.

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