

Challenges in Conserving Bahal Temples of Sriwijaya Kingdom, in North Sumatra

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Abstract: The archaeological sites of the Sriwijaya temple in Sumatra is an important part of a long histories of Indonesian civilization. This article examines the conservation of the Bahal temples as cultural heritage buildings that still maintains the authenticity of the form as a sacred building and can be used as a tourism object. The temples are made of bricks which are very vulnerable to the weather, open environment and visitors so that they can be a threat to the architecture and structure of the temples. Intervention is still possible if it is related to the structure and material conditions of the temples which have been alarming and predicted to cause damage and durability of the temple. This study used a case study method covering Bahal I, II and III temples, all of which are located in North Padang Lawas Regency, North Sumatra Province through observation, measurement, photograph, drawing, and interview. The three temples have similar architectural styles, structures and building details so that the reconstructive actions are also not much different. The findings of this study are the use of other types of material besides bricks and the use of different bricks to maintain the strength of the structure and shape of the building. Cultural heritage objects must be considered as shared property and become the joint responsibility of all stakeholders.

Keywords: Conservation, Bahal temples, architecture, structure and material

I. INTRODUCTION

The North Padang Lawas area is an important archaeological site enshrined during the Srivijaya kingdom, this area is located near the Barumun river which is an important river transportation access at that time (Dupont, 1937; Perret, 2014; Sastri, 1940; Susetyo, 2014; Wiyantarti, 2018) Some of the temples located on this archeological site include the Bahal I, II and III temples, which are not far from each other, each of which is about 500 meters apart. The location of the temples is in the form of traces the sacred buildings and classical architectural works of the Sriwijaya period (figure 1). The three temples have been reconstructed in a complete form so that visitors can enjoy the architectural style of the Bahal temple which is different from the others in Sumatra. The main temple was successfully reconstructed well, but the Perwara temples which became a unity in each temple complex could not be reconstructed in their full form.

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Although it has been restored, not all of the temples returned to a complete building form because when temples were found many were in a state of severe damage.

The three brick temple complexes have been enjoyed by tourists who visit and even tourists can reach the room in the body of the temple. The condition of brick temples that are open in nature raises a number of problems including bricks becoming worn out quickly, damaged and overgrown with mold (A. Siswanto, Farida, Ardiansyah, 2017; Mulyati, 2012). The construction of the temple's head or roof appears to have cracked the structure because the brick structure does not function as a supporting structure as much as possible. In addition, tourist visits also cause problems including footwear friction and excessive burden on the brick surface of the temple (A. Siswanto, Farida, Ardiansyah, 2017).



Fig. 1 Location of Bahal Temples in Padang Lawas, North Sumatra

This study will emphasize the condition of the elegant brick temple and its protective efforts as a cultural heritage building which is expected to last as long as possible. Damage to the temple caused by natural and visitor factors as well as temple protection efforts were examined more closely.

The problem found is the contextual and proportional Bahal temple conservation strategy between its suitability with the preservation rules and its function as a tourist attraction.

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This study is expected to increase understanding of heritage conservation during the Sriwijaya period in the aspect of architecture, structural style and material of temples in Padang Lawas, North Sumatra in a comprehensive manner and can be used to study the preservation of Sriwijaya temples in Sumatra.

II. LITERATURE REVIEW

2.1 Cultural Heritage and Conservation

In general, cultural heritage objects are natural or man-made objects, whether they are moving or not, which have a close relationship with the culture and history of human development. Lack of knowledge from government officials and the public about the importance of cultural heritage for human history and culture from the past to the future. It causes many lost cultural heritage sites and objects including renovations. The principles of restoration, renovation and preservation of cultural heritage objects or presumed cultural preservation need to be understood and carried out according to the desired procedure.

Restoration methods including the conservation of the Bahal temple consider several aspects of preservation by reusing materials that can be used and if needed can replace materials that cannot be used (A. Siswanto, Farida, Ardiansyah, 2017; Mulyati, 2012). Furthermore, the carving patterns, ornaments and characteristics of the temple style still survive even though a building has been restored. Thus it is hoped that the historical value and character of the temple and its ornaments as distinctive features of civilization can be maintained.

2.2 Sriwijaya Temple

Temples are sacred or religious buildings as a part of Hindu-Buddhist civilization in Indonesia originating from India (Hardy, 2016). This building is used as a place of worship of the gods (Hindu temples) or glorify the Buddha (Buddhist temples)

Understanding the temple in Indonesian is an identity of a religious building as a place of ancient relics worship originating from Hindu-Buddhist civilization. Temple buildings are generally used as a place of worship for Hindu gods or to glorify the Buddha.

The temple is perceived as a building where the gods live based on local conditions. Therefore, the architectural art is decorated with various kinds of carvings and sculptures in the form of decorative patterns that are adapted to the local context (Mai Lin Tjoa-Bonatz, J. David Neidel, & Agus Widiatmoko, 2009; Perret, 2014). Religious teachings and symbols conveyed through architecture, relief, and statues depict the elements of spirituality, creativity, and the skills of the makers (Bose, 1926).

Based on their religious background, temples can be divided into Hindu temples, Buddhist temples, syncretic blend of Shiva-Buddhas (Santiko, 2014).

- a. Hindu temples, to glorify Hindu gods such as Shiva or Vishnu, for example: Prambanan, Gebang, Dieng (group), Gedong Songo (group), Panataran, and Bumiayu temple.
- b. Buddhist temples, function for Buddhist glorification or Buddhist monk needs, such as Borobudur, Sewu, Kalasan,

Sari, Plaosan, Banyunibo, Sumberawan, Jabung, Muaro Jambi (group), MuaraTakus, and Bahal temple.

- c. Shiva-Buddha Temple, syncretic temple of the combination of Shiva and Buddha, such as: Jawi.

Based on the parts, the temple building consists of three important parts, including, *foot*(lower), *body*(middle), and *head*(upper).

- a. The foot is the bottom of the temple. This part symbolizes the underworld or *bhurloka*. In the concept of Buddha called *kamadhatu*. Namely describing the animal world, the nature of spirits such as demons, giants and asuras, as well as ordinary human places that are still bound by low appetite. The shape is a square which is equipped with a level on one side.
- b. The body is the center of the temple in the shape of a cube which is considered to be an intermediate world or *bhuwarloka*. In the concept of Buddha called *rupadhatu*. That is to describe the world where holy men strive to achieve enlightenment and inner perfection.
- c. The roof as the top of the temple is a symbol of the upper world or *swarloka*. In the Buddhist concept called *arupadhatu*. Namely describing the heavenly realm where the gods and souls who have reached perfection dwells.

2.3 Bahal Temple of Padang Lawas, North Sumatra

Bahal Temple also called Biaro Bahal or Portibi Temple is a name that refers to the Vajrayana Buddhist temple complex located in Bahal Village, Padang Bolak Subdistrict, North Padang Lawas Regency, North Sumatra (Wiyanti, 2018). The oldest records of when discovered the biaro complex in Padang Lawas were obtained from Franz Junghun, a geologist and East India Commissioner in 1846. After Junghun, then successively visited by von Rosenberg in 1854 and Kerkhoff in 1887. (Dupont, 1937; Perret, 2014), explained about the existence of temple ruins in the Padang Lawas area, Portibi based on a report from Franz Junghun in 1846 that found Hindu archaeological objects (Lahiri & Bacus, 2004).

According to (Dupont, 1937), Krom explained that the relics in Padang Lawas related to the kingdom of Sriwijaya were based on the characteristics of the archaeological findings. This opinion of Krom was also approved (Sastri, 1940) who explained that the remains of the temple ruins in Padang Lawas were the remains of (Perret, 2014; Soekmono, 1985; Susetyo, 2014).

III. METHODOLOGY

Research on the Bahal temple in Padang Lawas Utara, North Sumatra used a qualitative approach that examined the "cases" of the Bahal I, II and III temples in the context or setting of the temple site. The main procedure is to use sampling purposeful (to select cases that are considered important), namely the Bahal I, II and III temple complex located in North Padang Lawas Regency. case study method with a research location covering 3 (three) Bahal temple complexes in Padang Lawas, North Padang Lawas Regency in North Sumatra Province (figure 2).





Fig. 2 Map of Bahal Temples
Source: Google earth, 2019

The research approach includes observation, measurement, photograph, drawing of temple details and interviews with competent participant. Participant in the study were those who had the criteria as person that related to the Padang Lawas enshrinement complex such as temple managers, temple historians, local community leaders, and people who were competent in their fields.

IV. RESULT AND DISCUSSION

4.1 Existing Condition

The Bahal I, II and III temples have been completely re-constructed for all of the main temples but the Perwara temples cannot be completed with consideration at the top of the Perwara temples made of wooden structures. At this time, the three temples complexes have been opened as cultural tourism objects that are supported by local and central governments. The Bahal I II and III temples are open in nature without a roof covering that can protect it from the effects of nature and the weather (figure 3). Likewise, no signage restrictions have been found for tourists not to act that could harm the preservation of the temples.



Fig. 3 The temples of Bahal I, II and III, Padang Lawas, North Sumatra Province

The courtyard of the Bahal I temple is 51.26 x 59.1 meters with a border in the form of a pastoral fence. The layout of the Bahal I temple is clearly visible with a strong shaft in the form of the main temple - Perwara temple 01 - the gate. Perwara 02 is located beside the main temple with a parallel position. The temple shaft is reinforced by placing a pair of makara in front of the temple steps. have stairs (figure 4).

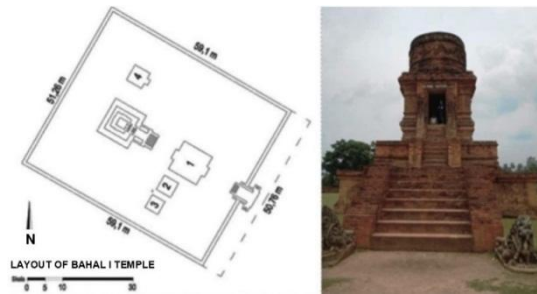


Fig. 4 Temple site of Bahal II with two Perwara temples nearby

Visitors from outside must climb the stairs at the entrance and go down again when stepping on the Bahal II temple yard. In front of the main temple there is the Perwara 01 temple which is straight with the gate forming a kind of shaft. Thus, there is a clear hierarchy between the main temple and Perwara 01 temple (figure 5).

The Bahal II temple yard has a dimension of 37.2 x 44.4 meters with a fence boundary in the form of the same brick structure as the temple.



Fig. 5 Temple site of Bahal II with two Perwara temples nearby

The area of the Bahal III temple complex is smaller than the land area of the Bahal II temple complex. The layout of the temple Bahal III looks simple with a strong shaft in the form of the main temple - Perwara temple - the gate. The temple shaft is reinforced by placing a pair of makara in front of the main temple stairs. Perwara 02 is located beside the main temple with a parallel position. The Bahal II temple complex is surrounded by a stone fence as high and about 1 m thick. The fence becomes a dividing wall with the surrounding area.



Fig. 6 The temple of Bahal III with Perwara temple in the front of it

The Bahal III temple complex consists of the main temple and one Perwara temple in front of it which is surrounded by brick walls and has one entrance or entrance (figure 6). Visitors from outside have to step up the stairs at the entrance and step down again when stepping on the courtyard of the Bahal III temple. In front of the main temple there is the Perwara I temple which is straight with the gate forming a kind of axis. The mass composition of the building on the site of the Bahal III temple complex is the simplest compared to Bahal I and II temples. A pair of makara in front of the Bahal III temple is no longer intact.

On the two sides of the Bahal I temple wall there are carvings or ornaments in the form of people in various positions such as dancing (figure 7). Although many carved parts have been damaged due to damage or eroded brick, there are still proportional details on the shape of the human. On the other side there are ornaments or sculptures in the form of giant creatures sitting.

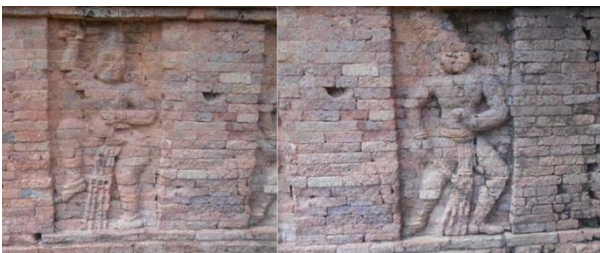


Fig. 7 Relief carved on the walls of the Bahal I temple

Brick temples at the Padang Lawas site are the same as the temples at Muara Takus and at Muara Jambi which do not have reliefs and ornaments on the temple walls. Relief on the brick walls of the temple is very easily damaged, worn and mossy.

4.2. Evaluation after Restoration

The last few decades of activities and efforts to preserve cultural heritage buildings have increased (A. Siswanto, Farida, Ardiansyah, 2017; Mulyati, 2012). Activities are increasingly developing in various ways based on science and needs. Conservation activities are carried out based on standard procedures, well organized and directed to conformity with mutually agreed rules, conservation activities are carried out in accordance with the international conservation charter and the rules and regulations on cultural heritage conservation. Based on conditions and needs, conservation efforts can consider activities in the form of (curative) and preventive (preventive), better than repairs because it can prevent more severe damage to cultural heritage objects.

The first attempt that needs to be a priority of preservation is prevention, an effort to protect and prevent the possibility of the process from damage and or weathering of cultural heritage objects both due to nature and human activity. Thus it is expected that cultural heritage objects can last long in good condition and so that the quality of authenticity is maintained. This is very important and must be understood by all stakeholders, including institutions related to the preservation of cultural heritage objects.

If objects of cultural heritage have been damaged, corrective actions are needed to repair the cultural heritage site. Corrective action requires several processes according

to the need restoring the condition of cultural heritage objects in a better condition.

Those activities are usually common in conservation activities. Preventive conservation is a better action to take, because preventing means avoiding damage that might occur in cultural heritage, while extending the authenticity of the form as it was first discovered. This is certainly in accordance with the principles of the authenticity of the material, form, layout, and workmanship techniques as mandated by Law No. 11 of 2010 concerning Cultural Heritage. Something that has been injured/damaged a little more definitely leaves a mark/stain that will reduce the meaning of the integrity of a cultural heritage. Therefore prevention of damage and or weathering of cultural heritage is very essential to do. The importance of preventive conservation is to maintain the principle of authenticity and the cost that is much cheaper than repairs /curative (Mulyati, 2012).

The authenticity of a cultural heritage site is very important to maintain as much as possible, that meant the shape, building material, location or orientation and the technology used at that time. The authenticity of a cultural heritage object will give high value to the work of our ancestors in the glory of Sriwijaya. Maintaining an authenticity is expected to reveal and illustrate past conditions that can be accounted for in the current generation. The authenticity of cultural heritage objects that can last longer certainly give a positive influence on some aspects related to the preservation of cultural heritage objects. One positive impact if the authenticity of a cultural heritage object can be maintained is tourism, recreation and research activities (Kausar, 2013). The work of ancestral culture in the past will pushed someone's desire to feel and reveal the conditions and atmosphere like that time. Cultural heritage objects can describe the use of materials, shapes, layout and workmanship techniques, and the history behind a cultural heritage created.



Fig. 8 The use of new bricks on the wall that have reliefs

Conversely, if a cultural heritage object has been reconstructed, rehabilitated and renovated without following the standard preservation procedure or is confused with the authenticity of the work in the present, the condition will give false data because it is different from the original (Hudson, 2008). The condition of objects of cultural heritage that are not original but blend with the original without any special signs or information will complicate the research or depiction of the past (figure 8).

They must re-correct and look for which parts are genuine and which parts have changed in the future. If they obtain the data through a previous report, maybe they will be more careful in terms of data collection. The difficulty will increase if the report is not found because of various things (A. Siswanto, Farida, Ardiansyah, 2017).

The condition of authenticity of a cultural heritage object must be cultivated and maintained by stakeholders. The priority that can be taken is to take precautionary measures from damage quickly and slowly, contaminated with chemicals and fungi and replacing new materials that are not too principal. In the context of preserving the temples of Bahal I, II and III which are made of bricks and are easily weathered or moldy due to rain and heat and the influence of visitors, there are several preventative alternatives that can be done to avoid or reduce damage.

There are a number of different ways to take precautions from damage and weathering. Preventive actions that can appreciate the principle of authenticity are united, towards cultural heritage objects in this case Bahal temple. The activities of people in this case are temple visitors/tourists and the rules and procedures for the protection and improvement of cultural heritage objects (Kausar, 2013). To prevent damage to temple buildings from rain and heat from the sun, it is necessary to take measures to provide a roof over the temple to anticipate and reduce natural damage. Considering that Bahal I, II and III temples have relatively large and high dimensions, this effort might make it difficult to implement. Giving a roof with pedestal columns can disturb the direction of the temple as a whole, including to take pictures of the temple to be disturbed (A. Siswanto, Farida, Ardiansyah, 2017).

The second attempt is to impose restrictions on temple visitors (except researchers and temple officials), for example, they are not permitted to step up the temple at all, so the temple needs to be given a barrier fence then visitors can be prevented from going up to the main temple building. This regulation applies at the MuaraTakus temple, Riau. Furthermore, visitors are still permitted to ride the temple on certain days, certain schedules and when the day is not raining. If allowed to go up, visitors of the temple must use soft footwear and the footsteps only step on the floor instead of the temple walls (A. Siswanto, Farida, Ardiansyah, 2017).

The third attempt is to clarify the rules and procedures for the protection and improvement of cultural heritage objects. If there is one small part of the temple that is damaged, worn and needs to be repaired, then immediate action can be taken so that the damage does not expand or increase so that it can endanger the safety of the temple and the safety of visitors.

Management and maintenance of Bahal I, II and III temples should be routinely carried out continuously to prevent greater or more widespread damage. The easiest damage occurs because of rain and heat that lasts for a long time. Brick material exposed directly to the open air is quite vulnerable to natural damage. To prevent damage and make the bricks condition last a long time is to protect the temple with a high and wide roof, so that the influence of rain and heat from the sun can be minimized. How to protect brick temples with roofs is done at Bumiayu temple in South Sumatra and Padangroco temple in West Sumatra (A. Siswanto, Farida, Ardiansyah, 2017; Mulyati, 2012). This

method can be done because the dimensions of the temple are relatively small and low.

Efforts to protect the other bricks temples that have been carried out are by limiting or prohibiting visitors to step up the temple so that the surrounding temples are given fences and metal doors in addition to prohibited signs. This is effective enough to reduce the direct interaction of visitors with the bricks temple.



Fig. 9 Visitors or tourists leaned forward and put their feet on the brick walls of the temple.

This method has been implemented at the MuaraTakus temple, Riau (A. Siswanto, Farida, Ardiansyah, 2017). Although the visitor's desire to climb the temple is blocked but the protection of the temple from damage caused by footprints and the weight of visitors can be avoided.

Based on field observations, the reconstruction of architectural style of Bahal I, II and III temples was more likely than the restoration action. According to (Mulyati, 2012), reconstruction is the act of returning the form of a cultural preserve to its original form when it is found. This action at a glance contains more elements of curative conservation activities, but if it is understood further the element of preventive action will look much more seen from the results of a particular action. Reconstruction carried out in the early days will be able to prevent further damage and loss of data from a cultural preserve. In the act of reconstruction, if there is a shortage of original materials to arrange the shape, it can be added with other ingredients to fill the void between the original materials, so that all original materials can be installed properly.

Furthermore, understanding of restoration is that when reorganizing components of cultural heritage is not permitted to include new material elements. The result is of course the reconstruction work will produce a more perfect form than the restoration. Because if there is a missing material, whose function is to support the original material at the top, then the restoration action does not allow the original material to be paired again. The original, non-installed material will be stored properly, which may form a pile of original material that seizes its own space. In practice, this restoration procedure is difficult to do, it is because the fact shows that the original material is often not obtained in the full amount and form when found.

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Based on the analysis for a broader interest, the decision to choose the reconstruction action compared to the restoration was to get authenticity even though there were additional construction or new materials that were needed. Intervention during reconstruction is more a consideration of being used optimally for tourism purposes rather than maintaining full authenticity. Some local governments do not understand that cultural heritage that has authenticity such as its origin has high value in the aspect of preserving cultural heritage objects (A. Siswanto, Farida, Ardiansyah, 2017; Hudson, 2008). Authenticity may not be complete even if the object of the cultural heritage looks rough, damaged or defective but original. Therefore, determining reconstruction with a little intervention is more desirable because it can be a tourist attraction.

Nevertheless, techniques and information are still being developed to maintain the durability and authenticity of a cultural heritage object with the principle and the aim of maintaining the age of the object is much longer by adding new elements to a minimum. The use of new materials should be clearly distinguishable from the original material such as the use of bricks or sandstones. The possibility of using the new material will gradually change to resemble the original material replaced (figure 10). The use of concrete material will be clearly visible at this time so that people can distinguish new materials from old materials but this may be difficult to distinguish if the cultural heritage objects increase by 1,000 years. The use of cement and chemical adhesive materials will also be able to deceive the understanding of the next 1,000 years. People may be doubtful whether cement and chemical adhesive have been discovered when the cultural heritage was built.

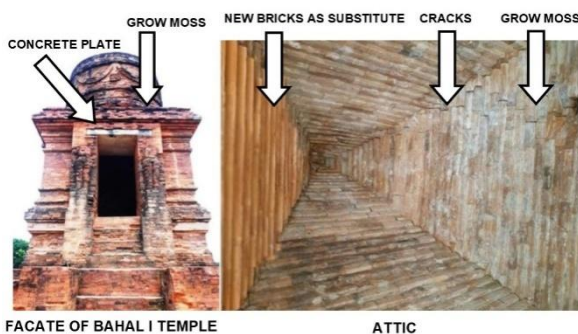


Fig. 10 The use of concrete plate (left) and the damage of temples' attic

At this time several marker forms have been developed that distinguish between new materials and old materials, for example by providing metals in andesite stones which are used as additional material during the restoration of Borobudur temple. The use of andesite stone material in Borobudur temple is only done to strengthen the temple structure of andesite stones to be more stable, stronger and not easily loose. This consequence continued by not adding a new head to the Buddha statue who had lost his head. Reconstruction measures to support preventative conservation are good because they can prevent further damage. For example, the use of anti-watertight material at the bottom and top of the building to be reconstructed. However, this can reduce the authenticity of cultural heritage. As a middle ground, the use of new materials in the reconstruction action

should be accompanied by detailed written explanations that are placed on the area of the cultural heritage object and must be formally documented (A. Siswanto, Farida, Ardiansyah, 2017).

4.3. Strategy of Conservation

Many people realize that the concept of preservation for maintaining the full authenticity of cultural heritage objects is very difficult because it depends on several things, for example 1). The condition of cultural heritage objects when found. 2). There is a document that can describe the original form of the cultural heritage object if it is intact. 3). Availability and condition of original materials in the field. 4). The ability of human resources to work in accordance with the right and appropriate preservation techniques. 5). Availability of technology and equipment that can support the implementation of appropriate reconstruction accordance with preservation rules.

Various conservation measures that are preventive are far better than efforts to improve archaeological remains that have already been damaged (Mulyati, 2012). Reality in the field shows that prevention measures are often overlooked because they are considered not urgent/not yet an important priority. In addition, limited budget conditions are often the reason for this program to be on the waiting list. However, what needs to be addressed is that the anticipatory action requires carefulness, precision and the ability to predict possibilities that will occur if an ancient object is left in the open without adequate protection and maintenance efforts.

V. CONCLUSION

In summary, the concept of conservation in Indonesia has at least only two choices, namely:

- Preservation in the form of restoration, the desire to maintain the authenticity of cultural heritage sites. This desire is based on the purpose of preservation of cultural heritage objects correctly and is universal, does not want to mix the material and the original form with the addition of new materials that can eliminate the authenticity. The true concept of restoration has received high appreciation in the international community because it merely wants to show cultural results like the original from the past.
- Preservation in the form of reconstruction, the desire to realize the integrity of the form of cultural heritage building by using as little as possible new material even though the material is made integrated with the original material of the cultural heritage object. This desire is based on the intention that the whole form (although some are not original) of a cultural heritage object can be used as a tourist attraction (for some people). The choice of this method is always avoided by the international community because the value of cultural heritage objects is low and difficult to assess.

Managers and agencies related to the preservation and restoration efforts of cultural heritage sites and objects would choose to maintain authenticity as much as possible.

The temples in Sumatra are ancestral heritage which is currently not only recognized as belonging to the people of Sumatra but has become the property of the



Indonesian people and even the world. Preserving the temples in Sumatra is a single choice that must be done by the Indonesian people. Basically, cultural heritage will be returned, not inherited from one generation to the next in the local community. Cultural heritage objects must be considered as shared property and become the joint responsibility of all stakeholders.

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