

# Alternative model for sustainable utilization of underwater cultural heritage in Indonesia

## Alternatif model pemanfaatan berkelanjutan tinggalan budaya bawah air di Indonesia

Alqiz Lukman<sup>1</sup>, Panji Syofiadisna<sup>1</sup>, Shinatria Adhityatama<sup>1,2</sup>, Harriyadi<sup>1</sup>, Dewangga Eka Mahardian<sup>1</sup>, dan Erni Trisnawati<sup>1</sup>

<sup>1</sup>The National Research Center of Archaeology, <sup>2</sup>Griffith Center for Social and Cultural Research, Griffith University

[alqiz.lukman@kemdikbud.go.id](mailto:alqiz.lukman@kemdikbud.go.id)

### ABSTRAK

**Kata Kunci:** Tinggalan budaya bawah air; pemanfaatan Cagar Budaya; BMKT; restorasi ekosistem; arkeologi bawah air.

Indonesia memiliki banyak tinggalan budaya bawah air yang berpotensi meningkatkan kebanggaan identitas bangsa dan mendorong kemajuan sosial ekonomi masyarakat. Akan tetapi, saat ini pemanfaatan tinggalan budaya bawah air sebatas pada komoditas ekonomi yang diperjualbelikan tanpa memperhatikan keselamatan dan kelestariannya. Tulisan ini bertujuan untuk mengidentifikasi permasalahan dalam aspek regulasi pemanfaatan tinggalan budaya bawah air dan menyajikan model pemanfaatan alternatif sebagai respon terhadap permasalahan tersebut. Pengumpulan data dilakukan dengan melakukan studi pustaka dan wawancara terstruktur terhadap narasumber yang mewakili Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, Kementerian Kelautan dan Perikanan, serta Perkumpulan Ahli Arkeologi Indonesia. Analisis kualitatif terhadap hasil wawancara menunjukkan adanya tumpang tindih implementasi empat regulasi terkait pemanfaatan tinggalan budaya bawah air. Tulisan ini juga menawarkan konsep yang diadopsi dari model konsesi Restorasi Ekosistem sebagai model pemanfaatan tinggalan bawah air yang berkelanjutan

### ABSTRACT

**Keywords:** Underwater cultural heritage; utilization of Cultural Preservation; BMKT; ecosystem restoration; underwater archaeology.

Indonesia's abundant underwater cultural heritage is potential resource for the pride of national identity, as well as the socio-economic growth. However, current utilization of such resource is still merely limited to exploitable commodities with no consideration to its sustainability. This article aims to identify problems in the regulatory aspect of the utilization of underwater cultural heritage in Indonesia and to propose an alternative utilization model to respond the identified problems. Data collection for this study includes structured interview and literature study. Interviewees are selected people from The Ministry of Education, Culture, Research, and Technology, The Ministry of Marine Affairs and Fisheries, and Association of Indonesian Archaeologist. The results of qualitative analysis on the interview show overlapping implementation of four regulations regarding underwater cultural heritage. This article proposes a utilization concept adopted from the ecosystem restoration concession model as an alternative for sustainable utilization of underwater cultural heritage.

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## INTRODUCTION

Indonesia has a very long maritime historical background. The sea and other water ecosystem have always become the main access route in global trading and seafaring. Indonesia's strategic location in trading route has inherited countless material culture underneath the sea surface. This underwater cultural heritage reserves valuable information not only for the development of science, but also political, religious, social, and cultural values ([Lukman, 2020a](#)).

However, recent condition of the underwater cultural heritage is threatened by looting, collecting of *Benda Muatan Kapal Tenggelam* (BMKT) or Valuable Objects from the Shipload of Sinking Ships, and other destructive activities that cause the preservation of such cultural heritage in danger ([Lukman, 2020a](#)). In fact, some Indonesian assume that these underwater cultural heritages are treasures, resulting a tendency to loot and to trade this valuable heritage to anyone who wants to purchase at the highest price ([Mochtar, 2016](#)). The exploitation in entirely economical aspect has become a major issue in the sustainability of underwater cultural heritage in Indonesia. If this continues, the underwater cultural heritage in Indonesia will be disappeared and future generations will experience no benefit or whatsoever. In addition, this type of utilization also does not provide equal benefits to every people, and only for those few with strong economic background. In fact, *Undang Undang* or Law Number 11 of 2010 concerning Cultural Conservation mandates that utilization of Cultural Conservation is entirely and primarily for the people's welfare while keep maintaining its sustainability.

In a wider perspective, underwater cultural heritage plays minor part in the development of Indonesia. Until now, the main source of development is the utilization of natural resources, such as oil, natural gas, minerals, and forest product. Despite the fact that the use of natural resources has led to a significant increase in the economic development, environmental degradation and destruction of nature has occurred in certain places. Deforestation caused by the palm oil industry, contamination of seawater due to leaking oil pipe plant, and the decline of marine ecosystems due to overfishing are some of the natural resource utilization side effects ([Tampubolon, 2015](#)). Even though, the variety of underwater cultural heritage may become an alternative source of development. Underwater cultural heritage may become a tourism destination, as it is a 'home' for marine habitats, and can be used as the national identity reinforcement ([Lukman, 2020a](#)).

Regardless the benefit we may get from the existence of underwater cultural heritage, the government less concern in maintaining its sustainability in terms of legal protection. This is reflected in several regulations that do not prioritize the integrity of the underwater cultural heritage. For example, regulations regarding the security of shipping or seafaring corridor consider the underwater cultural heritage, especially shipwrecks, as underwater obstacle that threaten the sea corridor safety ([Thamrin, 2015](#); [Yuwono et al., 2016](#)). In the context of underwater cultural heritage, the author realizes the importance of creating a model for the sustainable utilization of underwater cultural heritage that provides equal benefits for the Indonesian people, both socially and economically, while maintaining the existence of the surrounding environment. Currently, several

other countries have implemented models of sustainable resource utilization, such as the utilization of forest products in the form of ecosystem restoration concessions ([Qodriyatun, 2016](#)).

This article studied regulations related to underwater cultural heritage and their implementation to illustrate the problems of underwater cultural heritage utilization in Indonesia. Then, the author examines the possibility of alternative models in underwater cultural heritage utilization for the country and its citizens benefit without threatening the sustainability. This process is conducted by the consideration that underwater cultural heritages values is not merely for reconstructing the past, but also beneficial for reflecting and deconstructing the present in order to shape a better future.

## METHODS

Data collection in this study conducted in two stages, source interviews and literature studies. Interviews were conducted with stakeholders related to underwater cultural heritage to examine problems related to underwater cultural heritage utilization in Indonesia. Interview method was chosen in order to build in-depth relationships between stakeholders, which may be tremendously difficult in statistical or quantitative based analysis ([Creswell, 2014](#); [Mason, 2002](#)).

The author conducted interviews with four representatives from government agencies that have the authority to determine policies related to underwater cultural heritage in the national level and archaeological professional organizations, which consist of:

1. Directorate of Cultural Protection, Ministry of Education, Culture, Research and Technology. Respondent from the Directorate of Cultural Protection were selected to provide information related to the underwater cultural heritage utilization in the context of Cultural Conservation and the current issues. This process is applied based on this agency's duties and functions to register, mapping, and formulate policies on objects for the promotion of culture and national cultural heritage, including underwater cultural heritage;
2. Research Center for Coastal Resources and Susceptibility (*Loka Riset Sumberdaya dan Kerentanan Pesisir*), Ministry of Marine Affairs and Fisheries. The respondent from this agency is selected to comprehend the research aims in the use of underwater cultural heritage in Indonesia, especially in the context of the government's strategic plan. In addition, this agency carries out the law mandate to conduct research related to the potential of marine resources, including underwater cultural heritage;
3. Directorate of Marine Services, Ministry of Marine Affairs and Fisheries. The respondent from this agency is selected to provide information related to the utilization of underwater cultural heritage in the context of BMKT and the current issues. The Directorate of Marine Services is the managing agency to formulate and implement policies on maritime tourism and BMKT from underwater cultural heritage;
4. The Association of Indonesia Archaeologist, an archaeological professional organization whose members are tightly involved in the

policy formulation process and implementing the underwater cultural heritage utilization on their capacity as Cultural Conservation experts, researchers, academics, and the management contractor of Cultural Conservation. Based on this, respondent from this agency were selected to develop information related to the current utilization of underwater cultural heritage.

The semi-structured interview conducted by proposing open questions to the interviewees and followed by additional questions based on their answers. The context of the questions is related to the effectiveness of the current regulations of underwater cultural heritage, the actions taken in the utilization of underwater cultural heritage, and future actions for the conservation-based utilization of underwater cultural heritage. During the interview, the writer recorded the conversation using an audio recorder permitted by the respondent. The results of the interviews are used as a basis to analyze the current condition related to the utilization of underwater cultural heritage. The follow-up to the results of respondent interviewed has two main points in the discussion regarding the necessity for an integrated database and a model for the sustainable utilization of underwater cultural heritage.

Meanwhile, a literature study was conducted to prepare the research background, theoretical framework for data analysis, as well as data related to ecosystem restoration concession models to be compared with the utilization of underwater cultural heritage. Several search on news about the utilization of underwater cultural heritage were also carried out to complement data in the writing of this article.

## **RESEARCH RESULT**

### **Implementation of Underwater Cultural Heritage Regulations in Indonesia**

Based on the results of interviews with the respondent, four regulations related to underwater cultural heritage in Indonesia are successfully identified. These regulations can provide protection and operation status, grant modification rights to underwater cultural heritage in the form of features (shipwrecks), and regulate the management of underwater cultural heritage. These regulations are: 1) Law Number 11 of 2010 concerning Cultural Conservation and its derivatives; 2) Law Number 32 of 2014 concerning the Ocean and its derivatives; 3) Law Number 27 of 2007 concerning Management of Coastal Areas and Small Islands and their derivatives; and 4) Regulation of the Minister of Transportation of the Republic of Indonesia Number Pm 38 of 2018 concerning the Second Amendment to the Regulation of the Minister of Transportation Number Pm 71 of 2013 concerning Salvage and/or Underwater Works.

### ***Law Number 11 of 2010 concerning Cultural Conservation***

Article 1 of this law describes that Cultural Conservation is material cultural heritage in the form of Cultural Conservation Objects, Cultural Conservation Buildings, Cultural Conservation Structures, Cultural Conservation Sites, and Cultural Conservation Areas on land and/or in water that need to be preserved based on their significance values for history, science, education, religion, and/or culture through the stipulation process. Based on the law, underwater cultural heritage included in the Cultural Conservation referred to in the article. The criteria for underwater cultural heritage to become a Cultural Conservation are at the age 50 (fifty) years or more; representing the style of minimum age of 50 (fifty) years; having special meaning for history, science, education, religion, and/or culture; and having cultural value for the strengthening of national identity.

This law regulates the underwater cultural heritage in terms of preservation, whether it is suspected or has been stipulated as Cultural Conservation. Preservation regulated in this law are not only protection, but also utilization. Utilization of the Cultural Conservation for the benefit of the maximum people's welfare while remaining maintaining its sustainability.

On its implementation, the Ministry of Education, Culture, Research, and Technology is the government agency that implements the mandate of this law. Based on information from respondent, underwater cultural heritage that meets the criteria can be proposed to the local government based on the recommendations from the Cultural Conservation Expert Team. Later, if the heritage is considered feasible, it will be authorized by the Regent or Mayor and then verified by the Ministry of Education, Culture, Research, and Technology. The stipulated and authorized Cultural Conservation has legal protection from irresponsible persons who vandalize or destroy the underwater cultural heritage.

Nevertheless, during the process of writing this research, there has been no underwater cultural heritage proposed as an underwater Cultural Conservation. Based on the information from respondent, this is the result of the absence of Government Regulation or *Peraturan Pemerintah* which provides an operational guide for this law. The absence of these operational guidelines results in multi-interpretation and ineffectivity in the regulations implementation. Another issue is that there are less than few human resources with the ability to study underwater cultural heritage, thus hampering the process of establishing it as a Cultural Conservation.

### ***Law Number 32 of 2014 concerning Marine Affairs and Law Number 27 of 2007 concerning Management of Coastal Areas and Small Islands.***

In its implementation, these two regulations are mandated to the Ministry of Maritime Affairs and Fisheries. Based on the two laws, underwater cultural heritage still included in marine resources. Based on the respondent, one of the of marine resources orientations is to encourage economic aspect of the community through research and management in order to develop underwater tourism. The importance of underwater cultural heritage also impacts the marine spatial plan in

regards to its function.

Government Regulation Number 32 of 2019 concerning Marine Spatial Planning, a derivative of these two laws, discusses the division of marine area which functions as a supporting instrument for state sovereignty, social, economic, cultural, and environmental. This regulation defines the division of marine area into 4, Public Utilization Areas, Conservation Areas, National Strategic Areas, and Certain National Strategic Areas. The description of each of these areas is as follows:

1. Public Utilization Area is an area designated to encourage social and economic activities of the community;
2. Conservation Areas are intended for the protection of both natural and cultural heritage;
3. National Strategic Areas are areas of national importance for the development of the country, such as shipping or seafaring corridor and animal migration routes;
4. Specific National Strategic Areas are priority areas which include World Heritage sites.

The underwater cultural heritage can be stipulated through prior study and research. The underwater cultural heritage referred in this case are the shipwreck and/or their cargo. A ship found with valuable history, well-condition ecosystem, and has the potential to be used as a marine tourism destination, will be designated as a Public Utilization Zone for tourism. On the other hand, a ship with historical value but proved to be in fragile and risky condition when it is proposed as a tourist destination, it will be designated as a maritime conservation area. Maritime Conservation Areas are regulated in the Minister of Marine Affairs and Fisheries Regulation Number 17 of 2008 concerning Conservation Areas in Coastal Areas and Small Islands. Article 8 paragraph 2 of this regulation states that the criteria for Maritime Conservation Areas are:

1. The wrecked site of the ship with distinctive archaeological-historical value;
2. Maritime historical sites with important historical, scientific and cultural values that need to be protected for the purpose of preservation and utilization in order to promote national culture;
3. Location of religious or traditional rituals.

Within these two laws, underwater cultural heritage also mentioned in the context of Valuable Objects from the Shipload of Sinking Ships (*Benda Muatan Kapal Tenggelam-BMKT*). BMKT is a valuable object with historical, cultural, scientific, and economic values underneath the Indonesian water surface, the Indonesian exclusive economic zone, and the Indonesian continental shelf, with a minimum age of 50 (fifty) years. The term of BMKT was originally used by the government to issue permits for the collection of underwater cultural heritage to be traded in the international market. The underwater culture heritage considered as commodities that bring short-term economic benefits. One example is the auction of valuable BMKT taken from Cirebon from February 2004 to October 2005 that worth 720 billion rupiah ([Pudjiastuti & Butar-Butar, 2010](#)).

However, since the establishment of Law No. 11 of 2010, the permit to collect BMKT has been moratorium by the government. This is based on the

Regulation of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia Number 4 of 2016 concerning the Temporary Suspension (Moratorium) of Survey Licensing and Lifting of Valuable Objects from the Shipwrecked Load. Currently, the idea of underwater cultural heritage has evolved from being considered a commodity, to a national asset that has to be sustainably utilized. This is referred in Government Regulation Number 32 of 2019 concerning marine spatial plans that include underwater cultural heritage into maritime conservation zones.

***Regulation of the Minister of Transportation of the Republic of Indonesia Number Pm 38 of 2018 concerning the Second Amendment to the Regulation of the Minister of Transportation Number Pm 71 of 2013 concerning Salvage and/or Underwater Works***

This regulation was made to ensure secured shipping or seafaring lane for any ships sailing in Indonesian waters. Currently, Indonesia has also ratified the conversion from the International Maritime Organization (IMO), namely the 1974 IMO Convention for the Safety of Life at Sea (SOLAS) and the 1966 IMO International Convention on Load Lines. The 1974 SOLAS Protocol regulates the management of the validity period of shipping lane security certificates and the implementation of inspections consisting of initial, annual, and ship renewal inspections. The Load Lines Protocol regulates the limits of safe ship loading lines for ship safety, prevention of overload and hull safety, platform safety, and increasing ship stability.

These two international conventions also regulate the clearing of shipping lanes to ensure there are no objects or obstacles such as shipwreck for the safety of shipping lanes. In securing the shipping lanes, the water beneath the surface must be cleared from any object at a depth of 0–100 meters below sea level. The Minister of Transportation regulates the official permit of underwater work, in order to ensure there are no object or underwater disturbances that may threaten shipping lanes. This regulation proves to be endangering the preservation of underwater cultural heritage. The shipping lane clearing is carried out on ships and their cargo that have been in a shipwreck or are in danger, including lifting the shipwreck or its historic cargo in the shipping lane. One example of the case is the disappearance of three Dutch-flagged World War II ships in Indonesian waters ([Manders et al., 2021](#)). These three ships are HNLMS De Ruyter, HNLMS Java, and HNLMS Kortenaer. The vanishing of this ship also affected diplomatic relations between Indonesia and the Netherlands.

Based on the information from respondent, the major issue of this regulation does not come from the articles/laws, but comes from no coordination between agencies to find an agreement in the case of preserving underwater cultural heritage. When it comes to the safety navigation and current necessities, adjustments in the process of preserving underwater cultural heritage are certainly needed. As a comparison, in the process of constructing railroad tracks by PT. KAI, when an object found was suspected as Cultural Conservation, the most urgent action to take is to document the cultural heritage as a salvation process.

## **Polemic on the Ratification of 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage**

2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage is one of the international conventions that specifically discusses underwater cultural heritage. This regulation state that what is meant by underwater cultural remains are *“all traces of human existence having a cultural, historical or archaeological character which have been partially or totally under water, periodically or continuously, for at least 100 years...”* (UNESCO, 2001). This convention based on the fact that many nations do not provide legal protection for their underwater cultural heritage. On the other hand, some other nations provide basic protection or even a high level of protection. The gaps in laws and jurisdictions between agencies or between nations allow treasure hunters to exploit underwater cultural heritage for commercial purposes and ignore the losses impact.

This international convention determines the basic principles for protecting underwater cultural heritage, provides strong site protection action, provides opportunities for cooperation possibility between nations in international waters, and provides practical guidelines for underwater cultural heritage activities (UNESCO, 2001). Some experts state that ratifying this convention will provide benefits to nations in preventing the destruction of underwater cultural heritage, engage cooperation between stakeholders in preserving underwater archeology, improve tourism development, and enable capacity building and international exchange of information (Manders et al., 2012; Vrana, 2008).

Despite the fact that this international convention on cultural heritage would be beneficial, Indonesia has not ratified this convention yet. The respondent we interviewed also stated different opinions regarding the process of ratification of this convention. On the perspective of archaeological research and the protection of Cultural Conservation, this regulation is actually helpful because it prioritizes on site preservation and supports research and utilization of Cultural Conservation. Another potential advantageous from this ratification include initiating opportunities for research collaboration between nations, building international platforms and networks in the protection of underwater cultural heritage, as well as being the basis of underwater cultural heritage preservation plan in Indonesian waters.

Aside from that, there are several major points of this convention need to be highlighted. One of them is the issue of ship ownership, which is assumed to interfere and threaten nation sovereignty. When a foreign-flagged ship is found, any further action to take must involve the origin nation. It is feared that this violates nation jurisdiction because constitutionally, all objects that beneath Indonesian waters belong to Indonesia. In the Maritime Law, it is also stated that the resources contained in the territorial sea and Indonesia's exclusive economic zone are on the right to be explored and only exploited by Indonesia.

One of our respondents gave an example of a case related to the World War II shipwreck in Indonesian waters. Several nations state that they want to own the ships. In addition, in terms of military and security there is also specific point. Each nation is escaping the responsibility in clearing the remains of ammunition and



polluted seawater. This also implicate to the funding distribution in the management and maintenance of these warships. Technical problems in this context have caused the Indonesian government to stand in hesitate to ratify the international convention. Nevertheless, this convention puts forward international cooperation and cooperation between nations in the management of warships in order to create communication and negotiation of each nations interest in order to build a sense of shared ownership in its management.

The next issue is the option of on-site preservation as the first choice in the preservation of underwater cultural heritage. On-site preservation in archeology is a conservation concept that protect and preserves archaeological remains in their original place ([Mochtar, 2016](#)). If Indonesia ratifies this convention, we have consequences for keeping these remains under the sea. The two main obstacles to on-site preservation are human resources and funding sources. Today, Indonesia has limited human resource expertise to carry out underwater conservation ([Siswanto, 2010](#)). The reason is because conservators who carry out maintenance must not only master the techniques of object maintenance, but also the diving ability to carry out conservation and maintenance actions. Implementing regular monitoring of underwater cultural heritage also requires a large amount of funding. Indonesia's vast marine waters also require a large number of boats, divers, sonar, and other supporting equipment.

Based on the explanation above, the polemic related to the ratification of the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage is still a hot discussion within the government. On the one hand, this convention will open up opportunities for partnership and encourage the development of research and knowledge regarding underwater cultural heritage. On the other hand, issues related to technical implementation and operational cost in implementing this convention have caused the government to take longer time in deciding whether Indonesia will ratify this convention or not.

## DISCUSSION

### **Databases and the Relation Between Regulations Concerning Underwater Cultural Heritage**

Indonesian vast oceans and waters contain abundant natural and cultural resources, both in terms of fisheries, oil and gas, coral reefs, and underwater cultural heritage. This abundant resource certainly attracts the interest of many people with different motives. This has also created many regulations and government agencies that authorize marine areas and waters in Indonesia. Based on the results of interviews with respondent, the government agencies involved in regulating and managing marine areas include the Ministry of Maritime Affairs and Fisheries; the Ministry of Education, Culture, Research, and Technology; the Ministry of Environment and Forestry; the Ministry of Trade; the Ministry of Home Affairs; Regional Governments; Police Force, and Indonesian Armed Forces. Each agency carries out the mandate and duties of different laws and regulations. Differences in interests between these agencies resulting in overlapping regulations. This also impact the preservation and exploitation of underwater cultural heritage in Indonesia.

In the Indonesian regulatory data, there are differences of opinion between the Law on Cultural Conservation, the Marine Law, and the Regulation on the Safety of Shipping Routes. In terms of preservation, both Cultural Conservation Law and the Marine Law have utilization and preservation points, despite its different terms. Both the Cultural Conservation and the concept of marine zoning in Maritime Conservation Areas perceive an underwater cultural heritage as a resource that needs to be protected for the present and future interests. On the other hand, regulations regarding the safety of shipping lanes see that intact or on-site underwater cultural heritage located in shipping lanes are a threat to the safety and security of the shipping lanes. So, the cultural heritage needs to be moved or destroyed.

Nevertheless, the relevant agencies can coordinate on the significance values of underwater cultural heritage that are assumed to be affected by the clearing of shipping lanes. This happened during the discourse on the lifting of SS Aquila shipwreck during the construction of the Ambon port and was in the PERTAMINA tarsier zone in 2019. Based on research from the Research Center for Coastal Resources and Susceptibility, the Ministry of Maritime Affairs and Fisheries believes that this ship is an icon of Ambon that needs to be preserved and secured at the place. The location of shipwreck is also designated as a Maritime Conservation Area in accordance with the Regulation of the Minister of Marine Affairs and Fisheries Number 17 of 2008 article 7 letter b ([Rahmawan et al., 2019](#)). Finally, it was decided that the shipping route to Ambon Harbor was changed so as not to endanger the SS Aquila ship.

Based on the previous description, the study needs to examine the significance values and criteria of underwater cultural heritage as a bargaining power in terms of underwater cultural heritage. The Cultural Conservation Act and the Marine Law include criteria for determining the status of these underwater cultural heritage. However, there are no available operational guidelines in the form of government regulations and their derivatives for determining underwater cultural heritage and resulting misperception in the field. This also trigger differences of opinion from the respondent regarding the authorized parties to determine the boundaries of the territorial waters that are still ambiguous, is it between regencies or provinces. It leads to the delayed process of underwater cultural heritage stipulation as Cultural Conservation.

Our respondents claimed that the difficulty in preparing operational guidelines was determining the value attached to these underwater cultural heritages. Both of the Cultural Conservation and Maritime Conservation Areas have provided value categories that must be possessed by an underwater cultural heritage (see [Table 1](#)). However, the value inherent in an underwater cultural heritage cannot be generalized in every case.

**Table 1.** Significance value of underwater cultural heritage in the regulations of Cultural Conservation and Maritime Conservation Area

|       | Cultural heritage | Maritime Conservation Area |
|-------|-------------------|----------------------------|
| Value | History           | Archeology                 |
|       | Science           | History                    |
|       | Education         | Science                    |
|       | Religion          | Culture                    |
|       | Culture           | Religion                   |
|       |                   | Custom                     |

The significance value attached to a cultural heritage may gradually change depending on socio-economic conditions, political agendas, and the collective memory of the community (Lukman, 2020b). Underwater cultural heritage in the form of ships or cargo also has a different value from cultural heritage located on land. This mobile cultural heritage can be accidentally wrecked in the jurisdiction of a nation, so the value contained sometimes has no relevance from that nation, but is very meaningful for the nation that owns the ship which is geographically far away (H. D. Smith & Couper, 2003). This causes the determination of significance value of the underwater cultural heritage is difficult to determine in one particular way.

In UNESCO's guidelines regarding the significance value assessment of underwater cultural heritage, the value in a cultural heritage can be determined in terms of quality and in terms of quantity when it has comparative data with other underwater cultural heritage, both locally, regionally, and internationally (Manders, 2012). This also can be considered to formulate priority scales related to the preservation and salvation of underwater cultural heritage. On the current conditions, several considerably major points in determining the criteria for Cultural Conservation and marine utilization zones is not only its intrinsic value (history, knowledge, culture, and archeology), but also its extrinsic value (economy in the form of tourism, formation of social cohesion, and political agenda) (Lukman, 2017). The result to this process, the preservation carried out is not only anticipated to protect the value of the past, but also utilization for the benefit of the present in order to construct a better future. This also supports the government's vision in utilizing and mapping underwater cultural heritage as cultural resources that give benefit for the public welfare and development.

The nature of underwater cultural heritage has multinational value with its various dimensions. Agencies authorized to the underwater cultural heritage would need to establish an integrated database both from the location, depth, and the value attached to the cultural heritage. In the appendix of Government Regulation Number 32 of 2019 concerning the Sea Spatial Plan, it has been recorded that around 900 shipwreck sites and BMKT are scattered throughout Indonesian waters. Based on the respondent, this data is a combined data from company survey permits for the lifting of BMKT, joint research data from the Ministry of Maritime Affairs and Fisheries, the Ministry of Education, Culture, Research, and Technology, reports from fishermen, as well as from the Hydrographic and Oceanographic Center of the Indonesian Navy. However, this data requires further classification for the stipulation of Cultural Conservation and Maritime Conservation Areas. This data can be the basis for the establishment of

an integrated database. Eventually, this database also surely useful for every government agency to carry out its mandate and duties.

### **Sustainable Utilization of Underwater Cultural Heritage**

Another issue in the underwater cultural heritage utilization is regulatory policies related to unsustainable utilization models. BMKT auction and tourism purposes certainly affect the preservation of underwater cultural heritage. If the permit for the establishing and auction of BMKT is re-implemented, Indonesia will lose a lot of cultural heritage that contribute the national identity ([Pudjiastuti & Butar-Butar, 2010](#)).

Tourism in the underwater cultural heritage sites also provide an additional issue for the integrity of the structure and surrounding ecosystem. For example, underwater tourism on the shipwreck USAT Liberty in Tulamben, Bali. The revenue from the tourism sector is estimated at 3 million Dollars per year and has succeeded in developing the surrounding area ([Lukman, 2020a](#)). However, scientific research shows that these tourist visits endanger the shipwreck structure in several places and cause disruption of the surrounding ecosystem ([Ridwan, 2015](#)).

The responsibility in utilization of underwater cultural heritage requires a conservation-based concept of operation. Exploitative tourism without providing sufficient attention to the preservation of underwater cultural heritage, will also be a dangerous threat. In this article, the author takes as an example the production forest utilization model implemented by Indonesia since adopting Reducing Emissions from Deforestation and Forest Degradation (REDD+).

Each nation has a different policy in the utilization of forest products. Therefore, the United Nations (UN) through the United Nations Framework Convention on Climate Change (UNFCCC) in 2013 created a program that links community welfare with forest conservation ([Dharmawan et al., 2015](#)). The program is called Reducing Emissions from Deforestation and Forest Degradation (REDD+). The aim of this program is that the government may interfere in the forest conservation and support local community livelihoods ([Newton et al., 2016](#)). The indicators used in REDD+ are carbon emissions, biodiversity, and local community livelihoods.

As a member of the United Nations, Indonesia has adopted REDD+ in the utilization of forest products. The government have temporary postponed granting the forest utilization permits, reviewing permits for the utilization of forest products and the establishment of forest areas, supporting law enforcement, mapping customary areas, increasing the capacity of indigenous peoples, controlling forest and peatland fires, initiating green schools and villages, supporting efforts to finalize spatial plans, supporting conflict resolution, also creating strategic programs in the protection of national parks and protected forests ([Forest Watch Indonesia, 2014](#)).

One of the REDD+ implementation programs are the Ecosystem Restoration Concession (RE). Initially the RE concession was an effort to restore forest conditions with its purposes in regaining biodiversity, structure, and others

aspect in the production forests ([Qodriyatun, 2016](#)). RE was inaugurated in 2004 by the Indonesian government in collaboration with the British Royal Society for the Protection of Birds (RSPB), BirdLife International, and Burung Indonesia. After the REDD+ program was inaugurated by the United Nations, the Indonesian government changed the RE concession to REDD Indonesia in 2015 ([World Rainforest Movement, 2020](#)).

This policy was launched in an effort to improve the condition of degraded and deforested forests. Indonesian government propose RE concession area candidate through the Ministry of Environment and Forests (KLHK) to corporates who will manage forests during a 60 years contract. Corporates with RE permits must initiate environmental restoration activities to achieve a natural balance. In addition to the of nature conservation, RE program also aims to improve the economy of communities living in forest areas. Along with the people living in the area, corporate will use the forest without damaging the ecosystem in long term. This policy would revolve the way forest product consumption that initially focused on commodities produced, to prioritizing ecosystems and local wisdom. Utilization of forest products production through ecosystem restoration will lead to a real contribution in improving forest productivity and revenue, without endangering nature ([Ayat, 2019](#)).

The RE program policy resulted a lot of good impact in forest and land restoration. Based on a report from the Ministry of Life and Environment, the RE program succeeded in restoring 4.69 million ha of forest (including peatland and mangroves) in the 2015–2020 period ([Kementerian Lingkungan Hidup dan Kehutanan, 2020](#)). This program also generates new sources of foreign exchange in the form of carbon credits that can accelerate the reduction of greenhouse gas emissions ([Ayat, 2019](#)). Based on this example, Indonesia received compensation for work to reduce greenhouse gas emissions of US\$ 56 million from Norwegian government ([Kementerian Lingkungan Hidup dan Kehutanan, 2020](#)). Despite several shortcomings and adjustments requirements in this program, the RE program is recognized as a driving force in the Indonesia economic transition relies on the green energy resources ([Puspasari, 2021](#)).

The permit model of RE program can also be implemented in the underwater cultural heritage, either through the derivatives of the Cultural Conservation Law or through the Marine Law. When underwater cultural heritage is seen as a cultural resource as well as a national asset, community would require opportunities to invest in the management and utilization. Every investment in underwater cultural heritage will certainly lead to sustainable utilization such as underwater archaeological parks, maritime museums, and public access management to underwater cultural heritage ([Manders et al., 2012](#); [Secci & Stefanile, 2014](#); [H. D. Smith & Couper, 2003](#)).

It is also common in Indonesia that utilization of underwater cultural heritage and other marine resources would include funding from other stakeholders. For example, in field practice there is already a model for the utilization of Cultural Conservation carried out by a corporate, as was done in the utilization of the Candi Borobudur by PT. Taman Wisata Candi Borobudur Pramaban Ratu Boko ([Hampton, 2005](#); [Susilo & Suroso, 2015](#)).

The permit management from the Maritime Law has also been widely carried out in terms of fishing permits, even permits for the utilization of BMKT ([Kasanah, 2016](#)). However, the investment permit granted must be relevant to the sustainability and in accordance with the rules for preserving underwater cultural heritage. This can become the foundation for creating a new conservation model that provides an active role in terms of funding for the private sector and individuals.

Based on research conducted by Whitehead and Finney, it shows that many people are willing to participate in maintaining and preserving underwater cultural heritage. This study was conducted in the United States on 850,000 households and generates approximately \$27.90 billion annually ([Whitehead & Finney, 2003](#)). This indicates that crowdfunding opportunities in the preservation of underwater cultural heritage are also possible as long as there are clear regulations on governing and distributing the funds. However, further study for the application of this model in Indonesia is absolutely needed.

On a perspective of the National Medium-Term Development Plan 2020–2024, the tourism sector is one of the main programs in supporting the national foreign exchange. Underwater cultural heritage with its significance value has the potential to be developed into a tourism destination without neglecting environmental factors and natural sustainability ([Lukman, 2020a](#)). Based on the respondent, it appears that the main issue in the underwater cultural heritage utilization in Indonesia are the lack of human resources and limited funding sources. If the government provides a place for the community to invest and participate as active roles, it would be certainly useful in finding a solution to these problems.

Establishing a utilization model adapted from the RE program will not only support the preservation and conservation as mandated by the Cultural Heritage Law and the Marine Law, but also provides a new livelihood space for the community around the cultural heritage. In addition, the government also gets additional funds and human resources in the utilization of underwater cultural heritage. However, it should be noted that in the utilization plan of underwater cultural heritage, adapting the utilization model based on the RE program, requires input and suggestions from the community and other stakeholders. The active involvement of various elements of stakeholders creates a sense of shared ownership in order to create conservation and sustainable utilization ([L. Smith, 2006](#)).

## CONCLUSION

Indonesia is located in a strategic international shipping lane and consists of thousands of islands, has many underwater cultural heritages scattered throughout the archipelago. However, the potential of this underwater cultural heritage has not been utilized efficiently. In more severe case, the underwater cultural heritage is threatened by looting and theft that endanger its sustainability and existence. This study explores problems related to the weak supervision and utilization of underwater cultural heritage in Indonesia, in terms of regulations and implementation of policies carried out in the field. This study found that the

current regulations are still general in nature and create confusion for operational authorities in the field. Sectoral egos and interest disparities also result overlapping of regulations.

Based on the data found in the field, this article opens a discussion about the importance of establishing an integrated database and developing a utilization model that involves various parties. The database was not only including location points, but also explained the significance value attached to the cultural heritage. This is implemented by creating a comprehensive and integrated database between ministries, government agencies, and other relevant stakeholders as a basis for policy makers.

The utilization model that adapts from the Ecosystem Restoration (RE) program is applicable as a reference model in the utilization of underwater cultural heritage in Indonesia. Authorizing permits for the utilization of underwater cultural heritage to corporate, will not only give the government support in the preservation of underwater cultural heritage, but also will support the local community's economy. Governments can also share responsibility in preserving underwater cultural heritage with corporates and the private sector. Governments can acquire financial support and other resources to preserve underwater cultural heritage. Issues regarding the lack of human resources and funding can be reduced by adapting models such as the RE program. Politically, the government also gains additional value because it allows public to invest for economic progress without endangering the preservation of underwater cultural heritage.

#### **AUTHOR DECLARATION**

All Authors contributed in the writing of this manuscript. Alqiz Lukman served as primary contributor, while Panji Syofiadisna, Shinatria Adhityatama, Harriyadi, Eka Dewangga Mahardian, and Erni Trisnawati served as secondary contributors. The manuscript has been read and approved by all authors. The order of authors listed in the manuscript has been approved by all named authors. All authors receive funding for the publication of this manuscript. This article is a publication of the archaeological desk study entitled "*Studi terhadap nilai signifikansi arkeologi pada kapal karam*" funded by the National Research Center of Archaeology in 2020. All authors confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome. All authors adhered to the Copyright Notice set by Berkala Arkeologi.

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