2. Brief Description of Floating Mosque, Peninsular Malaysia

2.1. Tengku Tengah Zaharah Mosque, Kuala Ibai, Kuala Terengganu

The Tengku Tengah Zaharah Mosque is the first real floating mosque in Malaysia. It is situated in Kuala Ibai Lagoon near the estuary of Kuala Ibai River, 4.5km from Kuala Terengganu Town. The calmness of the mosque is enhanced with the roaring of the South China Sea, making it an alluring and unique tourist attraction in Terengganu. The mosque is built on a floating platform with a lake surrounding it. The mosque combines Terengganu's traditional Malay and Moorish architecture, and is built with marble, ceramics, mosaic works and bomanite paving. The white structure of the mosque covers an area of roughly 5 acres and can accommodate up to 2000 attendees at a time. Construction began in 1993 and finished in 1995. This mosque has a main dome and some small dome and a tower that is a landmark for measuring as high as 125 feet. The prayer hall is divided which is dedicated to the men, while the women pilgrims were housed on the top floor.

2.2. Malacca Straits Mosque

Malacca Straits Mosque was built in a strategic location facing the sea Malacca Island Straits. This mosque was built in the month of July 2003 and was completed on August 29, 2006. It was built at a cost of approximately RM18 million, combining the Middle Eastern and the Malays craftmanship and with a total area of 1.8 hectares. Prayer space can accommodate about 1500 to 2000 worshipers. The Straits Mosque almost similar to the floating mosque in Jeddah, Saudi Arabia. The mosque's most prominent feature is its 30-metre-high minaret which also functions as a lighthouse, acting as a guide for boats, ships and aircrafts. A massive golden dome with blue trims which is visible from a distance sits above its main prayer hall. The building incorporates Middle Eastern architectural style peppered with Malay decorative elements such as the use of bamboo as part of its structure and a beautifully-carved pulpit made out of teak wood. The mosque is quite a spectacular sight at night when the whole building lights up. Malacca Straits Mosque is equipped with various facilities which include a multipurpose hall, a library and a learning centre.

2.3. Tanjung Bungah Floating Mosque, Pulau Pinang

Tanjung Bungah Floating Mosque was built in 2004 in a bid to replace an older mosque which was damaged in the year's major tsunami disaster. It's the first mosque in the country to be built on the sea, with pillars and stilts supporting its majestic structure. Covering an area of 1,295sqm, it can accommodate up to 1500 people during prayer times. The Tanjung Bungah Floating Mosque was built at the cost of RM15 million. Situated along Tanjung Bungah's stretch of beach, the mosque is an architectural wonder with its Moorish design, seven-storey-high towering minarets and 360-degree panoramic view of the sea. From there, the call to prayers, or *azan*, is announced at specific times of the day. Parking space for about fifty cars was also provided for the mosque. The beautifully decorated sanctuary space is using a variety of wall tile patterns. The pulpit of the mosque also customized using high quality wood and carved calligraphy autobiographical and small domed. Tanjung Bungah floating mosque also accentuated by impressive architecture combined result of local architecture and the Middle East, especially Turkey with aerodynamically shaped dome was, according to the ocean environment.

2.4. Crystal Mosque, Kuala Terengganu

The Crystal Mosque is a mosque in Kuala Terengganu. A grand structure made of steel, glass and crystal. The mosque is located at Islamic Heritage Park on the island of Wan Man. The mosque was constructed between 2006 and 2008. It was officially opened on 8 February 2008 by 13th Yang di-Pertuan Agong, Sultan Mizan Zainal Abidin of Terengganu. It has the capacity to accommodate over 1,500 worshipers at a time. Crystal Mosque is located within the grounds of Islamic Heritage Park, another major attraction in Terengganu. This unique structure adopts a contemporary style injected with Moorish and Gothic elements. A large crystal chandelier forms the main prayer hall's centrepiece. At night, the mosque comes alive with a mesmerising display of lights, which changes the colour of its domes and minarets to pink, green, yellow and blue. Crystal Mosque is the country's first 'intelligent' mosque with a built-in IT infrastructure and WiFi connection,

providing visitors with internet access with which to read the electronic Quran. There are various facilities such as taking ablution, toilets, prayer hall, lounge chairs etc. This Mosque also has 2 separate prayer space and space for visitors to visit in the area.

2.5. Al-Hussain Mosque, Kuala Perlis

Al-Hussain Mosque, Kuala Perlis is opened on October 8, 2011. The mosque made from a variety of mineral substances without any paint and built floating on the beach of Kuala Perlis. Able to accommodate up to 1,000 pilgrims**.** The mosque took four years to complete at a cost of about RM12 million. From the plains of the mosque, visitors are sure fascinated see no painted mosque walls instead just using coral rock types, quartz, granite, marble and pebbles. Its majestic golden-yellow-and-blue dome is made from two layers of aluminium, with a layer of Polyvinylidene Diffluoride (PVDF) protecting its surface. Another unique feature is its twin minarets, which are the first hexagonal minarets in the world. At night, the minarets come alive in various colours with each colour signalling a different prayer time, which can be seen from as far as 10 kilometres. A waqaf mosque erected in the square. Guests can also relax in along the wall overlooking the sea. Three palm trees brought in from Arab Lands West Asia inject elements of the mosque site.

3. Maintenance and Preservation Requirement Materials

These requirements and their annual costs are generally influenced by comparison with the initial costs of construction. All materials require some maintenance and preservation. The problem may be physical or chemical maintenance and may vary not only between different materials but within the same material.

3.1. Stone

The stone around the floating building deteriorate chemically. The main problems are reduction in size through abrasion, splitting or breaking, particularly of armour stone, and loss of stone due to the power of waves or currents, or the undermining of the structure. Preservation of stone as a material is not generally feasible and maintenance is normally a matter of replacing damaged or missing stones. Generally, damage to a breakwater, jetty, or groin does not cause severe resultant damage immediately but mobilization costs to do maintenance work are high.

3.2 Earth

Little can be done to preserve an earth structure except to protect it from erosion. Like stone, maintenance is a matter of replacing lost material. Ease of access to the earth part of an installation will determine the maintenance cost.

3.3 Concrete

The quality and the life of concrete are largely controlled by the methods of mixing and placing. To increase and improve the life of the concrete from flaking or dusting, proper coating is required. In saltwater, and to a lesser extent freshwater, if the reinforcing steel is exposed to oxygen it will combine to produce corrosion. Rusty steel surfaces that will expand causing physical spalling, cracking or splitting of the concrete resulting in total failure. Such cracks must be kept sealed to slow this process. Surface cracks are commonly found on the concrete flat roof and floor screed and normally caused by improper curing process [3] As cement has a calcium base, it may be necessary to protect it from chemical change by pollutants or biological attack. Like stone, the primary need for maintenance or preservation is to prevent deterioration. This may be from abrasion by harder and sharper substances, such as quartz sands, or from the force of storm waves overstressing the structure. Maintenance may consist of sealing cracks, patching abraded or worn areas before the reinforcing steel is exposed, or actually replacing individual concrete units within the structure.

3.4 Steel

Maintenance or preservation of steel structures is to prevent chemical or galvanic deterioration. Unless made of special and expensive alloys, exposed steel is subject to rapid deterioration through oxidation or rust, especially in the wet-dry tidal area and at the sandline. The latter can be very severe in the surf zone where the corrosive process is accelerated by the abrasive action of the sand continually removing the rust and exposing new steel. The application of paint or some of the new protective coatings can greatly increase the life of such steel members. The galvanic process can be greatly reduced or eliminated by the installation and maintenance of "cathodic protection systems." Physical failure will not normally occur from wave or current forces if steel structures are properly designed.

3.5 Wood

The highest cause of deterioration of wooden structures is biological attack. This may be by plant or animal life to occur in the wet dry tidal area. Two methods of preventive maintenance are available complete impregnation of the cells of the wood by chemicals, or the application of a surface coating that prevents entry of borers into the timber. Surface coatings may be coatings such as antifouling paint or a coating material resistant to borer penetration. Without such protection, a wood structure will deteriorate rapidly.

4. Conclusions

The measurement of performance is important in providing an indicator of the level of success and for improving the quality of work. It could lead to innovation and comparativeness [4]. Conservation works must preserve and if possible enhance the messages and values of cultural property. All conservation implementation should consider several factors such as the value of history, architecture, age, function, materials and maintenance and supported from various relevant parties. The key element of conservation activity will never escape with repair and maintenance work. As in [5], revealed that there is lack of technical knowledge in repairing and maintaining historic buildings. This is a major problem because almost all conservation jobs involve both repair and maintenance stages requiring an understanding of and analysis of building defect diagnoses. Generally, there are seven approaches in a conservation program, used individually or combined, depend on the circumstances and objectives of a conservation project. The approaches are conservation, preservation, restoration, maintenance, redevelopment, rehabilitation and consolidation. There are several approaches used in preserving religious buildings. The most common approach used particularly for mosques are conservation, preservation, restoration maintenance. The conservation work was successfully restored to its original features which include the building material, design and location.

5. References

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