

COMMUNITY-BASED PROJECT: CONSTRUCTION OF KIOSK FOR SELLING OF AGARWOOD SHOOTS AND SAFEGUARDING THE PROGRESS OF REPLANTING AGARWOOD TREES

Fadzidah Abdullah

Assoc. Prof., International Islamic University Malaysia, MALAYSIA, fadzidah@iium.edu.my

Abstract

Agarwood is one of the most valuable tropical forest products in international trade. Also known as gaharu among Malaysians, this tree has heartwood to produce resin with a distinctive scent. Agarwood has been used for centuries as a fragrance by the Chinese, Indian, Arab and Malays. Agarwood has a variety of by-products, such as scented essential oil, agarwood fragrance, agarwood incense sticks, agarwood tea, and wooden scented bracelet. Unfortunately, the threat of diminishing agarwood trees in the Malaysian rainforest is rampant due to widespread overharvesting. The resin-producing trees are endangered in their known habitat across Southeast Asia because of the increase in demand for Agarwood in recent years. Hence, an attempt to replant Agarwood in its natural rainforest environment should be undertaken to safeguard the development of agarwood selviculture. This paper illustrates how a community-based project could aid in the preservation of agarwood trees in the Malaysian rainforest, specifically in Semenyih, Selangor, Malaysia. This community project is presented as a showcase so that similar projects could be encouraged by all stakeholders of higher learning institutions. The project was proposed for students to design and build a kiosk for the indigenous people of Semang to sell their agarwood shoot to donors, who would pay for replanting of agarwood trees. This project is considered a contribution of architecture students to preserving agarwood trees and safeguarding the progress of replanting the trees in the Malaysian rainforest. The project involved ten stages, listed as the following: Discussion for Project Planning, Obtaining Sponsorship, Organising Kiosk Design Competition, Site Feasibility Study, Preparation of Working Drawing, Site Clearance and Earth Work, Harvesting Building Materials, Construction Days, Tree Planting, and Documentation. This showcase project has successfully disseminated agarwood preservation awareness and motivating action among students, the Semang people, and the general public.

Keywords: Community-based Project, Safeguarding Agarwood, Replanting Trees, Construction of Kiosk.

1 INTRODUCTION

This paper illustrates how a community-based project could aid in the preservation of agarwood trees in the Malaysian rainforest, specifically in Semenyih, Selangor, Malaysia. This community project is presented as a showcase so that many relevant agencies and authorities could employ similar projects in the future. The project was proposed for students to design and build a kiosk for the indigenous people of Semang to sell their agarwood shoot to donors, who would pay for replanting of agarwood trees. This project is regarded as a contribution of architecture students towards preserving agarwood trees. This project also helped to safeguard the progress of replanting the agarwood trees in the Malaysian rainforest.

The project was conducted in conjunction with Students' Development, organised by International Islamic

University Malaysia (IIUM), the Youth Association of Mosques Selangor, and the indigenous people of Semang. This project was promoted by the Students' Development Centre, IIUM (S-Dev), and sponsored by the Ministry of Higher Education of Malaysia (MOHE).

1.1 Project Intention

Like all the indigenous people in Malaysia, the Semang people are nature lovers who strive hard to protect their natural living environment and the rainforest and preserve their way of life. Therefore, this project pursues the care and educates the Semang people on the importance of protecting the rainforest. With a specific focus on agarwood trees, the project intended to provide the Semang people with a kiosk to sell agarwood shoots to donors, who would eventually give away the agarwood shoots to be replanted. This project was initiated to control and safeguard silviculture for agarwood trees. The Semang people are also involved in the seedling, selling, replanting, and growing agarwood trees in rainforest adjacent to their living environment. This practice could help them control agarwood trees' establishment, growth, composition, health, and quality to meet diverse needs and values. In addition, due to the current deforestation problem, there is a need to have an architectural solution to protect the rainforest, the natives' economic resources, and the place's cultural identity.

2 LITERATURE REVIEW

2.1 The threat of Agarwood Extinction

Deforestation is one of the most critical global climate concerns in developing and developed countries Geographical Association (2020). Deforestation is also known to destroy the existing animal habitat and contribute to the rise of global warming and climate change. Forests are often destroyed for the sake of monetary benefit and physical development. The rainforest in Malaysia is believed to be the oldest and has the most biologically diverse forests globally. Due to uncontrolled deforestation, the native communities living in the Malaysian rainforest have also lost their income and cultural identity.

One of the most valuable tropical forest products in international trade is Agarwood, called gaharu. Agarwood is a type of tree whose heartwood produces resin with a distinctive scent that has been used for centuries as a fragrance. Culturally, the Chinese, Indian, Arab, and Malays regard Agarwood as essential in their lives. Agarwood has a variety of by-products, such as scented essential oil, agarwood fragrance, agarwood incense sticks, agarwood tea, and wooden scented bracelet.

The demand for Agarwood has risen in recent years, but the threat of diminishing agarwood trees in the Malaysian rainforest is critical due to overharvesting. These resin-producing trees are endangered throughout their known habitat across Southeast Asia (TRP, 2016). The effort of sustaining Agarwood in the Malaysian rainforest is necessary to maintain the availability of agarwood trees. Although there are attempts to develop agarwood plantations to respond to the high market demand, preserving Agarwood in its natural environment is extremely important to save the existing genetic diversity (Blanchette et al., 1997). Thus, Agarwood should be replanted in its natural rainforest environment to safeguard the development of agarwood silviculture.

3 PROJECT PROCEDURE

3.1 Proposed Site

The proposed site for Kiosk construction was located at Lalang River Village (Kampung Sungai Lalang), Semenyih, Selangor, Malaysia. The site was located at a roadside adjacent to Sungai Tekala Forest Park. The site's surrounding area was occupied by the Semang people, who lived in the rainforest wilderness. The place was chosen because it was easily accessible to the Semang community, tourists, and the public. The feasible site enabled students to collaborate and socialise with the community of Semang people and encourage the community to control the physical development of the area. Fig 1 shows the site condition before the project began.



Fig 1: Proposed Site for Construction of Kiosk

3.2 Construction of Kiosk

Proper planning was required to construct a Kiosk for the Semang people to sell agarwood shoots. There were several stages undertaken to ease the smooth running of the project. Description of stages and the related activities are described below.

Stage 1: Discussion for Project Planning

Few discussion sessions were carried out before the commencement of the semester, with the involvement of all stakeholders. The project was adopted as part of AAR2101 course content: Architectural design 3 for second-year architecture students.

Stage 2: Obtaining Sponsorship

Application of sponsorship had to be done a couple of months before construction. The project successfully received sponsorship from the Ministry of Higher Education of Malaysia (MOHE) under Knowledge Transfer Grant.

Stage 3: Organising Competition Among Students

The faculty organised a design competition to get the best kiosk design option. Students were to adhere to the competition's requirement, which was to design a kiosk for the Semang people to sell their products, with a maximum size of 22.5 m^3 (2.5m x 3m x 3m). The winning group would have their kiosk design collaboratively constructed by all students. Representatives of Semang people and the Youth Association of Mosque Selangor were privileged to choose the group winner.

Stage 4: Site Feasibility Study

Academic staff had a preliminary visit to Lalang River village to identify the exact spot for the kiosk construction. Besides, academic staff checked the feasibility of the site to ensure its suitability for construction. The place had sloping contours, which required a pretty extensive earthwork.

Stage 5: Preparation of Working Drawing

Students did the preparation of minor working drawings with the assistance of academic staff.

Stage 6: Site Clearance and Earthwork

Steep slope and sandy soil made the site critically vulnerable to erosion. Thus, extensive earthwork was required; and some digging and landfill would be necessary

to replace the sandy soil. The Semang people helped carry out the earthwork before students went to the site for construction purposes. Proper compaction of the ground would allow for prolonged usage of the Kiosk.

Stage 7: Harvesting Building Materials

Both natural and man-made materials were used to construct the Kiosk: such as concrete, reinforced concrete blocks, sands, stones, bamboos and segalok leaves. Six (6) students volunteered to help two (2) Semang people to collect bamboos and segalok leaves from the nearby jungle. Sand and stones were readily available on site, whereas reinforced concrete blocks were transported to the site. The Kiosk floor would be made of natural stones, whilst the structure and the envelope of the Kiosk would be made of bamboo. Segalok leaves collected from the nearby jungle would be used for the roof.

Stage 8: Construction Days

Ninety students and 2 Semang people worked on the construction of the Kiosk under the supervision of academic staff. Since the site was approximately 80 km away from campus, students had to stay at the nearby Sukida Resort for three days. The first day's morning session was allocated for students to have breaking-ice sessions with the community of Semang people and do a feasibility study of the site. On the afternoon of the first day, students started to work on the construction. The second day was dedicated solely to the construction of the Kiosk. On the third day, the opening ceremony was held to commensurate an out-reaching program to the people of Semang.

Stage 9: Tree Planting

Students planted trees in the afternoon of the third day. Due to logistic problems, both students and the Semang people could not grow the agarwood shoots in the nearby jungle. Staff resolved the issues by planting the agarwood shoots around Sukida Resort.

Stage 10: Documentation

Students documented their works in the form of photographs and video. Students broadcasted videos on you-tube to create awareness of the importance of safeguarding agarwood trees. They produced documents that could motivate others to embark on similar activities.

The following figures show the activities carried out for the project.



Fig 2: Students are working collaboratively



Fig 3: Construction of Roof Structure



Fig 4: View of the half-completed Kiosk



Fig 5: Roof design

3.3 Costing for Kiosk Construction

The cost incurred to this project was optimum, considering that labour cost is free of charge. Sponsorship was secured from the Ministry of Higher education (MOHE), amounting to RM17,000, to construct the Kiosk. The financial contribution was also sought to buy agarwood shoots from the Semang people. The price for the small agarwood trees is RM5.50 per shoot. The academic staff announced the call for distribution to the IIUM campus community, and consequently, a contribution amounting to RM495 was obtained. This financial contribution allowed the students to get 90 agarwood shoots to plant instead of 100 as planned. Requesting support from the IIUM's campus community helped promote the preservation of the natural environment and encourage sustainable development, which eventually reduced the rate of deforestation.

4 CONCLUSION

This showcase project had successfully disseminated agarwood preservation awareness and motivating action among students, the Semang people and the public. The project had also helped to innovate a new way of out-reaching and collaborating with the Malaysian indigenous people. Besides, the project strengthened institutional collaboration among many involved parties: International Islamic University Malaysia, Youth Association of Mosques Selangor, Students' Development Centre of IIUM (S-Dev), and the Ministry of Higher Education of Malaysia. Hopefully, by providing Kiosk for the Semang people to sell agarwood shoots, more donors appear to continuously support the agarwood replanting projects.

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