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An Overview Towards Potential of Adaptive Reuse Concept on Abandoned Tobacco Smokehouses in Bachok Kelantan.

Ayub Awang¹, Ariff Hakimi Zulkifli¹, Siti Aishah Attaulah² & Mohamad Jefri Jaafar²

¹Faculty of Architecture and Ekistics and ²Faculty of Creative Technology and Heritage
Universiti Malaysia Kelantan, Negeri Kelantan, Malaysia

Abstract

Tobacco has been used since prehistoric time and is known as the native plant of the South America, specifically in Peru and Ecuador (Musk and Klerk, 2003). It has been introduced in Malaysia more than 100 years ago. Bachok district is a Malaysia's tobacco granary where the productivity and quality of tobacco production in Bachok is greater than other places. Due to the fall in tobacco demand, the tobacco smokehouses are now abandoned without being used by the tobacco producers. Now, Kenaf plant (*Hibiscus cannabinus*) has become an alternative crop to replace tobacco as the 5,000 tobacco growers in the country were affected by the ASEAN Free Trade Area (AFTA) enforcement in 2010 (mStar, 2008). The fall of the tobacco industry is also driven by the government controls over tobacco production as the tobacco might give adverse effect to people. The decreasing demand in tobacco has caused many tobacco smokehouses owners to abandon their smokehouses. Buildings that are idle, have become the breeding ground for mosquitoes and unwanted wild animals. This has given a bad outlook to that particular area in Bachok. Therefore, this paper will discuss the possible potential of tobacco smokehouses by applying the adaptive reuse concept, the underpinning concept of conservation projects around the world. The discussion is also made based on the study of the abandoned industrial buildings potentials to transform the smokehouses into reusable buildings.

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Key-word: - Tobacco smokehouses, adaptive reuse, abandoned buildings, conservation

1. Introduction

Tobacco has been introduced in other parts of the world, including Malaysia since more than 100 years ago (Lembaga Kenaf dan Tembakau Negara, 2017). Tobacco plant or also known in *Nicotiana* genus is categorized in *Solanaceae* family and it is classified as the world industrial plant. There are several species identified in tobacco such as *N. tabacum*, *N. rustica*, *N. silvestris*, *N. glutinosa* and *N. petunoides*. *N. rustica* contains higher levels of nicotine compared to others (Santoso, 2001). Due to its short maturity period and high market value, it is a popular choice among farmers. In addition, tobacco can be planted on a variety of soils, especially in the ground with good drainage. According to Lembaga Kenaf dan Tembakau Negara (2017), the process of exploration and shipping by Europe traders to Asia in the 19th century has assisted in the introduction and cultivation of tobacco in Southeast Asia especially in Sabah. Tobacco plant was most successful in year 1883. The main areas of cultivation were in Sagama River valley, Lahad Datu, Sabah. At that time, it had drew more than fifty entrepreneurs from Europe and the export value had reached RM2 million in 1902. Whereas, the commercialization of Virginia tobacco (*N. rustica*) has started in Peninsular Malaysia after the experiment on soil suitability for planting was successfully in 1931. The experiment was conducted in government research farm in Serdang, Selangor. However, the development of this industry was slow due to the Second World War, especially in 1959 and the effort to increase tobacco plants have been implemented in earnest.

* Ayub Awang. Tel.: +6019 4955 501 ; fax: -
E-mail address: ayub.a@umk.edu.my

Bachok is a Malaysian Tobacco granary where in 2004, a 3,400 hectare area has been planted with tobacco. The target group involved was the Preservatives Individual Growers or 'Penanam Pengawet Individu' (PPI). Being a popular crop for planters in 2004, the total production of tobacco had reached 4,237,323 million kilograms, which was a great achievement of Bachok district.

The valuation of income earned by the operators of the tobacco was RM61186 million with an average sales price of RM14.44 per kg for dried leaves, the highest compared to the average rate for Kelantan (RM13.91) and of Malaysia (RM13.89) (Department of Land and Bachok District, 2014). The productivity and quality of tobacco produced in Bachok had surmounted other places where agricultural production was 1,255 kg / ha, while for Kelantan and National were 1,125 and 1,108 kg / ha consecutively. All this has proven that Bachok residents have high skills in tobacco planting (the National Tobacco Board, 2014). In view of the flourishing tobacco industry, many tobacco smokehouses have been built. These smokehouses carried the main function for drying harvested tobacco leaves before they could be sold in the market. However, with the decline in demand and other surrounding issues, tobacco industry has become a sunset industry that is waiting to die hence lead to tobacco buildings abandonment problem.

In tackling the issue of abandoned tobacco smokehouses in Bachok, the adaptive reuse concept has been applied to review possible potentials of the buildings. Adaptive reuse can be defined as a process that changes a disused or ineffective item into a new item that can be used for a different purpose. Sometimes, nothing changes but the item's use (Australian Department of the Environment and Heritage).

2. Problem Statement

The decline in demand of tobacco has forced many farmers to switch their focus on other plants. Now, Deccan Hemp plant or Kenaf plant (scientific name *Hibiscus cannabinus*) has become an alternative crop to replace tobacco. The shift has also been caused by the speculation that 5,000 tobacco growers in the country would be affected with the enforcement of the ASEAN Free Trade Area (AFTA) by 2010 (mStar, 2008). The fall of the industry is also driven by the government controls over tobacco production as the tobacco products are able to give adverse effect to smokers and people who sniffed the smoke. Due to increasing awareness about the danger of smoking, the government has to lower the production of harmful raw materials (The Star, 2010). It was estimated that 6,000 tobacco growers in Kelantan have lost their source of income due to the turbulence. A total of 5,000 tobacco growers were from Bachok district while the others were from Pasir Puteh, Pasir Mas and Tumpat. As a result, the local tobacco businessman had to find alternative crops for income generation (Sinar, 2012). With the fall of the tobacco industry, many tobacco smokehouses are left abandoned without being used by the tobacco producers.

Buildings that are idle have become the breeding ground for aedes mosquitoes and unwanted wild animals. This has given a bad outlook to that particular area in Bachok. Hence, efforts to reuse the abandoned tobacco smokehouses should be implemented by innovating the range of use or functionality of these buildings enabling income generations for the locals.

3. Research Question

- i. How the adaptive reuse concept could help to assist in reviving the abandoned tobacco smokehouse buildings?
- ii. What is the most ideal solution to revive the abandoned tobacco smokehouses based on the adaptive reuse concept?

4. Research Objectives

- i. To review the adaptive reuse on abandoned tobacco smokehouse buildings
- ii. To suggest the best solution to revive the abandoned tobacco smokehouses based on the adaptive reuse concept

5. Scope of Study

The study will review the adaptive reuse concept that has been used by people around the world towards reusing or reviving abandoned industrial buildings. Industrial buildings such as factories and smokehouses are rarely used for other purposes due to their minimal unattractive design if compared to other buildings. The study will suggest the potential for adaptive reuse concept to be applied on the abandoned tobacco smokehouses with the aim to generate the local economy. A new design of concept model that can adapt to buildings shall be used for this purpose.

6. Methodology

Qualitative research technique has been used to collect data and information. The archival data involved are in the form of report, books, journals, articles, newspapers and bulletins. Journals and articles are the major reference in this research. The articles and journals about the implementation of adaptive reuse concept on agricultural, industrial and rural buildings examples written by various researchers around the world are referred for literature. In addition, the articles in newspapers provide information and issues about tobacco industry timeline in Malaysia. Lembaga Kenaf dan Tembakau Negara (LKTN) important to provide resources such as statistics, locations, issues and tobacco history especially in Kelantan state. The sources are important for researchers to evaluate opportunity of abandoned smokehouses building for implementation of adaptive reuse concept in this area. Using photograph and sketches, further observation on abandoned tobacco smokehouses are conducted to confirm type and building style on the site.

7. Tobacco Smokehouses

Tobacco smokehouse is an industrial/agricultural building usually located on the farm and used for various purposes such as farming and storage of agricultural crops. In addition to the use in farming, it can also be used for storage equipment and so on. While the tobacco smokehouses are a kind of barn found in the United States which is an important factor in the process of preserving tobacco leaves that most of its was built before the mid-1970s. Tobacco smokehouses have a heat exchanger and a flue that aims at combustion gas out of the tobacco tires (P. E. Sumner, J. M. Moore, and M. D. Boyette, 2001).

According to the Lembaga Kenaf dan Tembakau (2009), tobacco smokehouses are a building or part thereof constructed, adapted or used for the process of curing tobacco leaves. There are 4 main processes in tobacco preservation such as fire curing, solar curing, heating and air. According to Geist (1999), tobacco smokehouses are buildings that have outside furnaces and while roofs are made of zinc or grass and there is a hole near the floor and the roof as a ventilation space. Tobacco smokehouses are also built with chimneys as airspace out through channels that made up with bricks. The channel acts as a place or space for heat that it released slowly. In conclusion, tobacco smokehouses are a place or agricultural building with a variety of uses not only focusing on agriculture but also as livestock use and storage. These buildings are also called as tobacco barn are also as an important building in tobacco production processing. The building has various features such as heat exchanger and flue as an outlet of combustion gas from tobacco smokehouses.

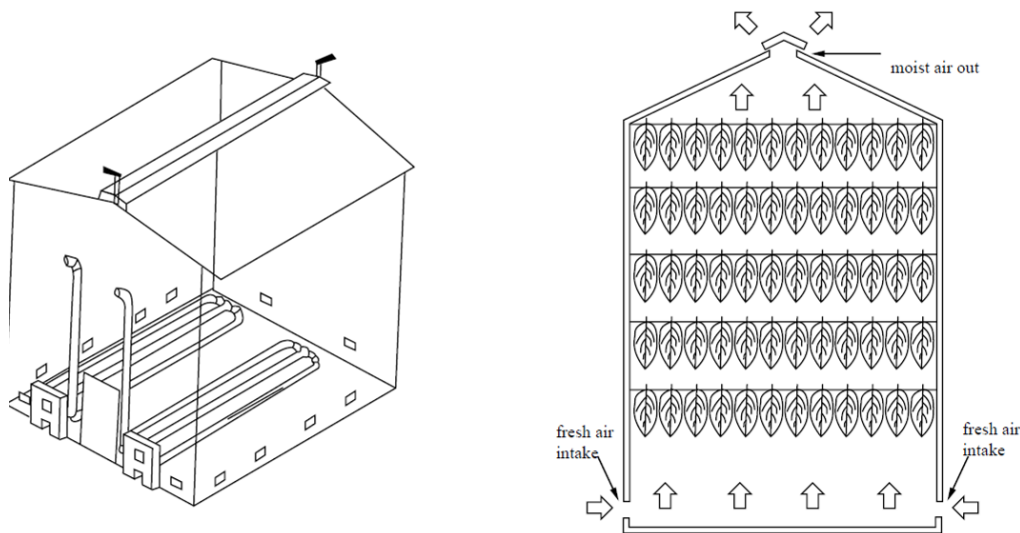


Figure 1
Conventional tobacco smokehouses design (source: Scoot, 1997)



Figure 2

The scenery of abandoned tobacco smokehouses in Bachok is easily can be found along the main road from Pasir Puteh heading to Kota Bharu (source: Author)

8. Values and Importance of Adaptive Reuse Concept

Ahmad (2006) stated that old buildings can serve as evidence of an era or event in a particular area. There are many old buildings or monuments that have been built around the major cities that are renovated for use as residential, administrative, defence, transportation and for business purposes. Therefore, the re-use concept of idle buildings cannot only contribute to the economy to a particular region but also assist in the growth of the country's economy as whole. Old and neglected buildings that have been renovated from their original function to more attractive functions can be a tourism product in an area. For example, renovated old buildings are used as museums, galleries, art paintings, home stays and tourist centres. Indirectly it creates job opportunities and enhances the living standards of the people (Siti Nor Fatimah, 2014).

According to Bridgwood (2008), the reuse and re-adaptation of old or historical buildings needs to be practiced so that the future generation will have the opportunity to see and enjoy it in the existing form as it was built hundreds of years ago or at least in a modified form such as museums, galleries, hotels and more. According to Powell (1994), old buildings have unique and special features in terms of their own distinctive artistic style. Many of the old buildings that are used still retain the structure and character of the building. This is because the retention of the architectural structure of the building is a measure of civilisation by referring to the fineness of art and construction technology in the past. The redefinition works including controlling, preserving, researching and protecting buildings are important as a source of information research on historical and cultural identity of the past in an area. This can be seen from the architectural value of a building as well as the location of buildings that can be used as a source of culture and heritage (Siti Nor Fatimah, 2014).

In conclusion, the abandonment and reuse of abandoned buildings can provide values and attract interests from various angles. Each building has its unique architectural design that is capable of attracting people. Indirectly, the reuse of buildings can improve the standard of living of communities in a region as well as countries by diversifying the functions of idle buildings.

9. Potential

There are many buildings in the world that have undergone a change of function as the building has not been used. It is also no exception to the abandoned industrial buildings such as tobacco smokehouses. These industrial buildings have the potential to reuse due to current trends and other factors. Although the shape of these industrial buildings is not appealing as its construction is more of a function than its design, the concept of reuse of this industrial building is seen as unlimited. Through the examples mentioned, some examples can be taken with regard to the appropriateness of the concept of reuse of the building tobacco smokehouses. Worldwide, non-functional industrial buildings have been successfully reused for different monetary generation purposes.

9.1 Restaurant, Café or Gastronomic Stall

The smokehouse building has the potential to be converted into a restaurant, café or stall selling traditional food in Kelantan. In accordance with the identity of the state, Kelantan is rich in its diversity of traditional foods that have always been an icon of culture in Malaysia. The size of the building is not great but it is suited for a mini restaurant or café. There are some areas that have a group of tobacco buildings where the situation is suitable for the collection of products. The focus of this product is to attract local visitors and tourists to Kelantan. This concept will certainly appeal to various levels of society because the trend of restaurants that use the concept of reuse is becoming more popular. For example, C.P. Stephens Desoto Six Motor Cars building which was built in 1928 at Central Avenue and Roosevelt Street is a car dealership building. The building is very attractive with the characteristic of Spanish Colonial Revival architecture. The building has been abandoned and emptied several decades ago in the 1980s. Then, the building has reopened as a bar and restaurant.

Besides that, there are the old factory building has been reused as a place to promote local products such as Pineapple Factory Building. According to Sinar Harian (2014), the reuse of the factory in Pekan Nenas has been a major producer of pineapple-based products around the 1970s. The pineapple factory opened in 1964 had provided jobs for the locals since then. However, the factory has ceased its operation six years ago. The building is strategically located in the centre of the population, indirectly giving a huge loss if it continues to be empty and not in use. Therefore, the factory has been transformed to an information centre. Besides serving that purpose, the factory is reused as a local product sales centre, selling local produce like pineapples and chips. The re-use of the old pineapple factory has been able to generate income from the tourism sector, as well as providing job opportunities for local residents, including traders and entrepreneurs of small and medium industries (SMEs).

9.2 Mini studio Apartment

Bachok is located in Kelantan, a rural area close to the beach. The area houses several educational zones including Universiti Malaysia Kelantan (UMK), the Institute Kemahiran Belia Negara (IKBN) and schools. UMK offers various courses which require the students to work tediously in studios to produce their artworks. Therefore, the concept of establishing mini studio apartments from the abandoned tobacco buildings will be perfect to cater the needs of UMK students, specifically students from the Faculty of Creative Technology and heritage (FTKW) and Faculty of Architecture and Ekistics (FAE). The size of these smokehouse buildings is suitable for studio purposes. In addition, university students who are mostly living at the rental houses near the smokehouse area would be enticed to rent it as their personal studio. This will give a great opportunity for tobacco smokehouse owners to transform their buildings into mini studios.

In other countries, most of the concepts of adaptive reuse on abandoned buildings have been able to transform unattractive building to a luxurious residence by applying a new identity. Daniel Bluestone (2012) stated that the building of America Tobacco Headquarters Factory has been innovated into an apartment building with a full range of facilities. The apartment building has two sections where one side has four floors and the other has six floors. It includes two underground parking areas on the side of the six floors. The building was built in 1905, made of brick and concrete and offers 275,000 square feet of floor space or area capable of accommodating 131 fully equipped and luxurious apartments and facilities.

Another example would be the Will Building. Will is a tobacco importer and cigarette manufacturer in Bristol in 1786. The Will Building was built in 1927 during the glorious days of tobacco and it served as a warehouse. However, after the tobacco production dropped, this building has been neglected for so long. The warehouse seemed to be idle and neglected to be seen as some of the structure of the building to the extent of damage. The reviving process began in 2008 when the building was renovated and reuse into an apartment and an office building with three floors and added to the top of the building and the interior features of the restored building. In addition, in 2009 this building has received the WA Heritage Council of Excellence in building reuse (Emma Wynne, 2014).

The R.J Reynolds Tobacco Plant's warehouse is also a converted factory that has been renovated into an apartment. According to Machak (2014), the warehouse is the oldest building that is no longer in use. The building is located at Winston and has been renovated and re-used as a luxury and popular apartment today. 243 units of apartments have been built with various sizes of one to three bedroom units. The building site was built in 1916 and was renovated to include the area of 9,700 square feet. Each part of the apartment is equipped with luxury items or facilities such as designer kitchen.

9.3 Agriculture products

The land in Bachok is dominated by agricultural land where residents there are mostly planters cultivating like sweet potato, coconut, corn, and pumpkin. In fact, these plants have also replaced the farming area of tobacco plantation. Therefore, the tobacco smokehouses are not used, as it has no functions in assisting the production of such crops. Most of the planters use these buildings as a place to store agricultural tools, but they are poorly managed. The features of the building make it highly suitable if modified as agricultural goods storage. Plus, the building is also good for mushroom cultivation. Agricultural activities are also not limited to crops but often combined with livestock that are considered appropriate and can be combined with agricultural crops. Kelantan is one of the largest stingless bee honey producers in Malaysia. The building can be used as an operating place or the processing factory of a stingless bee farm. The presence of stingless bee in agricultural activity is one of the ways to increase pollination.

According to Saharudin (2014), Hard Disk Factory Building has been reused by Toshiba into a vegetable garden. Toshiba is an electronics company known for its television and computer components. The world economic problems and the rise of China as a world-class factory resulted in this reputable Japanese company experiencing financial problems. As a result many factories have been closed. But lately Toshiba has begun entering the plantation industry. A former hard drive factory in Japan's Yokosuka is now a hydrodynamic vegetable garden. The factory was closed in 1994 after the demand for it was reduced. Toshiba uses their expertise in medical technology to plant these vegetables in clean space as well as prevent the infestation of pests and fungus damaging plants. This also means that these vegetables do not require pesticides throughout the crop and are safer for consumption. This high-tech garden is Toshiba's first step to develop modern vegetable cultivation technology. There is a plan to open a garden that uses the same technology in the Middle East and Russia. This technology of cultivating vegetables is also being developed rapidly in Singapore with the use of hanging vegetable gardens. Singapore invested heavily on this technology to reduce their dependency on Malaysia as a source of fresh food.

9.4 Gallery and Exhibition Place

The unique and simple building form gives the building a great advantage as an art gallery. There is a tobacco smokehouse building near the tourism area, specifically it is located on the coastal area in Bachok thus offers high potential to serve as a gallery or exhibition area of local products. By using this building as a gallery, it may improve the ambience and atmosphere of the area.

There is a building in London, United Kingdom, namely the Power Plant building. This building is a former power station and has been renovated for the use of contemporary art museum known as Tate Modern. The building still maintains its original structure. The visible features of this museum are the spacious exhibition halls, providing a unique space for big scale works. The building is undergoing additional renovations that will open more space for the galleries expected to be completed in 2017.

10. Conclusion

Adaptive reuse concept have potential to be apply for abandoned tobacco smokehouses in Bachok to create a new source of income while creating a new niche market for tourism. Combining the objective of reuse tobacco smokehouses to create a new uses using remaining and existing structure can be a social and environment impact program for local community especially for rural communities in Bachok.

The concept of reuse of the abandoned tobacco smokehouse buildings is an excellent idea for the development of the locals. This concept can improve and increase the income of Kelantanese as Kelantan is one of the poorest states in Malaysia. Tobacco smokehouses are very easily found around Bachok as this area is the largest tobacco growing place in Malaysia. As a result of the lack of tobacco demand, these smokehouses became idle and unused. The existence of this building in large quantities sometimes makes the area unattractive to be viewed with the addition of some buildings that have been partially ruined or even collapsed.

The concept of reuse of abandoned buildings is a brilliant concept in achieving sustainable development of the less developed areas like this area in Bachok. Sustainable development not only balances planning for a given area, but it also benefits the developer in terms of minimal development cost required. This reuse concept has been proven to be successful in many countries where the impact of development on the application of this concept has been observed around the globe. The effect of good management of abandoned buildings will in the future, provide best practice to be followed by other abandoned building owners. This will lead to positive development in terms of reviving and maintaining abandoned buildings, supporting sustainability development.

To create the identity of a region, the maintenance of abandoned buildings such as tobacco smokehouses are very important. Being a tourist area in Kelantan, Bachok has great potential to revive and reuse these abandoned tobacco smokehouses as these idle buildings could create a strong identity to this area. The existence of this tobacco ban is the identity of Bachok because tobacco is the largest tobacco growing area in Malaysia. To some extent it can be an appeal that reflects the history and brings back the nostalgia of Bachok as one of the economy leaders in Malaysia.

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