

STUDENTS PERSPECTIVE ON SUSTAINABLE TROPICAL ARCHITECTURAL IDEAS

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Books on tropical architecture normally based on the architectural idea as revealed by the traditional architecture solutions. The environment during that time was different. It was less developed thus was more natural. The less complex building scale seem to fit nicely within the environment that somehow act naturally as part of the building sheltering system. The same location has now changed due to rapid development. The contemporary architecture now must response to totally different needs and changed surrounding. High density, complexities and energy demand are new design issues. These new scenarios require new architectural solutions. This paper shares some brave attempts by architecture students from EnviroUnit within the School of Architecture in Universiti Teknologi Malaysia to create sustainable contemporary tropical architecture. Their exploration of architectural design ideas ranges from less complex building to resort development and high density urban housing. It is the hope of the author that they become the future architects who will repair the damaged done for more sustainable tropical environment and tropical urban cities.

A. Introduction:

This paper demonstrates the work of architecture students selected from EnviroUnit within the School of Architecture in Universiti Teknologi Malaysia in their exploration towards possible and appropriate architectural response to the immediate surrounding. Their projects ranges from less complex building to resort development and high density urban housing and are divided into three classifications: design in natural surrounding, design in disturbed surrounding and specific design approach.

B. Architecture as direct respond to immediate environment:

The traditional architecture illustrates the intelligence of our forefathers in dealing and responding to the surrounding environment and climate. The sense of belonging to the immediate context is clearly felt as the traditional architecture is very much inter-dependence with the surrounding greenery that provide the first layer of filter against the climate. Thus, the real performance of the traditional architecture is not solitary but in symphony with friendly act of nature.

Unfortunately, recent researches and studies on the thermal comfort performance of the traditional houses demonstrated that they were not performing as claimed or read in many reference books as thermally comfortable or cooling. This could be due to the changing surrounding. The traditional buildings in today's context stand within the climatic condition unprotected thus unable to provide the expected comfort. Students need to be reminded on how our traditional buildings used to provide comfort but at the same time made aware that

the same buildings need to perform differently within different context. It is not enough to emulate traditional solution physically but rather more towards understanding the intelligent response to its immediate context which may still be very natural or disturbed. There are also other issues that must be considered specifically towards achieving appropriate and beneficial solution in contemporary tropical environment.

C. Design in Natural Surrounding:

There are still a lot of places that are still in their beautiful natural surrounding. Normally they become highly potential sites for development that would like to take advantage of their beauty for many reasons. Most often the reasons were profit driven and led to destruction of the beauty of the natural environment which was the reason why the sites were chosen! Therefore, the ability of designer to balance the development and at the same time respecting and preserving natural environment is crucial. Two selected projects and student ideas illustrate promotion of good design thinking and explore the possible design approaches towards maintaining the natural environment.

Pulau Tioman Research Centre by Nurlizzura Tukiman from Year 3 (figure 1) explored the idea of temporary structure to suit the function of the building that only last for the duration of the research work. She wanted to use very light construction and was fascinated with the use of scaffolding in construction that is used temporarily but if put together become a strong structure that can hold bridges and road during construction. The bold idea is scaffolding. The used of scaffolding here become more appropriate as it can be adjusted on the rock and can be merged with the trees abundance on the site chosen. The strong contrast of material but ephemeral qualities of the scaffolding and its envelopes add to the excitement of being a water-front structure.



Figure 1: Pulau Tioman Research Centre
by Nurlizzura Tukiman

In contrary, Marwan Ali from Year 6 (figure 2) tried to merge his solution as part of the natural contour and the scenic landscape. His resort on Pulau Pemanggil, a virgin island remote from the mainland Johor fully respect in a sense of adulation to the beautiful context that becomes the attraction that bring tourist to the island on the first place. The bold idea here is camouflage. The solution blends cleverly the architecture and landscape with minimum distinction between them in-keeping the actual site untouched. From far what is visible is only the island, only when we approach closer then we can notice the resort.

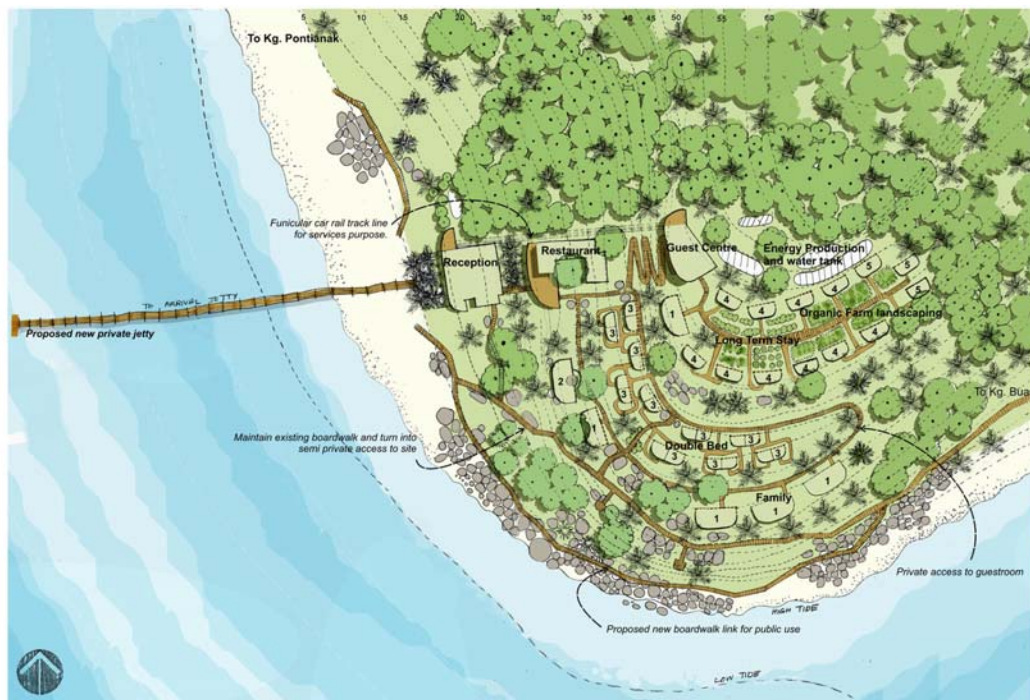


Figure 2: Pulau Pemanggil Resort by Marwan Ali

D. Design in Disturbed Surrounding:

We cannot avoid development. Unfortunately how we have developed may be regrettably without sound and sustainable development in mind. Many times we noticed that the cause of development turned into hazard and major threat to the environment. The tremendous demand for housing also changed the natural landscape contributing to climatic changes. Villages have turned into town and city, whilst city becomes metropolis. Fortunately, few architects such as Ken Yeang have shown continuous concern to the contemporary urban tropical solutions. However, many others ignored the changing scenarios, thus contributing further to the confused and inappropriate architectural solution for current and future sustainable tropical environment.

Indeed today's architecture must fully understand the exposed and challenging context of the site. If the context is disturbed then the architecture must be customized to react to harsher context as its can no longer seek nature for shelter. Two selected projects and student ideas in this section illustrate design thinking and provide example of how they explore the possible

design approaches towards the disturbed or changed environment to achieve better modified indoor environment and new quality neighborhood.

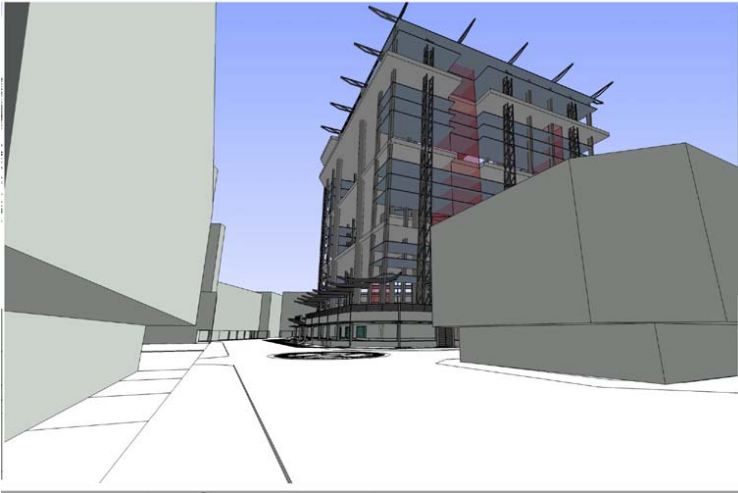
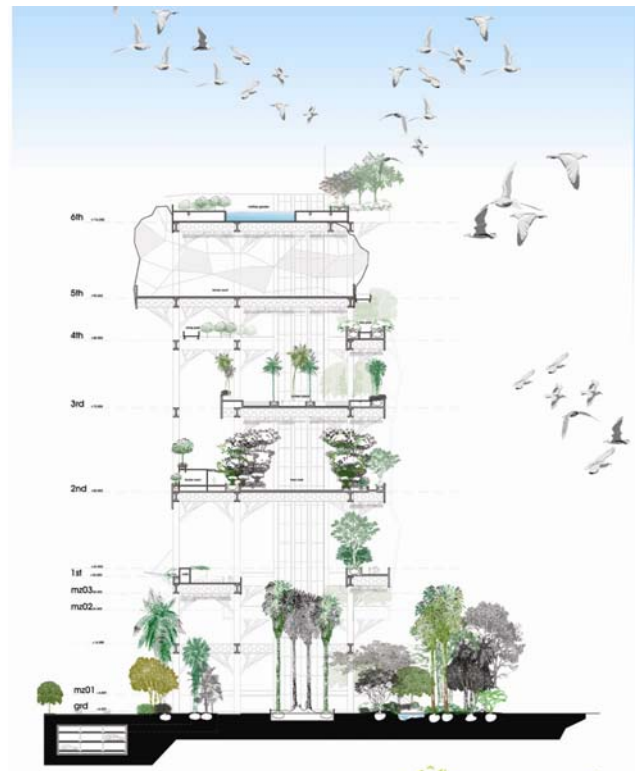


Figure 3: Healthy Housing by Haritz Ikhwan

Figure 4: Vertical Park by Khairul Azhar



First is the work of Haritz (figure 3). His bold idea is a unique answer to polluted outdoor air. Second, the work of Khairul Azhar (figure 4) tries to heal the urban environment by contributing to series of vertical parks in dense section of Kuala Lumpur. Both of them look at the so called disturbed environment and act as architects either to concealed and filter the indoor environment for health or promoting architectural idea that become catalyst for improving disturbed environment. Haritz carefully detailed his vertical housing so that the

polluted air into the building is filtered and at the same time making sure that his housing did not further contribute to polluting the outside air. On the other hand, Khairul hypothesized that if he brings in more nature into the disturbed environment that in itself slowly heal the harsh climate and soften the texture formed by the concrete jungle and hard landscape. Both example not just simply a specific reaction to the disturbed environment but promote idea that architecture is to benefit humankind.

E. Specific Design Approach:

Apart from architectural solution responding to immediate context, students also explore sustainable idea through specific agenda. For example Then Jit Hiung noticed that his hometown is not as lively as it was before. He was interested to find out what happened as Kuching City Council implemented a good vision to be a garden city through the new urban guideline and the city should be in good physical shape and lively! Ironically, his study found that the new guideline that place emphasis on having open spaces and creation of green lung has driven new development out from the city center. The developers and architects found easier to meet the guideline by working outside of the city where nature is still aplenty. At the same time buyers are keen to have grounded property and willing to commute to workplace in the city thus making city lively only during the day but quiet at night. With that understanding and insight, he challenged himself to respond to the garden city idea by taking prominent site within the city centre. His idea (figure 5) is to provide comprehensive mixed development with appropriate open spaces and vertical ground that can fulfill buyer's expectation by so doing bringing back the people to stay and work in the city, thus making Kuching city lively day and night.



Figure 5: Garden City
Challenged
by Then Jit Hiung

Another student worth mentioning is Elphine. She looks at the possibility of architect as an individual that can directly help to minimize pollution due to waste thrown out by domestic sector. She scrutinized domestic wastes and then later categorized them into possible useable building materials. She (as shown in figure 6) boldly attempted to turn especially the non-biodegradable wastes into raw building materials that can be used as structure and building envelopes. She strongly believed that her idea eluded normal recycling procedure

and is zero embodied energy involved by directly using the domestic waste into built form, and of course designing within the limit allowable. She shows that waste can sometime be useful.

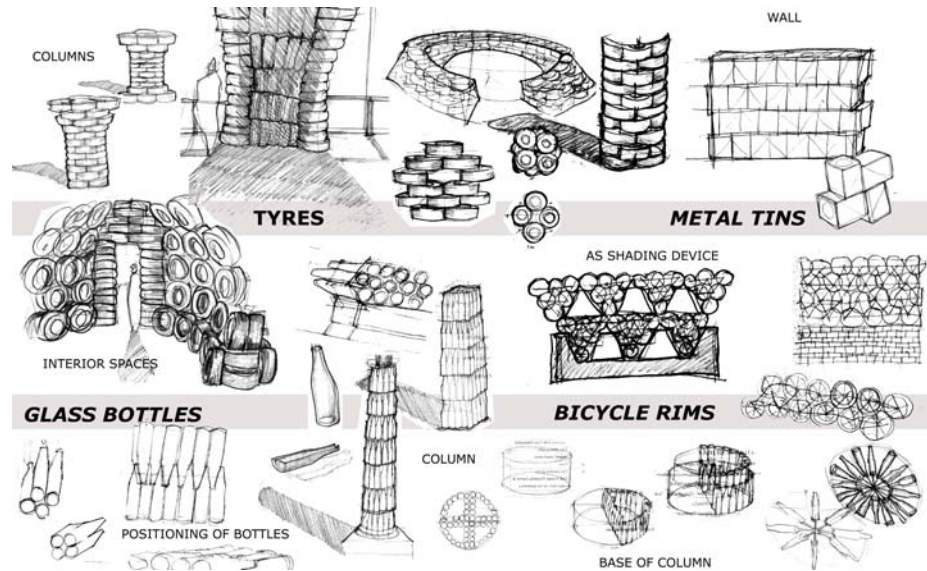


Figure 6: Architecture from Recycle Domestic Waste by Elphine

F. Conclusion:

It is the hope of the author that by sharing the selected design ideas from the student perspectives that we can together develop and project new solutions that respond creatively to immediate surrounding. The architecture solution that was well conceived by traditional architecture will be maintained i.e. the main function of architecture/building as shelter that provide comfort to occupant. Further it should become environmentally responsive solution that stay away from climatic consequence whilst harnessing the available renewable resources for more sustainable future. They hopefully become the future architects who will repair the damaged done for more sustainable tropical environment and appropriately progressive tropical urban cities.

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