Issues and Challenges on Sustainable Construction in Malaysia: Current Development of Refurbishment Activities.

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Abstract. The aim objective of this paper is to identify the current scenario of refurbishment activities/projects in Malaysian context. From the literature review and initial research among the construction authorities, it was found that refurbishment activities have not looked into by the relevant agencies though Malaysia has embarked on construction for the past 50 years. Therefore, there is an urgent need for Malaysian construction authority and industry to conduct detailed study in refurbishment area specifically on a lack of comprehensive and accurate data on the value number of refurbishment projects in Malaysia and reducing the refurbishment waste generation.

Introduction

There is no standard definition of refurbishment. However, according to the Carbon trust (2007), suggested that refurbishment covers a wide range of activities, relatively minor works to very significant changes to the fabric or internal layout of a building. This is supported by Ali et al., (2009), where the authors mentioned that the refurbishment consist of upgrading, alteration, extension work and renovation to existing buildings to improve facilities and building lifespan but exclude routine maintenance and cleaning work. Refurbishment project is risky, complex and less predictable task within the construction industry (Egbu, 1994). The principal reason for the refurbishment is to maximize income or asset value (Gold & Martin, 1999).

Furthermore, according to the Dr Syahrul in his view from RED (NST, June 2012) he listed the four main reasons for refurbishment are as follows:

1. To meet modern standards, or to meet changing demands of buildings such as hotels, offices, airport terminals, retail premises, leisure and entertainment facilities and educational and health care buildings.
2. The upgrading in standards as conversion to new uses, of the whole or parts of industrial buildings, with production continuing in the area or adjacent areas.
3. Rearrangement of public service facilities with stringent operational safety requirements, such as railway stations (both surface and underground), where the provisions of the service must be continued during refurbishment.
4. The conversion of buildings by extant use such as warehouse, mills, abandoned railway stations, large residential properties to new uses, such as hotels, offices, exhibition halls and residential apartments.

However, according to Baker (2009), the author mentioned that, there are many instances when refurbishment is considered as an alternative to the demolition and new build. This could be reasonable only on economic grounds, or the advantage offered by new building could be considered to justify the extra cost. However, the author also mentioned that there are two more non-economic factors should be considered which are the environmental impact and the socioeconomic impact. Initially, the environmental impact of refurbishment will almost always be less than demolition and new build. This is because all the materials carry embodied energy – to replace them cause new carbon emissions. Furthermore, the demolition process and waste disposal
creates carbon emission as well as other waste disposal impacts. The second consideration is about social benefit and employment. Generally, refurbishment carries a higher proportion of labor cost than new build. For example, the repair of a concrete structure and the cleaning of concrete finishes will direct money to tradesmen that in the case of new build would go to investors in concrete and steel manufacture. In fact, contrast in term of the resources, Power (2008), found that a new home uses four to eight times more resources than an equivalent refurbishment. This is because most of the building mass and structural elements in an existing property are already there and only rarely need replacing.

**Refurbishment in Malaysia**

Nowadays, the trend of refurbishment is becoming a popular activity in Malaysia construction industry, although this activity had grown rapidly in the United Kingdom for the last 30 years (Ali et al., 2009). Malaysia former Federal Territories and Urban Wellbeing Minister, Raja NongChik after his speech at official opening of the 4th International Conference on World Class Sustainable Cities 2012, mentioned that to house an estimated 70 per cent of the country’s population living in urban areas now, there is a need to refurbish more building in order to supply affordable in a cost-effective, sustainable manner, cost less than new construction and the most important it can be delivered to the people faster. Moreover, during Budget 2013 announcement, it was announced that affordable homes will indeed be high on the Government’s agenda, especially in Greater Kuala Lumpur and Klang Valley which are expected to house 10 million people by 2020, hosting almost one third of the country’s (NST, Oct 2012). This is supported by DR Syahrul (NST, June 2012) where there is a huge demand for spaces and limitation towards providing new build especially in the large cities such as Kuala Lumpur, Penang and Johor Bahru. Furthermore, most of the old buildings have been converted into offices, museum, hotels and exhibitions centres. This pattern is expected to grow in years to come. According to the Chartered Institute of Building Malaysia, repair and maintenance work (which includes refurbishment activity) has tremendous opportunity for growth in Malaysian construction industry. The Malaysian existing buildings are getting old, so the maintenance and refurbishment work needs to be carried out in order to prolong the life of the building. With Malaysian construction trends normally follow the trends of developed countries, it is anticipated that refurbishment sector will expand in Malaysia. (Ali et al., 2009). This is mainly due to the increasing number of ageing buildings, limited vacant land for new development and technological change, especially the use of information communication technology (Rahmat et al., 2003). Hence, the refurbishment sector has likely become an important sector in the Malaysian construction industry recently. As pointed out in the article column in Real Estate & Décor, New Strait Times (June 2012), there are some current problem associated with the refurbishment of older properties in Malaysia were discussed by a panel of experts which can be summarized as financial, technical, emotional, the lack of technical knowledge and the limited amount of information available. A survey conducted by Azlan et al., (2008) on the reasons why Malaysians refurbish their property showed that the most important reason for the refurbishment was due to the “functional rearrangement of space use” and “to add functional comfort to a building”. Recently in Malaysia, the refurbishment is due to the building oldness is more common than deterioration. The majority of Malaysian buildings is refurbished due to the oldness, before the end of the building lifecycle. Moreover, from another survey of 1,000 refurbishment projects (buildings) in Malaysia indicates that residential and office buildings are identified as the most frequent types of buildings being refurbished at over 60 per cent of total projects. According to the Director of ArchiCentreSdnBhd and Past President of PAM (PersatuanAkrkitek Malaysia), he also agreed that this is the right time to refurbish older properties in Malaysia. Furthermore, the recent increase in property price has actually made it more viable and attractive to spend money on older properties without over-capitalizing on them. In addition, many older properties are located in quite valuable strategic locations and so it makes sense to try to keep those properties. Additional to that, for the past few years until now, Malaysia is still a lack of comprehensive and accurate data on the value number of refurbishment projects in Malaysia. Most of the local authorities do not have a
complete database on the actual number of refurbishment project being carried out. Malaysian Construction Industry Development Board (CIDB) the only stakeholder with available and compiled data on that for reference. From the CIDB record (Table 1), shown that upgrading and expansion work as seen as the major refurbishment work category in the Malaysian construction industry compared to others work. Unfortunately, according to Ali et al., (2009), the data haven’t included the illegal renovation works carried out by house owner or by unregistered contractors, thus the actual value of refurbishments works in Malaysia much probably larger than that.

Table 1: Total Refurbishments Projects as 2007-2010

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<tr>
<th>Types of Refurbishment Works</th>
<th>Number of Projects</th>
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<tbody>
<tr>
<td></td>
<td>2007</td>
</tr>
<tr>
<td>Upgrading</td>
<td>448</td>
</tr>
<tr>
<td>Expansion</td>
<td>351</td>
</tr>
<tr>
<td>Repair</td>
<td>268</td>
</tr>
<tr>
<td>Renovation</td>
<td>263</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1330</strong></td>
</tr>
</tbody>
</table>

(Source: CIDB, 2011)

In Malaysia every building owner who wants to make a refurbishment works to their property need to obtain the building plan approval from the local authorities. Refering to The Malaysia Town and Country Planning Act, 172 (1976) clause 19 under the planning and control section stated not all refurbishment work need to gain the approval from the Town Planning Department of the Local Council. Only refurbishment projects that involve change of usage, change of building facade, addition to building height or area would have to abide by the Act. Each local authority has its own special-requirements that need to be followed by the architects to get approval for a submitted plan. The Local authorities are entitled to take action against building owner who fail to obtain a building plan approval for this renovation work. Based on Majlis Bandaraya Petaling Jaya records, in 2013 alone, about 60 illegal refurbishment works consist of houses and structures were not built in compliance with the approval were demolished after they did the inspections every sixth month (The Star, July 2014). According to Firdaus (2013), in his study found that these are the reasons why some Malaysian refurbishment work’s owner did not apply for the approval from the local authorities because they did not know the importance of applying the building plan approval, the application process will take longer time, it is very costly to appoint an architect or a registered draughtsman for preparation of building plans, need to pay RM500 for the processing fees for plan submission and last but not least is the owner do not have time to do the all procedures.

Consequence of the increasing numbers of refurbishment works registered plus with the illegally directly will increase the amount of debris and material wastage from construction industry especially from the refurbishment works. According to Building Research Establishment (2010) in their report on “Developing a Strategic Approach to Construction Waste” mentioned that it is very hard to know the actual amount of waste arising from house refurbishment, however from the estimation from local authority dwellings in England found that almost 470,000 m$^3$ of waste generated from around 750,000 refurbishment packages per year. BRE also estimate a steady annual total of United of Kingdom (UK) local authority refurbishment waste approximately 650,000 m$^3$ as shown in Table 2. Furthermore, based on the projected refurbishment scenario outlined in Table 2, the total annual UK impacts for domestic building (residential building) alone to exceed the emissions of 4 million tonnes CO$_2$.

Table 2: United Kingdom annual housing refurbishment waste arising

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<tr>
<th>Category / sector</th>
<th>Waste volume (m$^3$)</th>
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<tr>
<td>Local authority</td>
<td>650,956</td>
</tr>
<tr>
<td>Reference Service Life</td>
<td>368,850</td>
</tr>
</tbody>
</table>
From the aspect of waste generation from construction industry in Malaysia, a study conducted by IB Larsen (2007) found that construction waste industry (41%) is seen as the highest composition of solid waste generated as shown in Figure 1 followed by household & institution waste (33%), industrial waste (25%), special waste (9%), and waste from public places (1%). Furthermore, the study also found that construction waste contribute to the highest percentage of illegal dumping in Malaysia. Therefore there is a need further detail study on the refurbishment waste in Malaysia for many aspects mainly on refurbishment waste management aspect.

![Figure 1: Total waste composition generated in Peninsular Malaysia 2007](source: IB. Larsen (2007); SWMC Malaysian Government-(MHLG)/ Danida)

### Conclusion

In conclusion, refurbishment work is seen as a positive activity in the construction industry nowadays. This is a good activity for developing country like Malaysia. Therefore, there is an urgent need for Malaysian construction authority and industry to conduct detailed study in refurbishment area specifically on a lack of comprehensive and accurate data on the value number of refurbishment projects in Malaysia and reducing the refurbishment waste generation.

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### References


Refurbishment set to take off in Malaysia.