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Sustainability for housing development in Malaysia

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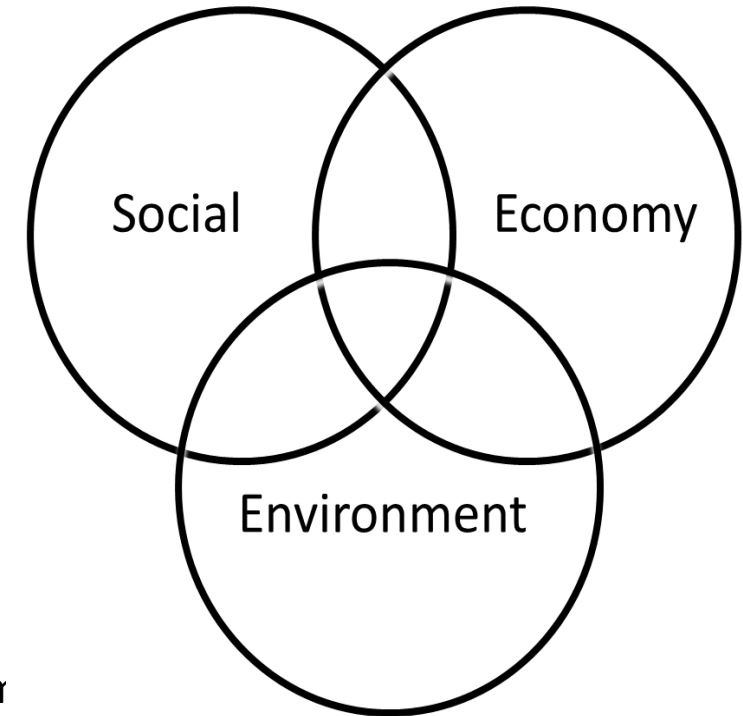
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What is Sustainability

- ▶ The origin of the word “sustainable” is derived from a Latin word ‘sustain’, which the main meaning is “maintain”, “support” or “endure” (Onions et al, 1964).
- ▶ Sustainable development is seen as the only solution to avoid further environmental degradation which contributes to climate change.

The Triple Bottom Line (TBL) of Sustainability

In any context of sustainability, such as in urbanization process, business, agriculture as well as development of high-density housing, a due consideration shall be placed on these three factors.



As accepted by acaden
(Ismail, 2011, Jamali, 2006,
Hubbard, 2009, Elkington,
1997)

Sustainability

- ▶ In case of Malaysia, sustainability has been confirmed in the Construction Industry Master Plan (2006 – 2015) to be actualized in Malaysian construction sector.

Housing

- ▶ Housing is an essential human necessity that considered as a shelter, as well as is a concurrent wellspring of prosperity, exploitation, privacy, and comfort (Jaafar et al.2015).
- ▶ The demands on housing is increasing universally due to increasing in population and rising of their income (Bujang et al., 2010).

Housing types in Malaysia:

- ▶ Housing could be (Tenth Malaysia plan, 2011-2015) :



1- a house with terrace,



2- a detached house,



3- a flat.

Defects in housing

- ▶ In spite of all the great efforts and the pledges of the Malaysian government to provide satisfactory affordable houses with good quality for all income level groups, and the assertion on improving the low-cost housing, there still some difficulties in improving housing sector (Ariffian et al. 2 010).

Defects in housing

- ▶ Low quality of building due to weak supervision during construction process is one of the most crucial troubles for the low-cost housing (Trevor 2009).



Kampung Kerinchi

Defects in housing

► The most rife other defects: (Abdul-Rahman et al. 2012) are:

1. Leaking pipes,
2. Total failure of water supply systems,
3. Cracking in concrete walls,
4. Concrete wall dampness
5. Faulty door knobs.



Defects in housing

- ▶ The researches mentioned that the reason of these defects are attributed to:
 1. weakness of workmanship,
 2. Low-quality materials
 3. Inferior supervision during construction.

Defects in housing

- ▶ Nurizan (1993) have found that the residents of Johor Bahru low-cost housing were satisfied with public transport and the distance between their houses and the city, but not satisfied with the rental and the house size.
- ▶ Oh (2000) detected that the residents were not satisfied with the size of the kitchen, plumbing services and public facilities such as recreational areas, playground, and public transport services in the housing area.
- ▶ Zakaria and Saufi (2007) have found in their study that the present maintenance managements are ignoring the precedence for maintenance needs and renovated works.

Research's Findings

- ▶ **Housing projects in Malaysia require greater consideration in regards with quality of construction which can be consummated through:**
 1. **employing experienced design team (Ramly et al. 2006)**
 2. **conducting researches (Ramly et al. 2006).**
 3. **using feedback and records from maintenance teams (Ramly et al. 2006).**
 4. **Employing external suppliers for housing management and/or housing maintenance (Terence Y.M. Lam, 2007).**
 5. **Applying innovative construction methods (IBS),**
 6. **Using good quality materials**
 7. **Providing continuous supervision at construction sites.**

Research's Findings

- ▶ **Suggestions on the appropriate construction method regarding environmental, social and economic aspects (IBS) that can be adopted in affordable housing to achieve sustainability which findings would greatly help professionals (architects, engineers, etc) and policy-makers in designing and managing residential developments.**

Industrialized Building system (IBS)

- ▶ is a construction system through which components are manufactured in a factory, on or off site, positioned and assembled into structures with minimal additional site work (CIDB, 2003).
- ▶ In IBS roadmap 2011- 2015, CIDB had hoped that the roadmap will drive the way forward for sustainable IBS adoptions in public and private sectors (CIDB, 2011).
- ▶ The potential characteristics of industrialized building system can meet several aspects of sustainability and green construction (Kamar et al. 2010)
- ▶ This system can solve the low quality factors in low-cost housing development which is the application of Industrialized Building system (IBS) in the construction.





Thank you