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State of The Art of Green Building Standards and Certification System Development in Thailand

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Abstract

Energy saving and the sustainable environment are becoming one of the most important aspects to Thailand, especially in the building and construction industry. Green Building Index for energy and environment concern has been developed by Thai government since 1992 that aim to solve the environment resource crisis, depended upon regulations and evaluation guidelines of local climate. Nowadays, the number of green buildings is rapidly increased according to the concerns of energy consumption and environmental impact. LEED (Leadership in Energy and Environmental Design), Green Mark, and TREES (Thai's Rating of Energy and Environmental Sustainability) are the most widely used systems for green building certification in Thailand. There are 113 buildings from 201 assessed projects were certified by LEED and three buildings were certified by Green Mark. TREES which developed by Thai Green Building Institute has certified only 12 buildings from the total of 74 registered projects. This paper was focused on the situation and the development of green building standards and certification systems in Thailand, including LEED, Green Mark, and TREES. The comparisons of assessment methods and components among these 3 systems were discussed. Additionally, the recommendation on the practice of green building development in Thailand was also provided. This paper found that the number of green building was increasing especially commercial building. Moreover, those are influenced by economic expanding.

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Keywords: Green Building, LEED, Green Mark, TREES

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1. Introduction

Nowadays, in several sectors of Thailand become aware of energy and environment, especially in building and construction industry for preventing the environment problems and sustainability energy efficiency. Analyzing the national existing green building evaluation systems found that Thai government and private sectors awareness about green buildings is not enough for environment resources. They think that green buildings rating requires business image and production cost. Hence, it is very necessary to study the situation and the development of green building standards and certification in Thailand from the green building was certified, such as LEED, Green Mark and TREES etc. Green Building Rating in Thailand was developed by the government since 1992-2009 and publish the Energy Saving Building Manual manage by Ministry of Energy. Generally, Green Building in Thailand was certified in LEED, Green Mark, and TREES. There are 113 projects from 201 assessed projects were certified by LEED and 3 projects were certified by Green Mark. TREES which developed by Thai Green Building Institute has certified by 12 projects from 74 registered projects [1].

2. Background of Green Building Rating

At present, many global organizations of green building were cooperating on green building issues. The major of green building global network is World Green Building Council (WGBC). The World GBC was founded in November 1999 in California, USA, and after that was formally established in 2002 by the National Assembly. At the first period, the members of WGBC were Australia, Canada, Japan, Spain, Russia, United Arab Emirates, United Kingdom, and the United States. Today there are about 100 countries in the world and 18 countries in Asia Pacific. WGBC is cooperating with many countries that are different in the construction industry for supporting the sustainable development of Green Building. At present, the building was registered in WGBC are over 100,000 buildings or 1,000,000,000 square meters.

Today, the members of WGBC were prescribed their own green building rating that has the criteria for evaluating: 1) LEED of USGBC USA, 2) BREEAM of UK GBC, 3) HQE of France GBC, 4) DGNB of German Sustainable Building Council, Germany, 5) IGBC Rating System of IGBC and GRIHA of Green Rating for Integrated Habitat Assessment India 6) Green Mark of SGBC Singapore, 7) Green Star of GBC Australia, 8) BEAM of HKGBC Hong Kong and 9) CASBEE of JSBC Country Japanese [2].

Asia-Pacific members of WGBC that are 15 countries: 1) Australia, 2) Indonesia 3) Sri Lanka, 4) Hong Kong Special Administrative Region, 5) India, 6) Japan, 7) Kazakhstan, 8) Korea, 9) 10) New Zealand, 11) Pakistan, 12) Philippines, 13) Singapore, 14) Taiwan and 15) Vietnam.

The five members of WGBC that are represented from ten countries of AEC member: 1) Indonesia, 2) Malaysia, 3) Philippines, 4) Singapore and 5) Vietnam. The five countries of AEC members are not members of the WGBC are Brunei, Darussalam, Cambodia, Laos, Myanmar and Thailand [2].

The most of WGBC member countries were advised by the green building rating consultants that are used LEED, Green Mark, Green Star, etc. Thailand was awareness in green building rating and has been active in energy conservation by the National Environmental Quality Promotion Act since 1992. Nowadays, Green Building Institute of Thailand was established by The Association of Siamese Architects under the Royal Patronage of His Majesty the King and Engineering Institute of Thailand.

3. Green Building Rating

The World Green Building Council (WGBC) encourages the member countries set their own green building evaluation criteria. The aim of green building evaluation is to increase building efficiency and reduce environment problem [4]. Green buildings of Thailand evaluation criteria are:

- LEED (Leadership in Energy & Environment Design), which can be assessed different scores to building evaluation that depend upon the building appropriate. LEED label in Thailand were got the different level that depending on the environment and constructions detail.
- DGNB (The German Sustainable Building Council) was established in 2007 with the objective of promoting sustainable and cost-effective of the construction and the future real estate sectors. In 2008, DNGB was responded to register about 121 organizations. Today DGNB has member more 1,100 members that achieve to sustainable construction and habitable residential. The DGNB label was certified one project in Thailand since 2013
- Green Mark was launched in January 2005 by BCA (Building and Construction Authority) in Singapore. The purpose is to promote a good environment in real estate sectors. The creation of the great standardized model to create sustainable environment that integrating between design and construction with green building technology.