IMPLEMENTATION OF GREEN BUILDING INCENTIVES FOR CONSTRUCTION KEY PLAYERS IN MALAYSIA

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Abstract

A Green Building Index (GBI) is a pioneer in a building grading system to promote sustainability and increase awareness upon environmental issue in Malaysia. The GBI was first established by Malaysia Architect Association (PAM) and Association of Consulting Engineers Malaysia (ACEM) in February 2009. As a green building contribution on sustainable development and energy efficiency, government has introduced incentives to parties who involve in obtaining Green Building Index Certificate to inculcate green technology. The present paper articulates various categories of incentives introduced by government for construction key players in Malaysia and compare those incentives implies worldwide including countries such as United States, United Kingdom, Australia and Singapore. The incentives are categories into three; financial incentives, fiscal incentives and structure incentives. In a case of financial incentives the financial grants, loans, fund, vouchers, rebates and etc. attract building developers to adopt green elements and apply for certification in their new building project. Obviously, most developers more engrossed to the incentives which has a direct impact on the project financial cash flow. Fiscal incentive however is a privilege by the government, in term of tax exemption granted to respective green building project. Structural incentives are much common incentives offered by government because it would not require expenditure of fund and not reduce the income of city and county. By comparing few successful model of incentives by several countries, the present research reveals that the structure of incentives for green building in Malaysia should have more focused on structural incentive especially those involves technical support, expedited building permit and Gross Floor Area (GFA) equivalent incentive scheme.

Keywords: barrier, construction key players, green building, incentives

I. INTRODUCTION

Malaysian energy provider was really aware the importance of diversification of energy resources which in lines with country vision to be a developed nation. Obviously, in recent years the Government was aggressively promoting renewable energy, even though the awareness has already emerged since 1970's, during the world faced oil crisis. Few challenges however prevent Government in harnessing those policies for renewable energy. Mat Yasin [11] suggest that the implementation of new approach should consider five critical factors i.e. management leadership and support, culture, technology, strategy and purpose and measurement. In this regard, the government has prepared a policies and legislation related to energy development to fulfil the energy requirement. Hence, in year 1979, the National Energy Policy was establish to boost energy sector and at the same time to regulate power generation and supply to the public[1].

Since that, Malaysia has taken a next step in improving the development of renewable energy with various programmes and promotion has been introduced. The effort of government to promote renewable energy could be seen as the programmes introduced such as Small Renewable Energy Programmes (SREPP), Malaysian Industrial Energy Efficiency Improvement Project (MIEEIP), Malaysia Building Integrated Photovoltaic Technology Applications etc[1]. On 2009, the government of Malaysia has committed in reducing the carbon emission by 40% and preserves forest and land area by 2020 compared to 2005. This has been conditionally agreed by Prime Minister of Malaysia, Datuk Seri Najib Tun Razak in Copenhagen Climate Change Summit in 2009 [1]. After that, Malaysia has launched Green Building Index (GBI) as a rating tool for green building in Malaysia.

India is one of a developing country similar to Malaysia that actively in promotion in solar technologies in their country since couple of decade ago. Government of India was allocate variety provision of fiscal and financial incentives to the energy efficiency technology user in their country, varied in type of technologies used, type of end user and even the geographical consideration [6]. In term of fiscal incentives, government of India have provided some attractive incentives for renewable energy technologies such as, income tax benefit, exemption and redcution in excise duty, income tax holidays, and central sales tax and custom duty concessions [2].

II. PROBLEM AND ISSUE

A green building incentive introduced an initiative by the Government to encourage the construction firms in Malaysia to take part in green development. However, to date, the numbers of construction companies, developers and other key players involvement in green building are relatively low. Participation of key driver for developing green building shows less interest and not really ready to participate in the green project. These proves that the current incentives that already in place and introduced by government are not attractive enough for construction key players in adopting green elements for their building development projects[4]. Even though, some of the developers are actually alert the type of incentives that they could benefits from the green initiative for some reasons [5].

The present paper aims to identify the reasons of reluctance by the construction key players towards the incentives by comparing and reviewing the successful implementation of green building incentives in other regions.

III. LITERATURE REVIEW

A. The Benefits of Green Building on Investment

Green building practices into the construction of state buildings is a solid financial investment. The benefits of green building a minimal upfront investment of about two percent of construction costs typically yields life cycle savings of over ten time the initial investment [12]. The benefits including the potential of high occupancy, higher future capital value, reduce risk of obsolescence, ability to commend higher lease rates, loser operating cost, lower tenant turnover and cost less to maintain and operate.

The goal of ever-greener buildings by committed building owners and investors will lead to a greater focus on the lifecycle benefits of the technologies and design strategies, assisting the financial evaluation of the various attributes beyond the initial capital cost impacts. It should also mean that design teams will need to work harder to evaluate and balance Green initiatives, look for off-sets and prepare well measured arguments to ensure the attributes are maintained through to construction [12].

B. The Importance of Green Building

The level of awareness of the key players on the importance of green building towards sustainable development, environmental impact, social etc are greatly rely on how they being exposed to the subject matter[11]. The typical reason of what are the case for the key players in construction consider green building for their project are as follows [13]:

Resource consumption

Buildings are a major source of resource consumption. This consumption has been estimated to be 40% of raw materials globally, which calculates to three billion tons annually. Not only are resources being consumed by our buildings, but the construction industry generates large amounts of waste. In the U.S. in 1996, it was estimated that 136 million tons of construction and demolition waste was generated, which equals approx. 2.8 lbs/person/day (U.S. EPA 1998).

Green building techniques effort to help solve these problems by employing practices such as using materials that are sustainable capable to be regenerated as fast, or faster than they are used, and by recycling, which reduces waste and raw materials usage.

Energy consumption

Currently the building structures that consume a large portion of the energy produced in this country. Buildings alone account for 65.2% of total U.S. electricity consumption and greater than 36% of total U.S. primary energy use [13]. A large portion of this energy is used in the heating and cooling of buildings. Electricity used for lighting and to run equipment such as the refrigerator, clothes dryer, and office equipment make up another large portion [13].

Saving one unit of electricity saves three or four units of fuel at the power plant. Power plants use one-third of all fuel, thus producing one-third of the resulting carbon dioxide (CO2), one-third of nitrogen oxides (NOx), and two-thirds of the sulfur oxides (SOx[14]. Green building practices can greatly reduce the environmental impact that buildings have on the environment by reducing the amount of energy needed to operate and maintain buildings.

Economics

There are economic reasons for building green. The two most predominant economic factors are reduced energy costs and increased productivity. In their article Greening the building and the bottom line, [14] present eight case studies that make a strong case that certain green building practices efficient lighting, heating, and cooling increase worker productivity, decrease worker absenteeism and/or improve the quality of work performed. These benefits, which positively affect a company's economic bottom line, are all in addition to saving money and resources through energy efficient design.

C. Types of Green Building Incentives

Incentive is a factor that motivates a person to achieve a particular goal [15]. Green incentive however, is an analysis of the current state of green building incentives at the state and local level. The key players included developers, investors, and owners and so on. The purpose of green building incentives that have wide appeal in the private and public sector and further encourage the construction of green building by establishing them as the smartest choice in new development [15].

They also remarked as a local and state government develops comprehensive green building programs, they can provide a number of incentives in order to encourage the private development of green building. This provides all the key players with the opportunity offer a range of inducements based on the fiscal outlook, the current level of development activity and the scope of the green building program. The purpose for building green and instead have green design is the standard integrated into all buildings. With the right green incentive, a robust advocacy effort and strong support from the public this day is soon approaching. Green incentives will be followed up with advocacy efforts to transform this conservation into actionable legislation and initiatives on the local and state level.

Financial

Financial incentives are direct monetary provided by government as a financial support for developers who propose or willing to involve in green development. There are various financial incentives provided such as grants, loans, fund, vouchers, rebates and etc. Financial support is more targeted and better budget control [4]. The advantageous of financial incentives are, direct benefit to customer and ease of administration. However, in developing countries compared to developed countries which is matured in green market were needed higher level of incentives, and it is considered as high cost program and could become a disadvantage for financial incentives [5].

Fiscal

Fiscal is about less much common as financial incentives. Many journal and researchers were combined the fiscal instrument into financial incentives. However, it is not a direct monetary given by government to encourage developers like financial incentives. Fiscal incentive is like a privilege given by government, in term of exclusion from paying any tax, but only given to qualified project[6]. Fiscal can be classified as profit based, capital-investment based, labour-based, sales based, import and export based, and based on other particular expenses[7]. Fiscal is more neutral, more predictable for companies, wider reach, very low on administrative cost and more accessible [4].

Structural

Structural incentives could also known as administrative incentive, is indirect way of how developers could get their benefit from building green. Structural incentives are much common incentives offered by government because; it would not require expenditure of fund and not reduce the income of city and county. This incentive is tend to new construction; however it is about same to green building component, make the local government always making a combination of these incentives, but depend on qualifications of project [3].

IV. METHODOLOGY

The objective of this paper is to identify the green building incentives that have been implemented in Malaysia for construction key players. Definition of incentive is two fronts that addressed in improving efficiency in a building are new construction and retrofitting existing building in term of building component such as insulation, appliances, furnaces etc, which new construction always focusing on getting a certification program, whereas they will become existing building and need for retrofitting later if they do not do so earlier. However, incentivizing an existing building while retrofitting a green building component is more efficient used a limited resources and mostly focused by government rather than incentivizing new construction [3]. An extensive literature review on Green Building Incentives has been carried out through desk study by peer reviewed journals papers, reports, published manuscript and unpublished manuscript. The findings from literature review on Green building Incentives that has been implemented in Malaysia by comparing data based on the types of incentives.

V. FINDINGS

A. Type of incentives implemented in Malaysia

Tax incentives for the generation of energy from renewable resources

Companies generating energy from renewable resources used pioneer status with tax exemption of 100% of statutory income for ten years and investment tax allowance on qualifying capital expenditure incurred to be set-off against 100% of statutory income for five years. For indirect tax incentive are import duty and sales tax exemption on equipment used to generate energy from renewable sources not produced locally and sales tax exemption on equipment purchased from local manufacturers.

Companies generating renewable energy for own consumption used in corporate tax incentives which is investment tax allowance on qualifying capital expenditure incurred to be set-off against 100% of statutory income for five years.

Besides that also Malaysia has implement import duty sales tax exemption solar photovoltaic system equipment for the usage by third parties is given to importers including photovoltaic service providers approved by the Energy Commission and sales tax exemption on the purchase of solar heating system equipment from local manufacturers.

Companies can borrow up to 80 -85% from total project cost and repayable period of 15 years [9].

Tax incentives for energy conservation

Companies providing energy conservation services also will be given on the pioneer status and also tax allowance on qualifying capital expenditure for corporate tax incentives. For indirect tax incentives will get import duty and sales tax exemption on equipment used and equipment purchase. Pioneer status with income tax exemption of 100% of the statutory income for 10 years. For import and duty sales tax exemption on energy conservation equipment that are not produced locally. Sale tax exemption on the purchase of locally produced equipment [10].

Income tax/ Stamp duty incentives for GBI certified building

Building expenditure incurred by a person or company will get 100% tax exemption on additional capital expenditure to obtain GBI certificate a lifetime claim on GBI buildings, set-off against 100% of statutory income and incentive claimed once certificate is issued for new buildings and upgrade of existing buildings.

Property buyers also will be given on the incentives by stamp duty exemption based on additional cost to obtain GBI certificate, buildings and residential properties with GBI certificate, applies only to purchase from developers. Stamp duty exemption based on additional cost to obtain GBI certificate [10].

The incentives are based on first property owner only. Effective date for buyer is sale and purchase agreements executed from 24 October 2009 until 31 December 2014.

Feed-in Tariff

Malaysia has launched the feed-in tariff (FiT) scheme in December 2011. Eligible renewable energy producer will be paid a set of rate from their power generate and will purchased by power companies within period 15-20 years[10].It is one of an important component in Renewable Energy Act that launched in April 2011[8]. Feed-in Tariff is an investment based on renewable energy by exportation of electricity in kilowatt-hour (kWh). The users as a consumer will have two difference or separated meters on their property. Users monthly billing paid to utility will go on the first meter, and the users electricity exported to utility will go to the second meter, then users get paid by utility(Chua, Oh, & Goh, 2011).

Feed-in Tariff was implemented and administered by Sustainable Energy Development Authority (SEDA), which was a new identity in Malaysia. Sustainable Energy Development Authority (SEDA) listed four renewable sources under Feed-in Tariff scheme, 1)Biogas; 2)Biomass; 3)Small hydropower; and 4)Solar photovoltaic which was selected due to technologies and technical potential proven under local government of Malaysia[8].

Below are the summary of incentives introduces to support green building development in Malaysia as shown in Table I ;

TABLE I. GREEN INCENTIVES IN MALAYSIA

Name	Purpose of the incentive	Type of benefit	Benefeciary Sectors / Activities	Types of incentive
Promotion of investments ACT 1986	Promote energy conservation	Pioneer status and tax allowance for 100% of statutory income for 10 years	Energy service companies implementing energy conservation projects	Financial
2009 Budget	Promote renewable energy (RE)	Poineer status tax exemption of 100% of statutory income for 10 years	Generation of electricity from biomass, hydropower and solar power	Fiscal
	Promote renewable energy (RE)	100% investment tax on capital expenditure within first 5 years	RE generation for companies own consumption	Fiscal
	Facilitate development of solar power	Import duty and sales tax exemptions on solar PV and solar heating equipment	Solar PV system equipment	Fiscal
	Promote Energy Efficient (EE) product	Sales tax exemption on energy efficiency products	Imported materials and equipment can receive some improt duty and sales tax exemption	Fiscal
2010 Budget	Promote green buildings	Tax exemption on 100% of additional capital expenditure for green building	For building or upgrading to Green Building Index certificate standards	Financial
	Promote Green buildings	Stamp duty exemption	Transfer of ownership of a GBI certified buiilding	Fiscal

VI. CONCLUSION

As conclusion, the government has provided a number of incentives such as tax breaks and loans, to attract investment in green building development. It has simplified regulations, thereby reducing administrative obstacles to doing business and introduced a feed in tariff (FiT) in 2011. These are among financial and fiscal incentives available in Malaysia.

Even though, there are many incentives introduced by government, it's still show a lacking in term of structural incentives. This finding suggests that government should also put a focus on structural incentives or

known as administrative incentive in order to encourage implementation of green building development. The government support and incentives will prompt interest among construction key players in Malaysia.

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