



STUDYING ACCEPTANCE AND SOCIAL PROBLEMS OF GREEN BUILDING

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ABSTRACT

In the past few decades, scholars have conducted research and held discussions on green building to highlight their vital significance in addressing environmental, economic and social challenges. It is recognized that public attitudes and views towards green building may affect its application in daily lives, although studies on consumers' cognition are rarely carried out. The social problems related to green building such as consumers' basic understanding, purchase intention, social and humanistic needs, public attitudes and behaviors, rebound effects and furthermore social acceptance are therefore studied, based on three research methods including literature review, questionnaire and inductive analysis.

Keywords: - Social, Green Building, etc.

INTRODUCTION

The building energy consumption has surged with the improvement of living standards and growth of population. In developed countries, such as Britain, United States and Australia, it is estimated that the building sector accounts for 20%-40% of the total energy consumption. Meanwhile, CO₂ produced by the building industry accounts for 40% of the total carbon emissions. While in the peripheral countries, the growth rate of building energy is much higher than in developed countries, which correlates to more serious pollutant discharge. The increasing environmental problems and energy depletion challenges are the driving force of the pursuit of energy efficiency, ecology and sustainability.

SOCIAL PROBLEMS RELATED TO GREEN BUILDING

Although the concept of green building has been established for several decades, citizens' basic understanding of green building is still weak. Nevertheless, green building should be basically imparted with many advantages, such as energy saving, resource saving, water saving and healthy living and workplace. According to Rick Fedrizzi, Chairman of World Green Building Council, in the whole life, green building should meet requirements of sustainable site, optimal energy efficiency, sustainable materials, indoor environment quality and independent monitoring and

certification party. Meanwhile, the potential huge economic benefits that could be main power of green building promotion should be envisaged. Therefore, in this era of construction industry, the development of green building should take human health and comfort, economic return, and environmental impact into account. In general, these factors are reflected in the aspects of humanistic needs, public attitudes, economy and its life cycle respectively. When it comes to the environmental impact, it is not only related to a special walk of life, but a complex challenge that needs to be faced up by the society as a whole. Based on the gathered information, consumers will establish basic rating standards, which direct the work of comparing, evaluating and even forming a purchase decision on some potential products. In the process of publicity, performances of green building concerning energy intensity, cost-effectiveness and environmental comfort, have a huge impact on the decision-making. In order to convince the better performance of green building, it is necessary to obtain field test data, and then make a comparative evaluation based on green buildings and conventional ones.

- **Social and humanistic needs**

When it comes to green building, its environmental impacts rather than user's options and choices obtain great attention for some researchers however argue that design cannot exist without the use of consumers, we come to realize that research on green building should not be limited to energy performance-oriented, but also be user oriented. The user-related green building research that includes individual options and choices might be deemed just to bring benefits to consumers, by means of gathering their individual feelings and then maximizing their satisfaction and productivity. As for designers and investors, on the other hand, they could indirectly collect the data and form a media catalog about the bidding and the buying model, which reflected by individual consciousness and behaviors.

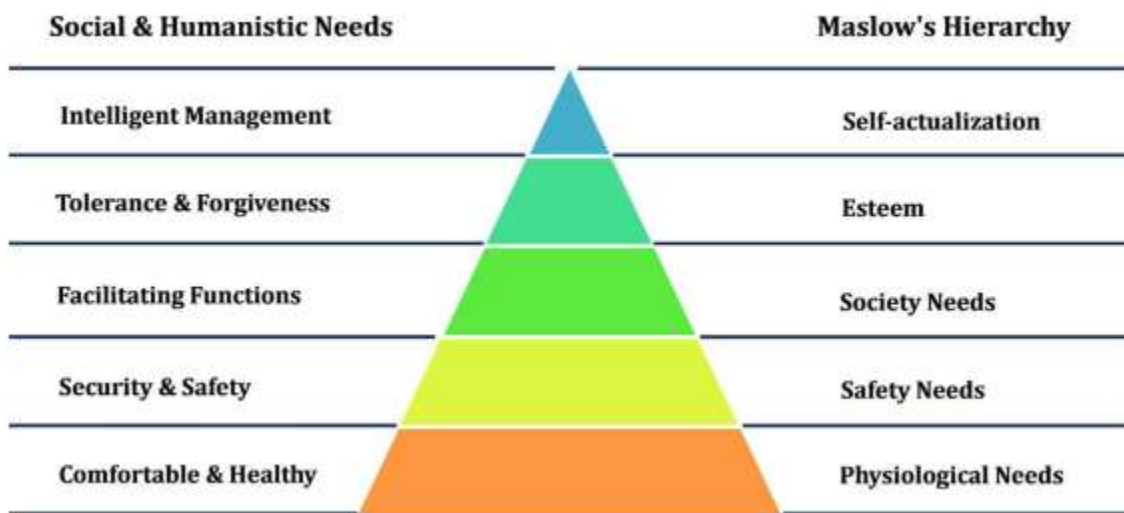


Fig. 1 Maslow's hierarchy needs for green building

- **Public attitudes and behaviors**

Under the influences of the incentive based market economy, green building, as a commodity, is becoming the focus of global attention. From its production to the operation, green building requires mutual support of different groups, which also constitutes complete industrial chain. As the distinctive parts of this industry chain, administration, real estate institutions, research and design institutions, construction organization, product supplier, consumers, financial institutions and media are all a driving force and influential factor in the development of green building. However, consumers and real estate investors are the main participants from the perspective of buying and selling, as well as other institutions and agents involved in motivating the rapid and healthy development of green building. At present, the existing policies and measures issued by administration, and others, aim to promote consumer adoption of green building. Therefore, consumers are becoming the potential recipient, which is not conducive to form a good cycle mechanism. Thus, it is essential to analyze the consumers' attitudes and demand requirements for high participation in green building.

- **Rebound effects**

In the development of green building, it is always described as a kind of high performance building with several characteristics of sustainability, environmental responsibility, resource efficiency, good comfort and high productivity. Meanwhile, according to report from the United States Green Building Council (USGBC), green buildings do exhibit positive environmental impact, occupants comfort, productivity and health at the cost of higher investments in construction, operation and maintenance. Thus, occupants would have a vision that this kind of buildings out-performs conventional counterparts in many fields, such as indoor environment quality (IEQ), energy saving and occupant comfort and satisfaction. For example, in a green office building, workers should enjoy a more comfortable and healthy workplace with better IEQ and this could definitely result in a higher productivity

SOCIAL ACCEPTANCE OF GREEN BUILDING

- **The introduction to social acceptance**

Social acceptance was originally used to survey the general public attitudes rather than a special community's opinion towards renewable energy, such as wind energy, bio fuel and solar energy, to reveal the social support or acceptance of new energy product [78–80]. So far, the definition of social acceptance remains unconfirmed due to its combination of two unrelated words, “social” and “acceptance”, which both depend on the uncertainty of the public's subjective attitudes. In the context of renewable energy, the acceptance turns to being more complex when other factors are involved [81–83]. The acceptance can be subdivided into the “active” and “passive” social acceptance, where the “passive” refers to purchase decision that is encouraged and stimulated by the government incentives. But the “active” one means occupants' subjective higher satisfaction and productivity, although this is adverse to actual results at some times.

In the process of promotion, renewable energy resources are widely accepted by the public. However, local residents oppose the infrastructure facilities. That phenomenon is defined as “Not in My Backyard” (NIMBY), which is used to reveal the discrepancy in social acceptance [84–86]. Many researchers have mentioned influential factors of NIMBY phenomena, such as citizen participation, perceived fairness and media effects, which should be explored for its adverse

effects [87–89]. Therefore, based on the energy research of the large and small scale, some scholars have found that many are willing to support renewable energy projects, but they are unwilling to be involved when the community-based projects are implemented. Thus, Wustenhagen et al. [24] has put forward a three-dimensional model, including socio-political acceptance, community acceptance and market acceptance, to solve the tough drawbacks of renewable energy innovation. Herein this three-dimensional model is introduced to explain social acceptance of green building.

- **Socio-political acceptance**

As for green building, socio-political acceptance is derived from three parts; policy-makers, investors and public. Furthermore, public opinion determines whether the information policy-makers obtained is the accurate or not [24]. At present, most of the green labeled buildings exist in the form of individual buildings, not large-scale communities, and therefore this determines that general public plays an absolute role in providing feedback [90]. It is well acknowledged that green building throughout the world only account for a small proportion of the total built environment, and therefore governments have begun many green pilot projects to promote their development. Currently, policy-makers universally suggest the government to supply funding and subsidies, but the result is basically the same. This is an unfavorable method in establishing systematic green building policies. Meanwhile, a comprehensive problem remains that minimal data can be found to reveal the post-occupancy performance of green building, and therefore, it is difficult to provide positive, useful comments and evaluations for the public [91,92]. However, in the long run, green building should be preferred method in the building industry and gradually extended to residential buildings. This would provide the necessary precedent to investigate the attitudes and opinions of the public in the implementation of green building.

CONCLUSION

Green buildings have been shown a remedy to decelerate the detrimental impacts of construction on the triple bottom lines of sustainability. Numerous efforts have been made to study green buildings' economic and environmental aspects. Nonetheless, not equal attention has been devoted to the social aspects of green buildings. This paper started with the goal of understanding the social barriers, drivers, and benefits of green buildings. First, a methodology was developed to find the literature review articles. The literature review targeted barriers, drivers, and benefits of green buildings.

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