



*Project Title:* Hong Kong Zero Carbon Building Partnership for Enhancing Public and Stakeholder Engagement  
*Principal Investigator:* Dr Wei PAN  
*Project ID:* CICR/08/14  
*Research Institution:* The University of Hong Kong  
*Subject Area:* Environment and Sustainability

## Objective

- ♦ To enhance HK public and stakeholders' awareness and understanding of Zero Carbon Buildings (ZCBs) with regard to the concept, practices and policies in HK and worldwide, and their associated challenges and opportunities;
- ♦ To measure, examine and shape HK public and stakeholders' attitudes to and values for ZCB, to reinforce the long-term interests of sustainable development in the HK construction industry;
- ♦ To encourage and guide HK public and stakeholders' behaviours and practices of supporting, engaging with and delivering ZCBs in HK;
- ♦ To establish and maintain a 'Hong Kong Zero Carbon Partnership' that consists of the public and stakeholders covering the demand, supply, regulation and institution groups of ZCBs;
- ♦ To develop and maintain a 'Hong Kong Zero Carbon Partnership Portal', which is an IT platform and project website, with a real-time on-line system for monitoring public and stakeholders' understanding (knowledge), attitude (value) and behaviour (practice) regarding ZCBs.

## Background

The 'zero carbon building' (ZCB) approach has been adopted in many countries as an important government climate change strategy, while ZCBs are far more than technological solutions, but complex socio-technical systems. It is therefore important to enhance public and stakeholder engagement in the planning and delivery of ZCBs.

## Methodology

The project was carried out through adopting 'systems theories' to address ZCBs as complex socio-technical systems of the combination of products, processes and people involving the demand, supply, regulation and institution groups, as well as the 'action research' approach to lead to improved knowledge, attitude and behaviour. The project effectiveness was ensured using a set of measures and targets derived from the five project objectives.

## Results and Findings

### The Hong Kong Zero Carbon Partnership

The established Partnership aims to function as a mechanism to bridge the links between the public and the many stakeholder groups in HK and beyond, and provide a platform to support the transition of the buildings and the built environment in HK towards zero carbon and sustainability. Drawing on systems thinking, the Partnership engages the public and stakeholders covering the demand, supply, regulation and institution groups of ZCBs.

### The Hong Kong Zero Carbon Portal

The developed Portal is an IT platform and a project website, supported by use of mobile APPs, with a real-time on-line system for monitoring public and stakeholders' understanding (knowledge), attitude



*Project Title:* Hong Kong Zero Carbon Building Partnership for Enhancing Public and Stakeholder Engagement  
*Principal Investigator:* Dr Wei PAN  
*Project ID:* CICR/08/14  
*Research Institution:* The University of Hong Kong  
*Subject Area:* Environment and Sustainability

(value) and behaviour (practice) regarding ZCBs. The Portal aims to help the Partnership to become a world-class knowledge-based, innovation-driven and multi-stakeholder-engaged hub for low or zero carbon building (L/ZCB). The Portal not only provides a single entry and unified channel for public and stakeholders to access project information (e.g. news, workshop events and research reports) and ZCB knowledge (e.g. standards, best practices and technologies, and policies), but also supports them to actively engage in and contribute to the project via flexible mechanisms (e.g. online survey, training programme, web community, social networks and mobile applications). With the Portal, the participants' inputs and feedbacks are collected in real-time and analysed using business intelligence technologies for measuring and monitoring public and stakeholders' understanding, attitudes and behaviours with regard to ZCBs.

### Knowledge, attitude and behaviour about ZCBs in HK

A database of the measurements based on results of the questionnaire survey was developed. Based on this database, the measurement results are displayed on the Portal, supported by mobile APPs for efficient communications. The survey, via the online form, is live, and the real-time descriptive analyses of the survey results were generated and presented on the Portal (<http://hkzcp.org/report/>) to achieve real-time measurement and monitoring.

## **Recommendations**

The following recommendations are made:

- (a) Adoption of the socio-technical systems approach coupled with the stakeholder framework over a long-term period from now to 2050 (from which the Paris Agreement pledges to reach 'carbon neutrality') to enhance public and stakeholders' awareness and understanding of ZCBs.
- (b) Adoption of a political, economic, socio-cultural, technological, environmental and legislative (PESTEL) analytical framework to demonstrate multi-dimensional drivers for and benefits from ZCBs and to shape public and stakeholders' attitudes and values for ZCBs.
- (c) Adoption of the 'carrot-and-stick' dual approach and smart technologies as triggers for behavioural changes to guide public and stakeholders' behaviours and practices of ZCBs.

### *Disclaimer*

*The information given in this report is correct and complete to the best of knowledge of the authors and publisher. All recommendations are made without guarantee on the part of the authors or publisher. The authors and publisher disclaim any liability in connection with the use of the information given in this report.*