Research Assessment Exercise 2020
Impact Overview Statement

University: City University of Hong Kong
Unit of Assessment (UoA): 16- Civil Engineering (inc. Construction Engineering & Management) and Building Technology
Total number of eligible staff of the university in the UoA: 28

(1) Context

City University of Hong Kong aspires to be a leading global university. In celebrating her 25th anniversary since inauguration as a full university, it reached 52nd in the International QS rankings. This Unit is unique by its multi-disciplinary and resides within two spectra: Civil Engineering, and Building Technology that undertakes excellent research that has high level of impact. Our research include: (1) tackling major industrial challenges through collaborative research and consultancy, (2) influencing the formulation of public policies at national and international levels, particularly in the area of building energy, (3) enhancing professional practice by translating our research findings into generally accepted guidelines, codes and standards, including geotechnical engineering, (4) reducing human exposure to health and safety hazards through our work in indoor air quality, wind and earthquake engineering for tall buildings.

(2) Approach to impact

To contribute to the economic development of Hong Kong, we concentrate on both theoretical and empirical studies with a view to achieving direct impacts on the built environment through the transfer of our professional/technical knowledge and research findings into practical technologies to promote industry and community developments. Our multiple initiatives that support impact-related activities and includes involvement in consultancy projects and partnership with industries, contract research projects, innovative research collaborations, staff engagement to professional and community services, and coordination of academic activities and student internships.

(3) Strategy and plans

In terms of research strategy, the Unit shares the following objectives in common with the Department:

- to develop and promote a vibrant research culture that enhances our international reputation;
- to publish research work regularly in quality journals and disseminate it in appropriate forums;
- to develop cross-institutional and cross-disciplinary research;
- to make innovative and significant research grant applications;
- to encourage the transfer of knowledge generated through research to practical use, whether by other researchers, industry or government, with the aim to benefit society; and
- to provide our postdoctoral and PhD researchers with world-class research facilities and insightful supervision, in addition to opportunities to develop their research profiles.

In addition, we have developed an impact management strategy for the future by improving our impact approach. We expect that our strategy will help to maximize the impact of our current activities, expand reach to new communities of stakeholders and enhance their relevance by supporting the highest quality of research in priority areas.

A **strategic partnership** is the first component of this strategy and remains a cornerstone. We will strive to strengthen our relationship with industrial partners, continue to expand our research

programme, and pursue long-term collaborations with major engineering industries (with innovative engineering and technology being the center for many of these interactions) and government agencies.

A second component of the strategy is to take advantage of our work's wide-ranging **multi-disciplinary capacity**. We will endeavor to improve and encourage impact on emerging phase change materials, building information systems, and computational modeling techniques through our ties and projects with other disciplines such as chemistry and biology and information technology, all of which have great potential impacts that we intend to exploit in the next evaluation period.

We also plan to develop **technology platforms** that offer real benefits in healthcare, transportation, energy, and built environment, to both existing and new users.

A final component of our strategy is to establish **new procedures** for assessing the quality and possible impact of research proposals and thereby rewarding impact work by prioritizing suitable supports. This will encourage our faculty to recognize and apply practical routes to impactful research.

(4) Relationship to case studies

The Unit promotes research impacts through its wide range of research activities. The case studies provide strong evidence of the effectiveness of this strategy as they represent our core research ideas. The scale and magnitude of our impacts outlined in the case studies represent the central commitment of the Unit to industry-relevant research and dissemination to the public.

Two impact cases submitted report 1) a study to provide valuable information for the future development of SHM, enhances the understanding of the wind effects on super-tall buildings, improves wind tunnel testing techniques and promotes the application of the active control technique as well as for the wind-resistant design of super-tall buildings in typhoon-prone regions. The research project was supported by two GRF grants of HK$880,000 and $511,935 as well as a NSFC grant of RMB590,000. 2) The other study on the quantification of geotechnical uncertainties and their impact on international geotechnical engineering practice contributed to the development and revision of international design codes, such as *ISO2394: General principles on reliability for structures*, *Eurocode 7: Geotechnical design* in Europe, Load and Resistance Factor Design (LRFD) in USA, and slope design guidelines in Hong Kong. The methods developed also have significant impact on local geotechnical engineering practice, such as slope design, in Hong Kong.

To sum up, we are optimistic that our strategy of strongly promoting collaboration with external organisations, as exemplified by our case studies, was instrumental in ensuring that our research leaves the confines of the university and extends to the 'real world' successfully as well as achieves real and lasting impact.