Joint Project of Comparison of Urban Redevelopment Strategies at Kai Tak (Hong Kong) and Parramatta (Sydney)

Dr. Orianna Guo, Scientific Officer at the Sustainable City Lab (SCL) from Department of Building and Real Estate (BRE) in the Hong Kong Polytechnic University (HKPU), was invited to University of Technology Sydney (UTS) over the past two weeks (14-27, February 2016) to commence research as a Key Technology Partnership Visiting Fellow by Dr. Pernille Christensen, Senior Lecturer at the UTS School of Built Environment (SBE).

UTS has joined the Hong Kong Polytechnic University (HKPU) in a new research venture that uses 3D modelling technology to improve sustainability outcomes in urban renewal projects. The research aims to use 3D spatial analysis technology based on 3D models from HKPU's Sustainable City Lab to measure the impacts of relaxed building restrictions on development sites in Hong Kong and Sydney.

Like many global cities, Hong Kong and Sydney are suffering from a chronic lack of land resources, housing supply and the impacts of high density urban development. As developers in both cities push for the relaxation of maximum plot ratios and building height restrictions, we need to investigate the impacts from a sustainability perspective. Most people can't visualize the impact of relaxed height restrictions from a 2D drawing but by using this kind of 3D modelling technology you get a more holistic view, which means we'll be able to make more effective and efficient decisions. Many cities in the Asia Pacific region are confronted with the challenges of urban redevelopment as growing economies like China and India experience rapid urbanisation.

At HKPU we've been using 3D models to help us do 3D analysis of the redeveloped old Kai Tak airport site. This includes looking at solar exposure, shadows, the wind ventilation and air temperature, ridgeline of the mountain as well as the skyline of the city and what impact these things have for the surrounding suburbs if we increased the plot ratios and building heights. When applied on similar redevelopment areas in Sydney we think we will find similar results. From there we will be able to develop some informed strategies for other global cities facing similar issues with urban development.

Similarly, local site (Parramatta Square) was preliminary identified for the comparison study. A 3D model will be built of this study area and analysis of micro-climate conditions (e.g. sun/shade, wind speed and direction, and air temperature) will be investigated for the study area. Results will be compared to the results at Kai Tak. In addition, discussions with City of Parramatta planning department related to benefits of using 3D technology for built environment decision making.

This joint project has solidified the developing relations between the two universities and accelerated collaboration in their shared areas of interest. This visit is the first step in a long-term, "multi-stage" research collaboration between UTS and HKPU.

Photo taken after the interview by the communications Officer of UTS