

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2021-128
Project Title:	Building demolition waste management through smart BIM in Hong Kong
Principal Investigator:	Dr Zhong Runyang Ray, Department of Industrial and Manufacturing Systems Engineering, The University of Hong Kong
Total Approved Grant:	\$478,130
Duration:	1/6/2022 to 30/11/2023 (ECF & WWGF: 50/50)
Project Status/Remarks:	On-going
Project Scope:	<p>Hong Kong construction industry, known for its massive building infrastructure, produces an enormous amount of waste every year. For instance, the average daily construction waste produced in Hong Kong reached 3,946 tons per day in 2019. The continuous use of construction materials is an essential requirement for sustainable construction and a successful circular economy. However, planning for building materials reuse at the end-of-life of buildings is usually a difficult task because of the time limitation for building removal and materials recovery. Despite the implementation of some effective operational measures and policies in Hong Kong, the overall effectiveness from the sustainability perspective shows the high waste disposal rate on the landfills and low material recovery. This issue is a concern for stakeholders and also exerting pressure on the limited capacity of Hong Kong landfills.</p> <p>Hence, as a response to the aforementioned shortcomings, this project aims to develop a systematic approach that will maximise demolition waste reuse and recycle through Smart BIM enabling the 'smart' building assessment and demolition planning. It is expected that the proposed approach will allow collecting, maintaining, and analysing comprehensive information as well as conducting a waste quantitative assessment, and selecting of waste management strategies with the help of cutting-edge technologies such as BIM, IoT, Digital Twin, and AI. It will update construction waste management in Hong Kong into a level of smartness with the capability of more efficient and intelligent manners.</p>
Summary of the Findings/Outcomes:	To be available upon completion of the project