



The Hong Kong Institute of
Environmental Impact Assessment
香港環境影響評估學會

Recycling Building Materials in Hong Kong

— Crystal Lui —

This is Hong Kong



This is also Hong Kong

Dense population

Limited land

Vertical urbanization



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Urban Renewal



Old and dilapidated buildings

Demolition →
Rebuild more and taller buildings!

Construction & Demolition Waste (C&D waste)



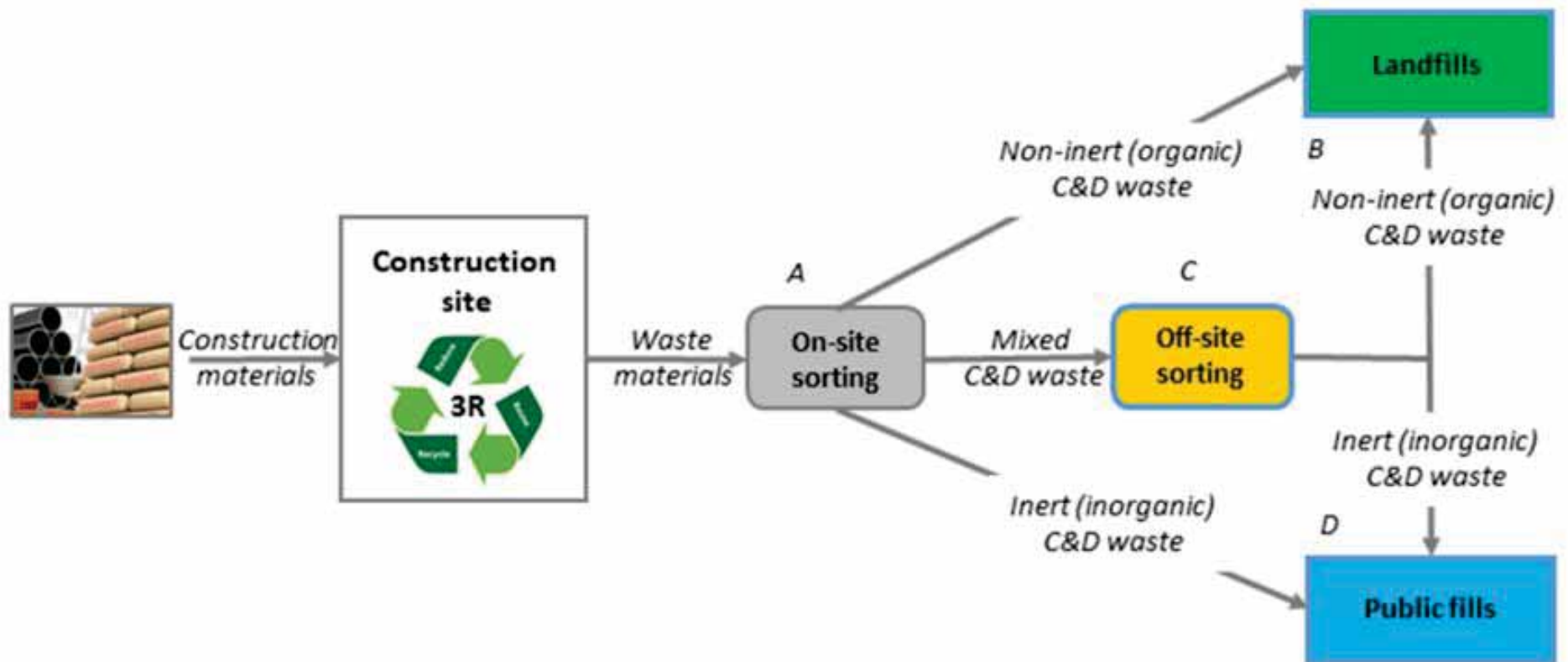
Inert C&D materials: broken concrete and rock pieces can be recycled into recycled aggregates and granular materials for use in construction works.



Where do C&D waste come from?



Common Process of Construction Waste Management



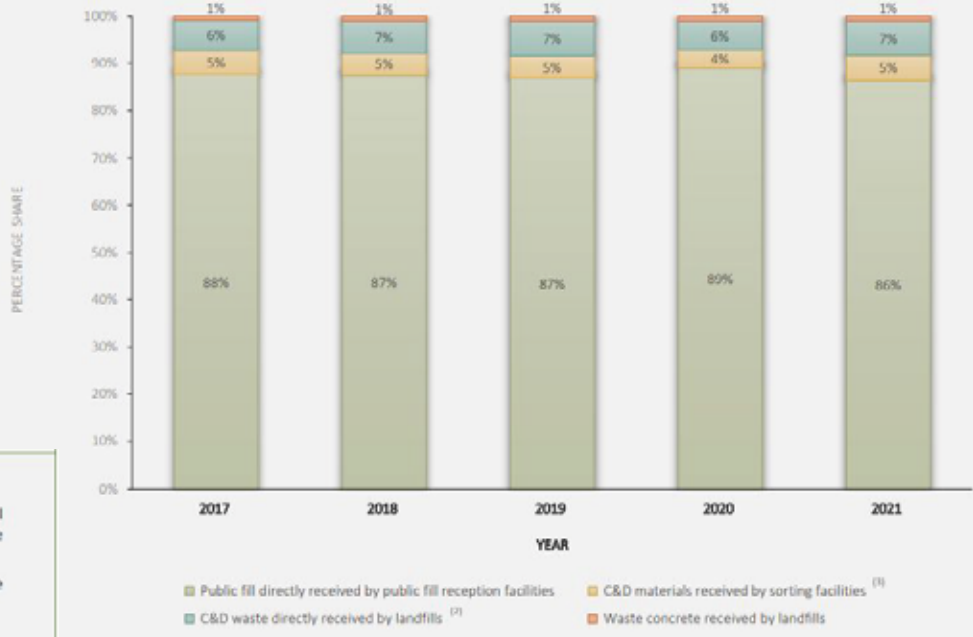
The common process of construction waste management in Hong Kong (Adapted from Lu & Tam [2013])

Waste Statistics

**30,000
Tons per day**

Plate 2.17 Overall construction waste received by treatment facilities ⁽¹⁾ from 2017 to 2021

	Unit : tpd				
Public fill reception facilities	35,541	33,094	30,081	32,536	26,782
Sorting facilities	2,124	1,762	1,670	1,439	1,699
Landfills	2,895	2,974	2,894	2,592	2,548
Waste concrete	350	393	373	395	319
C&D waste	2,545	2,581	2,522	2,197	2,230



Over 80% of inert C&D waste are sent to public fill

Notes :

- Under the Construction Waste Disposal Charging Scheme, 71 dollars is charged per tonne of public fill disposed of at public fill reception facilities, 175 dollars per tonne of construction waste at sorting facilities and 200 dollars per tonne of construction waste at landfills.
- C&D waste directly received by landfills excludes C&D waste from sorting facilities, but includes a small quantity of C&D waste from OITF.
- After sorting, inert material will be transferred from sorting facilities to public fill banks, and non-inert C&D waste to landfills.

How much is that?



A Double-decker bus

12 tons

30,000 tpd

2500

Double-decker buses

1) K.Wah - Recycling C&D Waste and Waste Glass



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EcoPark

specifically constructed for recycling industry

1) K.Wah - Recycling C&D Waste and Waste Glass



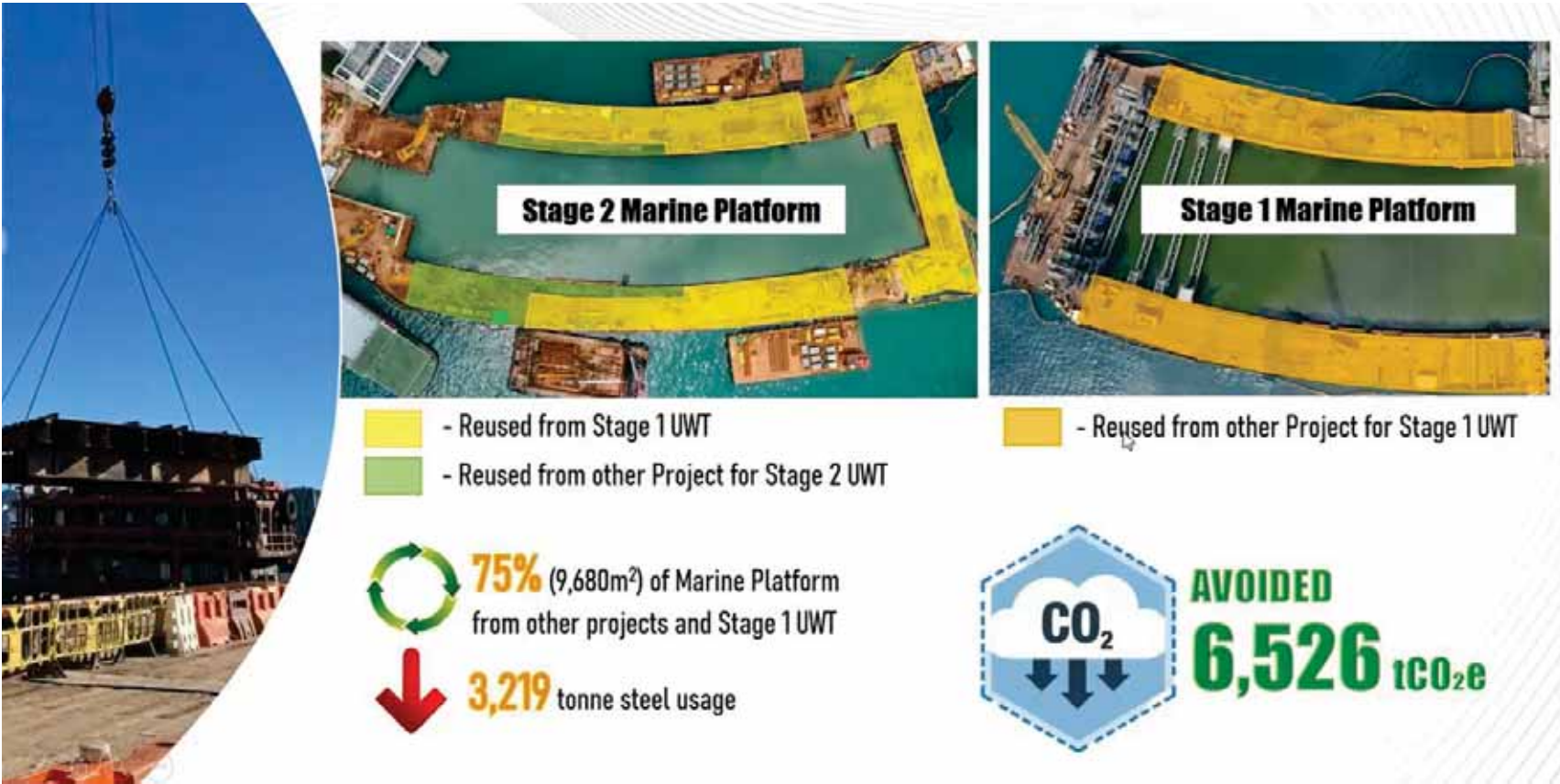
2) Gammon - Reusing Steel From One Project In Another



Central Kowloon
Route - Kai Tak

From Gammon Sustainability Webinar: Decarbonising construction through design and project delivery.

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What are the benefits of recycling C&D waste?

Alleviate Burden on
Public Fill Space



Reduce Need for
Virgin Material



Decrease Energy
Consumption



Recycle and Reuse sounds great, but.....

- From developers/project owners/companies' perspective:
Cost-effective is 1st priority
 - Need something **QUANTITATIVE** to show recycling and reusing are effective in terms of reducing environmental impacts.
-

Life Cycle Assessment (LCA)

Quantify
Environmental
Impact of
Construction Waste
Management



Compare Recycling
versus Disposal
Scenarios



Evaluate &
Enhance Product
Performance



Quantified environmental impacts

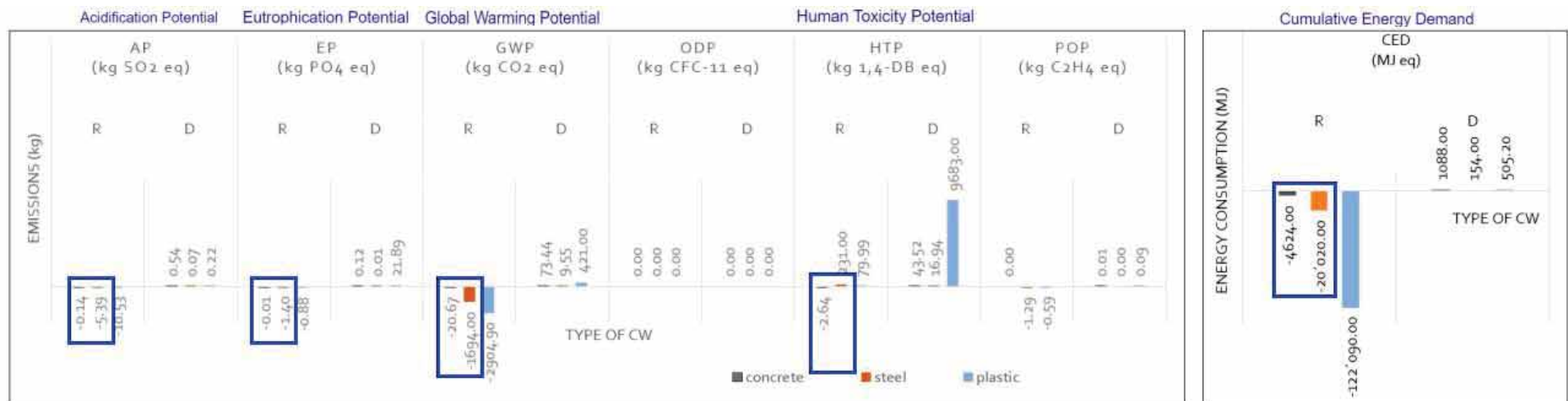


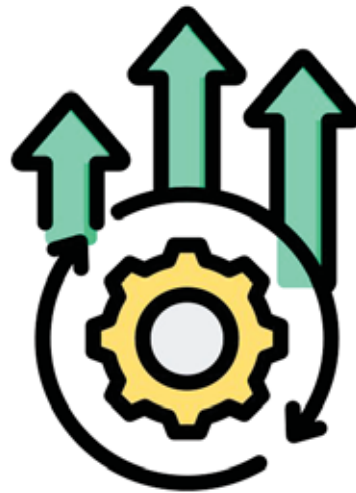
Figure 3. Environmental impacts in recycling (R) versus demolition (D) scenarios; (a) per type of CW;

Quantified results ★ Comparison between Recycling and Disposal scenario

Importance of IA (by LCA) in promoting CE



Design for
Circular Economy



Continuous
Improvement



Stakeholder
Engagement

Thank you!

Any question?

