

APPENDIX A

Questionnaire survey

**DEVELOPMENT OF INTEGRATED
WASTE MINIMIZATION MANAGEMENT FRAMEWORK IN
CONSTRUCTION INDUSTRY FOR SUSTAINABLE DEVELOPMENT**

Questionnaire survey

Department of Civil and Environmental Engineering



**UNIVERSITI
TEKNOLOGI
PETRONAS**

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REAL TIME REUSE AND RECYCLES OF CONSTRUCTION WASTE MATERIALS IN MALAYSIAN CONSTRUCTION INDUSTRY

Dear Respondents,

Many thanks for accepting to take part in this survey. The intention of this questionnaire is to establish a precise picture of real time reuse and recycled of generated waste materials in the construction & demolition sector in Malaysia. The outcomes from the questionnaire will be applied to inform the implementation of the reuse and recycled waste management approach for Malaysia and to assist District Local authorities in the planning, implementation and assessment of their waste management present programs. The data obtained in this survey will be essential not just to government, but in addition for the construction and demolition sector. The information will be of a benefit to you in managing your waste assure that waste planning by both Central and Local Authorities is structured on the right accessible information.

The survey should take approximately 7 minutes to complete. There is a section at the end of the questioner where you can leave any other comment you may have. All information receive will be treated in strictest confidence. Should you have any questions, please call 0165468839, 0123792460, and 0165445930. Thank you for your valued co-operation and time.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Usman Aminu Umar', is written over a light blue circular stamp. The signature is written in a cursive style with a long horizontal stroke extending to the right.

USMAN AMINU UMAR

SECTION 1: BACKGROUND

1. Company name:.....

2. Project name:.....

3. Respondent Age*

- 18-25 years
- 25-30 years old
- 30-40 years old
- 40-50 years old
- >50 years

4. Respondent occupation *

- Engineer
- Architect
- Consultants/Contractor
- Project Manager
- Site supervisor
- Other, please specify.....

5. Level of experience in year*

- 0-5 years
- 5-10 years
- 10-15 years
- 15-20 years
- >20 years
- Other, please specify.....

6. Who are your major clients*

- Public organizations
- Private individuals
- Both public and private

7. Contractor grade level*

- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Grade 6
- Grade 7

8. Types of construction projects*

- Commercial Building
- High rise Building
- Housing estate
- Institutional building
- Other, please specify.....

SECTION 2: REAL TIME REUSE AND RECYCLES OF CONSTRUCTION WASTE

1. Which materials could be reuse or recycled and are currently not (check all that apply)

- Bricks/concrete
- Wood
- Soil/gravel
- Paper
- Glass
- Bitumen materials
- Galvanized steel
- Asbestos insulation
- Plastic
- Other, Please specify.....

2. Why waste are not reuse or recycled (check all that apply)

- Uneconomical
- No market
- Time to segregate
- On site storage
- Material contaminated
- Not considered
- Other, Please specify.....

3. Estimated weight of waste generated per day for your project

- Less than 1 tons
- 1 to 5 tons
- More than 5 tons
- Other, Please specify.....

4. Frequency of onsite sorting of construction waste materials

- Daily
- Weekly
- fortnightly
- Other, Please specify.....

5. Which waste management method used to handle the waste (check all that apply)

- Land filled
- Treatment
- Land spreading
- Composting
- Recycling
- Reused
- Incineration
- Other, Please specify.....

6. Estimated construction wastes generated that will be reuse or recycled

- Below 10
- 10% - 25%
- 26% - 50%
- Above 50%

[] Other, Please specify.....

SECTION 2: IMPORTANCE INDEX FACTORS

1.	Importance index of the methods of waste minimization during construction works	Degree of Important				
		1	2	3	4	5
A	Careful evaluation of materials so that over-ordering and site wastage is reduced					
B	Reduce the amount of packaging					
C	Practice just-in-time delivery to minimize damage to materials during on-site storage					
D	Reuse or recycle packaging of materials					
E	Use recycled materials					

2.	Importance index of the methods used to dispose of the waste materials	Degree of Important				
		1	2	3	4	5
A	Recycling					
B	Reuse					
C	Landfill					
D	Dumping					
E	Incineration plant					
F	Open air burning					

3.	Importance index of the effects of waste minimization by reuse or recycling	Degree of Important				
		1	2	3	4	5
A	Avoid trash collection and disposal fees					
B	Improve organization's public image					
C	Make new products from old materials					
D	Improve the market for recycled content products					
E	Helps meet local and state waste reduction goals					
F	Increase profit					
G	Increase landfill life					
H	To reduce environmental impacts					
I	Avoid trash collection and disposal fees					
J	Improve organization's public image					

4.	Importance Index of the main problems in reuse and recycling of construction wastes	Degree of Important				
		1	2	3	4	5
A	Contamination					
B	Quality of waste					
C	Difficult in collection and transport					
D	Difficult in sorting, transforming and disposing					

5.	Importance index of the factors to encourage construction waste reuse and recycling	Degree of Important				
		1	2	3	4	5
A	Increase landfill tax to avoid indiscriminate dumping					
B	Use green materials					
C	Impose charges when the wastes exceed a certain amount					
D	Use recycled based materials					

SECTION 3: GENERAL OPINIONS ON REAL TIME REUSE AND RECYCLE OF GENERATED WASTE MATERIALS IN MALAYSIA

Please complete the section on general opinions on real time reuse and recycle waste materials in the construction industry. This will help us to understand the constraints and obstacles to further make recommendation on recycling and reuse of construction and demolition waste.

1. Do you have any wastes which could be recycled and which are not?

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2. Why are the wastes not recycled?

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3. Did your company carry out any projects involving the reuse of waste or recycled materials?

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4. How can recycling and reuse of construction and demolition waste be increased and what are the current barriers?

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5. How does your company consider waste recovery can be increased?

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6. What do you consider to be the barriers to waste recovery and recycling in Malaysian?

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7. Additional comments and suggestion

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Thank you