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# GAINING CREDIT POINT IN GREEN BUILDING: SOLIDWASTE REDUCTION

Mesi Shinta Dewi<sup>a)</sup>  
Djoko M. Hartono<sup>a)</sup>  
Setyo S. Moersidik<sup>a)</sup>  
Iwan Kustiwan<sup>b)</sup>

*<sup>a)</sup>Universitas Indonesia-Environmental Sciences, Jl. Salemba Raya 4, Jakarta 10430,  
Indonesia*

*<sup>b)</sup>Bandung Institute of Technology - Urban and Regional Planning, Jl. Ganesha 10,  
Bandung 40116, Indonesia*

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# PROBLEM

- Building sector is the most effective sector to reduce energy consumption and greenhouse gas emissions (Metz, 2007).
- In Indonesia, green building concept is focused on industrial and commercial building instead of single houses.
- This paper suggests that due to the importance of the operating phase of green building, sustainable consumption of its residents is the key element of solving problems, by reducing the carbon footprint (i.e. solidwaste generation which has 25% CF from a building (SBCI, 2013))

# OBJECTIVE

the green building concept is required review of occupant social economic conditiono gain 1 point of LEED credit. We will taking up this statement with analysis of social and economic condition of single houses occupants which will increasing awareness in consumption pattern.

# BACKGROUND

## *STUDY AREA*

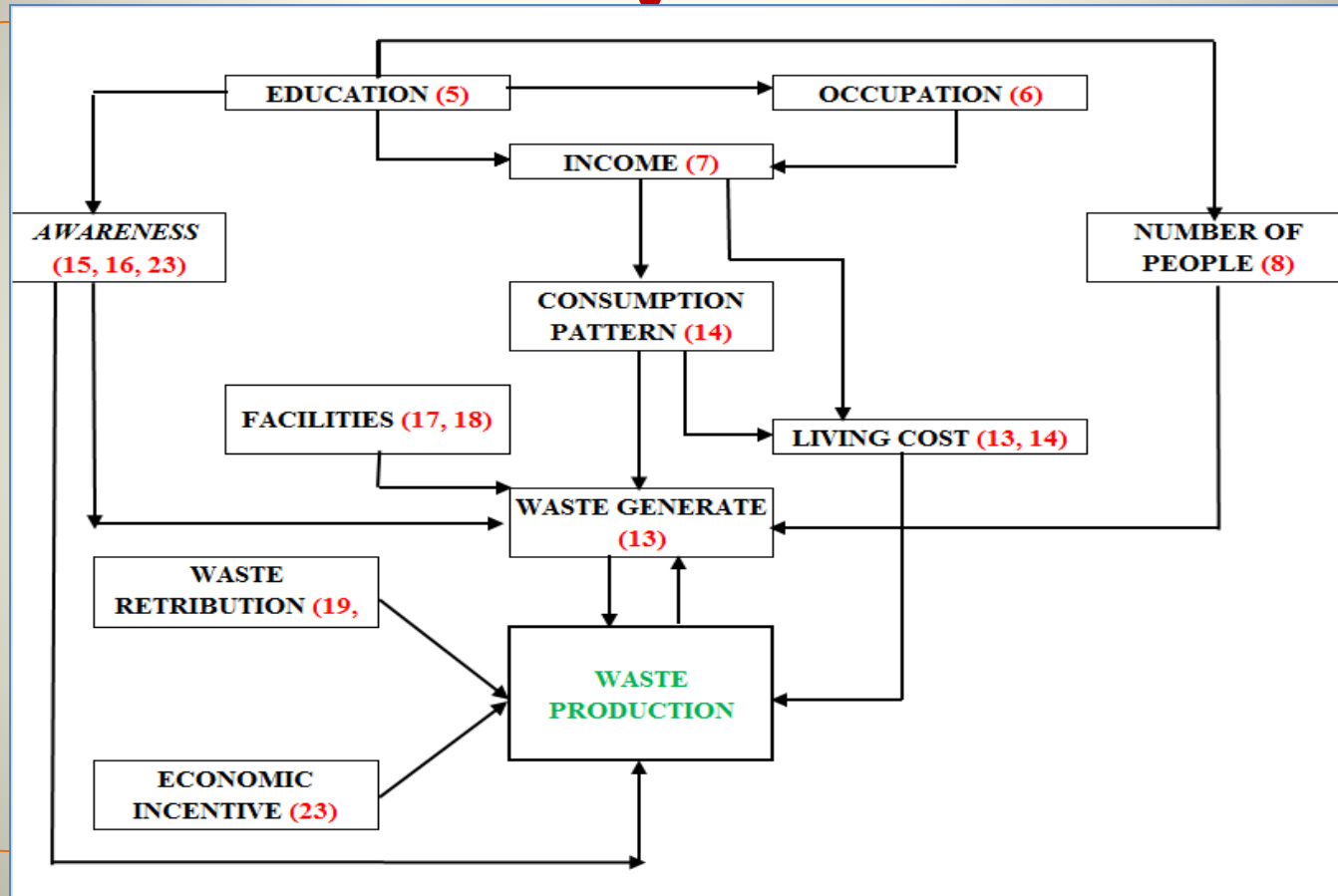
- This study executed in urban area with high population density with high density of buildings and the land cover should be dominated by settlement area
- Tangerang Municipality has those two criterias caused by its location bordered with Jakarta capital city of Indonesia and it has distribution of buildings type as describe in this table

No	TYPE OF BUILDING	UNIT	PERCENTAGE
1	Historical Buildings	18	0,0042
2	Public Facilities	5.065	1,18
3	Government Building	364	0,08
4	Industrial Building	5.938	1,38
5	Settlement Building	417.581	97,09
6	School	1.128	0,26
TOTAL		430.094	100,00

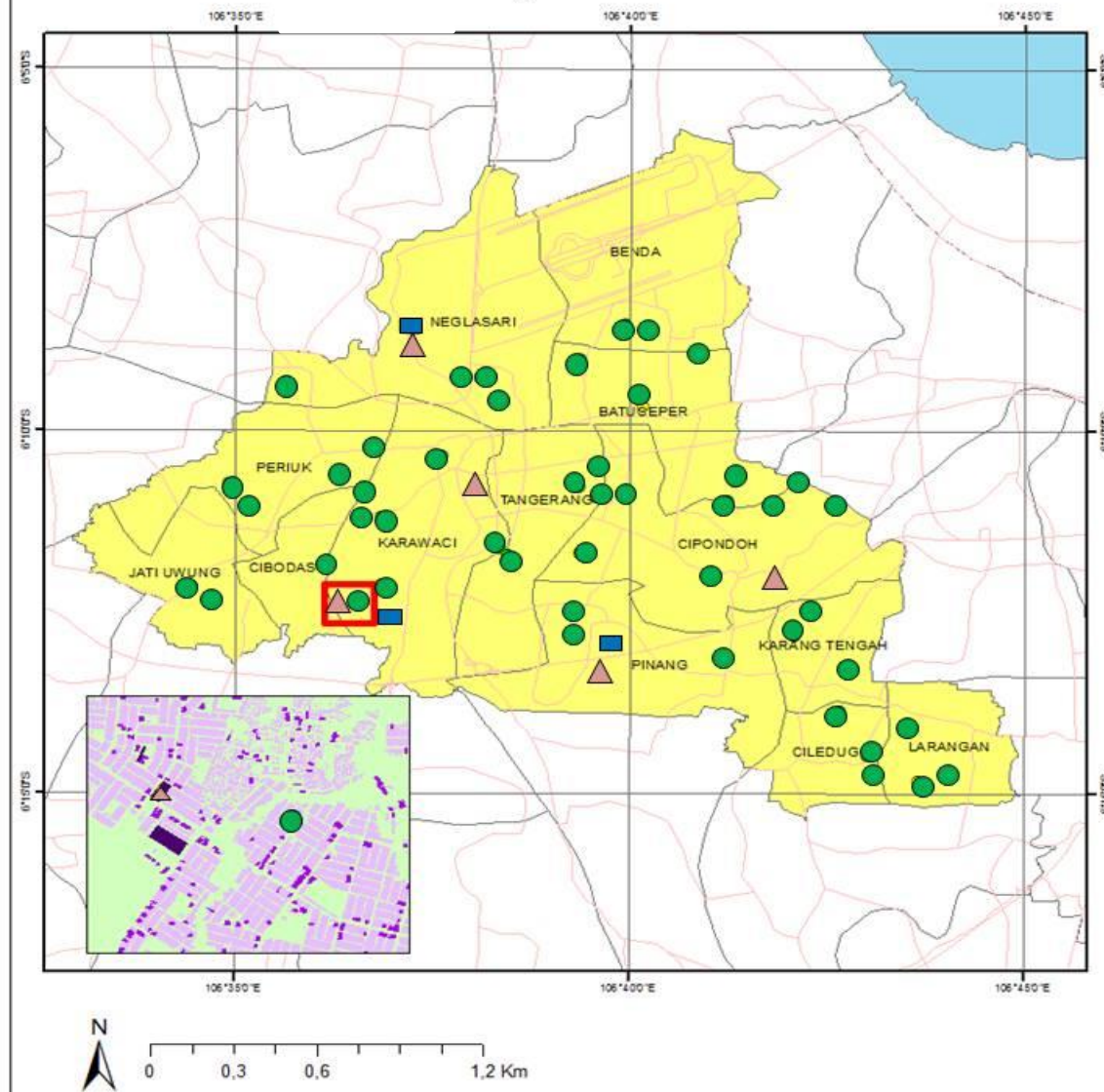
# SURVEY DESIGN

SURVEY (QUESTIONNAIRE AND INTERVIEW)

Regression Logit Model



## Sample Distribution



### Legend:

- Simple housing
- Middle class housing
- ▲ High class housing

### Housing Classification:

- Simple housing
- Middle class housing
- High class housing

Settlement unit in study area is 417,581 units and we took 55 unit of housing as respondent

Ministry and State Minister of Public Housing No. 548-384/1992 classify housing into three specification:

- Simple housing with area around 54-200 m<sup>2</sup>
- Middle class housing with area around 200 - 600 m<sup>2</sup>
- High class housing with area around 600 - 2,000 m<sup>2</sup>

GIS analysis show that in Tangerang Municipality simple housing dominate the settlement area : 54.7%

# SOCIO ECONOMIC CONDITION

most of the respondent are male (72%)  
40-50 years old (36%)  
30-40 years old (29%).

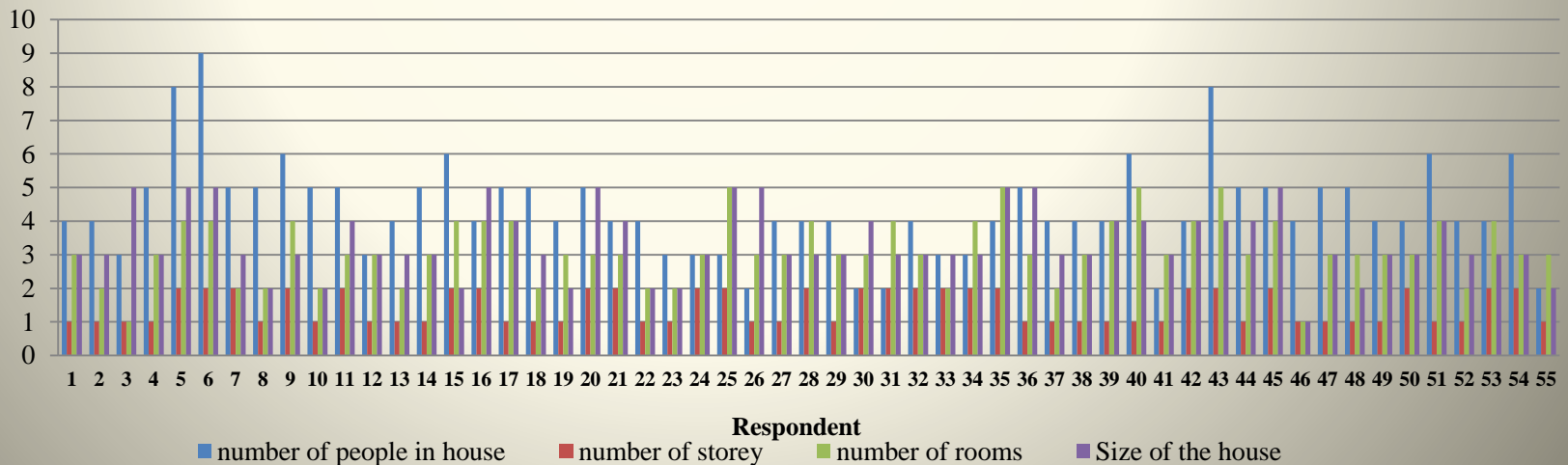
Most of respondent level education is  
bachelor degree (68%)  
high school (30%)  
post graduate 2%

In this survey we categorized level of income in 5 class:

- (1) <Rp 1,000,000;
- (2) Rp 1,000,000 - 3,000,000;
- (3) Rp 3,000,000-5,000,000;
- (4) Rp 5,000,000-7,000,000;
- (5) > Rp 7,000,000.

respondents income no (4) is 36%  
no (5) is 28%

Most of the respondent has two storey house (31 respondents) and number of people live in a house is between 2-6 people with almost 50% of them has 3 bedrooms.



Housing Condition of Respondents

# REGRESSION LOGIT MODEL

## 1. Correlation between Awareness and Education

$$\text{AWARENESS} = 0.613 - 1.306 \text{ EDUCATION}$$

## 2. Correlation Consumption Pattern and Income

Sig Pearson Chi-square is 88.4% which indicate that income would affect to consumption pattern

$$\text{CONSUMPTION PATTERN} = -1.099 - 1.099 \text{ INCOME}_1 + 0.288 \text{ INCOME}_2 + 0.511 \text{ INCOME}_3 + 0.0 \text{ INCOME}_4$$

## 3. Correlation of Living Cost, Income and Consumption Pattern

$$\text{LIVING COST} = 3,442,629 + 3,116,202 \text{ INCOME} + 266,002.7 \text{ CONSUMPTION PATTERN}$$

# CONCLUSION

- Considering all the fact explored above, gaining green building credit point especially from waste reduction in single houses would face to significant obstacles.
- Awareness of the occupant is still low and it's not always influenced by level of education, level of the awareness in consumption pattern is not always equal with level of education. Higher education bring to higher income and it would lead to higher capability to buy goods.
- Although higher income has higher consumption pattern, but they tend to have less waste to generate. In this case we argued it's because of some people with higher income in Indonesia, has ability to buy some ready to use product out side their house, such as eat in restaurant or bring some instant food which has less waste left from producing food at home.