Understanding Behavior of Household Food Waste Management: Food Waste Hierarchy Context

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Abstract. *The determinant factor identification of behavior is considered an important means to develop effective intervention towards household waste management in Indonesia. This study extended the Theory of Planned Behavior (TPB) by using the following construct: intention, attitude, subjective norm, perceived behavioral control, government intervention, environmental knowledge, and awareness, as well as household planning and buying habit; to understand household waste management behavior from the 'reduce-reuse-recycle' point of view. Structural equation modeling (SEM) was used in this study. The result showed that the model accounted for a relatively substantial amount (61.7%) of the variance in intention, with the attitude, subjective norm, and environmental knowledge and awareness emerge as a significant predictor. Governmental and non-governmental organizations could use the above findings to formulate strategies to manage food waste at the household level.*

Keywords: food waste, theory of planned behavior, waste hierarchy, 3R.

I. INTRODUCTION

Food waste is a serious issue that has gained increasing attention over the past few years worldwide due to the awareness that it causes significant negative consequences on numerous aspects of life. Food waste brings about environmental problems such as rising greenhouse gas emissions and inefficient use of water and land; as well as food security and economic issues (Canali et al., 2017; Conrad et al., 2018; Garnett, 2011; Graham-Rowe et al., 2014; Kummu et al., 2012; Lipinski et al., 2013; Nahman et al., 2012).

It has been estimated that in developing countries, most food losses occur at post-harvest and processing levels, while in industrialized countries, losses happen primarily at retail and consumer levels (Gustavsson et al., 2011). Household contributes more food waste generation in developed countries. However, recent issues highlighted in The Agenda 2030

Sustainable Development Goals (SDGs) 12.3, about 'to halve per capita global food waste at the retail and consumer levels' by 2030 (United Nations, 2015) makes household food waste matters not only in developed countries but also in developing countries.

Following the mentioned-goal, the Indonesian government correspondingly has already issued Presidential Regulation Number 97 the Year 2017 concerning Policies and Strategies for Household Waste (SRT) and Household-like Waste (SSRT) Management. Besides, Indonesia's largest proportion of waste is also accounted for organic waste that mostly comes from the household (Amheka et al., 2015). Therefore, if the SDG target and national goal are met, proper household food waste management in Indonesia should be addressed seriously.

Some researchers propose food waste hierarchy to approach appropriate food waste management (Eriksson et al., 2015; Garcia-Garcia et al., 2017; Papargyropoulou et al., 2014). This approach refers to the waste hierarchy that is applied to the context of food waste. This hierarchy is a useful tool to rank waste management alternatives by sustainability performance and has been referred by government and institutions (Garcia-Garcia et al., 2017).

On the other hand, to be successful in implementing food waste hierarchy in a household, there is a need to understand how the

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household behaves towards the solution so that the proper encouragement could be designed to foster the behavior. Besides, human behavioral change has recently become an area of significant academic and societal interest, with research focused on food waste (van der Werf et al., 2019).

Several previous research on food waste behavior is already conducted, but this research mostly highlighted the waste generation behavior point of view (Bravi et al., 2020; Fami et al., 2019; Kasavan et al., 2019; van der Werf et al., 2019). Some researchers that focus on food waste management behavior studied reducing or preventing food waste (Graham-Rowe et al., 2015, Romani et al., 2018, Soorani & Ahmadvand, 2019). Meanwhile, researches that consider food-management behavior from the perspective of food waste hierarchy remains minimum. Furthermore, in Indonesia, the study that focuses on food waste behavior is also minimal. In contrast, a behavioral study is very important in understanding the willingness to involve and formulate policies that trigger food waste management behavior. Therefore, this study aims to contribute to the advancement in understanding household food waste management behavior in Indonesia under the perspective of food waste hierarchy. This study would identify the drivers of waste management behavior at the household level in Indonesia by extending the theory of planned behavior (Ajzen, 1991).

II. RESEARCH METHOD

Household waste and management

This paper refers to the definition of household food waste from (Gaiani et al., 2018), i.e., the food waste that is occurring between acquisition (house-gate) and food preparation, food preparation and food serving, and after food serving (plate waste). This paper also considers the three most preferable actions towards food waste consisting reduce, reuse, and recycle (Garcia-Garcia et al., 2017; Mourad, 2018; Papargyropoulou et al., 2014; Quested et al., 2013; Redlingshöfer et al., 2020). Reducing or preventing food surplus is considered the most

preferred option (Garcia-Garcia et al., 2015; Papargyropoulou et al., 2014; Quested et al., 2013; Redlingshöfer et al., 2020). Some initiatives such as paying attention to time and amount of food to be cooked or served, storing food properly, and buying effectively could be accounted for on a household scale. If food surplus cannot be avoided, another alternative is to be redistributed to people in need or animal feeding. Leftover food can also be reheated or transformed into other recipes (Ghamrawy, 2019). If those alternatives are not possible, food waste can be recycled via composting to create fertilizer. Although there is another option for food waste treatment in the waste hierarchy, anaerobic digestion to recover energy from food waste is less applicable on a household scale than composting (Garcia-Garcia et al., 2015). Therefore, anaerobic digestion is not considered in this study. Those mentioned alternatives (reduce, reuse, recycle) are considered in this study and taken into account in the operationalization of every framework's construct.

Theoretical Framework and Model Construction

The Theory of Planned Behavior (TPB) appears to be one of the most used theoretical models explaining the relationship between intention and behavior (Zhang et al., 2019). It is often examined in environmental behavior studies (Feng & Reisner, 2011). Therefore, this study uses TPB as the theoretical basis in identifying determinant factors of food waste management behavior at the household level. According to Ajzen (1991), in TPB, intentions plays as an immediate antecedent of behavior. Besides, three factors affect intention and indirectly affect behavior, i.e., attitude, subjective norm, and perceived behavioral control (Ajzen, 1991). However, several studies have recommended adding other variables to improve the TPB's predictive validity (Pakpour et al., 2014). Therefore this study considers adding three potentially relevant variables in the model, i.e., government intervention, environmental knowledge and awareness, and household planning and buying habit. A further explanation for every variable is described below.

Attitude Towards Behavior

Attitude towards behavior refers to the perception of whether a certain behavior to be favorable or unfavorable for an individual and plays as a strong estimate of individuals willing to perform a certain pro-environmental behavior (Wan et al., 2015). (van der Werf et al., 2019; Visschers et al., 2016) considered three aspects of attitude towards behavior, i.e., personal, safety, and financial aspect. In the context of food waste management, this refers to whether an individual thinks that reducing, reusing, and recycling food waste important issues, worthy, safe, and gives monetary impact to be carried out. Therefore this paper considers three types of attitude towards behavior and takes into account in the survey questions, and the hypothesis formulated in this research are as follow:

H1. Attitude towards behavior positively affects intention to manage household food waste.

Subjective Norm

Subjective Norm relates to how individuals feel influenced by the important surroundings to perform a particular behavior (Botetzagias et al., 2015; Greaves et al., 2013; Russell et al., 2017). Individuals should intend to perform a certain behavior if people of importance promote to do so. Therefore, this research argues that the more social pressure to encourage an individual to reduce, reuse, and recycle food waste, the stronger their willingness to engage. Based on the statement above, the proposed hypothesis is:

H2. Subjective norm positively affects intention to manage household food waste.

Perceive Behavioral Control

Perceive behavioral control is defined as an individual's perceived ability to perform an intended behavior (Botetzagias et al., 2015; Strydom, 2018). This regards to whether a specific action is considered difficult or easy to accomplish by an individual. Furthermore, Ajzen (1991) stated that PBC influences both intention and behavior. It means that the individual should have the opportunity and sufficient resources to perform the behavior (Ajzen,1991). However, it might only be carried out if he/she has control over it (Visschers et al., 2016).

Therefore, if an individual feels that reducing, reusing, and recycling food waste is easy to conduct, this should increase their intention to manage food waste and trigger them to involve. Thus, the proposed hypotheses are:

H3A. Perceive behavioral control positively affect intention to manage household food waste.

H3B. Perceive behavioral control positively affect household food waste management.

Government Initiatives

Government plays an important role in triggering pro-environmental behavioral change (Ulhasanah & Goto, 2018; Zhang et al., 2019). Guerin et al., 2001) argued that people should be more inclined to adopt environmentally friendly behaviors if they believe that their government is making a reasonable effort to protect the environment. Thus, the more government initiatives to promote and encourage people to reduce, reuse, and recycle food waste, the higher their intention to involve.

H4. Government initiatives positively affect the intention to manage household food waste.

Environmental and Awareness

Knowledge is one of the most influential factors in behavior modification (Ulhasanah & Goto, 2018). It is also considered in many behavioral studies related to waste management (Thi et al., 2019; Ulhasanah & Goto, 2018). Sufficient knowledge can increase the probability of it being asserted that the more knowledgeable individuals about reducing, reusing, and recycling food waste, the more he/she are willing to be involved in such activities. Besides, creating awareness and understanding of food waste impacts the environment is also an effective way to promote sustainable food waste behavior (Cox et al., 2010). The proposed hypothesis is:

H5. Environmental knowledge and awareness positively affect the intention to manage household food waste.

Household Planning and Buying Habit

Shopping and household planning habits appeared to be an important factor that affects food waste in households because people who wasted less food had more effective food

management strategies. It had better shopping planning routines and usually did not over purchase (Visschers et al., 2016). This means that better household planning and habit should bring about higher intention in managing household food waste.

H6. Household planning and buying habits positively affect intention to manage household food waste.

Intention Towards Behavior

Intention towards behavior incorporates the motivation and effort individuals are willing to expend to effect a particular behavior (Ajzen, 1991). Botetzagias et al. (2015) stated that an individual would behave pro-environmentally if he/she has the intention to do so. Stronger intention towards reducing, reusing, and recycling household food waste should increase household food waste management engagement. Therefore, the proposed hypothesis is:

H7. Intention to manage household food waste positively affects household food waste management behavior.

Questionnaire Design

The questionnaires were synthesized by reviewing the previous related study and being revised several times to adjust to research purposes. There are two dependent variables: Intention to Manage Food Waste (IMFW) and Behavior to Manage Food Waste (BMFW). Then, there are six independent variables such as Attitude Toward Behavior (ATB), Subjective Norm (SN), Perceived Behavioral Control (PBC), Government Interventions (GI), Environmental Knowledge and Awareness (EA), and Buying Habit (BH). IMFW was adopted from several previous studies (Ulhasanah & Goto, 2018) and measured using Likert 6-Scale (1=completely agree to 6=completely disagree). Moreover, BMFW was synthesized through a few past research types (Thi et al., 2019) and implemented six points Likert-scale (1=Always to 6=never). Then, ATB was measured using Likert 6-scale (1=completely agree to 6=completely disagree) and adopted from several previous research types (Neff, Spiker, & Truant, 2015; Taylor & Todd, 1997; van der Werf et al., 2019). In addition, SN adopted from

(van der Werf et al., 2019; Xu, Ling, Lu, & Shen, 2017) And PBC adopted from (van der Werf et al., 2019; Xu et al., 2017); both were measured by Likert 6-scale (1=completely agree to 6=completely disagree). Finally, GI was developed from (Heidari et al., 2018; Xu et al., 2017), EA was synthesized from (Jereme, Siwar, Begum, & Talib, 2016; Thi et al., 2019; Ulhasanah & Goto, 2018; van der Werf et al., 2019; Xu et al., 2017), and BH was adopted from (Aschemann-Witzel, de Hooge, Amani, Bech-Larsen, & Oostindjer, 2015; Mondejar-Jimenez, Ferrari, Secondi, & Principato, 2016; van der Werf et al., 2019). These all three were measured using the Likert 6-scale (1=completely agree to 6=completely disagree).

Sample

The survey was conducted in several big cities in Indonesia. According to several statistical reports (Soma, 2019), big cities in Indonesia are still struggling to minimize food waste over the past decade. Some main provinces in Indonesia such as Jakarta, Kalimantan (South, West, Central, and East), Sumatera (South), Aceh, Sulawesi (South), Java (East and West), and Jambi have made efforts through municipal programs or dissemination to counter this increasing food waste. Various methods were being implemented, but the results remained unknown. Therefore these places have been selected for this research. Data were gathered from March to May 2020. According to Hair, Ringle, & Sarstedt (2011), the minimum sample of PLS-SEM should be equal to ten times the number of arrows pointing to the latent variable that received the most arrows, which in this paper is the intention to manage household waste. The intention to manage household waste variable has six arrows pointing at it. Therefore the minimum number of samples is 60. As a precaution of the data insufficiency, more than 100 potential respondents were approached, and 79 valid-answered questionnaires were returned (80%).

III. RESULT AND DISCUSSION

This study applied a three-step analytical stage. In the first stage, demographic data was carried out using SPSS 13 to examine

respondents' characteristics. The second one, validity and reliability, were depicted from its measurement model to evaluate the common bias. The third, structural equation model, was implemented to make a scientific reason for the

study. In the second and third steps, Smart-PLS 3 was utilized due to the following reasons. Smart-PLS 3 (PLS-SEM) can help identify the most effective factor predicting behavior to manage food waste. It is also the most suitable method to

Table 1. Validity and Reliability

Construct	Items	Factor Loading	Cronbach alpha	Composite reliability	AVE
Attitude Toward Behavior	Q3	0.811	0.810	0.866	0.522
	Q4	0.577			
	Q6	0.801			
	Q8	0.641			
	Q9	0.818			
	Q10	0.649			
Subjective Norm	Q16	0.615	0.830	0.880	0.598
	Q17	0.806			
	Q18	0.785			
	Q19	0.809			
	Q20	0.831			
Perceived Behavior Control	Q27	0.691	0.817	0.865	0.519
	Q28	0.782			
	Q29	0.711			
	Q33	0.710			
	Q34	0.628			
	Q35	0.788			
Government Intervention	Q21	0.671	0.890	0.920	0.700
	Q22	0.903			
	Q23	0.880			
	Q24	0.923			
	Q26	0.779			
Environmental Awareness	Q47	0.719	0.805	0.857	0.502
	Q49	0.737			
	Q50	0.672			
	Q51	0.831			
	Q54	0.625			
	Q55	0.647			
Buying Habit	Q36	0.756	0.832	0.879	0.594
	Q37	0.793			
	Q38	0.831			
	Q39	0.750			
	Q40	0.719			
Intention to Manage Food Waste	Q56	0.743	0.759	0.847	0.581
	Q57	0.741			
	Q58	0.836			
	Q59	0.723			
The behavior to Manage Food Waste.	Q60	0.721	0.701	0.794	0.568
	Q62	0.888			
	Q63	0.629			

All items and constructs are valid and reliable (AVE>0.5 & CR>0.7)

analyze models when respondents were less than 100. PLS-SEM is the most proper tool when a normality test is not available because it is measured on the Likert Scale (Joseph F. Hair, Risher, Sarstedt, & Ringle, 2019).

Demographic Data

Demographic data depicts that most respondents stayed with at least one child under 18 years old (38%) and had a family size of 3-person (29.1%). The average last education level of respondents is an undergraduate degree (49.4%), and surprisingly most respondents stated that they have Rp 5-7 Million of monthly income. Based on gender, 43% of respondents are male, and the rest 57% are female. From the age group, demographic data depicts that most respondents are between 26-33 years old (60.8%) and more likely occupied as civil servants.

Validity and Reliability

Before stepping into the structural model measurement, it is important to evaluate the item measurement's validity and reliability. In PLS-SEM, Cronbach Alpha, Composite Reliability Score (CR), and Average Variance Extracted (AVE) are useful for testing the construct's convergent validity. Several items are excluded since CR<0.7 and AVE<0.5 (Hair et al., 2019). Table 1 shows that all constructs are valid and reliable (CR>0.7 and AVE>0.5). In this study, composite reliability is more proper as it considers every factor loading of items for each construct in the research model (Hair et al., 2019).

Furthermore, multicollinearity is also being tested. In this study, the multicollinearity test aims to identify a correlation between independent variables. Multicollinearity happens when independent variables are correlated to other independent variables. It is indicated by the Variance Inflation Factor (VIF) value is more than 5.0 (Joseph F. Hair et al., 2019). As shown in Table 2, it can be said that there is no multicollinearity since each independent variable has a VIF of less than 5.0.

Structural Model

Overall structural model can be measured by testing R-Square and T-Statistics. R-Square is indicating the percentage of variance that explained by explanatory variables or independent variables, namely Attitude Toward Behavior (ATB), Subjective Norm (SN), Perceived Behavioral Control (PBC), Government Intervention (GI), Environmental Awareness (EA), and Buying Habit (BH).

Table 2. Inner VIF Values

	ATB	BH	BMFW	EA	GI	IMFW	PBC	SN
ATB						1.491		
BH						1.609		
BMFW								
EA						1.203		
GI						1.703		
IMFW			1.102					
PBC			1.102			1.160		
SN						1.804		

ince VIF < 5.0, this study free of multicollinearity.

Table 3. R-Square

	R-Square	R-Square Adjusted
IMFW	0.617	0.586
BMFW	0.406	0.390

Table 3 shows that Intention to Manage Food Waste (IMFW) and Behavior to Manage Food Waste (BMFW) can be explained by their explanatory variables at a marginal level. Moreover, the Goodness of Fit (GoF) is evaluated from the following calculation :

$$GoF = \sqrt{AVE x R^2} \qquad (1)$$

$$GoF = \sqrt{0.575 x 0.539} = 0.556 \qquad (2)$$

Fit's goodness that values more than 0.5 is considered a good model; meanwhile, if this value is less than 0.5, the research model is considered a poor one (Joseph F. Hair et al., 2019). This study has a good model that is indicated by a GoF value of 0.556.

Hypothesis testing is meant to evaluate path relationship significance from T-Statistics values. The hypothesis is supported if T-Statistics is valued more than 1.98 (Joseph F. Hair et al., 2019). Based on table Measurement of Structural Model. Above, it reveals that there is 4 hypothesis rejected such as H3a (0.725), H3b (1.845), H4 (1.486), and H6 (1.158). The four other hypotheses

Table 4. Measurement of Structural Model

Path Hypothesis		Path Coefficient*	T Statistics	Results
ATB → IMFW	H1	0.267	2.652	Supported
SN → IMFW	H2	0.314	3.219	Supported
PBC → IMFW	H3a	-0.056	0.725	Not supported
PBC → BMFW	H3b	-0.187	1.845	Not supported
GI → IMFW	H4	0.137	1.486	Not supported
EA → IMFW	H5	0.276	3.186	Supported
BH → IMFW	H6	0.111	1.158	Not supported
IMFW → BMFW	H7	0.555	6.308	Supported

*) Significant at p-value < 0.05
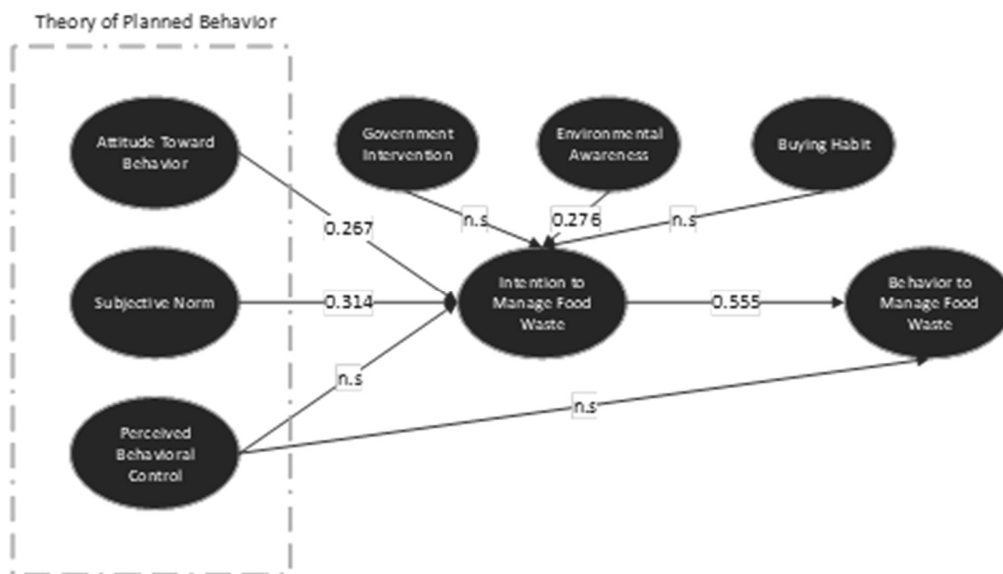
Figure 1. Structural Model

are supported since the T-Stat value is more than 1.98, namely H1 (2.652), H2 (3.219), H5 (3.186), H7 (6.308). The overall structural model diagram can be seen in Figure 1.

Based on the above structural model, both attitudes toward behavior and subjective norm show a significant relationship to IMHW. Still, the subjective norm has the most substantial effect on improving behavior to manage food waste by enhancing the intention of managing food waste. This means that external social pressure affects people's intentions more than their internal pressure. This is consistent with the study from Ramayah et al. (2012), which conducted a study related to the environmental behavior in Malaysia and found that due to the collectivist culture, the subjective norm might influence individual decision making. This was also relevant to the condition in Indonesia, where collectivist culture

plays a fairly dominant. Meanwhile, PBC has no significant relationship to both IMFW & BMFW. The least available facilities to boost food waste management can be the reason for insignificancy.

Environmental knowledge and awareness have a significant relationship to intention towards behavior, consistent with previous studies (Jereme et al., 2016; Ramayah et al., 2012). Therefore, formal or informal education about the environment can increase the intention to manage food waste and behavior.

Government intervention has no significant relationship with IMHW. This is inconsistent with the finding from (Jereme et al., 2016), which stated that government involvement plays a significant role in enhancing people's intention towards environmentally sound behavior. A possible reason for this finding is that the Indonesian government's programs and

regulations that particularly intended to manage food waste have not existed yet.

This is the same as buying habit, which does not affect the intention of managing food waste. According to the study's result, this finding contradicts expectations (Visschers et al., 2016). The reasons for this finding might be: 1) self-centered consideration, as long as the family being well-fed it means fine to buy foods in bulk size (even possibility of throwing away the food is increased); 2) no restriction to overbought foods; 3) no reward or benefit points of being well managed the foods.

IV. CONCLUSION

This study aims to develop a model that explains the factors affecting waste management at the household level by enriching the food waste management behavior model with government intervention, environmental knowledge and awareness, and household planning and buying habits. This study proposes a different perspective in understanding people's behavior towards household waste management by considering reusing, reducing, and recycling approaches. The proposed model is considered a useful model since explaining 40.6% of the variance in reuse, reduce, recycle behavior, and 61.7% of the variance in intention to reuse, reduce, and recycle. The results also show that attitude, subjective norm, and environmental knowledge and awareness significantly affect reuse, reduce, and recycle household waste behavior. This means that developing an intervention to reinforce people's positive and favorable attitude and motivation, including personal, financial, and health, to reduce, reuse, and recycle food waste would be influential. The interventions could be conducted by strengthening their belief towards waste management behavior and how it could benefit health and save money. There is also a need to put waste management behavior as a social behavior that every individual should participate in. It might be carried out by communicating through a direct campaign or virtual platforms such as social media, digital networks, and apps

and involving admired groups or influential people. Different mechanisms for enhancing people's knowledge and awareness about the importance of proper household waste management through social activities and educational programs are also considered important. Finally, further study needs to consider broader participants in order to provide extensive generalization.

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APPENDIX 1

Demographic	
1	Age
2	Education
3	Household Size
4	Number of Children under 18 in Household
5	Occupation
6	Monthly Income
7	Domicile
Attitude toward Behavior	
1	I feel bad when I throw away food
2	It is unnecessary to waste food: it can always be used in some way
3	I like the idea of composting
4	I think reducing food waste is everybody's responsibility
5	I think repurposing food waste is everybody's responsibility
6	I think composting food waste is everybody's responsibility
7	I rarely think about money when I throw away food (Reversed)
8	I will save money by reducing discarded food
9	I will save money by composting
10	I will save money by repurposing leftover food
11	The money I spend on composting is greater than the money I can keep from composting (Reversed)
12	I worry about poisoning when eating repurpose leftover food (Reversed)
13	I only want to eat the freshest food (Reversed)
14	Composting is a dirty activity (Reversed)
Subjective Norm	
15	My family member is sensitive to food waste and always try to avoid it
16	My family member get used to repurpose leftover food
17	My family member get used to carry out food waste composting
18	My friend or neighbor encourages me in carrying out food waste reduction
19	My friend or neighbor encourages me to recook/repurpose leftover food
20	My friend or neighbor encourages me in carrying out food waste composting

	Government Intervention
21	Government attaches great importance to the food waste problem and has been actively advocating efforts to get residents involved in daily food waste management (food waste reduction, repurposing, or compositing)
22	Government campaigns can clearly explain the benefits and importance of food waste management (food waste reduction, repurposing, or composting)
23	Government campaigns can effectively improve food waste management awareness of residents (food waste reduction, repurpose, or composting)
24	Government provides a scientific, effective, and concise standard about food waste management (food waste reduction, repurpose, or composting)
25	Government should provide exciting incentives for food waste management
26	Government provides complete facilities for food waste management
	Perceived Behavioral Control
27	I find it difficult to reduce food waste in my household (Reversed)
28	I find it difficult to prepare new meal from leftover (Reversed)
29	I don't have enough time to prevent food waste (Reversed)
30	I know how to compost food waste
31	Composting food waste is difficult (Reversed)
32	I don't have enough time to carry out food waste composting (Reversed)
33	I don't have enough space in my house to carry out food waste composting (Reversed)
34	For me, composting takes too much effort (Reversed)
35	I have feeling that I cannot do anything about food waste in my household (Reversed)
	Planning & Storaging Habit
36	I check storage and write shopping list before shopping
37	When I have made shopping list, I always keep strictly to it
38	Before I prepare food, I was considered precisely how much I have to prepare
39	Regularly checking the "best before" dates
40	I organize the food in order to see all the products which are going to expire in front of me
41	Special offers in supermarkets make me buy more food than necessary (Reversed)
42	At the supermarket, I look for items which are on sale. (Reversed)
43	I use a lot of ready-to-eat foods in our household (Reversed)
44	I frequently order ready-to-eat dinner to be delivered, such as pizza, empanadas, etc. (Reversed)
45	I am very concerned about low prices, but I am equally concerned about product quality
46	When grocery shopping, I compare the prices of different brands to be sure I get the best value for money
	Environmental Knowledge and Awareness
47	Food waste contributes to causing health problems if it is not disposed of well
48	If people do not care about the environment, it will harm living beings
49	I believe that the risks associated with the waste problems are real and serious
50	I believe that overproduction of waste and improper disposal in landfills causes serious environmental problems
51	Food Waste Management (Reduce, Repurpose, Recycle) is an ethical behavior to protect the ecological environment, and everyone has a duty to do so
52	My action would not make much difference for the environment (Reversed)
53	I rarely think about the environment when I throw away food (Reversed)
54	Home composting is good for the environment
55	Repurposing leftover is good for the environment
	Intention to Manage Household Waste
56	From here on, I would like to use things effectively without wasting
57	From here on, I would like to compost my food waste
58	From here on, I would like to start to repurpose leftover food in order to reduce food waste
59	From here on, I would like to participate when there are environmental activities in my community

Behavior to Manage Household Waste	
60	I compost food waste in my household
61	I reduce food waste in my household
62	I use leftover food for other beneficial forms
63	When cooking, I prioritize leftover food & food close to expiration
64	I cook too much food (Reversed)