Exploring the Causes of the Fluctuative Indonesia's Food Waste Loss in Pandemic Era from the Perspective Value Belief Norm

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Abstract

In 2013, FAO has made Food Waste and Loss a global issue, strengthened through SDGs 12.3 in 2015. Indonesia is a country that contributes to the second-largest food waste in the world according to the Food Sustainability Index. Since 2012 Indonesia has raised the issue of Food Waste and Loss as a national issue through PP no. 81 of 2012, in 2018 again focused on Food Waste and Loss. However, the number of Indonesian FWL still continue to increase until 2021. This study aims to find out, Do government rules and programs affect FWL fluctuation conditions with regard to the existence of government rules and programs? This research uses mixed methods, qualitative research methods by using Value-Belief-Norm Theory as a testing theory to analyze the research. This paper will use a quantitative method by using a non-probability sampling method involving respondents who have the characteristics of adolescents aged 12-25 years, and adults aged 26-45 years, with the criteria of household, service, and retail actors. This study found that, in the Value-Belief-Norm theory, humans have egoistic values which can pose a threat to the environment, but biospheric and altruistic attitudes are pro-environmental actions.

Keywords:
Food Waste and Loss, Covid-19, VBN Theory, Indonesia

1. Introduction

COVID-19 has had a significant impact on lifestyle changes and behavior patterns in human life. Feelings of fear and anxiety make society tend to avoid risks more Pappalardo et al., 2020) which in its development creates changes in people's consumption patterns and purchasing styles. In lockdown policies in almost all countries in the world, directives to stay at home are aimed not only at the general public but also food and beverage businesses such as restaurants and bars that provide dine-in encourage people to do food ingredients. Conditions of the scarcity of food supply sold by shopping malls (Richards & Rickard, 2020, p.) and public concern about the effects of COVID-19 causing behavioral changes in purchasing large quantities of food and types of food purchased (Sim et al., 2020). Panic buying of food in supermarkets or food stores occurs when humans feel an increase in food insecurities created by the external environment. Therefore, it is important to conduct a study of changes in consumption and purchasing habits due to the COVID-19 pandemic which in its development has an impact on increasing household waste, especially to food worth eating, (Pappalardo et al., 2020).

In Indonesia, from period 2000-2019 Food Waste and Food Loss or FWL has increased by an average of 44% every year (Bappenas, 2021). Based on a study conducted by the Economist Intelligence Unit (EIU) in 2016-2017, Indonesia occupies the second position after Saudi Arabia as the largest country contributing to food waste and loss (Saliem et al., 2021). The largest contribution from FWL comes from grain products, such as rice, corn, wheat , and similar products, with a value equivalent to 12-21 million / ton annually (Bappenas, 2021). Other

products come from the horticultural sector such as vegetables, accounting for 62.8% of the domestic food supply in Indonesia. As for the environmental sector, FWL contributes emissions equivalent to 7.29% of greenhouse gases in Indonesia (Bappenas, 2021), includes carbon dioxide (CO2), methane gas (CH4), and nitrus oxide (N2O). This FWL waste in addition to affecting climate change, contamination of the air but indirectly has an impact on social problems. As an illustration, as many as 842 million human beings experience chronic hunger (FAO, 2013). Meanwhile, as a result of the Covid-19 pandemic in 2021 based on data from the Global Hunger Index, Indonesia occupies the third position in Southeast Asia with a score of 18.0 points and is in 73rd position out of 116 countries (Global Hunger Index).

In the period 2000-2015 waste from FWL results starting from the production, post-harvest, waste and packaging, distribution, and consumption stages reached 40 million tons / year. In order to overcome the FWL problem, the government issued Government Regulation No. 81 of 2012 which contains that everyone is obliged to reduce and handle waste, recycle waste, and reuse waste. In 2017, the government issued Presidential Regulation No. 97 concerning national policies and strategies for managing household waste and similar household waste. This regulation contains a roadmap towards a Clean Waste Indonesia in 2025, including improving performance in the field of reducing and handling household waste and similar household waste, (Waste4change, n.d.).

Based on data by SIPSN in 2019, the amount of food waste reached 29.1 million tons/year, in 2020 when the pandemic began to enter Indonesia, it reached 32.1 million tons/year and in 2021 it reached 26.3 million tons/year, (SIPSN). In 2021, the Indonesian government made several commitments to overcome the FWL issue by adopting the concept of a circular economy and low-carbon policies, which exist in the concept of building the environment, increasing disaster resilience, and climate change. That this circular economy concept aims to reduce waste, emissions, resources, and wasted energy by means of design innovation, reuse, recycling waste into products (upcycling), and recycling to original products (recycle). So that this concept becomes a new industrial model that prioritizes reusing, recycling, and reducing, (Anggreati, 2022). Through the National Medium-Term Development Plan (RPJMN) for the 2020-2024 period, Indonesia targets a 30% and 70% waste reduction for waste handling by 2025 (Bappenas, 2019), so that the various programs and rules will be carried out jointly and continuously.

Looking at the condition of FWL fluctuations in Indonesia since 2000 and waste management through various programs and regulations, it raises the question, do government rules and programs affect FWL fluctuation conditions with regard to the existence of government rules and programs?

1.1 Objectives
This paper aims to find out whether there is a relationship between government programs and FWL fluctuating conditions in Indonesia to analyze how effective the government program has been in overcoming food waste by identifying it through the Value Belief Norm (VBN) theory to see the behavior patterns of the Indonesian people, especially during a pandemic.

2. Literature Review
When the Covid-19 issue confronted the world, causing 20.1 million people to be confirmed for Covid-19 cases and as many as 742 thousand deaths in 2021, (Utama et al., 2022). The Covid-19 outbreak and began to enter Indonesia in March 2020, that's when it began to change all aspects of human life activities. The existence of social distancing promoted by the government and the hoarding of food stocks occurred during the Covid-19 pandemic. Significant behavior patterns cause anxiety, in other words, the emergence of Covid-19 affects people's consumption habits. From the start of the regulations carried out by the government, it is required to stay at home and close places to eat and shop, which affects people's panic buying, especially in Indonesia itself.

Basically, food is the fundamental need of every human being and has been regulated in the 1945 Constitution, (Cahyani et al., 2022). Based on data from BAPPENAS and other cooperating institutions, sfrom2000-2019, on the issue of food waste and loss in Indonesia, it disposes of 23-48 million tons annually which is equivalent to 115-184 capita/year. Where the economic sector suffered a loss of RP 213-551 trillion/year which is equivalent to 4-5 Of Indonesia's GDP per year, or if interpreted, Indonesia lacks a portion of the food for 61-125 million people per year (Bappenas, 2021).

Currently, around 3 billion people in the world, or equivalent to 40% are faced with a food crisis by not having access to healthy food, as many as 811 million people are malnourished, and as many as 2 billion adults are overweight due to unhealthy diets and eating styles, (Qodriyatun, 2021). Based on data presented by the Global Hunger Index in 2021, Indonesia occupies the 73rd position out of 116 countries and Indonesia's hunger index of

18.0 (GlobalHungerIndex). This could happen due to the scarcity of panga n materials and the high level of food raw materials. With the presence of this phenomenon, Indonesia's food security needs to involve various parties

Based on the definition from FAO, what is meant by food loss is the loss of food from the producer chain or what occurs in post-harvest until food that is not in accordance with market quality will be discarded. As for food waste, food is suitable for food that is wasted, caused by negligence during the production, distribution, and management period, (Rezaei & Liu, 2017). Of the two food wastes, they have different categories, for food waste itself, based on the classification of reports from FAO, have three categories, (1) food consumer waste; occurs in foodstuffs in the kitchen at the stage before management due to unsuitable quality to be consumed, (2) post consumers; occurs at the consumer stage after consuming food, and (3) packaging waste and operation supplies; garbage from food packaging and waste left over from food preparing garbage, (Legrand et al., 2013). Meanwhile, for food loss, there are three classifications, (1) probably avoidable waste; occurs at the stage of the process of making unused food, such as the edge of the bread shell, (2) avoidable food waste; as a result of negligence in the process of making food until it cannot be consumed, and (3) unavoidable food waste; food waste that is indeed inedible, such as eggshells, (Wrap.org.uk, 2013). Based on data from findings made by FAO, food loss in developing countries is as much as 40% of food losses resulting from post-harvest, while for industrialized food loss countries as much as 40% in the retail and consumer sectors, , (UN Environment Programme, n.d.). Thus, the transportation process in developing countries experiences various obstacles that hinder the process, such as when it rains and passes through the countryside, the possibility of roads experiencing landslides and during the dry season, the possibility of food can be contaminated by dust, (Martínez Z et al., 2014).

With the onset of food waste that we can find on a daily basis and become the most important part of our food process, FWL itself is number four in the top four as the largest contributor to waste in landfills (TPA). In Indonesia, based on existing data from the National Waste Management Information System (SIPSN) as of 2021 spread across 212 regencies/cities in Indonesia, as many as 46.1 million tons come from food waste or food waste or equivalent to 29.8% of the amount of waste available, with waste coming from households as the largest contributor, as much as 40.6%, followed by business centers of 18.5% and traditional markets of 16.9%, (SIPSN). In the journal Tammara Soma, 2017, research conducted by him in various parts of the world, contributors of food waste come from households, until in Canada itself reaches 51%, such as doing excessive spending, amazingly, Indonesia is predicted to increase by 49% in 2025, (Soma, 2017).

The issue of food waste and loss is part of the world issue and part of food security. Therefore, the issue of food waste and loss (FWL) does exist and is a real global issue that needs to be addressed (Wulansari et al., 2019). Food waste and loss stored in landfills are part of the contributors to the natural crisis for the earth, the crisis in question is climate change, biodiversity loss, pollution, and waste, (United Nation Environment Programme, 2021). This issue involves the vision and mission of the UN in its 17 SDGs programs, more specifically in point 12 related to responsible consumption and production to maintain a balance between the global economy and the decline of natural resources which must be achieved by 2030, (FAO, n.d.).

Thus, this program is in line with what is in the constitution of the 1945 Constitution regarding food rights guarantees in article 28C Paragraph (1) and article 281 Paragraph (4), (Saifulloh, 2021). This food issue is also in line with the 2020-2024 national RPJMN with a target of reducing waste by 30% in 2025, , (Bappenas, 2019). Thus, this FWL is in line with Government Regulation (PP) No.81 of 2012 concerning the management of household waste and similar household waste, (BPK RI, 2012).

Thus, in this writing analysis will see the phenomenon of community behavior patterns based on the analysis of the value belief norm (VBN) theory that can have an influence on the environment so that it can cause global warming. From previous studies that put forward discussions related to how FWL can impact the environment, economy, and social food security. In this study, we will discuss more about the behavior patterns of the Indonesian people, especially during a pandemic, which is associated with the analysis of the Value Belief Norm (VBN) theory and relates how organizations and the government can dispel the increase in the number of food waste in Indonesia.

2. Methods
In this study, the authors used a mixed method, by combining qualitative and quantitative approaches, (Smitha, 2020). Mixed methods to assess food waste and loss in the household, agriculture, restaurant, etc. sectors in Indonesia. A qualitative approach to assess the role of the government through its policies on the problem of food waste and loss in Indonesia and analyze regulations related to these problems, (Thorsen, 2022). This research is based on a review of critical literature enriched by analysis of primary data sources that include sources such as journals, books, and articles related to this problem.

The quantitative approach is used to measure the level of awareness of each individual's behavioral attitude towards food waste or in other words to determine whether the community knows about the phenomenon of food waste and loss, how much impact it has on the environment and economy through the data collection method, namely questionnaires. Consisting of descriptive analytics, according to Sugiyono (2013), this method describes the picture of one object studied through samples that have been collected. This study aims to consider the available data with problems in Indonesia, then research analysis that focuses on investigating the relationship of food waste to the environment, human behavior patterns, and the role of the state so that it will illustrate how big the impact of food waste and loss is, (Berjan, 2018).

Researchers used a non-probability sampling method through the dissemination of questionners through Google Forms which were distributed to adolescent participants aged 12-25 years and adults 26-45 years as many as 80 respondents with the criteria of men and women, Food and Beverage business owners, retail, household actors, students and students. Quesntionnaire was shared to be able to identify changes in shopping habits and food waste and loss during the COVID-19 pandemic in Indonesia.

1. Value Belief Norm (VBN) Theory
The author uses testing theory, namely the Theory of Value Belief Norm Theory as a material for analysis consideration. Value-Belief-Norm Theory (VBN) is part of environmentalism that raises four variables, namely values, beliefs, personal norms, and behaviors, (Stern, 2000). Based on VBN theory, there are linear functions that have three stages of analysis, such as beliefs, norms, and personal values, where the three functions relate to pro-environment behavior.
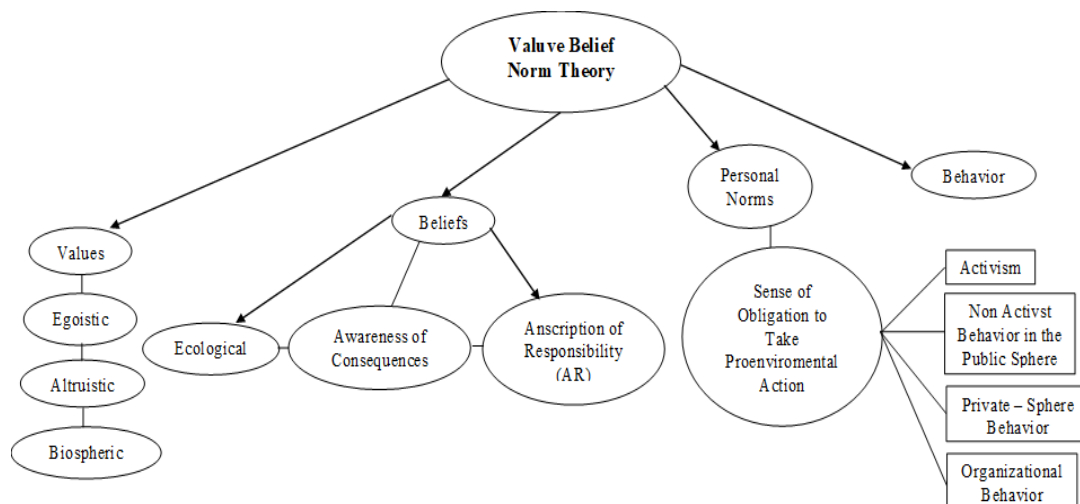
Climate change that has occurred since 1950, which is part of the clear evidence of global warming, is a lot of evidence of humans contributing substantially to changes in global warming, (Stocker, 2014). Pro-environmental behavior patterns are carried out to minimize negative changes in world actions on resource and energy consumption, the use of toxic substances, and reduce waste production, (Kollmuss & Agyeman, 2002).

The value belief norm (VBN) model theory by Stern in 2000, which stands for Schwartz (1977). The environmental theory of adoption from Stern has five interrelated variables, values, New Environmental Paradigm, Awareness of Consequences, Ascription of Responsibility, and Personal Norm, (Stern et al., 1995).

This theoretical scheme given by Stern connects several factors that influence proenvironment. There are values that can separate the sense of concern for the environment, such as in egoistic, altruistic, and biophysical values, where in the egoistic value an individual only thinks about himself, as in terms of individual well-being, lifestyle, future. Whereas, at the altruistic stage, any individual who does care about the well-being of other human beings, at the stage of society consists of social groups, children, and at the biophysical stage is for those who believe that nature has its own intrinsic value and deserves to be protected. In this theory, it was found that patterns of social behavior have an impact on the environment, specifically the human being being being is in a social-structure to act as an agent of social change, (Stern et al., 1999). The existence of history that has been planted in gender, race

/ ethnicity, and community forms a value and belief, (Kalof et al., 2002). In this variable values, it can describe the values owned by humans in terms of food waste and loss.

In the beliefs section, discussing the world of ecology based on assumptions arises related to the relationship between humans and the environment. In this view, it is more detailed and stable than in variable values. Beliefs can be used on criteria to assess whether personal behavior can correspond to external conditions and how subjective probability patterns can encourage a person to have a behavioral attitude and intention, (Stern et al., 1993). In awareness of consequences (AC) the belief that the environment can provide benefits or even threats to humans, species, and the biosphere, , (Choi et al., 2015). On the ascription of responsibility (AR) , the belief that individual actions can prevent undesirable consequences, to minimize the consequences of negative environmental impacts, (Choi et al., 2015). Beliefs within the scope of the environment are determined by values and influence behavior

Personal norms (PN), which are patterns that form awareness to be able to act what they should so as not to create a problem, can be defined as an individual's sense of responsibility to behave in accordance with existing values with a coherent attitude, (Reno et al., 1993). In pro-environmental behavior, it can be defined as an action to be able to protect the environment and ecosystems from destructive human behavior, (Kiatkawsin & Han, 2017).

In behavior, based on McAdam, McCarthy, & Zald, in 1988 environmental activism is the participation of social movements, where the process of the individual becoming an activist, (Stern, 2000). In the Non-Activist Behavior in Public Sphere, the behavior of non-activist social movements is the most important part of changing behavior, (Mueller, 1992), researchers and political scientists who can influence public policy which has an effect in changing behavior or organizations at once. Private-sphere behavior when many people intentionally or independently do the same, such as purchasing, using, and disposing of households can have an impact on the environment, (Stern, 2000). Organizational behavior, individuals can influence the environment by influencing an action where their organization is located, just as engineers can design environmentally friendly manufacturing products, (Stern, 2000).

A study that looked at the phenoma of Indonesian people's behavior in the discussion of food waste and loss effects values, beliefs, norms, and behaviors in the theory of Value Belief Norm (VBN) theory. The results obtained there are differences and similarities between people's behavior at the food wasted stage. However, such differences will be tested through hypothetical relationships. It can be indicated despite the similarities, however the households level are not completely homogeneous, namely between AC, AR, and Value. To see the results of fluctuative food waste, it is necessary to look at the internal consistency.

4. Data Collection
The population that the researchers took was from adolescents aged 12-25 years and adults 26-45 years who had the criteria as, students / students, householders, retail, and actors in the world of food and beverage. With the criteria for respondents as mentioned, researchers hope to see the rise and fall of food waste and loss in Indonesia, especially in the era of the Covid-19 pandemic. The sampling technique uses a non-probability sampling method, which means that not all population units are not used as research samples, (Bungin, 2011). With the number of samples that researchers took was as many as 80 respondents through the distribution of google questionnaire forms.

5. Result and Discussion
Based on the amount and period of food waste and strengthened by data from Bappenas, at the Food Loss stage, in the last 20 years, there has been a decrease in the amount of waste, from 61% at the beginning of 2000 and over time to 45% at the end of 2019 or with a total reduction of 56%. However, for the Food Waste stage, with a concurrent time vulnerability in the last 20 years, it has increased from 39% in 2000 to 55% in 2019, with a total increase of 44%, with the most waste in the horticulture sector, namely vegetables by 62.8%, (Bappenas, 2021). During the Covid-19 pandemic it has affected food waste along the food supply chain, nevertheless, policymakers have been trying to reduce food waste. The most food waste and loss comes from foodstuffs, such as rice, corn, and grains, while the least efficient comes from vegetables, (Bappenas, 2021). Is there a dynamic of FWL, is there any connection with government programs?

The loss of food supply from the post-harvest process to the unsuitable distribution stage can be said to be food loss, (Rezaei & Liu, 2017). Based on the results of a study conducted by Waste4change, the cause of food loss, there is a lack of good in storing and distributing food. One example that occurs in Indonesia at the food loss stage

as done by one of the dragon fruit farmers is to throw the remaining crops into the river. The crop failure that occurred by the dragon fruit farmers was because the fruit produced was not in accordance with the market. Food loss incidents like this can occur due to lack of knowledge from farmers in planting to qualifications to the consumer stage, especially in Indonesia, (Ftria, 2021).

5.1 Values

Demographics		
	Frequency (n)	%
Age		
a. Adolescent (18-23)	51	63.7%
b. Adults (>30)	21	26.2%
c. 24-29	3	3.7%
d. 12-17	5	6.3%
Amount	80	
Gender		
a. Female	51	63.7%
b. Male	29	36.3%
Jumlah	80	
Region		
a. DKI Jakarta	35	44,30%
b. West Java	33	43.0%
c. Banten	4	5.1%
d. Kep. Riau	2	2.5%
e. North Sumatra	1	
f. Central Java	1	
g. East Java	1	
h. Bandung	1	
Amount	80	
Causes Food Waste		
a. Full	23	30.0%
b. Expired	40	50.0%
c. Taste	9	11.3%
d. FnB	1	1.2%
e. Never	7	7.5%
Amount	80	
Knowledge about FWL		
a. Yes	75	93.8%
b. No.	5	6.3%
Amount	80	

Figure 1 : Demography data

In the values variable, (Figure 1) it contains egoistic, altruistic, and biosphere values, where egoistic behavior only thinks about itself, lifestyle, and individual well-being. When associated with findings based on research that has been carried out with the distribution of questioners based on as many as 80 respondents, when viewed by gender, female respondents showed more dominant (63.7%) compared to male respondents (36.3%). Based on Anriany & Martianto (2013), women are the largest contributors of food waste compared to men. For vulnerable age, the most are in vulnerable adolescents as much as (63.7%) and followed by adults >30 as many as (26.2%) with the domicile of the most respondents being in the DKI Jakarta area (44.3%). With the most reason of each individual the cause of food waste is the lack of knowledge of food storage, causing food to expire by (50%) and a sense of

gluttony (30%) to be a factor in this variable, the phenomenon describes the values of each person. Then, for altruistics and the biosphere has positive values towards the environment that deserves to be protected. Based on most respondents regarding knowledge about food waste, as many as 75 respondents had knowledge or equivalent (93.8%) and 5 respondents (6.3%) did not know food waste. Knowledge is intended for a person's ability to reduce food waste before the pandemic and after the pandemic.

5.2 Beliefs

Demography		
	Frequency (n)	%
Covid-19 Affects More Consumption Patterns		
a. Yes	34	42.5%
b. No	46	57.5%
Amount	80	
Awareness Food Waste Reduction		
a. Yes	77	97.5%
b. No	2	2.5%
Amount	79	

Figure 2: Demography data

In variable beliefs, (Figure 2) the results state that values have an influence on the Indonesian people to be more aware of the consequences that will be caused to the environment, such as the impact of food waste and loss on pollution, climate change, etc. In line with Kiatkawsin and Han, regarding his discovery that values have an influence on a person's beliefs, (Kiatkawsin & Han, 2017). The results stated that when the Covid-19 pandemic emerged and after the Covid-19 pandemic, people's consumption patterns did not change, as many as (57.5%) did not change, and (42.5%) experienced changes. The relationship that occurs between air conditioning and AR as much as (97.5%) is aware of the reduction of food waste and as many (2.5%) are not aware, aiming to reduce environmental damage.

5.3 Personal Norms

Demography		
	Frequency (n)	%
Covid-19 Affects More Consumption Patterns		
a. Yes	34	42.5%
b. No.	46	57.5%
Amount	80	
Prevented Food Waste		

a. Yes	53	66.3%
b. No.	25	31.3%
c. Probably	1	1.2%
d. Sometimes	1	1.2%
Amount	**80**	

Figure 3 : demography personal norm

Household		
	Frequency (n)	%
Application 3R		
a. Yes	20	28.2%
b. No.	23	28.9%
c. Probably	27	38%
d. Attemp	1	1.4%
Amount	**71**	

Figure 4 : household sector

Retail / FnB		
	Frequency (n)	%
Application 3R		
a. Yes	20	35.7%
b. No.	18	32.1%
c. Probably	18	32.1%
Amount	**38**	

Figure 5: Retail / FnB sector

In Personal Norms, for this stage of handling the onset of food waste and loss or 3R, as many (38%) doubt whether they have implemented 3R in the household sector. In demographic data, the Covid-19 pandemic did not affect food consumption patterns more than before the pandemic, where as many as (57.5%) chose not and (42.5%) chose yes. In the FnB and retail sectors, they have implemented 3R, with as many (35.7%) respondents choosing yes, no (32.1%), and maybe (32.1%) have not or may have implemented 3R in the process of preventing the onset of food waste. However, based on existing data, the majority of the retail and household sectors are aware of the environment by applying the 3R principle. In the application of this variable, behaviors for proenvironment action or having a sense of responsibility can be shown through the results of questioners, such as having applied to prevent the occurrence of food waste as much as (66.3%), not applying as much (31.3%), and who chose maybe and sometimes each as much as (1.2%). (Figure 3, 4 & 5)

5.4 Behaviors

In behavior behavior, when non-activist behavior in the public sphere becomes important to change the values that exist in individuals towards the attitude of food wastage to be suppressed by policymakers and regulate people's behavior towards food waste and loss. In Indonesia itself, there are organizations that voice related to FWL, such as the study initiated by Bappenas in collaboration with the Waste4Change institution, the World Research Institute (WRI) supported by UK-FCDO. Where the results of the latest study launched in June 2021,

to be used as a joint guideline to reduce FWL tumbulan in Indonesia. In this study, it recommends 45 strategies with 5 policy directions of FWL management strategies in Indonesia, such as behavior change, improvement of food system support, strengthening regulations and optimizing funding, utilization of FWL, development of FWL studies and data collection, (Bahraini, 2021).

For the activism part of this variable, the social movement initiated by the community group aims at the existence of a food bank, namely the emergence of the Food Guard organization as a solution to the excess FWL stockpile. Which, the available food is collected from bakeries, hotels, restaurants, agricultural land, events, etc. which are excess to be distributed to pre-prosperous communities located in Surabaya, (Bahraini, 2021). In private sphere behavior, have an attachment to PN how to manage FWL when many people do the same and disposal that can have an impact on the environment.

The pattern of community behavior when viewed from variable values, egoistic exists in people's behavior and that causes fluctuative food waste and loss in Indonesia which can have an impact on the environment. In these variable values, biospheric and altruistic patterns have a positive influence on the environment by having knowledge about a person's ability to understand and reduce food waste. In beliefs, the relationship that occurs between AC and AR has similarities in the pattern of the community in having awareness of the issue of food waste.

It can be seen that the relationship between PN and behavior has similarities in the principle of applying 3R to government programs that have been promoted based on PP No. 81 of 2012 concerning household waste management with the 3R (Reduce, Reuse, and Recycle) method. Moreover, in this section, it is more about discussing that FWL has received attention from community groups, organizations such as Waste4Change, the World Research Institute (WRI), and even governments such as Bappenas as issues that must be addressed.

Hypothesis

H1: There is a positive relationship related to people's desire to reduce food waste, in the sense of awareness of consequences.

H2: Knowledge of food disposal reduction intentions and food disposal behaviors to protect the environment.

H3: The nature or value that a person has can have an impact on the environment.

In many studies, the phenomenon of food waste often occurs in human behavior patterns. This behavior is what makes food waste increase, such as in the stage of consumption patterns of each individual or even in terms of food packaging which is not optimal. However, at the retail level, there is often vegetable and fruit food waste, with the aim that consumers are satisfied with the product before its expiration period, (Gunders, 2012).

From the data listed, based on the variable value belief norm (VBN) theory, from the data that has been presented, it can be seen that with the Covid-19 pandemic, we already know the dangers of food waste generation which refers to the beliefs of each individual to protect the environment from garbage heaps and many people from the 80 respondents, want to be able to prevent the generation of food waste starting from themselves. Not only that, it can be seen from the household sector and retail players have also applied the 3R principle (Reuse, reduce, and recycle), in accordance with PP. No.81 of 2012 where the government promoted the 3R action.

However, with the decline in the amount of food waste during the Covid-19 pandemic at the household level, it could have decreased as the number of unemployed increased sharply during Covid-19 and the income earned made it possible to have little food waste. With the Covid-19 pandemic, many people value the existing food more and spend food, however, with panic buying when the government called for a lockdown, not a few of the people bought a lot of food supplies. The decrease in the amount of food waste is supported by SIPSN data in 2020 when the pandemic began to enter Indonesia, reaching 32.1 million tons/year and in 2021 reaching 26.3 million tons/year.

Food waste that is not consumed, can have an impact on the environment and global warming. The consequences that can be produced from food waste can be methane gas which can have an impact 21 times stronger and more toxic than carbon dioxide gas and globally the gas produced from food waste is 7% of the total greenhouse gas emissions, (Seberíni, 2020). Greenhouse gas emissions in Indonesia alone produce 1.73 giga tons of CO_2 or if broadly speaking, an average of 7% of total greenhouse gas emissions in one year, (Ismail, 2021). The study

conducted by LCDI-Indonesia, the emission impact produced from food loss of 2,324.24 kg CO2-oak / 1 ton of food waste and loss results, or the potential impact of global warming is equivalent to 7.29% during a 20-year study. The emissions caused by 1ton of food waste are 4.3 times greater than food loss, with an average percentage of food loss of 23% and food waste of 77%, (BAPPENAS, 2021).

Based on PP. No.81 of 2012, concerning the management of household waste and similar household waste, the government has issued regulations that produce results in waste management through the 3R method, (Reduce, Reuse, and Recycle). To be able to reduce food loss, it can be done on the provision of science and technology in the food production system, so that the products produced are more efficient, but the difference is felt in the stages of food waste, where people's behavior has not changed.

To answer the hypothesis, the role of the government is aimed at being able to contribute to regulating policies more firmly. The proposal for the management of food waste is simply wasted and could have an impact on contaminated lingkunga, reducing hunger, and the Indonesian economy. Based on the survey conducted by surplus, there is still no government regulation that expressly regulates food waste, when conducting a survey on business actors, there are still many traders who choose to sell 100% of their food and if there is still a better thing to just throw it away. So that the results obtained are still not in line with SDGs point 12, (Pratama, 2020). For policymakers, it is necessary to make rules to suppress the behavior of people who carry out food wastage at the retailer stage to the level of consumption. It must be realized by stakeholders, that the emphasis on food wastage will be much more effective, (Simatupang, 2003).

It can be stated that regulations have not been very effective in counteracting FWL in a dynamic Indonesia. So how the government cannot run alone in counteracting this FWL issue in Indonesia, the need for all levels of society in helping to reduce the increase in FWL numbers.

6. Conclusion

Food waste and loss have become part of a global issue that must be considered by all levels of society. Starting from the values, beliefs, norms, and behaviors possessed by each individual to the eight governments in a country. When viewed from the discussion above, the number of food losses has decreased due to changes in technology that are increasingly adequate and scientific. However, the issue of food waste has increased due to the behavior patterns of the community itself. The issue of food waste and loss has been regulated in the SDGSs in point 12.3 concerning the reduction of food waste and this is in accordance with the Rpjmn of the Government of Indonesia, where food waste can be reduced in 2025, in Indonesia it can be reduced by 30%-70%. With the existence of PP No.81 of 2012, it is hoped that the community can apply the 3R (Reuse, Reduce, and Recyle) program so that food waste can be reduced and decomposed correctly.

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