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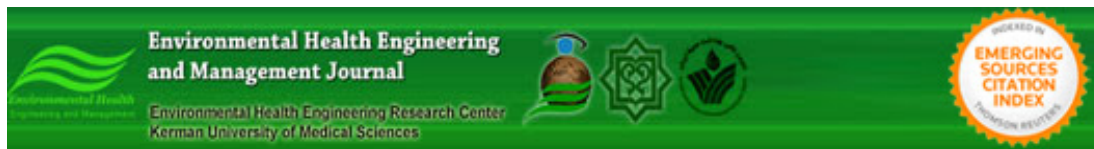
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# The Food Safety Management in Beach Tourism: A Qualitative Study Using Focus Group Discussion in Yogyakarta, Indonesia

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## Abstract

**Background:** Foodborne diseases are still the a concern of public health sectors in Indonesia. The tourism area is the an important place where the transmission of the diseases could occur if there is no implementation of food safety management. This study aimed to explore investigate the local government management of food safety in the beach tourism area in Yogyakarta, Indonesia.

**Methods:** In This this qualitative study, used the FGD (Focus Group group Discussion) discussion (FGD) was used to gain in-depth information about the implementation of food safety management. The data collection has been done Data were collected from Bantul Regency in December 2020 located in Bantul Regency. Qualitative data were obtained from a different statement about food safety from 15 informants from three levels (district, sub-district, and village levels). The informants were selected by using the purposive sampling method to gain richer information from the expert. The NVivo software has been was used to code the data. The content analysis was used to analyze the FGD's transcript and concluding statements.

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**Results:** Most of the informants were male and the main age them with the mean age of was 40 years old. In terms of the description of the role, each of them has a role from any stage of food safety management, like implementation, formulation, action, evaluation, and inspection. The results of this found showed that the waste management, implementation after training, the facilities, and infrastructures were needed to improve the food safety management in the beach tourism area. The informants from the village level reported more specific information compared to informants those from other levels. Stakeholders need to work together to accelerate food safety management.

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**Conclusion:** The waste management and lack of facilities and infrastructure were the most important issues of food safety implementation.

**Keywords:** Food safety, Food handlers, Food inspection, Focus group discussion, Beaches tourism, Indonesia

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## Introduction

Food is the daily need of humans, but there are many diseases due to food, namely, food-borne diseases. The food safety problem is still a cause of food poisoning worldwide (1). Incredible

incidents of food poisoning occur in various countries such as ~~in~~ Italy (2), India (3), Argentina (4), Ethiopia (5), Japan (6), Francis (7), and Korea (8), which caused severe pain and death. It is estimated that 600 million people annually fall ill from contaminated food, resulting in 420,000 deaths worldwide and 170,000 deaths in the Southeast Asia~~n~~ region (9). Food contamination is caused by various environmental factors such as toxic metals, chemicals, pesticides, veterinary drugs, natural poisons of food, and some that are contaminated during the cooking process (10). Therefore, good management of food safety is very important to prevent food-borne ~~illness~~ diseases (11).

The tourism area is very close to food tourism. In addition to food quality, cleanliness, and price, food safety is one of the things that visitors consider when visiting tourist attractions (12). Food handlers ~~take~~ the most important person to implement food safety management (13). A serious strategy from the government and stakeholders is important to assist and develop the tourism area for implementing food safety management (14). Food security tends to be more important than food safety, so ~~it was needing~~ the planning, policies, and strategies ~~are needed~~ to implement it in the tourism area (15).

There are supporting facilities around the coastal area in Yogyakarta such as toilet, prayer room, restaurants, hotels, water plays area, fish auction, camping ground, and parking area (16, 17). Around the coastal area, there are a problem of food management, including the raw food preservation. ~~Due to the Lack-lack~~ of study exploring the quality of food in the beaches' tourism area in Indonesia, ~~the present study was performed is the aim of this study~~. Yogyakarta is one of the popular tourist spots in Indonesia for domestic and international visitors. Because of the culture and nature reasons, ~~including the beautiful beaches~~, Yogyakarta was chosen by most of tourists, ~~including the beautiful beaches~~. The culinary factors around the tourism areas may influence the reason ~~for~~ choosing Yogyakarta as the destination for the holiday. The quality of food in the beaches' tourism area must have a good standard. Hence, this study ~~aimed to explore~~ ~~explores~~ the local government management of food safety in a beach ~~tourism~~ ~~tourist~~ area in Yogyakarta, ~~Indonesia~~.

## Methods

~~In This~~ ~~this~~ qualitative study, ~~used~~ the ~~FGD~~ (~~F~~ocus ~~G~~roup ~~g~~roup ~~D~~iscussion/discussion (FGD) ~~was used~~ to gain in-depth information about the implementation of food safety management. ~~The data collection has been~~ ~~Data were collected from~~ ~~done in December 2020~~ ~~located in~~ Bantul Regency, ~~the~~ Special Region of Yogyakarta Province, Indonesia, ~~in December 2020~~. Totally 15 informants ~~joined this study~~ who were representative ~~from of~~ 3 levels as the district-level, sub-district-level, and village levels, ~~joined this study~~. All the participants ~~have~~ ~~done~~ ~~participated in~~ the face-to-face discussion. The informants were selected ~~by~~ using the purposive sampling method to gain richer information from the expert. The inclusion criteria of informants were those who ~~are~~ ~~were~~ working on the specific topic based on the study objectives for at least 3 months.

The data ~~has been~~ ~~were~~ collected ~~by~~ using FGD, which is divided into 3 groups- ~~including~~ ~~The~~ ~~3~~ ~~groups~~ ~~are~~ ~~district-level~~, sub-district-level, and village levels. The FGD guideline ~~has~~ ~~been~~ ~~was~~ arranged in the semi-structured format to open the opportunity for the informants to share any related information based on the study ~~aim~~ ~~objectives~~. There were 3 sessions of ~~the~~ FGD, and each session took at least one hour to get the information. The FGD ~~has been~~ ~~was~~ done once. The FGD was held in the Bantul Regency, ~~the~~ ~~Special~~ ~~special~~ ~~Region~~ ~~region~~ of Yogyakarta Province, Indonesia. The discussion results were written and recorded by the researchers. ~~The original discussion used the~~ Bahasa Indonesia and Java Language. All ~~the~~ ~~of~~ information during the FGD ~~has been~~ ~~was~~ recorded for both audio and video. The researcher

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who ~~comes came~~ from the Java ethnic group translated the given information into English. The copies of transcript ~~have been were~~ returned to the participants for confirmation and correction. The data ~~has been were~~ analyzed by using content analysis. Totally 3 researchers ~~did performed~~ the ~~data~~ analysis and summarized it into one by ~~a~~ discussion. The ~~FGD results were coded using NVivo software was used to make coding of FGD results~~. There are five points in the interview guideline such as identification of food problem, identification of community needs, identification of resource requirements, the proposed model of hygiene and sanitation behavior, and hope and wishes for food safety implementation.

## Results

Totally 15 informants contributed to this study. Each of them was an expert from their field. Table 1 ~~below described shows~~ the general information of the informants. From 15 informants, 11 ~~of them people~~ were male and 4 ~~of them~~ were female. ~~In terms of age, According to their age, the the main mean~~ age of informants was 40 years ~~old~~. In terms of ~~description of~~ the role, each of ~~them the informants has had~~ a role from any stage of food safety management, like implementation, formulation, action, evaluation, and inspection. This study aimed to ~~identify investigate~~ the food safety management in beach tourism destinations in Bantul District.

**Table 1.** Informants' s general information

Sector	Description of <del>role</del> Role	Examples of <del>roles</del> Roles	Respondents Id	Sex	Age
<i>District level</i>					
Health District Officer	Policy formulation in the field of public health, disease prevention, and control	Disease prevention and control	RE-1	M	39
Regulatory of Tourism <del>officer</del> Officer	Implementation, service, guidance, and control of government affairs in the tourism sector	Supervision of tourist attractions	RE-2	M	48
Agriculture Food Crops, Fisheries, and Marine Officer	Implementation of policies and services in the fields of agriculture, food, and marine, and fisheries	<del>Supervision</del> Supervise of the circulation and processing of seafood products	RE-3	M	36
<i>Sub-district level</i>					
Public Health Centres staff (PHC) (Sradakan, Sanden, Kretek)	<del>Implementation of</del> Implementing communication, information, education, and community empowerment in the health sector	<del>Provide</del> Providing guidance and assistance to food/beverage traders so that they are safe for consumption	PUS-1,2,3	F, M, F	29,43,38
Sub-districts officer (Sradakan, Sanden, Kretek)	Implementation of social services and community empowerment in the working area	<del>Coordination and facilitation of</del> Coordinate and facilitate business licensing	DI-1,2,3	M, M, F	45, 50, 36
<i>Village level</i>					
Urban Village Officer (Poncosari, Gadingsari)	<del>Coordination</del> Coordinate of the administration of the government in the region, in development, social, economic activities, community services, and community empowerment	Providing information and services in community business	VI-1,2	M, M	30, 43
Cooperatives staff	Become a facilitator to improve the business, education, and training of members	Providing capital assistance, coaching, and supervision to cooperative members	CO	F	30
Fish Auction Place staff	A place for processing caught fish and marketing for fishermen	<del>Reeeive</del> Receiving the catch of fishermen and market it	TPI	M	44
Community <del>Traders</del> traders, and a	<del>Supervision of</del> Supervise the provision of food at tourist attractions	Processing food, selling processed products, etc	COM 1,2	M, M	38, 47

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~~Restaurant-restaurant~~  
staff

Note: M: (~~m~~Male), F: (~~f~~Female.)

Table 2. The open-ended questions of ~~the~~ FGD

Topic	Questions
Problem identification	Could you please explain the problem that <del>face of</del> food handlers <del>face with</del> in the beach's tourism area? How it could be? Why it could be? You can explain starting from the food management, sanitary aspects, food safety, food security, etc. (please elaborate more).
Society need identification	In terms of the society point of view, could you please tell me what are the potential need from the society about the beach's tourism area? Why <del>do</del> they need these/those? Why <del>do</del> they categorize that as a need? Are those need urgent?
Resource identification	What are the resources that supporting the beaches tourism area, especially for the food supply and restaurant? Why these/those resources <del>is are</del> needed? How the resources contribute to the food safety and food security management? Please elaborate more in terms of the human resources and nature resources.
Stakeholder's role identification	How the stakeholder solves the problem of food security and food safety in the beach's tourism area? Who are they? How they arrange the solution to solve the problem? Why those stakeholders need to work together?
Hopes and wishes	Could you please tell me what is your expectation, hope, or wishes to develop the food safety and food security management in the beach's tourism area? Please explain in detail <del>how many of</del> them and what is the purpose of that? Why you need that? How to make it come true? How to realize that? Why <del>that hopes those hopes did were</del> not realized since <del>the</del> last time?

Based on the FGD results, ~~figure-Figure 1 below described shows~~ the summary of information from the district ~~level~~, sub-district ~~level~~, and village levels. Regarding problem identification, the informants from 3 levels revealed that management ~~including waste management and raw materials management is was~~ the main problem, ~~including waste management and raw materials management~~. Most of the informants also revealed that there is no standardization for safe and healthy restaurants. However, among the ~~3-three~~ levels, the village level showed the more specific statement of problem identification compared to other levels. In summary, the problem identified ~~such as include~~ 1) waste management; 2) raw materials management; 3) training; 4) ~~improving-improving~~ the food preparation equipment and the food serving environment; and 5) ~~The-the~~ hygiene conditions of the tools used in the food preparation such as knives, forks, plates, tools used in preparing salads, etc. In terms of society need identification, it was found that ~~the~~ training, management of waste, and the fish market were the majority of needs they requested. In detail, the things that society needs ~~such as include~~ management, facilities, and infrastructure. However, the informant from the village level ~~revealed-reported that~~ the fish market (visible) ~~that as-~~ the most important thing they need. The need in the district and sub-district level revealed the more general including visible and invisible points.

In terms of ~~The-the~~ resource identification point, ~~-was found that-~~ all of the informants mentioned the human resource. In detail, they mentioned the difficulties of changing the

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behavior, the need for the regeneration of food handlers, and the training with the various topic. The informants from the sub-district level could explain more details including the several topics of training they want to join. Regarding the stakeholder's role, the monitoring and evaluation were ~~the points reported by that~~ most of the informants ~~mentioned~~. Besides the training, the stakeholders also needs to monitor and evaluate the food safety management. Moreover, working together between each level with expertise could solve the food safety problem. In terms of the hopes and wishes, most of them ~~explain-reported~~ the training with various topics followed by monitoring and evaluation ~~were-as~~ the most important wishes they hope. Additionally, the pilot restaurant, fish market, and display cases to serve the food were also important. Most of them mentioned the visible and invisible things related to food safety.

### Problem Identification

As mentioned below, the problem identification ~~was-revealed-from~~ ~~reported by~~ the informants ~~including-include~~ the implementation after joining the training. The standardized restaurant with the supported facilities were the important things they need to ensure safety and healthy food.

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*“Even though food handlers have attended food safety courses, they are still not optimal in their daily implementation, there are still many food handlers who do not meet the standards”* (RE-1).

### Society Need Identification

In the more general scope, the society need was identified ~~from-by~~ some of the informants. ~~They mentioned the mentoring or assistance the steps to be safe and healthy restaurants.~~ The regulation followed by implementation, monitoring, and evaluation could be occurred to ~~be~~ ~~have~~ a safe and healthy restaurant.

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*“In our opinion, what is needed is assistance from the government related to infrastructure for storing cooked and raw food, as well as training on sanitation hygiene, perhaps regularly so that handlers can improve their knowledge.”* (PUS-2).

### Resource Identification

The resource in this part is mostly about human resources. The human resources mentioned in this study were the food ~~handlers~~ ~~handles~~. Most informants revealed that the majority of food handlers have joined the training but the problem is they have not applied the knowledge in the field.

*“Human resources consisting of food handlers have not applied the knowledge that has been given through ~~the~~ training organized by stakeholders”* (RE-1).

### Stakeholders's Role

In terms of the stakeholders's role, most of the informants mentioned that stakeholders and universities could work together to improve the food safety management in that area. Each stakeholder could play a role based on ~~the~~ capacity and capability. The university ~~is-hoping~~ ~~hope~~ to conduct the training and other stakeholders could evaluate and monitor.

*“Stakeholders and universities play an active role, planning for pilot stalls that are not only good in health but also good in the field of disaster”* (RE-2).

### Hopes and Wishes

The assistance after the training is the ~~most hoped~~ hopes and wishes of most informants mentioned. They also want to be supported for the facilities and infrastructures.

*“We hope that there will be ongoing assistance other than the government as well as examples of selling healthy food”* (RE-1).

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## Discussion

### Food problem

From various stakeholder representatives, all informants mentioned that food safety is very important to be implemented, especially in tourist attractions. The location for building this culinary food stall island is owned by the sultan (the community only uses the land temporarily). It is not allowed to build permanent and good buildings. This problem is an obstacle in the fulfillment of sanitation facilities and infrastructure. Food safety is a condition or effort to provide food that is free or controlled from hazards that can cause health problems in humans. Food safety is a condition or effort to provide food that is free or controlled from hazards that can cause health problems in humans (18). Hazards in food can come from raw materials, water, equipment, the environment, and humans who handle it (19). The contamination of carcinogenic component in the rice and vegetables can lead to the non-communicable diseases, such as cancer (20, 21). Another study found the contamination of harmful elements in potato and carrot because of poor wastewater management (22). Several factors that can lead to food contamination, and consequently, increase public health risks are the lack of water supply at the point of sale, improper storage of perishable food during transportation and at point of sale, handling of money and food by the same person, low frequency of hand hygiene, lack of vendor compliance with food safety training, and the scarcity of proper sanitation and waste disposal facilities (23–28).

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### Community needs

Training is a planned and systematic effort to modify or develop knowledge, skills, and attitudes. Food handlers need relevant knowledge of the subject and do not have practical skills, so they need both theoretical and practical training (29). Some food handlers are practically competent but do not understand why they practice certain practices, thus, requiring theoretical training. Regular training on food hygiene is important to keep the level of knowledge high by preventing the information from being forgotten, and also, to increase the level of knowledge. The lack of water and wastewater drainage facilities as well as garbage disposal encourages garbage to be dumped into nearby roads and ditches. So that ~~it is easy~~ these places became a place to use as a rodent habitat, a breeding ground for flies, and a medium for the growth of microorganisms. Food waste is a multi-dimensional challenge; lack of infrastructure, inadequate knowledge of handling, and food waste on a large scale all contribute to this problem (30). According to the Decree of the Minister of Health of the Republic of Indonesia No. 1098/Menkes/SK/VII/2003, one of the requirements for a food processing place is to have wastewater disposal that meets the requirements.

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### Resource requirements

Professional training is critical to organizational success. For food handlers, training should include content related to food quality and personal hygiene. The ~~topics~~ most frequently presented topics to food handlers during the training were personal hygiene, food safety, best practice, Hazard Analysis and Critical Control Point (HACCP), workplace hygiene, hand washing, and basic microbiology. The training intervention package, namely the provision of



booklets, short films, lectures, ~~and~~ poster displays, is very useful in increasing knowledge, creating positive attitudes, and improving food safety practices for food handlers (31). ~~According to the~~ knowledge, ~~the a~~ study in Iran ~~found showed at the~~ relationship between food safety knowledge and practice (32). Training is aimed to increase the knowledge that could lead ~~to~~ the good practices to implement the food safety management.

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### The purposed model of hygiene and sanitation behaviour

The government, especially the health sector, plays a major role in health education related to food safety. They are responsible for initiating, coordinating, and running ~~Education education~~ programs on food safety and other related efforts. This result will be maximized if the education program is developed and implemented through partnerships and collaborations with other sectors or with community groups. The training should be accompanied by regular inspections of the activities of the handlers involved. Previous researchers ~~identified showed~~ that there are several barriers to food management when conducting food safety training interventions, such as ~~the~~ lack of time (33) and ~~a~~ minimum of resources (34). Food safety training alone does not consistently improve employee ~~behaviorbehaviour~~, it can be the first step to improving actual ~~behaviorbehaviour~~. ~~It is recommended that f~~Future food safety interventions ~~are recommended to~~ be brief and sustainable (35). The success of the food safety training model depends on properly trained managers, who have the appropriate skills and knowledge to guide food handlers appropriately according to their food handling responsibilities, and who can provide physical training and a psychological environment conducive to the development of food handlers and implementation of ~~food safety handling practices~~.

**Commented [A15]:** Or inadequate?

**Commented [A16]:** Or safe food?

### Hope in the future

Expectations from several parties such as ~~from~~ the district health officials who want a program of assistance from them to the community on good food management. This cannot be done just like that, but it still needs regulations, orders, and directions from the local government. The quality of management of fish catches in the sea is the desire of ~~the office~~ Office of agriculture ~~Agriculture~~ for Food Crops, Fisheries, and Marine. With the existence of ~~the~~ regional standards on good fish catch management, ~~it will slowly improve~~ the quality of food owned by food traders on the coast ~~will slowly improve~~. As a result of mass food production, the food industry ~~has also had to will~~ face ~~with~~ the negative impact of dramatically increasing food waste. So that waste management must have ~~a maximum system~~ and management.

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Yogyakarta is a famous tourism destination in Indonesia. This study could be beneficial to represent the all- ~~tourism~~ areas in Indonesia, especially the beach area. So, the implementation of food safety in the public area could be standardized for national and international tourists. This study will be more useful if ~~the next future~~ studies could ~~conduct use~~ the quantitative method to measure the preparedness of the food safety implementation.

### Conclusion

~~In sum,~~ ~~According to the results of~~ this study, ~~there is found that~~ a gap between the government, food vendors, communities, and existing facilities. One of the challenges that must be faced is that the government must provide facilities to meet food safety such as waste management while the land is owned by the sultan, there should be no permanent buildings. Every food handler must have sufficient knowledge about food safety. A more active role of the government is needed in trying to assess various kinds of food safety issues and invite the community, traders, and the private sector to jointly improve the quality of food, especially food supply, nutritional composition, and consumption by the population. The ~~main~~ limitation

of this study is ~~that in this study, no did not include no Nonnon-Government government Organization-organization~~ (NGO) ~~joining to this study~~ that might also ~~contributed~~ contribute to the food safety management in the tourism area, ~~was included~~. However, ~~in this study, provided~~ the food safety ~~assessment~~ in the ~~beachesbeach's~~ tourism ~~was assessed by conductedusing~~ the FGD, which ~~could not find~~ ~~has not been assessed in from~~ the previous studies ~~in the same study area~~.

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### **Ethical Issues**

The authors certify that all data collected during the study are presented in this manuscript, and no data from the study has been or will be published ~~elsewhere~~ separately.

### **Competing interests**

The authors declare that they have no competing interests.

### **Authors' contributions**

All authors participated in the study design, literature search, writing of the manuscript, data collection, analysis, and interpretation.

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