

# The Preceed-Proceed Analysis of Safety, Health, Environmental Sustainability, and Disaster Preparedness for Tourism Villages in Disaster-prone Areas

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## ABSTRACT

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**Background:** Tourism activities worldwide are inseparable from various safety and health risks. It is estimated that 30%-50% of the 1 billion tourists experience injuries and illnesses while traveling. Unsafe human behavior is the leading cause of tourist fatalities including negligence, disregard, and non-observance of safety rules. Therefore, this study aims to analyze the Preceed-Proceed of safety, health, environmental sustainability, and disaster preparedness for tourist villages in disaster-prone areas.

**Method:** This study used a qualitative approach, while the informants were selected using a purposive sampling technique. They were tourism village managers, tourists, and those responsible for tourism villages in Sleman Regency. Data were collected through focus group discussions (FGD) and a literature review. The data were analyzed qualitatively by integrating the FGD results with the literature review.

**Results:** The results showed that the most appropriate intervention is the community-based health promotion/intervention because the target is the community in the tourist village. It was further integrated into the Preceed-Proceed Model. In tourist villages, community-based health efforts can be implemented through tourist village posts (Pos Dewi). The approach in the intervention can be applied with advocacy, partnership, and community empowerment strategies. The tourism safety framework model includes risk assessment, monitoring, communication, disaster preparedness, emergency response, and health surveillance.

**Conclusion:** The developed safety, health, environmental sustainability, and disaster preparedness intervention for tourist villages is the integration result of the theme exploration and literature study. Therefore, further studies are needed to test the effectiveness of the developed Preceed-Proceed Analysis.

## 1. Introduction

The COVID-19 pandemic has significantly affected Indonesian tourism due to flight closures, travel minimization, and strict rules regarding the closure of tourist attractions in 2019 (1), leading to increased unemployment in the tourism sector. Furthermore, the growth of global tourism has increased threats to tourist safety and health (2,3). This is because tourism is a highly vulnerable industry with various risks such as safety, health, and security (4). The industry is also highly vulnerable to natural disasters such as earthquakes, tsunamis, floods, humanitarian crises including terrorism and monetary, as well as epidemics namely SARS and Ebola (5). It is estimated that 30%-50% of the 1 billion tourists experience injuries

and illnesses while traveling (2). A recent study also showed that the number of tourist deaths reported in English-language mass media from 2000-2017 reached 2126 cases (6). Unsafe human behavior is the leading cause of tourist fatalities (6–9) and this includes negligence, disregard, as well as non-observance of safety rules. A previous study (8) found that tourist injuries and deaths are affected by the trend of the selfie phenomenon. This selfie behavior reduces awareness and concern for the surrounding environment, which can endanger tourists.

Travel safety and health risks are increasingly becoming a major concern during the pandemic. A study (10) found that COVID-19 has affected travelers' risk perception, while (11) also stated that the higher individuals' risk perception, the less willing they are to visit public places and follow government recommendations to take precautions. It was reported (12) that tourists prefer to visit destinations known to implement cleanliness and hygiene. Furthermore, a previous study (13) revealed that travelers' destination preferences have changed as they tend to avoid visiting places with many positive confirmed cases of COVID-19. They also prefer to reduce mobility, choose local tours that suit their desires, and travel independently or in small groups (14).

In mid-2020, when tourism policies were relaxed, the sector began to recover slowly but the pandemic has caused a change in the pattern of people's tourism interests. Travelers choose tourist destinations that not only have beautiful attractions but also apply hygiene, health, and safety standards. They prefer attractions that do not have traces of transmission (cluster) and implement health protocols, as well as prefer to use private vehicles (15)

Yogyakarta Province is a major tourist destination in Indonesia second only to Bali. During the pandemic, there has been a change in public perspective from mass to special interest tourism, such as tourism villages. A tourist village is a rural area that offers the distinctiveness and uniqueness of the community's demographics, culture, customs, and social behavior (16,17). The development of tourism villages has continued to grow and become a trend in Yogyakarta. This province has 145 tourism villages, with 31 developed, 39 developing, and 75 growing tourism villages (18). The themes of tourism villages also vary ranging from nature, craft, and culture. However, they have various tourist safety and health risks, for instance, in 2018, 3 cases of accidents were recorded in Penting Sari Tourism Village during the Merapi Lava Jeep Tour activity, which caused two fatalities (19). The root cause of this accident is the weak implementation of safety and health aspects by managers as well as unsafe behavior from tourists themselves.

Based on this description, it can be concluded that Yogyakarta, as a major tourist destination, has various risks associated with safety and health issues. Efforts are needed to implement environmental sustainability and disaster preparedness in improving the safety and health behavior of tourism managers as well as tourists to prevent accidents and diseases. Therefore, this study aims to develop a safety, health, environmental sustainability, and disaster preparedness Precede-Proceed Analysis for tourist villages in disaster-prone areas.

## 2. Method

This study used a qualitative approach to examine each problem by situating it in a natural setting to emphasize meaning rather than generalization, and to gain a deep understanding of social situations (20). The informants were 6 tourism village managers selected using a purposive sampling technique. Furthermore, triangulation informants including the Secretary and Head of Human Resources and Tourism Business Development of the Sleman Regency Tourism Office were used as supporting data for verification.

The instrument includes interviews and FGD guides, field notebooks, as well as recording devices. Unstructured interview guidelines were used as a guide in asking questions to informants in line with the study objectives. The non-verbal responses given and the environmental situation during the interview were recorded using field notes. Meanwhile, a voice recorder was used to record the interview process.

Data collection techniques in this stage were in the form of FGD and interviews with data triangulation and documentation studies. Data triangulation was used to obtain a comprehensive picture of the safety, health, environmental sustainability, and disaster preparedness Precede-Proceed Analysis of tourist villages in the Disaster-prone Areas of Mount Merapi Sleman Yogyakarta. Therefore, additional informants from cross-sectors, such as the Head of Human Resources Development and Tourism Business as well as the Secretary of the Sleman Yogyakarta Regency Tourism Office, are needed.

FGD was conducted to explore the problems and needs of safety, health, environmental sustainability, and disaster preparedness of tourist villages. This was performed with tourism managers using FGD guidelines, open-ended questions, and face-to-face meetings. Furthermore, interviews were conducted with stakeholders as a source of supporting data related to policies and support using open-ended questions. The place and time of FGD as well as interviews were based on mutual agreement. FGD with managers was conducted at the secretariat of the tourism village management, while interviews with stakeholders were performed in their respective workspaces. Apart from primary data, secondary data were also required based on documentation studies in the form of tourism regulations as well as policies at the Ministry of Tourism and Creative Economy and the Sleman Regency Tourism Office as a complement.

To analyze the data, various steps were followed namely (21); listening to the recorded interviews with informants, matching the verbatim results obtained with the recording, reading repeatedly to determine meaningful statements as keywords, grouping the keywords into categories and sub-theme groups, integrating all results in a narrative based on the themes compiled, and validating the results obtained by coming back to the informants.

### 3. Result and Discussion

#### **Theme exploration on the safety, health, environmental sustainability, and disaster preparedness Precede-Proceed Analysis**

This study found a total of 6 themes that were explored based on informant statements. The results of the theme exploration for safety risk prevention in tourist villages were described based on the duties, problems, needs, and constraints of managers in managing aspects of safety, health, environmental sustainability, and disaster preparedness in tourist villages.

The tour manager explained their duties as providing information, guiding, and supervising tourists. The answers from the informants described below support this statement.

*"providing information to tourists" (P1, P2) "supervising tourism activities" (P1, P3) "providing appeals" (P4), "communicating with tourists" (P5)*

Another theme explored was safety issues in tourist villages which include accidents, disease transmission, environmental damage, and the threat of Merapi eruption.

*"Jeep tour and river trekking accidents" (P2, P4), "Transmission of COVID-19 and also diarrhea" (P1 and P3), environmental pollution due to garbage (P6), the threat of Mount Merapi eruption (P1, P3, P6).*

Based on the results, managers need to improve their ability to manage tourist villages and ensure adequate supporting infrastructure. The needed training includes homestay management, tour guide, first aid, waste management, and disaster mitigation. *"Homestay management, specifically the CHSE" (P2, P3) Training for guides specifically to carry out ice breaking (P1, P2) Waste sorting and waste management training (P3, P6), first aid training and disaster simulation" (P1, P2, P3, P5).*

The exploration results of the infrastructure needs showed that tourism village managers need cleaning, health, and safety facilities. *"Toilets, hand-washing stations, and soap" (P3, P4, P6) "thermometers for checking body temperature, medicines, and first aid kits" (P1, P2, P3) "advisory posters and leaflets" (P5) evacuation signs and assembly points (P2, P3, P5).*

Another theme explored was constraints and barriers in managing safety, health, environmental sustainability, and disaster preparedness in tourist villages which include policy, coordination and communication, human, and infrastructure factors.

Policies on safety, health, environmental sustainability, and disaster preparedness for tourist villages in Sleman Regency do not yet exist. *"We do not have that policy yet" (P7).*

Coordination and communication in managing the safety aspects of tourism villages have been carried out, but not routinely. *"We usually coordinate and communicate with the police, health department, and Regional Disaster Mitigation Agency in certain seasons such as during the holiday season, specifically during Eid, Christmas, and school holidays" (P8).*

The lack of human resources can be attributed to the shortage of managers who are competent and have certifications related to certain skills. *"There are still managers who have limited skills such as accident first aid (P1, P2, P3), homestay management" (P1, P3, P4), food hygiene (P2, P3, P5), and waste management." (P3, P6).*

Limited infrastructure is also still an obstacle, as conveyed by the following informant. *"Not all homestays have hand washing facilities and soap" (P1, P4, P6), "thermometers to check body temperature have been damaged" (P2), "leaflets and posters calling for health protocols have not been installed" (P1, P3) Separate trash bins are not yet available."*

### **Tourism village safety, health, environmental sustainability, and disaster preparedness Precede-Proceed Analysis**

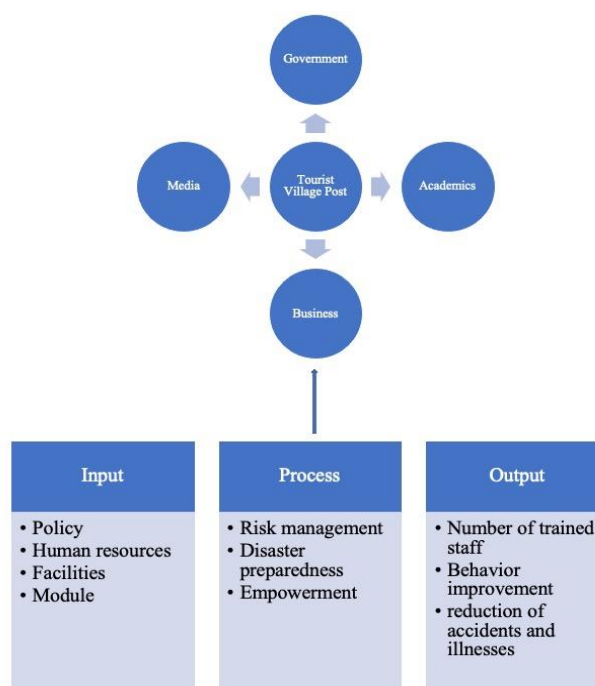
The community-based health promotion/intervention approach is considered the most appropriate basis for developing the safety, health, environmental sustainability, and disaster preparedness Precede-Proceed Analysis of tourist villages through the Pos Dewi. This is because the target of the intervention is the community in the tourist village (22). It can also



be integrated into the PRECEED-PROCEED Analysis and is suitable because the main objective of this study is to provide a structure for systematically applying theories as well as concepts to plan and evaluate Preceed-Proceed Analysis interventions.

Furthermore, this intervention requires 3 supporting factors according to the PRECEED-PROCEED model (23) namely predisposing, reinforcing, and enabling. Predisposing factors are antecedents that provide motivation for the behavior and they include knowledge, attitudes, beliefs, personal preferences, existing skills, as well as self-efficacy. Reinforcing factors follow the behavior that provides rewards or incentives for persistence and repetition. They include social and peer support, as well as significant others. Enabling factors precede behavior that allows motivation or environmental policies to be implemented. They are exhibited directly or indirectly through environmental factors such as the programs, services, and resources needed to realize behaviors and environments. However, in some cases, new skills are needed for behavior change.

Community-based health interventions implemented in villages are the Community-Sourced Health Efforts (UBKM) program comprising activities such as *posyandu*, *posbindu*, village medicine, and the Islamic boarding school health post. In the context of tourist villages, safety, health, environmental sustainability, and disaster preparedness can be implemented through the Pos Dewi. Approaches in intervention Preceed-Proceed Analysis are applied with advocacy strategies, partnerships, and community empowerment (24), as well as through community organization empowerment, capacity, participation, relevance, issue selection, and critical awareness (25). Furthermore, partnerships in managing tourism villages should involve various stakeholders with the Pentahelix model. This includes the government, universities, businesses, the community, and the media (26,27). The tourism safety framework Preceed-Proceed Analysis developed (28,29) includes risk assessment, monitoring, communication, disaster preparedness, emergency response, and health surveillance.



**Figure 1.** Tourism Village Safety, Health, Environmental Sustainability, and Disaster Preparedness Preceed-Proceed Analysis in Disaster-prone Areas

#### 4. Conclusion

There are 6 themes identified in preventing the risk of tourism accidents namely management duties, safety and health issues, human resources improvement, infrastructure needs, constraints, and obstacles which include policies, coordination, communication, limited human resources as well as infrastructure. This study proposed a safety, health, environmental sustainability, and disaster preparedness Precede-Proceed Analysis through Pos Dewi. This intervention can be implemented through community-based tourism integrated with the Precede-Proceed model, using advocacy, partnership, and empowerment strategies. Partnerships can be carried out using the Pentahelix model consisting of government, universities, businesses, communities, and the media. Therefore, future studies are needed to test the effectiveness of the intervention.

Provide a statement that what is expected, as stated in the "Introduction" chapter can ultimately result in "Results and Discussion" chapter, so there is compatibility. Moreover, it can also be added the prospect of the development of research results and application prospects of further studies into the next (based on result and discussion).

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