



## Safeguarding Serenity: An In-Depth Investigation of Safety and Security Measures at Hulugan Falls in Luisiana, Laguna.

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### ABSTRACT

Safety and security were critical components of sustainable tourism, particularly in natural attractions that drew large numbers of visitors. A recent study by Šerić et. al (2022) emphasized that visitors' perceptions of a destination's security significantly influenced its competitiveness and attractiveness. Despite the increasing popularity of Hulugan Falls in Luisiana, Laguna, limited studies had evaluated its safety and security protocols. This study aimed to bridge this gap by assessing the current safety and security measures at Hulugan Falls, identifying areas for improvement, and developing an action plan to enhance safety practices and visitor satisfaction.

The study employed a quantitative descriptive research design, using a mixed-methods approach that combined surveys with observational analysis. Data were collected from Three hundred seventy-eight (378) respondents, including residents and visitors. The focus was on evaluating the adequacy of safety measures, the accessibility of emergency responses, and visitor satisfaction with security practices.

The findings revealed generally favorable safety measures, with physical hazards rated at a composite mean of 4.12, water safety at 4.01, and overall safety parameters at 4.08. Data also showed that visitors generally perceived the safety measures at Hulugan Falls as adequate, with positive ratings for the presence of lifeguards, life jackets, warning signs, and guardrails. The analysis found no significant differences in perceptions of safety measures based on demographic variables, indicating consistent application of current safety measures across diverse visitor groups.

Although the findings were generally positive, varying levels of satisfaction were noted, with some respondents comparing Hulugan Falls unfavorably to other tourist destinations. Therefore, it is concluded that continuous improvement in safety measures is needed, including regular infrastructure audits, enhanced staff training, and proactive visitor education.

**Keywords:** Hulugan Falls, Luisiana, Laguna, Taytay Falls, Majayjay, Laguna, Environmental Challenges, Tourism Practices

### INTRODUCTION:

Waterfalls are popular tourist destinations in the Philippines, admired for their beauty and grandeur. These natural wonders, symbols of serenity and adventure, attract both local and international visitors. Hulugan Falls in Laguna is one such well-known attraction. The popularity of waterfalls, including Hulugan Falls, has grown due to their exposure in travel books, online guides, and technology that makes these sites more accessible. Social media has also played a major role in showcasing their beauty, further increasing their appeal. As more tourists visit, it becomes crucial for destinations to prioritize safety and security to meet growing visitor expectations.

Located in the southern part of Luzon, Laguna offers a diverse range of attractions that combine both cultural heritage and scenic landscapes. The province is home to historical landmarks such as old churches and traditional houses, as well as natural wonders like lakes and waterfalls, which are integral to its tourism industry.

In tourism, safety is a top concern, especially in places like Hulugan Falls, where the natural terrain can be both breathtaking and dangerous. The trail involves steep descents, rocky terrain, and water crossings, all posing risks like slipping, falling, or injury. These hazards are particularly concerning for tourists unfamiliar with rugged outdoor conditions. To ensure safety, it is vital that the area includes clear safety signs, adequate infrastructure, and trained staff capable of managing emergencies. Emergency response systems must be in place to quickly address accidents and minimize harm.

This study examined the safety measures at Hulugan Falls, focusing on how well they address specific risks such as slips, falls, and injuries. It aimed to assess the effectiveness of current safety protocols, such as safety signs, staff presence, and emergency procedures. The research also sought to identify gaps in safety measures and propose strategies for improvement. An action plan was developed to suggest improvements in infrastructure, staff training,

and emergency response systems. By enhancing safety protocols and promoting responsible tourism, Hulugan Falls can remain a safe, attractive, and sustainable destination for future visitors.

## THEORETICAL BACKGROUND:

This study was based on the theory of optimism-pessimism continuum (Poku, 2016). This implies that optimism about the safety of falls represents the degree to which customers are certain that the falls are safe, whereas pessimism represents the extent to which consumers are unsure and hesitant about the safety of the falls. This theory suggested that visitors' perceptions of safety at Hulugan Falls could range from complete trust (optimism) to significant uncertainty (pessimism).

This study is also anchored on Gorman (2023) Risk Perception theory. It emphasizes the essential way in which experts' and laypeople's views of risk differ. Experts judge risk in terms of quantitative assessments of morbidity and mortality. Yet most people's perception of risk is far more complex, involving numerous psychological and cognitive processes. Tourists' perceptions of safety risks influence their travel decisions. Implementing safety measures such as emergency response plans, clear signage, and safety information can help manage tourists' perceptions of risk and reassure them about their safety while visiting tourist spots. In this study, tourists' perceptions of safety were key to understanding their willingness to visit Hulugan Falls.

## PROBLEM STATEMENT:

The study aimed to investigate the safety and security measures at Hulugan Falls, Luisiana, Laguna.

Particularly, it sought to answer the following questions:

1. What is the demographic profile of the respondents in terms of the following:
  - 1.1. age
  - 1.2. gender
  - 1.3. sex
  - 1.4. occupation
  - 1.5. frequency of visit
2. What is the the level of safety and security measures of Hulugan Falls in terms of:
  - 2.1. physical hazards
  - 2.1. water safety; and
  - 2.3. safety parameters?
3. Is there a significant difference in the level of safety and security measures when grouped according to profile?
4. What action plan may be proposed to improve safety and security measures of Hulugan Falls based on the findings of the study?

## DATA AND METHODS:

A quantitative descriptive research design was used in this study to assess the safety and security measures at Hulugan Falls in Lusiana, Laguna. Data were collected in numerical format and analyzed using statistical tools to ensure accurate evaluation. Purposive sampling was employed to select three hundred seventy-eight (378) respondents who completed the questionnaires, providing targeted insights into the safety protocols at Hulugan Falls.

The table below shows the profile of the respondents in terms of sex. Majority of the respondents were female.

**Table 1.** *Distribution of Respondents in terms of Sex*

Sex	Frequency	Percentage
Male	178	47.10
Female	192	50.80
Prefer not to say	8	2.10
<b>Total</b>	<b>378</b>	<b>100</b>

The table shows that the female respondents got the highest frequency of 192 or 50.80 percent of the population. It implies that most of the respondents are female because of their interest in safety issues. Women may be more likely to voice concerns about safety and security, making them more willing to engage in relevant surveys.

This was supported by Cara et al. (2016), who highlighted the importance of considering sex and gender in research for effective decision-making, stakeholder engagement, and intervention uptake. In the case of Hulugan Falls, analyzing data by sex or gender helps avoid inaccuracies, reveals differences between groups, and improves statistical precision, particularly when studying specific subgroups or low-frequency behaviors.

**Table 2.** *Distribution of Respondents in terms of Age*

Age	Frequency	Percentage
Under 18	23	6.10
18 - 24	177	46.80
25 - 34	74	19.60
35 - 44	50	13.20
45 - 54	35	9.30
55 or older	19	5.00
<b>Total</b>	<b>378</b>	<b>100</b>

It can be seen on the table that most of the respondents are 18 to 24 years old, with a frequency of 177 or 46.80 percent of the sampled population. This suggests that the majority of respondents fall within the 18 to 24 age group, which typically consists of college students and young adults. This demographic is often more inclined to engage in recreational activities, such as visiting natural landmarks. Furthermore, younger individuals tend to be more active on social media, where they share their experiences and seek out popular destinations, potentially boosting visitor numbers to attractions like Hulugan Falls.

Table 3 shows the distribution of the respondents with regards to their occupation. Most of the respondents are students.

**Table 3.** *Distribution of Respondents in terms of Occupation*

Occupation	Frequency	Percentage
Student	181	47.90
Employed	84	22.20
Self-Employed	52	13.80
Unemployed	23	6.10
Full-time Employee	14	3.70
Part-time Employee	19	5.00
Retired	5	1.30
<b>Total</b>	<b>378</b>	<b>100</b>

Majority of the respondents are students, with a frequency of 181 or 47.90 percent. Next to this figure are those employed respondents that got a frequency of 84 or 22.20 percent of the sampled population. While those respondents who are self-employed got a frequency of 52 or 13.80 percent. On the other hand, unemployed respondents got a frequency of 23 or 6.10 percent. This was followed by those respondents who work part-time, which got a frequency of 19 or 5.00 percent of the population. Those respondents who work full-time got a frequency of 14 or 3.70. Lastly, those who are retired got the lowest frequency of 5 or 1.30 percent.

It indicates that most of the respondents are students because of their recreational preferences. Students frequently seek cost-effective and pleasant activities, and natural features such as waterfalls are popular with this demographic. Also, the researchers believed that students often share their experiences with peers, resulting in an interconnected effect in which information about the survey disseminate quickly within their social groups.

The table below shows how often respondents visit Hulugan Falls within a specified time period. Most of the respondents are first timers.

**Table 4.** *Distribution of Respondents in terms of Frequency of Visit*

Frequency of Visit	Frequency	Percentage
First time	185	49.10

Weekly	146	38.60
Once a month	27	7.10
Once a year	16	4.20
Biannually	4	1.00
<b>Total</b>	<b>378</b>	<b>100</b>

Based on the table, respondents who visit Hulugan Falls are first timers, which got the highest frequency of 185 or 49.10 percent of the sampled population. While those who visit weekly got a frequency of 146 or 38.60 percent. It implies that most of the respondents are first timers due to their feedback interest. The data show that the first timer visitors may be more interested in providing comments to enhance safety and security measures because they are new to the location. Their fresh perspective enables them to recognize potential issues or opportunities for improvement that may not be apparent to regular visitors. Furthermore, as they navigate the location for the first time, their feedback can be important in analyzing the effectiveness of current safety rules and offering recommendations that consider newcomers' experiences.

The following table below shows the level of safety and security measures of Hulugan Falls.

**Table 5.** *Level of Safety and Security Measures of Hulugan Falls in terms of Physical Hazards*

STATEMENTS	Weighted Mean	Verbal Interpretation
1. I am willing to proceed despite being aware of the hazard present at the location.	3.97	Agree
2. The hiking trails leading to Hulugan Falls are safe.	4.29	Strongly Agree
3. The view decks overlooking Hulugan Falls are well-maintained and safe.	4.54	Strongly Agree
1. The staircases leading to and from Hulugan Falls are safe and properly constructed.	3.74	Agree
2. The landscape surrounding Hulugan Falls does not pose any significant safety risks.	4.05	Agree
<b>Composite Mean</b>	<b>4.12</b>	<b>Favorable</b>

*Legend: 4.21 - 5.00 Strongly Agree/Strongly Favorable (5); 3.41 - 4.20 Agree/Somewhat Favorable,*

*(4); 2.61 - 3.40 Neutral (3); 1.81 - 2.69 Disagree/Somewhat Unfavorable (2); 1.00 - 1.80 Strongly Disagree/Strongly Unfavorable (1)*

It was shown in the table that the respondents strongly agreed that the view decks overlooking Hulugan Falls are well-maintained and safe. This got the highest weighted mean of 4.54. This implies that it is possible for respondents to strongly agree on the present condition of the decks when they observe regular maintenance operations in the falls. Moreover, the researchers believed that government agencies and community groups may have actively maintained the area, establishing trust in its well-being and security.

Additionally, the respondents strongly agreed to the statement that the hiking trails leading to Hulugan Falls are safe. This got a weighted mean of 4.29. It implies that based on the experiences of the respondents, the availability of tour guides can improve safety by ensuring that experienced leaders are there to guide and provide assistance. Also, the researchers believed that the presence of the tour guides or safety personnel along the trails, gave the respondents an assurance that assistance is already available.

In contrast, the respondents agreed that the staircases leading to and from Hulugan Falls are safe and properly constructed. This got the lowest mean of 3.74. This implies that the respondents are not that satisfied with the area's staircases. Despite a broad agreement on safety, the researchers thought that the staircases may need more essential safety features such as railings or nonslip surfaces, resulting in reduced satisfaction.

Overall, the respondents are favorable to the statements pertaining to the level of safety and security measures of Hulugan Falls in terms of physical hazards. This got a composite mean of 4.12. The researchers believed that Respondents may have had overall favorable experiences at Hulugan Falls, appreciating the security measures in place and feeling safe during their stay. However, they recognize that these procedures may not be enough to address all potential concerns. For example, they might observe the need for greater signs, improved crowd control, or additional staff on duty during peak periods.

Moreover, while their personal experiences were safe and pleasurable, they were able to identify specific locations where improvements could have been made to increase safety for all visitors. This point of view takes a balanced approach, acknowledging the effectiveness of present measures while keeping open to the possibility of improvements that may enhance the overall safety experience.

This study was corroborated by the study of Vanessa et al. (2022) which assessed the information about security risk factors established and mentioned by official international institutions aimed at safety and security science by using the relationship and categorization between the identified risks during work activities performance.

**Table 6.** *Level of Safety and Security Measures of Hulugan Falls in terms of Water Safety*

STATEMENTS	Weighted Mean	Verbal Interpretation
1. I feel comfortable swimming if I know the depth of the waterfall.	3.92	Agree
2. There are warning signs indicating areas where swimming is prohibited.	4.02	Agree
3. I would confidently swim if a lifeguard and life jacket are available.	4.44	Strongly Agree
4. I would still visit the location even the wind condition are changing.	3.73	Agree
5. I wouldn't go to the waterfall if the water current is strong.	3.95	Agree

*Legend: 4.21 - 5.00 Strongly Agree/Strongly Favorable (5); 3.41 - 4.20 Agree/Somewhat Favorable,*

*(4); 2.61 – 3.40 Neutral (3); 1.81 - 2.69 Disagree/Somewhat Unfavorable (2); 1.00 - 1.80 Strongly*

*Disagree/Strongly Unfavorable (1)*

The respondents strongly agreed that they would confidently swim if a lifeguard and life jacket were available. This got the highest weighted mean of 4.44. It conveys that the presence of a lifeguard provides reassurance since skilled professionals can respond to emergencies and monitor swimming conditions, giving swimmers a sense of security. Furthermore, knowing that life jackets are available might relieve anxieties, particularly among inexperienced swimmers. The increased protection provided by flotation devices makes swimming feel safer.

In addition, the respondents agreed that there are warning signs indicating areas where swimming is prohibited, which got a weighted mean of 4.02. This simply implies that signs provide an educational purpose by warning visitors about potential hazards and encouraging safe practices. The researchers believed that the presence of warning signs demonstrates the site management's commitment to visitor safety, creating trust among respondents that the management is taking the required security measures.

On the other hand, the respondents agreed that they will visit the location even the wind conditions are changing. This got the lowest weighted mean of 3.73. It signifies that the respondents may prefer alternative safety measures, such as the presence of lifeguards or warning signs, above natural considerations like wind. This approach may result in a lower emphasis on wind conditions.

In general, the respondents were favorable to the level of safety and security measures of Hulugan Falls in terms of water safety. This got a composite mean of 4.01. The researchers believed that while respondents may feel overall safe, they may have concerns about specific features, such as the consistency of lifeguard presence or the efficacy of safety equipment. Furthermore, since Hulugan Falls is a natural location, respondents may anticipate some level of risk and believe that while safety precautions are vital, they cannot eliminate any potential dangers.

This was confirmed by the study of Stallman et al. (2017) which focused on the assessment of water safety competency. There is clearly a need for evidence-based recommendations on instruction and assessment of these skills, and a more encompassing and dynamic view of water competence and drowning prevention education that addresses the dynamic and complex nature of drowning.

**Table 7.** *Level of Safety and Security Measures of Hulugan Falls in terms of Safety Parameters*

STATEMENTS	Weighted Mean	Verbal Interpretation
1. There are clear entry and exit points at Hulugan Falls.	4.15	Agree
2. There are warning signs indicating areas where swimming is prohibited.	4.12	Agree
3. Guardrails are present along dangerous or steep edges at Hulugan Falls.	4.34	Strongly Agree
4. Staffs are trained regularly on safety procedures and protocols.	3.95	Agree

*Legend: 4.21 - 5.00 Strongly Agree/Strongly Favorable (5); 3.41 - 4.20 Agree/Somewhat Favorable,(4); 2.61 - 3.40*

*Neutral (3); 1.81 - 2.69 Disagree/Somewhat Unfavorable (2); 1.00 - 1.80 Strongly Disagree/ Strongly Unfavorable (1)*

The respondents agreed that there are clear entry and exit points at Hulugan Falls, with a weighted mean of 4.15. It implies that the designated entry and exit points can improve safety by controlling foot traffic and lowering the likelihood of accidents in dangerous areas. However, the respondents agreed that first aid kits are readily available and are stocked. This got the lowest weighted mean of 3.84. Even if first aid kits are provided, respondents may be unaware of its contents or if they are appropriately stocked with necessary supplies, making it difficult to completely support this statement.

The respondents were favorable to the level of safety and security measures of Hulugan Falls in terms of safety parameters. This variable got a composite mean of 4.08. While they appreciate the safety precautions, respondents may acknowledge that no system can eliminate all threats, particularly in natural environments such as waterfalls. Many respondents may notice areas that may be improved, such as better staff training or more visible safety signage, which adds to their cautious perspective.

This was supported by the study of Badiora and Adedotun (2022) safety and security are critical in the travel industry, and tourist attractions that neglect these responsibilities risk losing out on the fierce competition for visitors. Assessing and gathering stakeholder perceptions on a regular basis is one technique to guarantee that safety and security are delivered in a satisfactory manner.

Table 8 shows whether there was statistically significant difference on the level of safety and security measures when grouped according to profile. It was revealed that there was no significant difference among the variables when grouped according to profile.

**Table 8.** *Analysis on the Significant Difference on the Level of Safety and Security Measures When Grouped According to Profile*

Dependent Variable		F	P. Value
Physical Hazards	Age	.605	.696
	Sex	1.487	.227
	Occupation	1.633	.137
	Frequency of Visit	1.904	.093
Water Safety	Age	2.002	.078
	Sex	.459	.632
	Occupation	1.007	.420
	Frequency of Visit	1.446	.207
Safety Parameters	Age Sex	.361	.875
		1.339	.263
	Occupation	.879	.511
	Frequency of Visit	2.221	.052

\*. *The mean difference is significant at the 0.05 level.*

The results revealed no significant differences in safety and security measures among groups categorized by age, sex, occupation, and frequency of visit. The researchers believed that safety protocols might be uniformly applied, meaning all visitors experience the same level of security regardless of their profile. However, the researchers believed that respondents may be comparing their experience at Hulugan Falls to other places with better safety measures, influencing their overall perspective, and prompting them to evaluate it as favorable but not exceedingly favorable. Some visitors may find specific areas of safety insufficient, such as emergency response, crowd control, or accessibility, resulting in a positive but not enthusiastic assessment.

As confirmed with the study of Lucas and Gochfeld (2006), which revealed that while safety protocols were consistently followed, visitors frequently assessed their encounters as satisfactory but not exceptional. Comparisons to other parks with strong safety measures influenced these opinions, as do specific concerns regarding emergency response and accessibility and differing expectations based on past experiences. The study found that even when safety measures are well implemented, visitors may have different feelings about their effectiveness, suggesting a general tendency of positiveness rather than overwhelming enthusiasm.

Table 9 presents the courses of action suggested by the researchers to improve safety and security measures of Hulugan Falls.

**Table 9.** *Proposed Action Plan to improved Safety and Security Measures of Hulugan Falls*

Key Area	Key Findings	Activities	Objectives	Person involved	Frequency of Implementation	Expected Outcome
Physical Hazard	The staircases leading to and from Hulugan Falls are safety and properly constructed .	Material Evaluation and Improved Design Features.	To improve accessibility by making staircases easier to use for person of all age and abilities. Furthermore, to increase the durability of the stairs by using materials and design features.	Local authorities, community volunteer, and construction crew.	Every 2-3 years	Slips and falls are reduced due .to the installation of non-slip surfaces and sturdy handrails and longer-lasting staircases necessitate less maintenance, saving time and resources in the long term.
Water Safety	Still visit the location eve the water current is changing	Visitor Education	To update the official website and social media with safety guidelines for visiting during windy conditions and to provide instructional brochures or QR codes that will redirect to digital wind safety resources.	Marketing staffs, on-site staffs, and community volunteers	Annually	Increased awareness about water safety, leads to informed decision-making and fewer wind-related accidents as tourist are more prepared.
Safety Parameters	First aid kit was readily available and are stocked.	Assessment of Current Inventory.	To evaluate the condition and completeness of the present first aid kits, as well as to ensure they fulfill safety standards and identify the best location for first aid kits to maximize accessibility for visitors and personnel during emergency situations.	Trained staff and volunteers, local health advisor, and health and safety officer.	Twice a year	Improve response to emergencies since kits would be deliberately placed and well stocked.

The researchers obtained the statements with the lowest mean in each variable. These statements were developed as the key areas, which included its activities, objectives, persons involved, frequency of implementation, and expected outcomes of the courses of action.

## CONCLUSIONS:

1. The demographic profile of the respondents reveals that young adults, predominantly female students, constitute the majority of visitors. Most of these visitors are first-timers, suggesting the growing appeal of Hulugan Falls as a recreational site.
2. The presence of lifeguards and availability of life jackets play a critical role in boosting swimmers' confidence and ensuring their safety. Additionally, strategically placed warning signs effectively convey potential risks, highlighting their importance in enhancing visitor safety.
3. Guardrails in hazardous areas are highly valued by visitors for accident prevention. However, there is room for improvement in the accessibility and visibility of first aid kits, pointing to gaps in the management of safety resources.

4. Consistency in the perception of safety measures across various demographic groups demonstrates the effective implementation of safety protocols. However, the relatively neutral or lukewarm feedback from visitors suggests the need for more proactive and comprehensive safety initiatives to match or exceed standards at comparable tourist destinations.
5. The proposed action plan seeks to address existing safety gaps by mitigating physical hazards, improving water safety education, and reassessing the adequacy and accessibility of safety equipment. These measures are anticipated to significantly enhance the overall safety experience for all visitors, fostering a more secure and enjoyable environment at Hulugan Falls.

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