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RESEARCH ARTICLE

Enhancing safety measures at the Kintampo Waterfalls in Ghana: A post-disaster evaluation

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Abstract – The study was conducted to evaluate the safety measures put in place at Kintampo Waterfalls in Ghana following the March 18, 2017, natural disaster, which led to the death of eighteen (18) students, with three (3) others sustaining varying degrees of injury. The study used a case study design. Through the observation method and interview, data was gathered to assess the safety and security measures at Kintampo Waterfalls. The study revealed that safety signs, a first aid box, a fire extinguisher, a washroom, dustbins, tour guides, security personnel, visitors seating, and an emergency unit were available at the site. However, CCTV cameras, metal detectors, emergency response teams, and ambulances were not available. The study findings imply that destination management has attempted to improve safety and security practices at the site after the incident to avert any future occurrences. The study recommends that destination management should endeavor to provide CCTV cameras, metal detectors, permanent ambulance service, permanent police personnel, and an emergency response team to deal with any situation that may arise at the destination. The findings of the study provide current data on the state of Kintampo Waterfalls after the disaster to policymakers, destination managers, and the general public.

Keywords – Safety, security, measures, Kintampo Waterfalls, post-disaster evaluation, destination, observation, interview

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INTRODUCTION

In recent years, safety and security precautions have grown in importance as deciding factors for tourists when selecting a location. For example, places that are viewed as hazardous lose their allure to tourists and, therefore, their patronage (Badiora *et al.*, 2022; Chen *et al.*, 2020). It is abundantly clear that tourists are sensitive to safety and security conditions at a location, given the fall in tourist numbers Egypt, Tunisia, and Cameroon have seen as a result of recent terrorist acts (Mabon and Mason, 2022). In other words, the 8 billion mark was reached on November 15, 2022, marking a significant turning point in human growth (United Nations, 2022).

Furthermore, recent events have demonstrated that this destination is increasingly susceptible to a variety of hazards and concerns, including political risks, natural catastrophes, infections, and many others that might directly affect the visitors' lives and health (Nagaj and Žuromskaitė, 2018). Every global occurrence (such as terrorist attacks, emerging viruses, natural disasters, and economic crises) that negatively impacts travelers also impacts the revenue and traveler traffic to specific tourist destinations (Baig and Hussain, 2020), as well as the financial markets (Lee and King, 2018), which increases the impact of this occurrence indirectly.

Nevertheless, depending on a country's geographic location, political policies, or economic circumstances, threats may

have various consequences on the expansion of tourism. Additionally, it is important to keep in mind that not all risks are the same from location to location. To guarantee that tourism continues expanding and continues to generate income for tourist areas, all industry participants should pay more attention to the safety and security of their customers. This is due to the fact that when choosing a place for a vacation, travelers are influenced not only by the cost but also by the degree of protection offered by these facilities (Garg *et al.*, 2021).

In Ghana, situations of safety and security in various locations have been somewhat explored. For instance, Poku and Boakye (2019) performed research on safety and security in Kakum National Park in the Central Region, and Sarkodie *et al.* (2022) examined safety and security procedures at Buaben-Fiema monkey sanctuary in Bono East Region. Imbeah *et al.* (2018) assessed travelers' perceptions of safety at Cape Coast, a popular tourist site in the Central Region, while Poku (2016) investigated the security and safety of tourists to Ghana's Kakum National Park. However, no research has been conducted to assess the safety and security measures implemented at Kintampo Waterfalls in Ghana after the natural tragedy that occurred on March 18, 2017, which led to the death of eighteen (18) students, with three others sustaining varying degrees of injury when a tree branch snapped off at the top of the waterfall and fell on students who were swimming beneath it, have not, however, been evaluated.

Furthermore, the preservation and sustainability of the environment are directly impacted by safety and security measures at destinations, which makes them relevant to ecological cycles for several reasons (Jägerbrand and Bouroussis, 2021). These actions enhance the long-term viability of travel destinations and the biological cycles they support by safeguarding animals, preserving natural resources, and reducing environmental effects. In tourist areas, appropriate safety and security measures help save animals and biodiversity from damage and disruptions brought on by irresponsible human behavior (Bandara, 2020). For instance, restricted access to delicate biological cycles minimizes the destruction of animal habitats and the trampling of flora.

In this study, safety and security measures at Kintampo Water Falls are relevant from the point of ecological cycles since the various forms of the water bodies within the surroundings evaporate, cool, condense, and fall back to the earth as rain thereby changing the temperature and pressure of the atmosphere. The droppings of leaves enrich the soil, which maintains plant and animal life, as well as the evaporation of water from the leaves and soils to the atmosphere, which again condenses and falls as rain to the Kintampo communities. Also, the trees control weeds and erosion and prevent heat from escaping, which helps warm up the Earth's atmosphere, serves as a habitat for animals, and promotes various food chains and food webs.

However, the reconstruction of the site after the incident has caused a loss of biodiversity of plants and animals life as a result of the removal of some trees and hence has some long-run negative impacts on ecological cycles for various reasons. For example, the removal of weak root trees could directly impact the rain, which can result in run-off to the valley and may affect the water quality. Again, the construction of the concrete structure pavement may be denied draining of rain, which may affect the water cycle balance.

It is, therefore, prudent for the researchers to collect primary data by using observational techniques to assess the site's safety and security procedures. The following objectives serve as the study's direction:

1. To assess the Kintampo Waterfalls' safety and security measures.
2. To make recommendations for enhancing the Kintampo Waterfalls' security procedures.

LITERATURE REVIEW

Concept of safety and security

While safety is widely defined as insulating people from unintended consequences of any involuntary kind, security is considered protection against a person or item that intends to harm another. A few instances of recognized safety risks in national parks include becoming lost in the forest, being bitten by a snake or insect, falling, and getting harmed (Badiora *et al.*, 2022). Security and safety are not the same things, despite their relationship. Tourist safety and security are very important concerns because if they encounter any problems with security when visiting the place, tourists will get unhappy, making them feel more uncomfortable. It is essential that any security measures used at the site be discrete and do not interfere with visitors' peace and comfort (Cró *et al.*, 2018).

Empirical studies on safety and security measures at destination

Badiora *et al.* (2022) researched to evaluate the safety and security procedures of tourist destinations at Geopark in Nigeria. To collect data for the study, direct observation and interviews were used. The results of the study indicated that there was a perceived lack of safety and security in the studied region. The analysis also showed that the management does not believe there is a severe threat to the facility because no significant crimes have been reported. However, the study concludes that the study area's safety and security procedures don't represent conventional measurements but rather a cautious attitude and an excessive reliance on a pretended excellent record.

Sarkodie *et al.* (2022) looked at safety and security measures at Buabeng-Fiema Monkey Sanctuary in Ghana. Interviews and observation were the main instruments used to collect data from the participants. Despite lacking metal detectors, CCTV cameras, and ambulances, the site did contain first aid kits, fire extinguishers, garbage cans, tour guides, security officers, and visitor chairs, according to the study's results. The study also revealed that the site's safety and security

precautions were frequently lacking. In order to handle any possible on-site issues, the research recommends that destination management incorporate CCTV cameras, metal detectors, and emergency services.

From a social constructivist standpoint, Yongguang and Qionglei (2022) set out to explore the perception of destination safety. Data was gathered from Chinese social media sites for the travel industry. According to the study, essential topics and themes during various travel stages, such as before, during, and after a journey, are used to create visitors' perceptions of safety. The study's findings add to the body of knowledge on tourism safety by highlighting the necessity of comprehending travelers' perceptions of safety in multiple space-time contexts. This study offers useful recommendations to aid destination management organizations in improving tourism safety based on different phases of the creation of tourists' sense of security.

Tourism risk management, tourist safety, and tourist security were all examined by Agarwal *et al.* (2021). In order to get information from the individuals, a questionnaire was used. According to the report, bad policing, a lack of counterterrorism strategy integration, and a lack of information about terrorist risks all impair visitor safety.

Nagaj and Žuromskaitė (2020) set out to evaluate the safety and degree of security offered to guests at the lodging facilities. The respondents filled out a questionnaire, which was used to collect data. The findings showed that there is a high level of safety and security guaranteed. Additionally, it was shown that the costs of lodging services did not represent better protection.

Shaikh *et al.* (2020) conducted a study on factors affecting tourists' decision on where to stay in Pakistan. A questionnaire served as the main tool for gathering data from respondents. According to research by Shaikh *et al.* (2020), safety, security, and terrorism have a big influence on how visitors choose their destinations.

Poku and Boakye (2019) aimed to evaluate how tourists perceived safety and security in Ghana's Kakum National Park. Over two months, data from 387 tourists were gathered using a convenience sample approach. According to the survey, respondents' feelings were primarily split between feeling safe and secure and feeling uncomfortable, with a slight bias toward the latter. The study's conclusions also demonstrated that visitors' perceptions of safety and security were mostly driven by needs and statistically associated with age and continent of origin.

Baran *et al.* (2018) conducted a study to better understand how contextual elements influence people's sense of safety in parks. Using a questionnaire, information from the respondents was acquired. The study's findings show that respondents felt substantially less safe in high-enclosure environments than in medium and low- and low-enclosure environments. The findings also revealed that sex variations in perceived levels of safety were only significant under highly and moderately constrained circumstances.

In their study of the Western Kenya Circuit, Viola and Jonathan (2018) sought to determine if safety and security had a moderating effect on the link between destination competitiveness determinants and destination competitiveness. Data from 102 visitors were gathered using a convenience sample approach and an explanatory research design. The study found that the association between destination management and destination attractors was positively moderated by safety and security. The study also found that the connection between support resources and destination competitiveness was unaffected significantly by safety and security.

Imbeah and Bujdoso (2018) performed research on visitor security and safety in the Central Region of Ghana. The study used a questionnaire to collect information from 550 participants using convenience sampling methods. The chi-square test was also utilized to determine whether the visitors' intentions had any bearing on how safe they felt there. According to the study, visitors' intentions do not affect how safe they feel at the tourist attractions in Cape Coast, Elmina, and Kakum National Park. The survey also discovered that, except for the tree-top canopy walkway, a unique feature of Kakum National Park, safety problems were not strongly marketed at the three tourist destinations visited. The study recommended that the Ghana Tourism Authority lead the campaign in these three facilities to improve and maintain digital tourist safety and security documentary about each facility to increase potential tourists' confidence to evaluate the safety and security of the destination before traveling.

In a separate research, Poku (2016) investigated the security and safety of visitors to Kakum National Park in Ghana. 13 management were purposefully chosen for the cross-sectional study, which used convenience sampling to collect information from 387 tourists. Inferential and descriptive statistics were used to analyze the data. The themes and patterns that arose from the qualitative data were carefully analyzed. According to the survey, 52.7% of the participants felt insecure at Kakum National Park. The survey also showed that 68% of the items on the checklist for the Kakum National Park were unavailable, indicating that there were insufficient safety and security measures in place. The study gives management important data that might serve as a benchmark for bettering the security and safety procedures at Kakum National Park. According to the report, tour guides should receive safety and security training to improve the quality of their services.

In a similar study, Elaine *et al.* (2015) looked into how tourists perceived the danger of visiting Sabah's eastern shore in Malaysia. A questionnaire was employed by the study to collect information from 217 respondents. The data were analyzed using the t-test and partial least squares structural equation modeling. The study found that visitors thought Sabah's eastern coast was a high-risk marine destination, but this did not change how they thought about other Malaysian coastal regions. The study has offered pertinent analyses and consequences for the Sabah tourist sector.

METHODOLOGY AND DATA

Study area

The study's location was chosen to be at Kintampo Waterfalls, located on the Kumasi-Tamale Road along the Pumpum River, a tributary of the Black Volta, about four kilometers north of Kintampo Municipality. One of the primary natural attractions in the area, the waterfalls are composed of three (3) large drops, the longest of which is 25 meters high. The river falls to a height of roughly 70 meters following a series of stairs and cascades. About 10 kilometers away, in the village of Pumpumatifi, is where it gets its start. This was established as a tourist site in 1992 following its discovery in the 18th century (MoF, 2014). Further, Kintampo Waterfalls were chosen for this study because it is located at the center of Ghana and boasts natural attractions, canopy walkways, and kid-friendly playgrounds.

Instrumentation

The direct observation approach was used to acquire primary data for two months. Because it provided the researchers with a genuine, first-hand description of reality, the observational technique was thought to be appropriate. The participatory observation was also selected to offer support for the things present and explanations for the absence of the items. In participant observation, the researcher joins the group and observes "from the inside" (Kumar, 2017). After that, the researchers engaged in activities like walking along the canopy walk and having fun on the playground.

Additionally, five destination managers were interrogated in person using an interview guide. The participants for the interviews were specifically chosen based on their job descriptions. The site manager, ticketing manager, chief of

security, chief of tour guide, and board chairman are all included in this. This method gave the researchers access to extensive narratives about the safety and security measures in place at the location, allowing them to provide alternate explanations for the phenomena that have mostly been the focus of quantitative investigations. Each participant's interview, which took place under the shed at the site, lasted between 15 and 20 minutes.

All the research tools were validated by distributing them to associate professors on safety and security, who provided feedback based on their knowledge of the Kintampo Waterfalls terrain.

Study design

A case study is an in-depth examination of one or more occurrences of a phenomenon in a real-world setting that captures the viewpoint of the participants in the event, according to Gall *et al.* (2007 as quoted in Kuranchie (2021). The research's objective was to identify realistic safety and security measures at Kintampo Waterfalls. Hence the case study approach was employed. The researchers may also gather and examine data inside the context of the phenomena.

Data analysis

The observation data gathered were first summarised and analyzed by comparing it with the checklist outlined as stipulated in Table 1. Hence, the checklist developed was analyzed to evaluate whether adequate measures were in place to support visitors' safety and security at Kintampo Waterfalls. Also, the data narratives from the site managers were deductively analyzed by extracting the underlying themes inherent in their responses in relation to safety and security measures at Kintampo Waterfalls.

Table 1. shows the observation list adapted by Sarkodie *et al.* (2022).

Safety and Security measures	Available	Not Available
Ambulance		X
Fire service		X
Security policy		X
Changing room	No wardrobe, hangers, mirror, chairs	
Good lighting system	Enough 7 light poles were found	
CCTV		X
First aid box	Inadequate 4 first-aid boxes were identified	
Washrooms	Two were not in good condition, and two were built by the World Bank.	
Sick bay	First aid building	
Accident record book		X
Helmets		X

Fire extinguisher	Four fire extinguishers	
Signpost	Inadequate Four signposts were identified	
Staff with first aid training	Inadequate	
Security personnel	Inadequate – 2 security personnel were observed, and they were not equipped	
Response team		X
Tour guides	3 Tour guides trained by GTA	
Metal detector at the entrance		X
Provision of bins	21 bins	
Seating areas	Not enough: 17 benches were identified, but all the benches at the base of the fall were broken	
Employee identification	Several employees did not have identification cards	
Police officers at posts		X
Security post	Security gate	
Staircase	Fair staircases	
Rocks	Some loose rocks were removed	
Fence wall		X
Trees	Loose trees removed	

DISCUSSION

Ambulance and fire service

The researchers noted that neither fire nor ambulance service was available at the time of the study. The outcome is consistent with the findings of Opoku and Boakye's (2018) investigation, which indicated that no ambulance service was available at the Kakum National Park location. It suggests that destination management did not pay close attention to potential emergencies.

Security policy and accident record book

A safe and secure site must have a security policy as well as an accident record book to be opened to all users. It was observed that no security policy and accident record book were available for public display. This finding of the study was in line with Imbeah and Bujdoso's (2018) study, which found that there was no safety policy or accident record book at the various tourist locations in the Central Region of Ghana. The result suggests that stakeholders of Kintampo Waterfalls may not have given much thought to the need for an incident record book to help monitor incidents at the facility.

Tour guides and Security personnel

It was also noted that all three tour guides were male and had received training from the Ghana Tourism Authority (GTA). All three of the recognized tour guides were well-dressed to

make them easy to recognize by visitors. Additionally, it was noted that the tour guides gave the visitors a briefing before leading them around. Additionally, it was noted that the amount of information provided by the tour guides varied according to the season. On public holidays with many tourists, briefings were shortened to allow for attention to other tourists. This research's findings are congruent with Poku and Boakye's (2019) investigation, which discovered that tour guides at Ghana's Kakum National Park provided briefings on safety and security before the trip. Additionally, it was noted that the tour guides were not equipped with the proper firearms when they were walking around the facility with visitors. It implies that destination management has not provided tour guides with basic weapons to deal with emergencies.

The researchers also identified two security personnel who were in their uniforms with identification tags for easy recognition by tourists. The finding corroborates with Kumar and Kaushik (2017), who recommended that security personnel should be provided with uniforms and photographs for identification. The finding also strengthens Imbeah and Bujdoso's (2018) study, which identified that the Cape Coast tourist destination in Ghana had security guards in place. It was also observed that only one aged security guard was at the post on the night and had no security weapon to deal with any form of attacks that may arise at the site. Interestingly, there was no police personnel at the post during the numerous

times of our visits to the site. Chauhan et al. (2022) recommended that destinations adopt certain security measures like well-trained security personnel not only at night but on the day. They should be well-versed in dealing with emergencies, security cameras, emergency plans, emergency manuals, and employee identification.

Metal detector at entrance and CCTV

It was noted that neither the facility nor the entry had metal detectors or CCTV. This finding is contrary to Baker and Stockton's (2014) study, which indicated that access control for external, internal, material, and people should be checked. According to Puri and Verma (2017), a visible CCTV camera acts as a deterrent to illegal activity since it intimidates them and may be used against them in a court of law. The finding suggests that Kintampo Waterfalls' stakeholders have not set up any security measures to monitor the interior and external premises of the destination. The findings also mean the absence of metal detectors at the entrance and CCTV cameras may serve as fertile grounds for terrorist attacks and other criminal activities to take place at the site. According to Xie et al. (2021), a balanced environment, friendliness of the people, the existence of public security systems, and the availability of facilities and equipment like CCTV cameras are all key variables that visitors take into consideration when making travel selections.

Sick bay

Right at the base of the falls, the researchers saw a first aid building, and one first aid box and one bed were found at the time of the study. A male-trained scout was found to administer first aid as and when required. This study finding implies that the management of Kintampo Waterfalls provided immediate medical attention to tourists when the need arose to make the tourists' stay a pleasant and memorable experience.

Provision of bins, fire extinguishers, first aid box, and lighting system

The researchers further identified twenty bins at various vintage points. Eighteen of the bins were in good condition, while two were not in good condition in terms of sanitation. Adequate bins were found at the receptionist area, car park, and washrooms, at the foot of the two falls, and around the path leading to the waterfalls. Four fire extinguishers were spotted at the time of the study. Two were placed in the ticketing room, and the other two at the reception center. The researchers also found four new first aid boxes at the site. Two were placed at the main entrance where they sell the tickets, one at the reception center and the other one at the first aid building.

Seven light posts were also discovered there. One was found at the vehicle park, one at the playground, one at the visitor center, two at the path leading to the waterfalls, and two at the entrance to the security post. Two bulbs were not functioning, thus making the area seem darker at night. The findings strengthen Badiora et al. (2022) study in Nigeria, revealing that providing bins, fire extinguishers, first aid boxes, and lighting systems at tourist destinations is essential for ensuring visitors' safety, convenience, and well-being.

Response team and helmets

The researchers discovered that there were no trained emergency response teams available to handle problems involving water. Additionally, it was noted that swimmers and others using the walkway were not wearing helmets, as parts of the rocks beneath the fall area are quite slippery and occasionally cause visitors to slip and injure themselves. It suggests that some safety concerns were not given top priority while managing the Kintampo Waterfalls.

Rocks, trees, fence wall, and staircase

Furthermore, it was noted that some of the rocks and trees were loose before the natural calamity. To make the area safe for tourists, it was discovered that all the loose rocks at the various phases of the falls and trees had been removed. Similar challenges happened in New Zealand, and the government embarked on a one billion tree planting exercise programme from a projected period of (2018–2027) to help offset some of the effects of climate change by growing trees to soak up carbon dioxide (www.sciencelearn.org.nz).

It was also observed that the site has not been fenced but has been demarcated, awaiting to be meshed to avoid encroachers. The researchers further identified that the main entrance areas and paths leading to the waterfalls have been tiled to prevent slipping during rainy seasons. The weak, steep staircase to the main waterfall site has been renovated to make it more exciting and appealing to tourists. The study findings imply that destination management has attempted to improve safety and security practices at the site after the incident to avert any future occurrences.

Furthermore, interviews were carried out with five site senior managers who were purposively selected based on their job descriptions and hence, using an interview guide, the following questions were asked:

What are the safety and security measures at Kintampo Water Falls?

Site managers were asked to describe the safety and security measures currently in place at Kintampo Water Falls to ensure the well-being of visitors and staff. All the five participants stated that:

Signage with clear information has been provided to show directions, rules, and safety guidelines to both visitors and staff. Again, a first aid kit is in place to ensure that anyone who gets accidents and injuries will be given immediate medical attention before being taken to a health facility for further treatment. As a result of physical activities like swimming, minor injuries like cuts and scratches frequently occur in tourist locations and may be treated quickly with a first aid kit. The findings confirmed the observation data.

The head of a tour guide also stated that trained tour guides are always at the post to ensure visitors do not go to unauthorized areas to avoid any incidents. The board chairman further indicated that all loose trees have been removed and replaced with tap root trees. The findings supported the observation data.

Are there any emergency response teams wearing helmets?

The study further sought to find out whether emergency response teams deal with water safety-related issues and whether walkway users put on helmets. The site manager commented that:

The destination has three tour guides trained by GTA and two security personnel who act as emergency response teams to deal with any water safety-related issues at the site. This finding contradicted what was observed by the researchers during data collection. However, all five participants honestly admitted that tourists do not wear helmets when using the walkway and swimming beneath the waterfalls. This confirmed what was observed by the researchers during data collection.

Awareness of slipping and prevention

The participants were further quizzed whether they were aware of the slippery nature of some rocks beneath the waterfall.

Interestingly, all the five site managers interviewed indicated their awareness and expressed regret about not doing anything about it. They elucidated that they had received complaints and witnessed a number of swimmers who were slipping beneath the waterfalls.

Participants were asked to explain measures put in place to prevent accidents or injuries related to slipping in the vicinity of the waterfalls.

According to the head of the tour guide:

Tourists are advised to wear appropriate footwear with good traction to prevent slips and falls on wet surfaces. Again, the head of the tour guide explained that visitors are not allowed to walk toward the steep areas whenever it rains.

Managing crowd control in peak seasons

The interviewees were asked how they manage crowd control and tourist flow to ensure the safety and security of all visitors, especially during peak tourist seasons.

The ticketing manager stated:

During a peak tourist season, visitors are assigned specific time frames to enter the waterfall. These visitors are not allowed to stay at the destination beyond the assigned time. This helps to space out arrivals and ease traffic.

First-aid treatment

Are there first-aid stations or medical facilities on-site, and what is the protocol for handling medical emergencies? The site manager opined that:

There is a first-aid building at the base of the waterfall with one first-aid box and one bed. Though, there is a first-aid building but not well-equipped with trained nurses to deal with serious emergencies. Only one scout is here to administer first-aid treatment when any accident happens at the site. He lamented that serious injuries are taken to Kintampo Government Hospital for treatment. The board chairman also indicated that on peak season, like public holidays, we arrange for trained health professionals and ambulance service to come to the site as standby for any emergencies.

Safety protection of tourist belongings

Participants were asked about security measures put in place to protect visitors' belongings from theft or vandalism. The head of security responded:

Uniformed security personnel are always at the destination to patrol the area and are readily identifiable to visitors. There is a safe place where visitors put their belongings and are given a tag for easy identification.

Collaboration with local authorities

The study further sought to find out whether there was any collaboration with local authorities to enhance safety and security at Kintampo Waterfalls.

The board chairman remarked:

During peak season, stakeholders of Kintampo Water Falls collaborate with the local police service, fire service, ambulance service, and Ghana Health Service to provide additional personnel, resources, and support for crowd management and safety. Ghana Health Service provides health professionals to ensure quick response to emergencies including first aid and ambulance.

CONCLUSIONS

The study was conducted to evaluate the safety and security measures put in place at Kintampo Waterfalls through observation methods. The study found that there was no ambulance, fire service, security policy, CCTV, fence wall, helmets, accident record book, police personnel, metal detectors, or no response team at the site. However, it was observed that the following were available: sick bay, first aid box, fire extinguishers, washrooms, and bins at the site. It was further established that all the loose rocks at the various stages of the falls and trees had been removed to make the destination safe for tourists.

It was also observed that the site, which was unfenced before the incident, had been marked off and was now ready to be walled to avoid encroachers and paths leading to the waterfalls had been tiled to prevent slipping during rainy seasons. The majority of the findings that emerged from the interviews with site managers shared a common view and supported the data observation of safety and security practices at the Kintampo Waterfalls, even though there were few differences. The interview method approach of the study has provided different perspectives and complements the observation data and, thereby, helps to eliminate biases that accompany each other.

In conclusion, the absence of police officers, metal detectors, and CCTV cameras at the site might make it fertile ground for terrorists and other criminal activities. The findings of the study imply that the Kintampo Waterfalls has now been enhanced to avert any future disasters.

RECOMMENDATIONS

Based on the findings of the study on safety and security measures at Kintampo Waterfalls, here are some recommendations to enhance the situation at the site:

First, the study recommends that destination management should employ more trained armed security guards and set up tourist police units to provide security and assistance to tourists to prevent any criminal activities.

Second, there is a need for periodic maintenance of facilities, including walkways, staircases, and safety barriers, to ensure they are in good condition and free from hazards. Visitors' safety would be ensured, and accidents would be prevented as a result.

Third, stakeholders of Kintampo Waterfalls should urgently provide ambulance, fire service, CCTV, and metal detectors at the site to ensure the security and safety of tourists.

Fourth, stakeholders of the site should make an effort to use bleach solution and algacides to clear the substances on the surfaces of some of the rocks that cause slipping, thereby leading to various injuries to the users.

Fifth, to make sure that safety and security measures at Kintampo Waterfalls are efficient in reducing accidents and boosting the general tourist experience, they must be continuously monitored and evaluated.

Sixth, the destination management should charge visitors who use the walkway and swimmers for helmets since occasionally tourists slip and injure themselves, particularly when some of the rocks under the waterfalls appear to be slick.

Seventh, it is recommended that tourism stakeholders should occasionally plant more tap root trees to replace trees by removing them from the site to help offset some of the effects of climate change.

Finally, public awareness efforts to inform the public about the present safety and security measures at Kintampo Waterfalls should be given top priority by destination management. This could include social media campaigns, radio and television adverts, and community outreach programmes.

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