



Environmental risk management at Ba Na tourism destination and Da Nang City, Vietnam

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ABSTRACT

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Da Nang is a coastal city with a beach more than 60 km long. With beautiful beaches, gentle stretches and endless white sand, including My Khe beach, voted by US Forbes magazine as one of the 6 most attractive beaches on the planet. Da Nang also has the Ba Na Hills tourism brand. Discovered and built during the French colonial period, Ba Na tourist area is located west of Da Nang city, increasingly attracting tourists with a cable car system that holds 4 world records and an indoor entertainment area. The largest in Southeast Asia – Fantasy Park. Orientation for tourism development of Da Nang city to 2030, vision to 2045 with the goal of becoming a high-quality tourism and service center, creative tourism destination of Vietnam and Southeast Asia; Vision that by 2045, the city will become Asia's leading tourist destination, one of the centers of high-end, creative, green, smart marine and eco-tourism resorts and organize conferences and events. international festival events. To accomplish this task, environmental risk management at tourist destinations plays an important role in creating the image of the destination. Effective environmental risk management at the destination will help ensure tourist safety, increase tourist satisfaction and contribute to tourism development at the destination.

KEYWORDS

Da Nang city, Ba Na tourist area, risk management, tourist destinations, cable car system.

1. INTRODUCTION

With its position as one of three major tourist centers on the Vietnam tourist map, Da Nang - a beautiful, peaceful and hospitable coastal city, where tourists can easily reach by road, airways, railways and waterways. A geographical and historical mark, a convenient transit point to world cultural heritages such as Hue, My Son, Hoi An and the world biosphere reserve Cu Lao Cham. Over time, Da Nang city is increasingly asserting itself as an attractive and ideal destination for friends and tourists from all over the world. Tourists will go from one surprise to another on the journey to explore cultural relics, history, landscapes, Hai Van Pass - the most glorious place in the world, the legendary Marble Mountains, to This beautiful stretch of coastline is honored as one of the six most beautiful beaches on the planet. Moreover, Da Nang city is where tourists can enjoy international standard resort services with world-famous brands such as Intercontinental, Novotel, Crowne Plaza, Furama... Join the

journey to explore nature. rich nature and a deep sense of indigenous life and culture. Da Nang city is considered an important transit point on the Central Heritage Road. Da Nang city is surrounded by 3 world cultural heritages: Hue (Thua Thien Hue province), Hoi An and My Son (Thua Thien Hue province). Quang Nam Province). A little further is the world natural heritage Phong Nha - Ke Bang National Park and Thien Duong Cave (Quang Binh province). It is this location that clearly highlights the role of Da Nang city in the region - it is the place to welcome, serve and transfer guests. Not only is it the center of three world heritage sites, Da Nang city also has many beautiful landscapes that visitors can hardly forget after visiting this city. To the North there is Hai Van Pass, to the West there is Ba Na Mountain, to the Northeast there is Son Tra Peninsula, an ideal meeting point for tourists [8], [9], [10].

With the advantage of natural resources and unique cultural values, Da Nang has become a top destination for domestic and international tourists. According to the Department of Tourism of Da Nang city, in the period 2018 - 2019, Da Nang tourism developed rapidly with the total number of visitors in 2019 estimated at 8,692,421, an increase of 13.4% compared to Compared to the same period in 2018, reaching 106.1% of

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the plan; Of which, international visitors are estimated at 3,522,928, an increase of 22.5% over the same period in 2018, domestic visitors are estimated at 5,169,493, an increase of 8% over the same period in 2018. Total tourism revenue is estimated at 30,973. billion VND, an increase of 16.7% over the same period in 2018, reaching 113% of the plan. Thus, as of 2019, tourism has basically become a key economic sector of Da Nang city by meeting 6 basic evaluation criteria. However, due to the impact of the COVID-19 epidemic, city tourism suffered heavy losses for two consecutive years 2020 - 2021. According to the report of the Da Nang Department of Tourism in 2021, the total number of tourist arrivals Staying in the city is estimated at more than 1.1 million visitors, of which international visitors are estimated at 110 thousand, down 84.2% compared to 2020; Domestic visitors are estimated to reach more than 1 million, total revenue from accommodation and travel services is estimated to reach 2,550 billion VND, down 36% compared to 2020. From March 2022, when the Government has a policy of fully opening Domestic and international tourism activities, market promotion, and restoration of flight routes have been focused on by Da Nang city with many positive results. From 2022 to 2023, the number of tourists coming to Da Nang city has tended to increase sharply, and is on the verge of recovering development. In 2023, guests served by accommodation establishments are expected to reach more than 7.39 million, increasing 2 times compared to 2022, equal to 92% compared to 2019; Of which international visitors are expected to reach more than 1.98 million, an increase of more than 4.2 times compared to 2022, equal to 61% compared to 2019; Domestic visitors are expected to reach more than 5.4 million, an increase of 66% compared to 2022, equal to 113% compared to 2019. Accommodation, catering and travel revenue reached nearly 28 trillion VND, an increase of 44% compared to 2019. by 2022, equal to 130% compared to 2019. It can be seen that tourism in Da Nang city has returned to excitement and clearly prospered [5], [6].

II. THEORETICAL BASIS AND RESEARCH METHODS

2.1. Some general problems

2.1.1. Ways to reach tourist destinations

- Accessing a tourist destination geographically: A tourist destination is a geographical location to which a tourist is making a journey to satisfy his or her needs depending on the purpose of the trip. There are two types of destinations: final destinations and intermediate destinations.
- Approaching tourist destinations from an economic perspective: Destination is conceived as a supply factor for tourism.
- Approach a tourist destination from an integrated perspective: A destination is a collection of all aspects of tourism in a unified structure including: demand, transportation, supply and marketing activities.

- General concept of tourist destination: A tourist destination is understood as a geographical location, with attractive tourism resources, planned, managed and designed with amenities and services to attract and meet tourist needs.

2.1.2. Safety and security of tourist destinations

- Concept of safety and security of tourist destinations: Approach in a narrow range: Safety is understood as a state of peace, avoiding dangers, incidents... Wide-range approach: Security is the peaceful state of the state's society, the solid stability of the socio-political regime... - General concept of safety and security of tourist destination: Is a state of tourism development associated with a stable, solid social order situation and no incidents that endanger life and spirit. and assets of both tourists and the social community.
- Content of safety and security of tourist destinations: Ensuring general security of the destination, Disease prevention, Natural disaster prevention, Fire and explosion prevention, Traffic safety, Environmental safety, Food safety food production.

2.1.3. Risk management at tourism destinations

- Concept of risk management at tourist destinations: Risks are unwanted incidents, causing physical, mental, property damage... Risk is the combination of frequency of incidents and the severity of the consequences. Risks come from many different causes, but most of them affect the destination and especially the tourists. In fact, every destination has potential risks, so if risk management is not good, that destination will have difficulty developing. Risk management at a tourist destination is the process of organizing security and safety incident response activities to minimize damage to tourists, the community and the destination.
- Content of risk management at tourist destinations: Risk management planning and risk response preparation, Risk response training and practice, Risk response implementation, Evaluation and withdrawal experience.

2.2. Research Methods

This study uses a combination of qualitative research and quantitative research.

Qualitative research is conducted by analyzing and synthesizing theories and practical studies of environmental risk management at tourist destinations, conduct in-depth interviews with experts in the field of tourism destination management to serve as a basis for discussing quantitative research results.

Quantitative research was conducted to collect and process primary data on environmental risk management at Ba Na tourist area and Da Nang tourist destination to obtain information on safety contents and tourism destination security such as: Ensuring general security of the destination; Preventing epidemics; Natural disaster prevention; Fire prevention; Traffic Safety; Environmental safety; Food safety and hygiene and the content of risk management at tourist destinations such as: Risk management planning and risk

response preparation; Training and practicing risk response; Implement risk response; Evaluate and learn from experience.

III. RESULTS AND DISCUSSION

3.1. Current status of risk management at Da Nang tourist destination

3.1.1. Safety and security content about the environment of Da Nang tourist destination

It can be seen that a destination building a perfect environmental system is one of the conditions to ensure the sustainable development of tourism there. In Da Nang city, environmental safety and security is currently a top concern in the city's sustainable tourism development. Environmental issues here are becoming extremely complex and unpredictable. The reason for this can be due to natural causes (natural disasters) or due to human activities (exhausting natural resources, releasing toxins into the environment causing pollution and environmental degradation, biodiversity loss...) and mainly from humans themselves. Regarding the current status of water source quality in Da Nang city: The downstream area of Vu Gia - Han river is often salinized due to the impact of climate change and the operation of hydroelectric plants in the upstream area; Cu De River, the downstream area is saline and shows signs of ammonium pollution from domestic wastewater from residential areas along the river; Phu Loc River, polluted with organic matter and nutrients due to receiving wastewater from development activities in the basin; Urban lakes, organic pollution and eutrophication due to urban wastewater and discharge of domestic solid waste from surrounding areas; In areas with high population density, shallow groundwater shows signs of Coliform pollution; Coastal seawater in the Cu De and Phu Loc estuary areas and points receiving rainwater runoff have shown signs of Coliform contamination [12], [13].

Regarding the current status of air environment quality in Da Nang city: Total dust (TSP) in developing areas exceeds allowed standards and tends to increase over time; Quarry areas with high dust content; Non Nuoc craft village, TSP dust exceeds standards by 2 times. The impacts on the land environment due to socio-economic development are increasing. Conservation of forest, coral and seagrass biodiversity continues to be maintained and protected, but there are signs of deterioration. Signs of climate change are increasingly evident. Extreme climate phenomena are increasing. Changes in rainfall and prolonged heat have caused major impacts on development activities as well as community health.

In addition, population growth, agricultural intensification, and especially urbanization in the process of industrialization and modernization are greatly affecting environmental security. Environmental pollution leads to significant impacts on tourism activities. Currently, Da Nang city is facing a situation of rapidly increasing the amount of solid waste

released into the environment. It is forecast that in 2020 - 2025, the city will face more than 1,800 tons of solid waste/day; 2025 - 2030 is 2,400 tons/day; 2030 - 2040 is 3,000 tons/day. The water supply and drainage system has not been deployed synchronously, causing wastewater to overflow into the sea, or creating flooded spots that affect the health and lives of local people. The large increase in waste and wastewater due to strong urban development will create pressure on the land environment. Noise pollution in industrial parks, emissions from factories and vehicles; Saltwater intrusion in rivers, storms, floods, sea water discoloration... have been having negative impacts on Da Nang's economy in general and the development of tourism in particular. Besides, the same source of industrial, domestic, medical, agricultural wastewater... has impacted the water environment of the main rivers in Da Nang and also directly affected the ecosystem of this area. The decline of biological resources, the degradation of ecosystems including: mangrove forests, coral reefs, seagrass beds, islands, bays, estuaries... the decline in quality living environment... are typical manifestations of the negative impact of environmental pollution on the natural ecosystem [20].

Table 1. Sources and composition of water pollutants in Da Nang city [12], [13]

No.	Impact activities	Contaminant composition	Area of influence and level of impact
1	Urban development areas serving the community, especially new urban areas located in the West, Southwest and Northwest of the city (housing, public works, commercial services, ...)	Organic pollutants (BOD, COD), suspended sediment (SS), pathogenic microorganisms (Ecoli, coliform, ...), worm eggs, flukes, garbage, grease, detergents.	Water surface environment (near-shore waters, rivers especially Han, Tuy Loan, Cu De rivers, regulating lakes and underground water. Severe level of impact.
2	Industrial parks (Hoa Khanh, Lien Chieu, Hoa Nhon, Hoa Ninh, ...), high-tech parks, centralized information technology parks	Organic substances such as: BOD5, COD, heavy metals, pathogenic microorganisms, grease, detergents.	Surface water and groundwater environment in the area. The level of impact is very strong.
3	Logistic area (Lien Chieu	Waste oil from vehicles	Water surface environment in

	port, Tien Sa (port, Da Nang airport)	transporting goods and domestic wastewater from productive labor activities in the area	the area. Strong level of impact
4	Ecological urban area, high-tech agriculture	Organic substances such as: BOD5, COD, pathogenic microorganisms, grease, detergents	Water surface environment in the area. Average level of impact
5	Golf course area (Ba Na, VinaCapital, ...)	Organic substances such as: BOD5, COD, plant protection chemicals, chemical fertilizers	Surface water and groundwater environment in the area. The level of impact is very strong
6	Hospitals, medical services	Organic substances such as: BOD5, COD, germs, bacteria that cause disease	Surface water and groundwater environment in the area. Strong impact

		vehicles, Production labor activities in the area	
4	Ecological urban area, high-tech agriculture	Air pollutants such as dust and gases CO, SO2...	Air environment in the area. Low impact level
5	Urban transportation system	Noise, dust, CO, CO2, H2S, NO2, SO2...	Air environment; The level of impact is strong at traffic intersections, yards, and major roads in the area
6	Agricultural production	CO, SO2, CH4, NO2, H2S, smoke, dust...	Air environment; Moderate level of impact, strong local impact at large livestock gathering points, burning straw, spraying high concentrations of plant protection chemicals...

Table 2. Sources and composition of air pollutants in Da Nang city [14], [15]

No.	Impact activities	Contaminant composition	Area of influence and level of impact
1	Urban development areas serving the community, especially new urban areas located in the West, Southwest and Northwest of the city (housing, public works, commercial services, ...)	Air pollutants such as dust and CO, SO2...	Air environment in the area. Average level of impact
2	Industrial parks (Hoa Khanh, Lien Chieu, Hoa Nhon, Hoa Ninh, ...), high-tech parks, concentrated information technology parks	Air pollutants such as dust, CO, SO2, H2S, chemical vapour...	Air environment in the area. The level of impact is very strong
3	Logistic area (Lien Chieu port, Tien Sa port, Da Nang airport) ...	Air pollutants such as dust and CO, SO2, ... due to motor	Air environment in the area. Level of impact very strong movement

Thus, it can be seen that Da Nang city is currently facing extremely complex environmental problems. And for Da Nang city to develop sustainable tourism, all economic and social sectors, governments and social organizations... from central to local levels must coordinate with each other to ensure Stabilize all three factors: economic, social and environmental. In April 2022, Da Nang city implemented the theme "Year of safe, flexible adaptation, effective epidemic control and socio-economic recovery and development" and the Plan to reorganize operations. Tourism activities in the new normal conditions in Da Nang city, departments, branches and the city Tourism Association actively implement solutions to restore tourism activities. In particular, environmental protection is considered one of the leading solutions to bring a green - clean - beautiful landscape and green space for tourists when visiting and relaxing. In addition, the authorities of Da Nang city have promoted the work of protecting and cleaning the environment [16].

The management board of Son Tra Peninsula and Da Nang tourist beaches always focuses on checking and supervising cleaning at the beaches of Da Nang Environment Joint Stock Company. Coordinate with districts to organize campaigns to protect the marine tourism environment in response to the "Green - Clean - Beautiful Sunday" movement, clean up after storms and classify waste at source. Promote coordination with groups such as Hoa Nhap Xanh, clubs from East Asian universities, Duy Tan University, University of Foreign Languages...participate in cleaning up beaches in Da Nang city. The troops reminded people not to spread tarpaulins, eat,

drink, or litter at the beach during the peak tourist season from July to September.

At tourist attractions in the Nam O area, in order to protect the tourism environment from negative impacts caused by waste, the government has arranged trash cans and posted propaganda boards to remind people to raise awareness when come visit. Strengthen the coordination of forces such as the Border Guard, youth union members, associations and unions of wards to organize regular cleaning and cleaning operations.

Tourist destinations in Hoa Bac commune also have warning signs, strictly prohibiting the acts of throwing trash and camping overnight to prevent dangerous forest fires. Promote patrolling, monitoring and handling cases of intentional violations.

In June 2022, the Youth Union of Da Nang city coordinated with the Department of Natural Resources and Environment to organize the Festival "Da Nang Youth join hands to protect the sea and local water sources from plastic waste". Launched troops to handle 56 environmental pollution points in residential areas; Build 15 green - clean - beautiful roads in the city; Propaganda to raise people's awareness of protecting local water sources... These activities contribute to improving environmental quality at tourist destinations in particular and Da Nang city in general. From there, it helps to impress and build the position of Da Nang city in the hearts of every tourist [17].

In addition, Da Nang city has approved the Biodiversity Conservation Project until 2030, with a vision to 2045 to protect and sustainably develop important and specific natural ecosystems including species, a rare genetic resource with high economic value; Reasonable use of biodiversity resources in a sustainable way to serve the city's socio-economic development and environmental protection... Specifically, Son Tra peninsula will be covered with cool purple flowers and *Polyscias fruticosa* - a typical flower here. The trees will be planted along the roads on Son Tra peninsula, for every 1 bamboo tree to 1 purple linden tree, each tree 5m apart. Some routes will become unique highlights for tourists to enjoy during April and early May. As is known, tourism is a comprehensive economic sector. The development of tourism depends greatly on resources and the environment. Therefore, it is necessary to have appropriate measures to both protect the environment and still develop tourism in a sustainable way [7].

Along with development plans, urban authorities have proactively implemented a series of programs and policies to adapt to climate change, reduce risks and prevent natural disasters... maintain stable and sustainable development. Despite having limited resources, high urban speed and suffering from many natural disasters, the lives of Da Nang people are still guaranteed in terms of safety, health and education.

3.1.2. Risk management at the tourist destination of Da Nang city

3.1.2.1. Make a risk management plan and prepare to respond to risks

In recent years, Da Nang city's tourism industry has developed strongly and achieved many great achievements. Every year, Da Nang city welcomes thousands of tourists. With such a large concentration of tourists, tourist destinations in Da Nang city are under pressure from pollution every day. Tourism development brings revenue to the city budget, creates jobs, and increases income for local people. However, the development of many places has not followed the proper planning, so it affects the environment, reduces biodiversity... To prevent and prepare to respond to possible environmental risks, Da Nang city Da Nang has planned and prepared plans to prevent risks, specifically:

- Regarding pollution: Promulgating specific and timely policies: Environmental management is comprehensively implemented in many aspects such as promulgating legal documents on environmental protection, Environmental protection regulations in the city, regulations on ensuring order, safety and environmental sanitation during the construction of works... Develop programs and projects to minimize environmental degradation: Da Nang has implemented programs to manage and regularly inspect the quality of the marine environment and environmental quality at tourist areas and accommodation establishments; industrial pollution management; Thoroughly handle establishments causing serious environmental pollution in the city... The city has organized many movements to mobilize the community to participate in protecting the marine environment such as "Green, Clean, Beautiful Sunday", a pilot program on waste classification at source, and decentralization of lake and lagoon management... Being prepared to respond to environmental risks that may occur in the future includes preparing human resources, preparing information, and preparing facilities and infrastructure, such as: environmental sanitation staff, environmental sanitation volunteer team at public places, beaches, amusement parks; Construction of a drainage and environmental sanitation project, a garbage collection system, a hygienic landfill, a drainage system in the inner city and 4 domestic wastewater treatment stations before being discharged into the sea; Urban Environment Company has put into use a modern sand floor machine to clean the beach; built many public restrooms on beaches and more than 70 food and beverage businesses on beaches committed to civilized, polite and friendly business at sea.

- About waste: Da Nang City has just issued an action plan for ocean plastic waste management until 2025, with a vision to 2030 to prevent the discharge of plastic waste from waste sources on land and activities at sea. On February 10, 2020, Da Nang city issued Plan No. 698/UBND-DTDT on preventing and responding to incidents in the treatment of domestic solid waste in the city. The purpose and requirements are to strengthen the capacity to prevent and

proactively respond to incidents related to household solid waste treatment in the city in cases such as: incidents caused by natural disasters, risks caused by damage to infrastructure and operating facilities of the city's domestic solid waste treatment items; Incidents caused by organizations and individuals disrupting the city's domestic solid waste treatment activities. Assign specific responsibilities to each agency and unit in coordination to ensure uniformity and efficiency in the implementation process. Timely deploy specific solutions according to each situation to ensure that environmental sanitation work in the city is not interrupted or passive when any related incidents occur; Minimize the lowest impacts on the environment, economy and society of the city [11], [18].

- About climate: Every year, Da Nang city issues guiding documents on flood and storm prevention, search and rescue, and response to drought, gradually strengthening the apparatus of the city's specialized agencies and institutions and coordination mechanisms related to flood and storm prevention. The Steering Committee for Flood and Storm Prevention and Search and Rescue and the Response Steering Committee have been established and operate effectively. Responding to climate change, Approving the Plan to respond to climate change and sea level rise in Da Nang city. Approve plans to prevent and overcome consequences in response to natural disaster scenarios; Overcoming environmental problems after storms and floods in Da Nang city; Issued 02 handbooks "Guidelines for natural disaster prevention" for authorities and communities.

Coordinate with Quang Nam province on integrated management of the Vu Gia - Thu Bon river basin and coastal areas of Quang Nam - Da Nang. Coordinate with the Central Regional Hydro - Meteorological Station - Ministry of Natural Resources and Environment, receive weather and natural disaster forecast information, and promptly provide weather and natural disaster developments to all levels and sectors, and the city's residential community to proactively have solutions to prevent and respond to natural disasters. Coordinate with the General Department of Environment to implement the project "Reducing pollution and maintaining environmental flows in the East Asia sea through implementing integrated river basin management" for the Vu Gia - Thu Bon basin. Investment in infrastructure, international cooperation, application of science and technology, establishment of the Center for Natural Disaster Prevention and Mitigation to support the Steering Committee for Flood and Storm Prevention and Search and rescue in natural disaster prevention and mitigation and implementation of work to improve the community's natural disaster response capacity.

On July 28, 2021, Da Nang city issued Decision No. 2609/QĐ-UBND approving the Action Plan to respond to climate change in Da Nang city until 2030, with a vision to 2050. One of the city's goals is: "Plans, plans, economic and social development, and industry development at the city and

district levels are integrated, effectively deploy measures to respond to climate change in the city". Within the framework of the ACCCRN program sponsored by the Rockefeller Foundation (USA), the Office of Climate Change has implemented the study "Assessing vulnerability due to climate change for tourism activities in Da Nang city". One of the important goals of the Project is to identify subjects and areas vulnerable to climate change for tourism activities in Da Nang city; Support the tourism industry to develop an action plan framework to respond to climate change. However, up to now, plans related to climate change risks in Da Nang city are still being developed and integrated into the general action program on responding to climate change in Da Nang city, has not yet developed a separate project to help Da Nang city's tourism industry respond to climate change [19], [20].

- About training and practicing risk response: Training programs on environmental protection in the fields of culture, sports and tourism are held annually to raise awareness and strengthen environmental protection management of the tourism industry towards sustainable development goals. At the same time, create opportunities for culture, sports and tourism sector officials to meet, exchange, discuss and share experiences, good practices, and practical solutions to overcome difficulties. Obstacles in protecting the cultural, sports and tourism environment between localities. The class has the participation of students who are officials, civil servants, and public employees working in the fields of culture, sports, and tourism; officers in charge of environmental protection at organizations and service businesses in cultural, sports and tourism activities; tourist accommodation establishments, locally based travel companies, a team of tour guides and tour guides at tourist areas and destinations in Da Nang city. During the program, students will disseminate and improve their professional knowledge about the environment and some key directions and solutions for environmental protection in the fields of culture, sports and tourism; documents on environmental protection in the fields of culture, sports and tourism; management knowledge and skills to respond when environmental incidents occur. Da Nang City has regularly rehearsed and trained operations, management and coordination to ensure maximum prevention of environmental-related incidents.

On July 16, 2022, at Tho Quang Port (Region V Petroleum Company, Tho Quang Ward, Son Tra District, Da Nang City), the Department of Natural Resources and Environment of Da Nang city organized a Rehearsal Responding to a city-level oil spill in 2022. In a hypothetical situation, at 7:30 a.m., the ship BITUMEN (length 98m, width 15m) with a tonnage of 3,000 DWT carrying asphalt due to negligence while docking at the bridge Pumping goods into the Tho Quang asphalt warehouse crashed into the wharf, tearing the ship's hull, puncturing the fuel tank, causing the ship to tilt and risk sinking. At the time of the incident, there was about 40m³ of DO oil left on the ship, the amount of oil spilled into the sea

was about 20m³ and there was a risk of fire and explosion. During the response, 3 crew members were injured. The force directly operating at the scene is over 150 people from 10 units and many vehicles, equipment, and core forces including: National Center for Central Oil Spill Response, Central Region Command, City Border Guard, City Police, Department of Health, Son Tra District People's Committee, Region V Petroleum Company - One Member Limited Liability Company, Petrolimex Asphalt Company Limited, Petrolimex Gas Joint Stock Corporation, Safety Center Environment and Chemistry... This exercise achieved important results such as collecting the entire amount of spilled oil, ensuring correct techniques and transporting it to the right place for treatment. Ensure the prevention of situations that can cause fire or explosion during oil spill response activities and safety and security at sea and onshore during the incident response process. In particular, it is to improve the capacity to direct, operate, and coordinate the implementation of tasks of forces participating in incident response.

On August 24, 2023, the Department of Natural Resources and Environment of Da Nang city coordinated with relevant agencies to organize the 2023 oil spill response drill. Participating in this exercise were 10 units coordinating with more than 144 people and many means and response equipment, including: City Border Guard Command, City Police, Department of Health, Department of Natural Resources and Environment, Lien Chieu District People's Committee, Vicem Hai Van Cement Joint Stock Company, Vietnam Environmental Incident Response Center and Lien Chieu Petroleum Warehouse Cluster. Together with the forces of the Office of the Steering Committee for Natural Disaster Prevention, Search and Rescue and City Civil Defense, Central Region Oil Spill Response Center, Da Nang Maritime Port, Incident Response Team city oil spill and other related units. According to the scenario, the exercise to respond to a city-level oil spill in 2023 lasts 90 minutes with a hypothetical situation: Ship Trinh Xuan 02, with a tonnage of 3,000 DWT carrying clinker, is handling cargo at the port when an unexpected storm occurs. Often, the ship's mooring line breaks, causing the ship's side to collide with the wharf. The incident tore the ship's hull and punctured the fuel tank, causing an oil spill. At the time of the incident, there were 8 crew members on board and about 50m³ of DO oil remaining. After the incident, the oil spilled into the sea moved from Northeast to Southwest to the coast and there was a risk of pollution, fire, and explosion in the incident area and the coastal area along Nguyen Street. Phuoc Chu to the road leading to the port of Vicem Hai Van Cement Factory. Upon receiving the news, specialized agencies coordinated smoothly and deployed professional tasks to collect the entire amount of spilled oil to ensure proper techniques and transport it to the right place for treatment. Ensure the prevention of situations that can cause fire or explosion during oil spill response activities and safety and security at

sea and onshore during the incident response process. Through the drill, improve the capacity to respond to oil spills for facilities in particular and respond to oil spills for Da Nang city in general, and at the same time improve the capacity to direct, operate, and coordinate implementation. Duties of forces participating in responding to incidents in the city.

Oil spills are one of the many risks inherent in oil exploration, exploitation, transportation and use activities due to transportation techniques, pipeline incidents, transmission equipment, containing oil or caused by natural disasters. Oil spills pollute the environment and seriously affect marine ecosystems, affecting people's lives as well as economic losses in areas such as marine tourism, exploitation and aquaculture, seafood. Even more serious is the risk of fire or explosion, endangering human life. Oil spills affect the environment in many ways and it takes a lot of time to recover. Therefore, organizing oil spill response drills is one of the very necessary activities related to the annual environmental risk management content in Da Nang city, this is not just a problem of the environmental sector but a common problem of other sectors including tourism.

3.1.2.2. Implement risk response at tourist destinations

- Regarding environmental pollution: Da Nang City does not trade the environment for the economy, the city has refused many large projects that have the risk of affecting the environment such as the project of the Textile and Garment Group (Hong Kong) to build textile and dyeing factories and garment industry with a total estimated investment capital of 200 million USD and a Korean company project also requires 30 hectares of land to build a textile and dyeing complex. The reason is that the two textile and garment projects have a dye process that could potentially pollute the environment, so the city refused. Therefore, to ensure a sustainable tourism and development environment, Da Nang city advocates only attracting high-tech industrial projects, supporting industries and services, especially clean projects. As for projects that have the risk of causing environmental pollution, the city does not retain investors but introduces them to other more suitable localities. The Management Board of Son Tra Peninsula and Da Nang Beaches coordinates and directly supervises the River and Sea Environment Enterprise in collecting trash at beaches and directly collecting plastic waste and other marine waste within tourist beaches. Da Nang City promotes environmental protection propaganda and education in many forms for tourism workers, tourists and local people. Carry out propaganda for people and tourists to join hands to protect the environment in many forms.

Every year, the city also coordinates with restaurants, hotels, and local units to organize campaigns to clean the marine environment; Contract with Da Nang Radio and Television station to develop and broadcast segments on protecting Da Nang's marine environment; issued leaflets "joining hands to protect the marine environment" to residents and tourists... In addition, Da Nang city also has sanctions if businesses in the

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tourism and hotel sector in particular and business units across the city in general allow unsanitary conditions to occur, affecting the environment. In April 2023, the Management Board of Son Tra Peninsula and Da Nang tourist beaches organized an Environmental Festival with the theme "Da Nang's sea is always blue", spreading the message of protecting the marine environment in particular and the environment of Da Nang city in general. More than 500 people, workers, students, and functional sectors responded to the festival. This activity is within the framework of the program "Opening the 2023 beach tourism season" to propagate and raise awareness of people and tourists, actively changing community habits in protecting the environment, say no to plastic waste and nylon bags. Domestic and international residents and tourists are encouraged to use environmentally friendly products when visiting, playing, and entertaining at Da Nang tourist beaches.

Among the 20 beach tourism activities on the occasion of April 30 and May 1, 2023 in Da Nang, the Management Board of Son Tra Peninsula and the city's tourist beaches has integrated activities to protect the forest ecosystem, sea- a way to spread the message that tourism is always associated with environmental protection. Right at the stage area for the opening of the 2023 marine tourism season, people and tourists can easily see images of flora and fauna species at Son Tra nature reserve. Many parents taking their children to the beach stopped at this space to read information and take photos. The Son Tra Xanh check-in space also attracts tourists as it stands out against the background of the blue sea and white sand with baskets painted with images of brown-shanked douc langurs amidst a forest of cool purple flowers, stylized fish image or message to love our earth...

- Regarding ensuring the environment and tourism landscape: Da Nang city focuses on directing the implementation of measures to ensure environmental hygiene and landscape, including urgently treating sewers discharging waste into the sea, environmental cleaning of routes, attractions and areas with large tourist concentrations; The important role of the business community and residential community in implementing a civilized urban cultural lifestyle, behavioral culture, business culture, implementing the Code of Conduct in tourism activities has contributed part of building and continuing to preserve the image of "green-clean-beautiful" Da Nang destination; Organize and deploy the "Project to build Da Nang - an environmental city" in tourism activities; Propagate and mobilize tourism businesses to minimize the use of single-use plastic products, maintain environmental hygiene, and classify household solid waste at source. The work of ensuring environmental hygiene of beaches and Son Tra peninsula area is regularly paid attention and maintained; Replicate the green service model - G beach (green business model, say no to plastic waste and use environmentally friendly products) to business units and households; Organize and support tree planting units on Son Tra peninsula with the activity "Tree Planting Festival - For a Green Son Tra".

- Regarding ensuring security and safety of tourist destinations: Da Nang city Police forces, district police, Department of Transport; Departments, branches, and People's Committees of districts actively implement the work of ensuring security and order, traffic safety, rescue, anti-stalking and solicitation of customers, especially during festivals, events and peak tourist occasions, welcoming international cruise ships. Beach rescue work receives special attention through many measures; The Management Board of Son Tra Peninsula and tourist beaches has deployed buoys in safe bathing areas, installed warning signs in dangerous areas with offshore currents, warned in bad weather, and installed Place warning signs in areas where there are no lifeguards on duty, propagate on the coastal loudspeaker system, website, and fanpage of the Management Board about rescue duty times, beach rules... Rescue until 9:30 pm every night at some central beach areas on the Hoang Sa - Vo Nguyen Giap - Truong Sa route, actively coordinating with coastal projects in rescue work, ensuring safety for tourists. customers in areas before the project. In 2023 (as of November 15, 2023), 55 safe cases have been saved.

- Regarding inspection, examination, and handling of violations in tourism activities: The Department of Tourism has established interdisciplinary inspection teams to inspect, Provide guidance on compliance with legal regulations in tourism activities. As of November 2023, the Department Inspectorate has presided over and coordinated with relevant units to conduct 12 inspections of travel business activities, hotels, tourist attractions, and tour guides; 32 cases of violation were detected (13 organizations and 19 individuals; total fine was more than 748 million VND, deprivation of international travel license for 02 months, which submitted to the Chairman of the City People's Committee to fine 5 cases with a fine of 501 million VND and have their travel licenses revoked for 02 months. Regarding violations of allowing tourists to stay abroad illegally, using tour guides with fake cards, not buying insurance for tourists... In addition, after two years tourism has been affected Due to the COVID-19 epidemic, tourism service businesses are facing many difficulties. In 2023, the Tax Department has not issued a document or request asking the Department of Tourism to coordinate in preventing this tax loss. It is expected that in 2024, under the impact of the economic recession, businesses will still face many difficulties; Therefore, at this time, the city needs to have appropriate measures to nurture revenue sources and support businesses to maintain and develop business activities.

- Regarding support and help to ensure safety for tourists: In the first 11 months of 2023, the Tourist Support Center provided advice and assistance to 51,175 visitors at the office and information counters at the airport, an increase of 55% over the same period in 2022, receiving 5,535 calls, 512 emails, and 1,548 messages from visitors. From January 1, 2023 to November 20, 2023, the Tourism Rapid Response Team received nearly 100 calls from organizations, citizens

and tourists (however, there were only 10 cases related to security and order in the tourism sector) and has coordinated with relevant agencies to provide support and timely handling.

- About waste: Regularly inspect and sanction administrative violations for littering at tourist beaches and tourist areas. During each tourist season, the Urban Environment Company is on duty from morning to evening to collect waste from beachgoers... In 2018, Da Nang city has a policy of allowing the installation of automatic waste screening machines at the discharge gate. My An (My Khe beach) aims to protect Da Nang beach from the risk of pollution caused by waste flowing from the outlet to My Khe beach, especially on rainy days. The automatic trash combing machine will collect waste in the sewer system with a size of 3 cm or more such as: plastic bags, lunch boxes, bottles, plastic materials, animal carcasses, grease, leaves...in the sewer so that it does not overflow into the sea. In addition, the city has installed from 30 to 50 trash cans at 5 beaches for residents and tourists to put their trash in. Urban Environment Company also introduced a modern sand floor machine to clean the beach. Da Nang has also built many public toilets on the beaches and hundreds of food and beverage businesses on the beaches committed to civilized, polite and friendly business at sea. Ensuring environmental quality in tourism development on Son Tra peninsula is a prerequisite goal set by the authorities of Da Nang city and Son Tra district. In 2022, Da Nang city has just issued a plan to plant trees to create a unique feature on Son Tra island with a budget of 8 billion VND. The program is implemented according to the roadmap from 2022 to 2025, in which the total length of routes that will be planted with trees is 13,146km. Da Nang City and organizations have organized hundreds of waste collection campaigns on Son Tra peninsula. Among those campaigns is the program "Clean up Son Tra 2022 - For a Green Son Tra" - a program that attracts hundreds of volunteers to participate each month. Recently, the Vietnam Women Business Association donated and placed 130 trash bins at tourist destinations and roads of Son Tra peninsula. The beach order and rescue force of the Son Tra Peninsula Management Board and Da Nang city tourist beaches also take care of "collecting" litter that is littered; At the same time, coordinate clubs, teams, and groups to periodically launch many programs such as "Da Nang Beach says no to plastic waste", "Wake up with the blue sea". To date, more than 700 volunteers participate in regularly cleaning up beach trash. Within the framework of the 2023 Danang Summer Enjoy Festival (Enjoy Da Nang), the "Blue Ocean" Marine Environmental Protection Festival took place at Xuan Thieu beach, attracting many forces, associations and groups to participate in the campaign. beach cleaning, exhibition of self-drawn paintings, waste recycling model according to installation art, extracurricular activities, workshops (seminars/discussions) to learn about how to protect the environment. This is an activity to raise people's awareness in saying no to plastic waste, protecting the

environment and ecosystem at Da Nang tourist beaches; connect, meet and exchange experiences on practical models, initiatives and actions to effectively solve environmental protection work.

- About climate: Da Nang City Department of Tourism coordinates with relevant and local industries and businesses propagate the impact of climate change so that those operating in the tourism sector have proactive response plans for the future to minimize damage. Regularly check and update the impact of climate change on historical, cultural and scenic relics throughout the city, especially on nature reserves and relics and landscapes. landscapes... such as Ba Na, Son Tra peninsula, Linh Ung pagoda, Museum of Cham Sculpture..., propose appropriate measures to repair and embellish. Actively propagate and mobilize people to raise awareness of environmental protection. Training for 45 agencies and units on energy saving, propaganda for 1,000 households and small businesses about energy saving solutions. Plant more trees, protect forests and develop eco-tourism with the purpose of preserving the environment and improving the breath of the city. Propaganda to build an environmentally friendly lifestyle, save energy, reduce greenhouse gas emissions, use products of natural origin in the system of restaurants, hotels, accommodation establishments, tourist areas, cruise ship system throughout the city.

3.2. Risk management at tourist destination Ba Na tourist area, Da Nang city

3.2.1. Introducing Ba Na tourist area

Belonging to the Sun World entertainment brand system, more than 20 km from Da Nang city center, Ba Na tourist area is a top-class resort and entertainment complex in Vietnam. Located at an altitude of 1,487m above sea level, Ba Na tourist area is famous as a "fairyland", possessing a wonderful climate and amazing natural landscape. Come to Ba Na Tourist Area to experience the 4-season climate in one day with many diverse festival, entertainment, and culinary activities. For four consecutive years, Ba Na tourist area has been honored with the title of Vietnam's Leading Tourist Area, awarded by the Vietnam National Administration of Tourism. Through many years of operation and continuous development, Ba Na Tourist Area has become a familiar destination for domestic and foreign tourists coming to Da Nang city. Ba Na tourist area has a cable car system with many world records with 6 cable car lines, including many lines with world records and international awards with a total capacity of nearly 10,000 passengers/hour, operated by the company. Doppelmayr manufactures: Suoi Mo - Ba Na Line, Debay - Morin Line, Toc Tien Waterfall Line - L'Indochine, Hoi An - Marseille Line, Bordeaux - Louvre Line and Champa - Taiga Line.

Coming to Ba Na tourist area, tourists have the opportunity to visit and experience unique works and destinations. One of the works most loved by tourists when coming to Ba Na Tourist Area is the French Village, which recreates an ancient

and romantic France with unique classical architectural works such as squares and churches, towns, ancient villages, and hotels. In addition, Golden Bridge - a project officially launched in June 2018 in Ba Na - was honored by TIME magazine in the "Top 10 most wonderful destinations in the world in 2018" and The Guardian site recognized as "The Tree of Life". The most impressive pedestrian bridge in the world". Ba Na tourist area owns an extremely vibrant and attractive indoor play complex. Fantasy Park is the largest indoor amusement park in Vietnam with many entertaining and active games for the whole family. Dinosaur Park is a destination not to be missed for young fans of the movie series "Jurassic Park". In addition, the complex also owns the first wax statue display area in Vietnam with wax statues simulating many famous figures in the world. With a system of more than 30 restaurants, Ba Na tourist area serves a variety of Asian and European cuisine. Guests can choose from many forms of cuisine, buffet or a la carte.

Fauna: 256 vertebrate species (61 mammals, 178 birds and 17 reptiles). Characteristics of the Southern Truong Son fauna with species of golden deer, chevrotain, bat weasel, golden wolf, star pheasant, purple dragon pheasant, long-tailed monkey, string python... Characteristic of the Northern Truong Son fauna are yellow-fronted chickens, white blue pheasants, red-cheeked gibbons, Asian black bears... Especially in Ba Na, there are 44 rare animal species recorded in Vietnam's red book, including 23 species of mammals, 12 species of birds and 9 species of reptiles. Typical examples are tigers, leopards, deer, roe deer, flying squirrels, red-shanked doucs, red-cheeked gibbons, wolves, sun bears... Even more abundant in the fauna in Ba Na are the butterflies and insects that mainly grow in April. Coming to Ba Na in the summer, visitors will admire the unique forest music of the summer calls of cicadas, the songs of birds, and the distant howls of gibbons.

With only a relatively small area (17641 hectares), according to statistics, Ba Na primeval forest has up to 543 plant species including 4 branches of higher plants: pine, fern and magnolia. The flora here is rich in the number of economically valuable species, but poor in reserves and number of individuals. Up to now, 74 species have been counted as medicinal and medicinal herbs, 41 species can be eaten or used as food for humans, 15 species are ornamental, 134 species are used for wood, 5 species are used as animal feed, 6 species are used as materials. construction, 5 species as raw materials for fiber paper, 3 species for essential oils, 3 species for dyeing. In addition to the diversity of families, genera and large number of individuals, Ba Na primeval forest also has many rare species listed in Vietnam's red book such as agarwood, mahogany, golden tree, yellow sandalwood... Plant species Wood stems have many colors belonging to the angiosperm branch such as three-lobed maple, bamboo, almond-leaf oak, cottonwood, rosewood... Ba Na's flora and fauna is not only rich and highly diverse but

also diverse. characteristic and unique, extremely important for conservation and development.

In 1986, Ba Na was recognized by the Government of the Socialist Republic of Vietnam as a natural reserve, an object of protection and a tropical forest containing many rare species of animals and plants that need to be protected. Agarwood, mahogany, honeycomb, pheasant, Asiatic black bear, red-cheeked gibbon... Ba Na has many primeval forests distributed along quite rugged slopes.

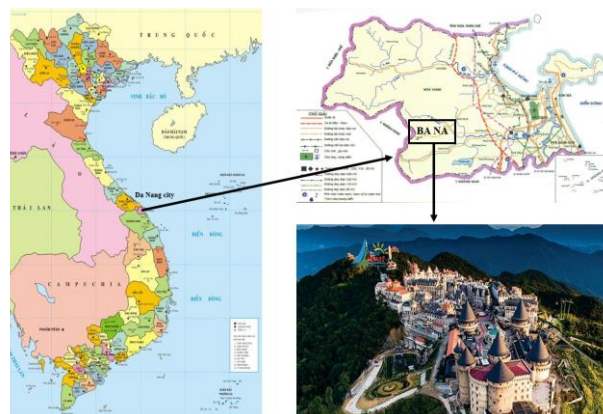


Figure 1. Ba Na tourist area

3.2.2. Risk management at tourist destination Ba Na tourist area

- Regarding the tourism environment: Ba Na tourist area is a tourist area with fresh air, not polluted because the tourist area is less populated, the impact due to people's traffic activities is trivial. Besides, the tourist area is not affected by industrial and handicraft production establishments. The tourist area has Suoi Mo flowing through, as well as surface water sources (lakes, ponds, rivers, streams, fountains...) that have not been polluted. Garbage is collected according to regulations and is not thrown carelessly along internal roads, at tourist attractions and at surface water sources (lakes, ponds, rivers, streams, fountains). Equipment in tourist attractions such as lights, signs, monuments, miniatures... are cleaned and sanitized. Areas selling products, souvenirs, and culinary dishes in Ba Na tourist area ensure general environmental hygiene throughout the tourist area. Construction areas are carefully covered, ensuring safety for tourists and staff in the resort. In short, the air environment, noise and surface water resources of Ba Na tourist area are still within allowed standards.

- Regarding waste treatment: Maintaining a green - clean - beautiful environment has long been an inevitable trend in the world, and has gradually become a general trend that tourist areas aim for. In particular, in order to preserve the intact beauty of the precious primeval forest at the top of Ba Na mountain, from October 1, 2018, Ba Na tourist area has applied the regulation "No food allowed", drinks to Ba Na". This is also a good sign for tourism in Da Nang city, creating a good impression on tourists, especially international visitors. Previously, every year Ba Na tourist area opened to

welcome millions of visitors. Guests may be allowed to bring food and drinks for consumption as long as they ensure cleanliness and general hygiene. However, according to the assessment, the amount of waste is increasing and the waste treatment measures are not bringing maximum efficiency. Therefore, after applying this regulation, Ba Na Tourist Area has significantly reduced the amount of waste from tourists' eating and drinking.

Ba Na tourist area has plans to ensure environmental hygiene in the tourist area, has a retail waste collection system and on average, every 20 - 30m there is at least 01 trash can with lid along the internal road to Visitors can easily put trash in the designated place. Garbage is gathered in an area so that vehicles can transport the waste to the local waste treatment facility with a frequency of once a day. In particular, the staff of the tourist area do not hesitate to bend down to pick up a piece of paper or cigarette butt on the walkway, even though they are not "janitors".

- Regarding solid waste management: Ba Na tourist area solid waste mainly arises from sources: such as tourism service areas, from works under construction (from construction workers, machinery and equipment) and from other sources. All solid waste is brought to centralized points and is collected by the city's environmental sanitation management units and transported to Khanh Son Solid Waste Treatment Complex (Da Nang city) for processing.



Figure 2. Waste collection area in Ba Na tourist area

- Regarding the organization of security forces and order to ensure safety for tourists: Ba Na tourist area is considered one of the tourist areas considered to have a very good level of security and order. Here, there are departments to ensure security and order, specialized teams, patrols, and supervision arranged on duty in functional areas and throughout the entire tourist area. With specific tasks: Security and order forces of the tourist area at the tourist reception gates: Regulate and direct the flow of vehicles, ensure the gates are always clear, avoiding congestion and accidents; Implement customer service rules, always be friendly and proactively welcome guests to the tourist area; Control the flow of people in and out of the tourist area; Guide visitors to work contacts to ensure working with the right department and subject; Control assets of the tourist area through the gate according to regulations, ensuring no loss; Recommend that tourists

comply with the rules and regulations of the tourist area; Coordinate locations to regulate vehicles to parking lots according to regulations; Support the service and reception departments in welcoming guests, especially on weekends, holidays, and Tet holidays; Regularly check and always ensure safety for tourists at cable car locations, amusement parks... to ensure safety and timely rescue.

The security and order force of the tourist area patrols and arranges the parking lot: Maintains security and order in the entire parking lot area; Patrol the entire parking area in the parking lot; Regulating traffic, ensuring convenient circulation of vehicles; Instructions, directions, and notification to drivers about locations and available parking areas; Arrange vehicles in a straight line, ensuring the aesthetics of the parking lot; Use senses to observe, identify, and detect incidents and risks in the parking lot; Take immediate and appropriate measures to ensure maximum safety for vehicles parked in the parking lot; Timely detect suspicious subjects, loitering in the parking lot, committing acts of theft, destroying vehicles, equipment, and assets in the parking lot; Recommend that tourists comply with the rules and regulations of the tourist area; Coordinate control positions to ensure safety for the entire tourist area.

The security and order forces of the tourist area in other functional areas: Protect the safety of people and property; Maintain security and order and handle all incidents related to activities in the assigned area. Tourists are advised to comply with the rules and regulations of the tourist area.

The security and order force of the tourist area at the location patrols and controls the tourist area: Carry out inspection and inventory of assets and outdoor and wall-mounted equipment on the patrol route, ensuring usage status, avoid loss and sabotage; Check technical systems, lighting systems, and fire protection systems on patrol routes. Timely detect unusual problems to promptly resolve them; Preventing people from causing trouble, vandalism, and stealing property of the tourist area and visitors; Support tourists when necessary, give dedicated instructions, always maintain a good service attitude towards tourists; Recommend that tourists comply with the rules and regulations of the tourist area on environmental protection, landscape, and ornamental creatures; Coordinate with other locations to ensure safety for tourists, hotels, restaurants, functional areas and the entire tourist area.

- Plan to ensure security and safety for tourists: In recent years, the Ba Na Tourist Area Management Board has connected with functional departments and agencies such as Hoa Ninh Commune Police, Hoa Vang District Police and Da Nang City Police to coordinate in ensuring security, safety and promptly handling incidents related to the tourist area. The parties have developed and signed minutes on coordination regulations and implemented plans to ensure security and safety for national, international and important events at Ba Na tourist area. The Management Board of Ba Na Tourist Area always proactively notifies the Police of

Tuong Nguyen Thanh, Environmental risk management at Ba Na tourism destination and Da Nang City, Vietnam

cases showing signs of violating the law; Foreigners suspected of being related to security and order are working or laboring in tourist areas to coordinate inspection and handling in accordance with the provisions of law. The early exchange of information will promptly prevent and quickly and effectively handle complex situations and problems. It is the coordination of good implementation of regulations from providing information to coordinating handling of suspected cases that has helped ensure safety and security for the tourist area and tourists. Thereby contributing to creating a tourism brand for Ba Na in particular and for Da Nang city in general, contributing to the sustainable development of Ba Na tourist area.

Ba Na tourist area also set up 24/7 hotlines to support tourists in many areas of the resort's activities such as ticket purchasing, room booking, medical care and other incidents. In addition, Ba Na tourist area has also developed plans to ensure security and safety for tourists in normal conditions with simple and common incidents; Develop a rescue plan in case of natural disasters, fires, or explosive materials in tourist areas with many participants, from there create an effective evacuation and handling plan. The tourist area also coordinated with the Fire Prevention and Rescue Police Department of Da Nang city Police to organize a practice of coordinated fire fighting plans at Ba Na tourist area. Through the drill, the units learned from experience and adjusted their plans to suit the actual situation at the tourist area. The construction and organization of the fire fighting plan were agreed upon by Ba Na Tourist Area and the Fire Prevention and Rescue Police Department of Da Nang city Police in time for the peak tourist season. Through the organization of internships, we aim to deeply propagate and raise awareness, responsibility, importance, and initiative in fire prevention and fighting, contributing to ensuring the safety of life and property of the tourist area and tourists. At the same time, it is also a basis to evaluate the ability of grassroots forces to organize fire prevention and escape, the smooth coordination between relevant units as well as check the operating status of vehicles, tools for firefighting.

Ba Na tourist area

1. Address: An Son village, Hoa Ninh commune, Vang district, Da Nang city
2. Ba Na Tourist Area Sales Office, address: 21st Floor, Vietinbank Building, 36 Tran Quoc Toan, Hai Chau district, Da Nang city. Hotline: 02363 749 888
3. Hotline: Customer care: 02363 749 881/883/885/886; 0905766 777.
4. Hotline for booking and contract: 18001000
5. Hotel reservation hotline: 02363.799.888
6. Medical Hotline: 0962.168.069
- 7 Website: banahills.sunworld.vn
8. Facebook: facebook.com/SunWorldBaNaHills
9. Email: banahills@sunworld.vn

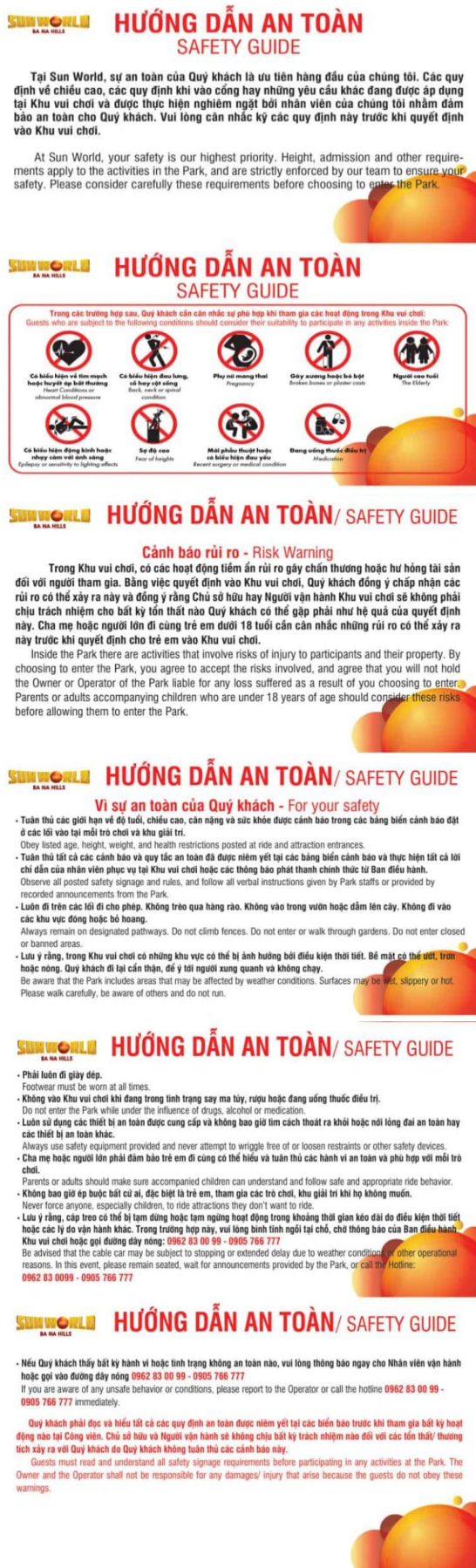


Figure 3. Safety instructions of Ba Na tourist area

- Regarding technical facilities to ensure security and safety for tourists: In Ba Na tourist area, there are security duty points at each functional subdivision and in the tourist area for the purpose of ensuring Security and safety for tourists, preventing and promptly handling problems occurring in tourist areas. Security forces are equipped with uniforms and equipment such as gloves, binoculars, whistles, batons, flashlights, boots, hats, speakers, walkie-talkies... to serve the task of ensuring security and safety for guests. tourism during sightseeing and relaxation at the tourist area in Ba Na. There is a modern camera system, wide angle, high resolution to monitor security at main attractions and functional areas. Indoor entertainment venues, hotels, restaurants... are equipped with automatic fire alarm systems. The system of faucets and water tanks is conveniently and fully arranged to serve firefighting in functional areas and the entire tourist area. In addition, the resort also installed a loudspeaker system to notify incidents and emergencies to staff and tourists. In some tourist areas, there is a fence system to isolate dangerous areas to ensure the safety of tourists. There are specialized vehicles for patrolling, controlling security and order in the tourist area and other rescue equipment when incidents occur in the tourist area.

- Regarding the water supply and drainage system: Ba Na tourist area has a clean water system to ensure the clean water needs of tourists; There is a clean water filtration system according to international standards (can be drunk immediately without boiling) to serve the needs of tourists; There is water and a system of pipes and faucets to serve firefighting when an incident occurs; There is a drainage system to ensure environmental hygiene; There is a wastewater treatment system to ensure environmental safety and a wastewater treatment process to reuse for needs such as watering plants, cleaning... specifically:

(1) Water supply system for Ba Na tourist area: Ba Na tourist area has a clean water system to ensure clean water needs for tourists. In particular, there is a standard RO water filtration system to serve the needs of tourists with a capacity of 100-5000 liters/hour. The RO water filtration system uses reverse osmosis technology with a filter pore size of 0.0001 microns capable of filtering according to water molecule size, helping to separate pure water from pollutants and toxic impurities. Therefore, water through the RO water purifier can be drunk directly without boiling. Ba Na tourist area is supplied with water at the foot of the mountain and the top of Ba Na mountain:

* At the foot of Ba Na mountain:

Water source: provided by Da Nang city water supply network (Khe Lanh water supply station, design capacity 2,000m³/day and night) and spring water (internal water supply stations).

Water supply station: Water treatment station with design capacity of 250m³/day and night.

Water supply network: divided into 02 areas: Water from the water treatment station supplies 250m³/day to the service -

tourism area, and is temporarily supplied to the 500m³ water tank of the Sunhome block (mixed land group of houses). housing and services) using D160 HDPE pipes. Line D225 HDPE from the local water supply connection point (from Khe Lanh Water Supply Station), through the booster pump station (located at the 940m³ wastewater treatment station) to the 500m³ water tank of the Sunhome block (mixed land for housing and services).

* Mountain top area:

Water source: spring water (internal water supply stations).

Water supply station: Gia Long water treatment station (capacity 800m³/day and night) and Mieu Ba water treatment station (capacity 2000m³/day and night).

Water supply network: Pipelines with diameters up to D160 HDPE supply to projects. However, the water source for the Water Supply Stations comes from streams, so it is seasonally unstable and not enough to meet the exploitation capacity of the Water Supply Stations.

(2) Rainwater drainage system of Ba Na tourist area: Ba Na tourist area has Mo Stream flowing through the Tuy Loan River downstream, with an irrigation reservoir serving to regulate and supply water for living and production. Inside the area there are surface water drainage systems to serve the activities of the tourist area. The rainwater drainage system of Ba Na tourist area includes 02 locations: the foot of the mountain and the top of Ba Na mountain.

* Location at the foot of Ba Na mountain: there is Suoi Mo running through the center. Rainwater from the upper basins and mountainside areas flows to the Suoi Mo water gathering points, then flows to the Tuy Loan River downstream. The stream bed slope is large upstream and gradually lower downstream. The average slope is about 19.5% - 1.9%. The tourist area has a surface water drainage system, which is collected and discharged into creeks, lakes and Suoi Mo.

* Location of Ba Na mountain peak: This area is located at a high altitude. Surface water is collected from structures and then discharged into hillside areas.





Figure 4. Ditch and drainage system at the top and foot of Ba Na tourist area

(3) Wastewater drainage and wastewater treatment system of Ba Na tourist area:

* Ba Na foothill area: Currently, wastewater is generated from service - tourism projects. Wastewater from construction works is led by separate collection systems to centralized wastewater treatment stations for treatment. In the area, there are 02 wastewater treatment stations with treatment capacity of 940 m³/day and 141 m³/day and night respectively, the current treatment capacity is about 50%.

* Ba Na mountain top area: Currently, there is wastewater generated from service - commercial and tourism projects. Wastewater from construction works is led by separate collection systems to centralized wastewater treatment stations for treatment. In the area, there are 02 wastewater treatment stations with treatment capacity of 1,200 m³/day and 2,700 m³/day and night respectively, the current treatment capacity is about 50%.



Figure 5. Wastewater treatment station of Ba Na tourist area

3.3. Achievements and limitations in risk management at the tourist destination of Da Nang city

Risk is unavoidable for a tourist destination. With the goal of minimizing damage as well as preventing possible risks, agencies and parties involved in the management of Ba Na tourist area and tourist destination of Da Nang city have

proposed Measures and implementation of specific actions to bring maximum productivity to tourism activities here. The implementation of environmental risk management at tourist destinations has brought many positive results, However, besides the achieved effectiveness, environmental risk management still has certain limitations.

3.3.1. The achievements

Da Nang city regularly evaluates developments and evaluates the implementation of prevention and response to environmental incidents at tourist destinations, thereby detecting new situations and loopholes. In risk response implementation plans, new plans have been developed and existing plans have been promptly adjusted to be more effective.

The assessment of risk management has been shown through a number of research articles related to the environment, environmental risks affecting the tourism industry, the current status of environmental risk management at Da Nang tourist destination by experts in the field of tourism and the environment has been implemented. Through this, we have partly assessed the current situation of environmental risk management at the tourist destination of Da Nang recently, and at the same time, research articles have also proposed solutions and recommendations to limit risks and effective risk response to the city, the Department of Tourism and the Department of Natural Resources and Environment of Da Nang city.

In addition, activities related to the environment in Da Nang city each year will be evaluated at the end of the year through reports on the results of state management of natural resources and environment to serve the Association. Summary of the work of the Natural Resources and Environment sector. The reports have shown the achieved results as well as limitations related to the environmental field and environmental risk management; From there, adjustments are made to operate better in the following years. Thanks to good implementation of environmental risk management, promptly setting out specific and clear measures and plans in preventing and overcoming risks; Regularly monitor activities related to the environment. In recent years, Da Nang city has become known as a civilized, modern, friendly city, an attractive tourist destination, with a clean and green environment. It can be said that up to now, Da Nang city is one of the cities with few environmental risks compared to other localities in the country.

Training, raising awareness, responsibility for environmental protection as well as training on incidents that may occur for accommodation establishments, restaurants, and tour guides and stakeholders have been organized and implemented effectively. Over time, the coordinated program on environmental protection has been implemented, with the positivity of relevant parties, the community, and the synchronous implementation of the Front system. and the Natural Resources and Environment sector at all levels. Awareness, responsibility and behavioral habits for the

environment and living in harmony with the natural environment are increasingly enhanced.

Risk prevention is implemented regularly and brings many results. Thanks to monitoring, propaganda, advocacy, guidance, reminders, ... officers, employees, people, and tourists strictly follow documents and instructions to warn of possible risks. Environmental risks in the tourist destination of Da Nang city are relatively few, and when problems occur, the locality can quickly fix them. After the incidents occurred, Da Nang city quickly launched timely assessments and meetings to review risk management and thereby promptly draw lessons for the city. Experience in environmental risk management. Thanks to that, Da Nang city is considered a livable city and attractive to domestic and foreign tourists in both beauty and safety.

3.3.2. Limitations

Plans related to environmental risk management of the tourism industry are mainly included in the general environmental action program of Da Nang city, a separate project has not yet been developed to help the tourism industry respond to environmental risks.

Plans related to the implementation and preparation of risk responses have been proposed and implemented. However, there has not been effective coordination and implementation between departments, including the tourism and environment sectors. The proposed measures and plans are still individual, such as the environmental industry, which focuses on environmental risk management, and the tourism industry, which focuses on managing risks at the destination. There is no close connection and synchronous coordination between the tourism industry and the environment.

Environmental management at tourist destinations still has many problems and difficulties, because environmental management resources are lacking: environmental information and data, fragmented environmental management; Environmental monitoring tools to predict and prevent pollution are not adequate, most of the monitoring equipment is manual and passive; The budget is still limited. Therefore, predicting or preventing environmental risks that may occur at tourist destinations is still inadequate.

Training to raise environmental awareness and limit environmental risks for hotels, accommodation establishments, entertainment areas... and related parties has been implemented. However, some programs are still reactive, formal, and not really effective. Professional knowledge about the environment and environmental risk management of the human resources team managing Da Nang tourist destinations is still limited.

3.3.3. Some proposals to improve environmental risk management at the tourist destination of Da Nang city

- Continue to effectively implement the Project "Building Da Nang - an Environmental City" for the period 2021-2025, the Project "Conserving biodiversity in Da Nang city" until 2030, with a vision to 2045, ... Striving by 2025, the city will meet the set goals, with a roadmap to 2030 in the direction of

ecological urbanism; Creating health and environmental safety for people, investors, and tourists coming to Da Nang city. The project also emphasizes preventing and minimizing pollution and environmental degradation in residential areas, industrial parks, coastal areas and natural landscape areas; Ensure environmental quality of water, soil and air according to standards. Focus on investing in building infrastructure such as roads, electricity, water, telecommunications, seaports... conveniently, ensuring modern infrastructure, but without adversely affecting the landscape and environment. The management of water pollution and air pollution due to emissions from vehicles and service activities is always paid attention to. With the goal of building an environmentally sustainable city, Da Nang develops service industries (banking, insurance, healthcare...); Providing public services such as environmental sanitation, street decoration, food hygiene and safety, management, price listing, etc. to serve maximum tourist needs such as planting many trees on the roads. streets, park systems, flower gardens... at the same time, build cultural institutions in residential areas in districts for people to understand and implement. Strengthen management of tourism activities, improve state management capacity on tourism for departments and localities. In addition, continue to improve legal regulations in tourism activities, ensure a tourism environment, and build a tourism city brand with a system of high quality standards.

- Ensuring security and environment for safe tourist destinations: Continue to promote the effectiveness of the Tourism Rapid Response Team and Tourist Support Center; Effective reception of citizens, resolution of complaints and denunciations in the field of tourism. Implement the Environmental Protection Plan in the tourism sector for the period 2021-2025 and the Action Plan to respond to climate change in the tourism sector in Da Nang city for the period 2021 - 2030; Departments and districts ensure to continue to maintain a safe tourism environment, ensure security and order, prevent stalking and solicitation of guests, ensure environmental hygiene, food hygiene and safety, especially are night economic development areas. Security protection is associated with the fight against crime at tourist destinations; Maintain and ensure security and order in public places in general and tourist destinations in particular; Ensuring social safety and eliminating social evils that affect the community; Strengthen inspection and supervision of maintaining order and security at tourist attractions; Prevent and combat social evils. Strictly handle actions that cause trouble and endanger the safety of tourists' people and property. Focus on treating sewers discharging waste into the sea; Complete separate wastewater and stormwater collection projects. Encourage tourism service businesses to limit the use of plastic waste, use clean, renewable energy, recycled and reused products, and apply clean technology. Continue to deploy the public restroom model, "Comfor at Home - Comfortable like at home". Support to improve the quality of operations of tourism service establishments, ensure professionalism,

prestige, and build tourism culture; Business ethics, ensuring the legal rights of tourists. Continue to propagate and raise awareness of authorities and social communities at all levels about tourism development, protecting the tourism environment, building and preserving the Da Nang tourism brand. Deploy content on tobacco harm prevention and control at tourist accommodation establishments and restaurants in the city.

- Preventing epidemics: Preventing and preventing epidemics is an extremely necessary task to ensure the safety and security of tourist destinations at the destination. There needs to be a plan to handle emerging situations, prevent and prevent the spread of diseases to tourists and the community. For tourists visiting a destination, it is necessary to localize the epidemic area to ensure safety for tourists. Local people need to raise awareness and be vigilant about the epidemic situation. Therefore, two different groups, tourists and local people, need to have different plans and measures in disease prevention. Propagate and encourage tourists and residents to take preventive measures to protect themselves. Preventing and stopping epidemics before they break out is the best way to ensure safety at that destination. It is necessary to plan for prevention and prepare for the worst situations to occur. Timely measures and strategies to prevent the disease from spreading quickly. Local residents as well as tourists need to respect and follow the rules at that destination to ensure safety.

- Natural disaster prevention: Natural disaster prevention is an important job in the issue of safety and security management at the destination. There are always natural disaster announcements and warnings, disaster prevention plans, and protection for tourists and local people. To prevent natural disasters, organizations and individuals that manage, operate and use tourist attractions and tourist areas within the scope of management are responsible for: Implementing regulations and technical regulations related to the content ensure requirements for natural disaster prevention and control in the management, operation and use of works issued by competent authorities; Closely monitor weather developments to provide necessary guidance and timely natural disaster warnings to ensure safety measures for workers as well as tourists visiting, and proactively implement stop serving tourists during times of heavy rain, storms, and floods; Inspect and review the current status of all facilities, take measures to reinforce, brace, proactively arrange human resources, vehicles, prepare necessary equipment and supplies to ensure absolute safety. for tourists; For tourist attractions and resorts in low-lying areas, islands, and riverbanks, plans for evacuation and relocation must be prepared to ensure safety for tourists and property before any emergency occurs. unusual strong winds and rising water levels; Check and trim trees on campus to ensure safety for visitors during the stormy season.

- Fire and explosion prevention: Controlling, preventing and limiting the risk of fire and explosion is an extremely

necessary job in fire prevention to ensure safety at the destination. Local authorities coordinate with fire prevention agencies at destinations to strengthen inspection, control, and guide establishments to strictly comply with regulations to ensure fire prevention, especially spiritual destinations where incense is burned, candles, and votive offerings need to be careful as they can easily cause a fire. Always take precautionary and fire-fighting measures immediately when necessary to avoid serious incidents from occurring. Accommodation establishments and hotels need to strengthen measures to prevent fires from occurring. Invest in equipment and facilities for fire prevention and fighting. Train employees on fire prevention steps and handle unexpected situations.

- Traffic safety: There are measures to raise awareness of traffic participants to avoid congestion, limit traffic accidents, and ensure smooth transportation. At tourist destinations, it is necessary to free up infrastructure, traffic circulation, and coordinate with traffic police agencies to coordinate and avoid congestion at tourist destinations, especially during peak times. In addition, traffic inspectors regularly patrol and review cases of carrying more than the allowed number of tourists, complying with regulations related to tourist safety, fast driving, reckless overtaking... To ensure control of security, order and traffic safety at tourist destinations, in addition to patrolling and road control, surveillance cameras are also equipped to capture the situation, respond promptly in all situations. In particular, strengthen the application of sanctions for violations of the Traffic Law.

- Environmental safety: The more tourism develops, the more attention is paid to environmental issues, especially environmental quality and its security and safety. Tourist demands are increasingly high and increasingly concerned about safety and health conditions, with the tendency for tourists to only choose destinations and tourism service establishments that care about environmental protection. Only places with a green - clean - beautiful environment with safe products can be competitive in attracting tourists and from there tourism businesses and local communities can profit from tourism. Currently, due to the process of industrialization, increasing population, urbanization and rampant construction without planning, leading to over-exploitation and use, depleting resources. increased waste and emissions, wastewater, and noise pollute and degrade the environment, affecting the health of the entire community. In recent years, environmental security has become an urgent phenomenon of social life. Currently, environmental quality is changing in a direction that is detrimental to human life in general and tourism activities in particular. In addition, a number of conditions exist at the destination such as: Noise pollution also occurs at tourist destinations such as tour guide speakers, many amusement parks... affecting people as well as the landscape. environment. That also invisibly affects environmental safety at the destination. Pollution in the landscape at the destination is one of the most painful

problems at the destination. Many tourist destinations are currently in a state of architectural collapse due to meeting tourism needs. Therefore, it is necessary to have timely measures and regulations to prevent the above problems from occurring. Implement programs to monitor and monitor the quality of soil, water and air environments; Investigate, evaluate, manage and control polluted areas; prevent and respond to environmental pollution incidents; Organize forecasts, information and warnings on environmental pollution. Increase equipment, facilities, and tools for inspection, technical supervision, monitoring, forecasting, information, and warnings about the environment.

- Food safety and hygiene: Strictly control food hygiene and safety during the process of serving tourists, avoid food poisoning, and ensure health safety for tourists as well as local people. There are regular food hygiene inspections at eateries, restaurants, and hotels to ensure safety for tourists and consumers. Improving the quality of food hygiene and safety will bring prestige and great profits in production and business, maintaining trust in the safety and attractiveness of tourist destinations. Food safety contributes to promoting Vietnamese culinary culture to tourists and friends around the world and international integration, while ensuring the safety of tourists' lives and attracting tourists.

IV. CONCLUSION

Through the current situation of environmental risk management at Ba Na tourist area and Da Nang city tourist destination, it can be seen that tourism development will bring many unpredictable risks. Environmental risk management at tourist destinations is the systematic application of measures and processes to help agencies arrange and arrange resources appropriately to focus on effective management of specific areas. areas and objects identified as risks. In order for environmental risk management to be implemented faster, contributing to improving the efficiency of tourism destination management in terms of both control and facilitation of environmental protection, it is necessary to accelerate the application of management according to applied directions in all stages of the management process, minimizing risks, improving the capacity of staff performing risk management, investing in necessary facilities for risk management, and strengthening relationships International coordination and cooperation in risk management to both develop tourism and ensure environmental protection is a significant challenge for managers. Therefore, tourism industry managers need to have a higher sense of responsibility and more determination to bring Ba Na tourist area in particular and Da Nang city's tourist destination in general to develop beyond its reach. countries in Asia and around the world. Besides, local people as well as tourists need to strictly comply with safety and be conscious of protecting the local environment to contribute to beautifying the image of the tourist destination.

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REFERENCES

1. Accounting Department, Ba Na Cable Car Service Company, Da Nang city, Vietnam, 2023.
2. Anon, "Quang Nam-Da Nang Provincial Department of Forestry Investment plan for Ba Na-Nui Chua Nature Reserve", Quang Nam-Da Nang, Vietnam, 1994.
3. <https://hoaninh.danang.gov.vn/ba-na-hills-thien-duong-nghi-duong/>
4. Hill, M., Le Mong Chan and Harrison E-M, "Ba Na Nature Reserve: site description and conservation evaluation. London: Society for Environmental Exploration", 1996.
5. People's Committee of Da Nang city, Decision No. 2726/QD-UBND on promulgating "Project on orientation for tourism development in Da Nang city to 2030, vision to 2045", Da Nang city, Vietnam.
6. People's Committee of Da Nang city, Decision No. 2726/QD-UBND on promulgation of "Plan to implement the Project on tourism development orientation of Da Nang city to 2030, vision to 2045 in the fourth quarter of 2022 and 2023", Da Nang city, Vietnam.
7. People's Committee of Da Nang city, Decision No. 3410/QD-UBND dated September 14, 2020 on promulgating the "Da Nang city biodiversity conservation project to 2030, vision to 2045", Da Nang city, Vietnam.
8. https://danang.gov.vn/gioi-thieu/chi-tiet?id=25032&_c=34
9. https://danang.gov.vn/gioi-thieu/chi-tiet?id=8591&_c=34
10. <http://sunland24h.com.vn/gioi-thieu-tong-quan-ve-da-nang-thanh-pho-dang-song-nhat-viet-nam.html>
11. <https://monre.gov.vn/Pages/da-nang-ban-hanh-ke-hoach-hanh-dong-quan-ly-rac-thai-nhua-dai-duong.aspx>
12. <https://baochinhphu.vn/da-nang-danh-gia-hien-trang-tai-nguyen-nuoc-102164248.htm>
13. <http://dwrn.gov.vn/index.php?language=vi&nv=news&op=Hoat-dong-cua-dia-phuong/Da-Nang-Danh-gia-hien-trang-tai-nguyen-nuoc-3428>
14. <https://123docz.net/trich-doan/2510223-hien-trang-moi-truong-khong-khi-thanh-pho-da-nang.htm>
15. <https://luanvan.co/luan-van/luan-van-danh-gia-hien-trang-va-de-xuat-giai-phap-giam-thieu-o-nhiem-moi-truong-khong-khi-tai-khu-cong-nghiep-hoa-khanh-68937/>
16. https://www.danang.gov.vn/web/guest/chinh-quyen/chi-tiet?id=51555&_c=49

17. <https://doanthanhvien.vn/tin-tuc/thanh-nien-tinh-nguyen/ngay-hoi-“thanh-nien-da-nang-chung-tay-bao-ve-bien-va-nguon-nuoc-dia-phuong-khoi-rac-thai-nhua”>
18. <https://baotainguyenmoitruong.vn/da-nang-len-ke-hoach-ung-pho-cac-su-co-xu-ly-rac-sinh-hoat-299385.html>
19. <http://chinhsach.dmpvc.gov.vn:8045/Uploads/Thu%20vien%20tai%20lieu/Bao%20cao/Bao%20cao%205%20nam%20CBM/da%20nang.compressed.pdf>
20. <https://tnmt.danang.gov.vn/thong-tin-chuyen-nganh/chi-tiet?id=2045&u=anhiaketquavacactontaihanchetrongcongtaquanlychatluongkhongkhitaicacothilon>