

# The Regulations of Protection Tourists in High-Risk Tourism Destination



Norma Sari <sup>a,\*</sup>, Choirul Fajri <sup>b</sup>, Sri Winiarti <sup>c</sup>, Ulaya Ahdiani <sup>b</sup>, Sonny Zulhuda <sup>d</sup>

<sup>a</sup>Faculty of Law, Universitas Ahmad Dahlan, Yogyakarta, Indonesia.

<sup>b</sup>Faculty of Literature, Culture, and Communication, Universitas Ahmad Dahlan, Yogyakarta, Indonesia.

<sup>c</sup>Faculty of Industrial Technology, Universitas Ahmad Dahlan, Yogyakarta, Indonesia.

<sup>d</sup>Ahmad Ibrahim Kulliyah of Law, International Islamic University of Malaysia, Kuala Lumpur, Malaysia.

\*Corresponding author: [norma.sari@law.uad.ac.id](mailto:norma.sari@law.uad.ac.id)

## ARTICLE INFO

### Article history

Received: September 22, 2024

Revised: December 7, 2024

Accepted: December 17, 2024

### Keywords

High Risk Tourism;  
Indonesia;  
Protect Consumers;  
Regulations;  
Tourism Destination;

## ABSTRACT

Indonesia is one of the tourism destination countries in the world. The Indonesian government should minimize the risk of tourism activities at high-risk tourist attractions. In the digital era, efforts to optimize tourist protection can be made with artificial intelligence. This study aims to study tourist protection regulations in high-risk tourist areas in Indonesia and compare tourist protection regulations developed by other countries such as the United States of America, Japan, India, and Thailand. This research uses empirical legal research, combining normative legal elements with additional empirical data or elements. The results of this research show that there are traveler protection regulations in Indonesia, but their implementation still needs to be improved. Indonesia needs to learn from other countries, such as the United States of America, Japan, India, and Thailand, which have used international standards and implemented Artificial Intelligence. Through the recommended models for using Artificial Intelligence by researchers, it is hoped that they will be able to optimize the protection of tourists at high-risk tourist attractions.



This is an open-access article under the [CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/) license.



## 1. Introduction

Indonesia is one of the tourism destination countries in the world. Tourism development is one leading and potential element of national establishment<sup>1</sup>. The tourism industry in Indonesia has been a significant driver of international tourist arrivals<sup>2</sup>. The natural beauty, culture, religious activities, and hospitality of the Indonesian people are factors that support tourism activities in Indonesia. The various tourism potentials that exist in Indonesia must continue to be developed to

<sup>1</sup> I Nyoman NURJAYA, 'Legal Policy Of Sustainable Tourism Development: Toward Community-Based Tourism In Indonesia', *Journal of Tourism Economics and Policy*, 2.3 (2022), 123–32 <https://doi.org/10.38142/jtep.v2i3.404>

<sup>2</sup> Wang Tz-Li, Muhammad Azizurrohmah, and Risky Angga Pramuja, 'Attracting Tourists to Indonesia: How SEZs and Visa-Free Policies Influence International Arrivals', *Journal of Policy Research in Tourism, Leisure and Events*, 2024, 1–19 <https://doi.org/10.1080/19407963.2024.2432634>

improve the community's economy<sup>3</sup>. This is as mandated by the 1945 Constitution of the Republic of Indonesia. In the Constitution, since 1978 the government has attempted to develop tourism through the Decree of the People's Consultative Assembly of The Republic of Indonesia No. IV/MPR/1978, which states that tourism needs to be improved and expanded to increase division revenues, increase employment opportunities, and introduce culture. Furthermore, in 1990, the Indonesian Government passed Law No. 9 of 1990 concerning tourism, however, this regulation could not fulfill various tourism interests, so in 2009 the government revised the regulation with Law No. 10 of 2009 concerning Tourism. One of the factors behind the birth of the Tourism Law is to give everyone the freedom to travel because traveling is part of human rights.

The government has a vital role in realizing people's need to travel and guaranteeing and protecting the rights of tourists as consumers<sup>4</sup>. However, along with various demands for developing leisure industry potential, tourists' rights are often ignored. One of them is the right to obtain legal protection due to tourism activities. As is the case in the Special Region of Yogyakarta (DIY) and Bali. These two tourism destination provinces in Indonesia have developed a lot of tourism potential but have high risks. Therefore, the number of accidents due to tourism activities in the two provinces has increased, as in Bali in 2021 there were 1,984 victims, in 2022 there were 3,620 victims, and in 2023 there were 7,467 victims<sup>5</sup>. Based on Interview with Tourism Regency, Yogyakarta in 2021 there were 5,350 victims, and in 2022 there will be 7,830 victims. Table 1 shows the data for 2023 related to accidents at tourist destinations based on the level of risk experienced in both DIY and Bali.

**Table 1.** Level of Risk and Types of Tourism in DIY and Bali

No	Types of Tourism	Level of Risk	Number of Cases	Province
1	Beach Tourism	Extreme	16	Bali
2	Beach Tourism	High	22	Bali
3	Beach Tourism	Middle	9	Bali
4	Zoo	Extreme	0	Bali
5	Zoo	High	0	Bali
6	Zoo	Middle	1	Bali
7	Natural tourism	Extreme	7	Bali
8	Natural tourism	High	0	Bali

<sup>3</sup> Agung Tryasnandi, Enok Maryani, and Rini Andari, 'Concept Of Community-Based Tourism Development In Situ Tandon Ciater', *Journal of Tourism Sustainability*, 3.2 (2023), 101–5 <https://doi.org/10.35313/jtospolban.v3i2.34>

<sup>4</sup> Zhicheng Guo and Yan Li, 'Analysis of the Decisive Factors of Government Attracting Tourists in Public Management from the Perspective of Environmental Protection', *Problemy Ekorozwoju*, 19.1 (2024), 285–95 <https://doi.org/10.35784/preko.5414>

<sup>5</sup> Badan Pusat Statistik Provinsi Bali, *Banyaknya Kecelakaan Lalu Lintas Di Provinsi Bali 2021-2023* (Bali, 2023). <https://bali.bps.go.id/id/statistics-table/2/MjUxIzI=/banyaknya-kecelakaan-lalu-lintas-di-provinsi-bali.html>

9	Natural tourism	Middle	1	Bali
10	Ride Tour	Extreme	8	Bali
11	Ride Tour	High	1	Bali
12	Ride Tour	Middle	3	Bali
13	River Tourism	Extreme	4	Bali
14	River Tourism	High	0	Bali
15	River Tourism	Middle	0	Bali
16	Culinary tour	Extreme	0	Bali
17	Culinary tour	High	0	Bali
18	Culinary tour	Middle	2	Bali
19	City Tour	Extreme	0	Bali
20	City Tour	High	0	Bali
21	City Tour	Middle	0	Bali
22	Mountain Tourism	Extreme	1	Bali
23	Mountain Tourism	High	0	Bali
24	Mountain Tourism	Middle	6	Bali
25	Beach Tourism	Extreme	11	DIY
26	Beach Tourism	High	11	DIY
27	Beach Tourism	Middle	2	DIY
28	Zoo	Extreme	0	DIY
29	Zoo	High	0	DIY
30	Zoo	Middle	0	DIY
31	Natural tourism	Extreme	6	DIY
32	Natural tourism	High	7	DIY
33	Natural tourism	Middle	4	DIY
34	Ride Tour	Extreme	0	DIY
35	Ride Tour	High	0	DIY
36	Ride Tour	Middle	1	DIY
37	River Tourism	Extreme	2	DIY
38	River Tourism	High	2	DIY
39	River Tourism	Middle	0	DIY
40	Culinary tour	Extreme	0	DIY
41	Culinary tour	High	0	DIY
42	Culinary tour	Middle	0	DIY
43	City Tour	Extreme	1	DIY
44	City Tour	High	3	DIY
45	City Tour	Middle	2	DIY
46	Mountain Tourism	Extreme	0	DIY
47	Mountain Tourism	High	1	DIY
48	Mountain Tourism	Middle	2	DIY

Based on the data in Table 1, the Indonesian government should minimize the risk of tourism activities at high-risk tourist attractions. In the digital era, efforts to optimize tourist protection can be made with artificial intelligence, such as the United States of America, Japan, and China. However, as a developing country, the Indonesian government needs help optimizing legal protection for tourists in high-risk tourist attractions. Budget limitations, lack of public understanding, and

limited infrastructure are inhibiting factors<sup>6</sup>. However, the Indonesian government must be able to learn from various other developed and developing countries to protect tourists at high-risk tourist attractions.

Based on previous studies, safety reminder information framed around potential losses is more effective at eliciting empathy in tourists, which in turn enhances their safety compliance, particularly among those with a strong sense of family identity. Given that this approach significantly influences safety compliance behavior, it is recommended that destinations utilize loss-based framing when creating and sharing safety reminders to promote adherence to safety guidelines<sup>7</sup>. Research has been conducted by experts on disaster risk reduction strategies in the Borobudur-Yogyakarta-Prambanan tourist region of Indonesia. This study emphasized the significant role of tourism in driving economic growth for many countries. However, tourist locations in disaster-prone areas are particularly vulnerable to the impacts of natural disasters. To address this, such regions require targeted interventions, plans, and policies designed to minimize disaster risks while ensuring the safety of both residents and visitors<sup>8</sup>.

Another discussion delves into the concept of open innovation, which has gained considerable recognition among academic and management practitioners over the past twenty years, as reflected in numerous scholarly publications. This evolving concept is increasingly relevant to the traveling industry, which, in response to challenges and shifting tourist expectations, seeks to accept new results not only at the organizational level but also by involving all participants within the service sector.

Researched comparatively with two dimensions, resolving the experts into tourism officials (Prague and Cracow) as well as public and private sectors officials. Experts from two similar excursion spots dissent in their opinions, both in terms of the accomplishments of the concept of open novelty in the city, as well as the range of administration of inventions. Conversely, while agents from the public and private sectors of the travel industry share differing opinions, they agree on key points. Although there is no consensus on whether initiatives should follow a bottom-up or top-down approach, they unanimously emphasize that the implementation of open creations must engage all participant within a tourism

---

<sup>6</sup> Ahmed Osama Daoud, Mohammed El Hefnawy, and Hossam Wefki, 'Investigation of Critical Factors Affecting Cost Overruns and Delays in Egyptian Mega Construction Projects', *Alexandria Engineering Journal*, 83 (2023), 326–34 <https://doi.org/10.1016/j.aej.2023.10.052>

<sup>7</sup> Jie Yin, Xingqin Qu, and Yensen Ni, 'The Influence of Tourism Destination Safety Reminder Information Frame on Tourists' Safety Compliance Behavior', *Safety Science*, 172.May 2023 (2024), 106422 <https://doi.org/10.1016/j.ssci.2024.106422>

<sup>8</sup> Erda Rindrasi, Kurnia Cahyaningrum Effendi, and Dian Silviani, 'Progress in Disaster Science Expert Perspectives on Disaster Risk Reduction Strategies in the Tourist Area of Borobudur-Yogyakarta-Prambanan in Indonesia', *Progress in Disaster Science*, 24.January (2024), 100379 <https://doi.org/10.1016/j.pdisas.2024.100379>

site<sup>9</sup>. Another researcher concluded that the beauty and tourism function's benefactions to the sense of place are positive and significant. Additionally, a sense of place affects traditional protection positively. Likewise, a sense of place mediates the positive relationship between heritage reservation and tourist involvement, esthetic spots, and tourism affairs<sup>10</sup>.

This study aims to study protection regulations in high-risk scenery areas in Indonesia. This study also compares protection regulations for foreign travelers constructed by developed and developing countries such as the United States of America, Japan, India, and Thailand. This study also aims to furnish recommendations for using Artificial Intelligence (AI) to protect tourists at high-risk attractions.

## 2. Research Method

This analysis uses empirical normative legal investigation, which combines normative lawful elements with the addition of empirical data<sup>11</sup>. Normative-empirical legal research uses case studies as behavioral products<sup>12</sup>. This method originates from printed favorable legal necessities that are applied to events in concrete in society, so in general, there are two stages, namely: the first is applicable normative law, and the second is an application to events in concrete to achieve the set goals<sup>13</sup>. The authors conducted this research method in two primary phases. The initial phase involved an assessment of pertinent legislation and regulations that pertain to the protection of visitors in Indonesia and other countries. The second was concerned with assessing the enforcement of these acts and guidelines, particularly in high-risk tourism zones. During this phase, the researcher conducted field observations in Bali and DIY and interviewed officials from the Tourism Department to gather thorough data on protection measures in risky tourist regions. The anticipated outcome of this research is to clarify the effectiveness of enforcing normative legal regulations and identifying prosperous regions and those requiring improvement. The document offers suggestions for implementing Artificial Intelligence to enhance tourist protection and optimize safety measures at high-risk attractions.

---

<sup>9</sup> Adam R Szromek and others, 'Analysis of the Opinions of Tourism Experts from Prague and Cracow', *Journal of Open Innovation: Technology, Market, and Complexity*, 9.1 (2023), 100005 <https://doi.org/10.1016/j.joitmc.2023.02.002>

<sup>10</sup> Jinwei Wang and others, 'Journal of Destination Marketing & Management Tourists ' Sense of Place and Heritage Protection When Visiting Natural Disaster Memorials', *Journal of Destination Marketing & Management*, 32.1 (2024), 100875 <https://doi.org/10.1016/j.jdmm.2024.100875>

<sup>11</sup> Jonaedi Efendi, Johnny Ibrahim, *Metode Penelitian Hukum: Normatif Dan Empiris* (Depok: Prenada Media Group, 2016).

<sup>12</sup> Muhamad Azhar Kornelius Benuf, 'Metodologi Penelitian Hukum Sebagai Instrumen Mengurai Permasalahan Hukum Kontemporer', *Jurnal Gema Keadilan*, 7.1 (2020). <https://doi.org/10.14710/gk.2020.7504>

<sup>13</sup> Nabilah Luthfiah Chusnida, 'Legal Protection of Tourists in High-Risk Tourism Activities According to Consumer Protection Law', *Jurnal Penelitian Hukum De Jure*, 23.1 (2023), 1 <https://doi.org/10.30641/dejure.2023.V23.1-14>

### 3. Results and Discussion

#### *Regulations for Protecting Tourists in Indonesia's High-Risk Tourism Destinations*

Indonesia has implemented a variety of regulations and policies to safeguard visitors, particularly in high-risk attractions. These include Law No. 10 of 2009 regarding Tourism, which requires the government and tourism businesses to provide safe and responsible services, as outlined in Articles 20 and 26. The Consumer Protection Law No. 8 of 1999 ensures the safety of visitors by mandating that tourism providers provide transparent information regarding potential hazards. The communication of hazards and the implementation of safety protocols in disaster-prone areas are mandated by disaster mitigation laws, such as Law No. 24 of 2007 concerning Disaster Management.

Safety standards for activities such as mountain mountaineering, white-water rafting, and marine tourism are established by supplementary regulations, including Minister of Tourism and Creative Economy Regulation No. 10 of 2010 and Regulation No. 6 of 2017. Regional Regulations, such as Bali Regional Regulation No. 5 of 2020 and Yogyakarta Special Region Regulation No. 2 of 2012, establish specific measures to guarantee safety, including evacuation routes and security in high-risk areas, such as coastal areas and volcanic zones. These laws collectively establish a comprehensive framework that ensures the safety of visitors in high-risk destinations.

Various regulations related to the protection of tourists in Indonesia as above, show that the Indonesian Government has made efforts to provide protection to tourists both in high, medium, and low-risk tourist destinations<sup>14</sup>. The Indonesian government has also formed a Ministry of Tourism that supervises tourists in high-risk areas. Meanwhile, the Tourism Office at the Provincial level is tasked with supervising medium-risk tourist areas, and the Tourism Office at the Regency/City level is tasked with supervising low-risk tourist areas.

The many existing regulations and the institutions that have been formed need to provide more protection for tourists in tourist areas in Indonesia. Many problems still need to be solved in various tourist attractions in Indonesia, especially in the Special Region of Yogyakarta and Bali. The various tourism potentials in these two provinces have attracted the attention of investors who want to develop tourism, especially natural tourism, which impacts tourist risks. For example, in Kulon Progo, Bantul, Sleman, and Gunung Kidul, many adrenaline-challenging rides are currently being developed in hilly areas prone to

---

<sup>14</sup> Muhamad Rizal and Yul Maulini, 'Development Of Indonesian Tourism Law In The Tourism Industry 4.0', *Social Values and Society*, 2.1 (2020), 09–15 <https://doi.org/10.26480/svs.01.2020.09.15>

landslides<sup>15</sup>. Likewise, many game arenas and resorts have been developed in Bali and the Ubud area. In September 2023, at Ayuterra Resort Ubud, there was an incident where the lift rope broke, which resulted in 5 deaths.

The administrations of the Yogyakarta Special Region (DIY) and Bali engage with numerous governmental institutions and local groups to enhance visitor protection in high-risk regions. This collaboration guarantees a thorough strategy for protecting tourists in high-risk locations. The department does not directly gather data on tourist incidents but depends on cooperation with local authorities, especially the police, to acquire essential information. Tourist incident reports are typically sent directly to law enforcement authorities. We need this data; however, if information on tourist accidents is required, we can solicit it from the police, who manage several tourism-related cases. Incidents differ by region; therefore, they consistently collaborate with local authorities, law enforcement, and the Disaster Management Agency. This collaborative structure guarantees the involvement of all pertinent stakeholders in overseeing and mitigating tourist safety, resulting in a more efficient and coordinated reaction to possible hazards in high-risk tourist regions.

Legal protection for tourists is critical to do. This must concern the central Government, local governments, tourism managers, the community, and tourists, especially in Yogyakarta and Bali. The Regional Government, through the Local Tourism Office, has made efforts related to the implementation as well as monitoring and evaluation of legal protection for tourists, especially in high-risk tourism areas. To ensure the implementation of legal protection for tourists, the Indonesian Government, through the Ministry of Tourism and Creative Economy, has carried out risk clustering in tourism activities and determined those responsible. High-risk tourism is the domain of the central government (Ministry of Tourism and Creative Economy), medium-risk tourism is the domain of the provincial government (Provincial Tourism Office), and low-risk tourism is the domain of the district/city government.

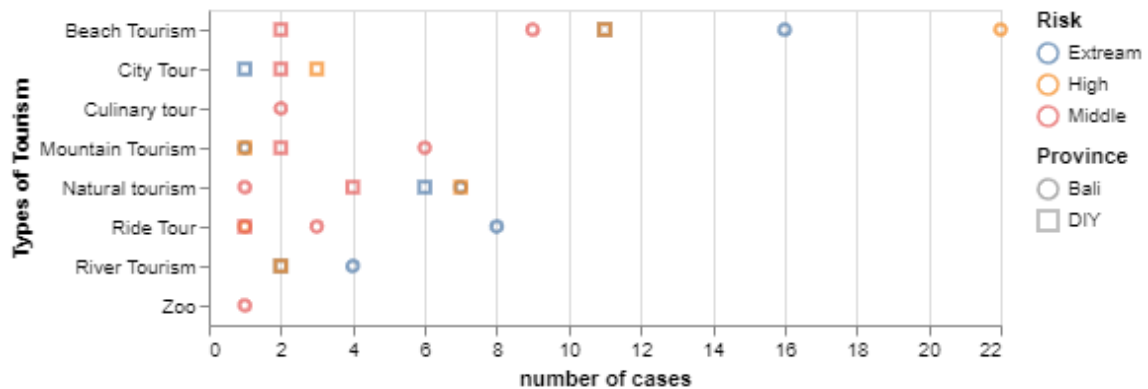
The DIY Tourism Office states that risk-based licensing in Indonesia is governed by Government Regulation 5 of 2021, which categorizes tourism zones into low, medium-high, and high-risk classifications, each necessitating varying degrees of control. This system encompasses 13 categories of tourism services, subdivided into 60 specialized services, each necessitating customized risk management strategies. In December 2023, the DIY Tourism Office performed a random risk assessment of tourism service companies. The findings indicated that several operators were disregarding guest safety, underscoring substantial deficiencies in risk reduction. Risk licensing relies on a low, medium-high, and

---

<sup>15</sup> Doriani Lingga, 'Analysis of Potentials and Strategies of Tourism Development at Mount Telomoyo', *Eko-Regional Jurnal Pengembangan Ekonomi Wilayah*, 13.1 (2018) <https://doi.org/10.20884/1.erjpe.2018.13.1.1158>

high-risk classification system and necessitates coordinated actions. Our latest risk assessment revealed that certain tourism service providers disregarded guest safety, necessitating more attention and support. This highlights the necessity for ongoing surveillance and improved supervision to guarantee strict compliance with safety measures throughout the sector.

In addition, efforts to improve the implementation of tourist protection in high-risk tourist attractions are also carried out by mapping the types of tourist destinations. The following is data on risk levels based on the kinds of tourist destinations in DIY and Bali.



**Figure 1.** Level of risk in destination tourism in DIY and Bali 2019-2024

Figure 1 shows that in the last 5 years, there have been 136 accident cases in tourist destinations in DIY and Bali based on seven groups of tourism types: nature tourism, beach tourism, rides tourism, city tourism, river tourism, culinary tourism, and zoo tourism. Based on Table 1 and Figure 1, the highest accident rate in tourist destination areas in DIY and Bali occurs in beach tourism. The types of risks are grouped into three levels: extreme, high, and middle. The grouping is obtained based on the activities and evidence of accidents that occur at tourist destinations. This is because the DIY and Bali regions geographically have many beaches that are interesting for domestic and foreign tourists. This data then becomes the basis for the Tourism Office in DIY and Bali to provide special treatment to tourist destinations with a high-risk level. Beach destinations are the local government's main priority in providing assistance and monitoring and evaluating tourist protection.

Socialization initiatives directed at tourist attraction managers and other stakeholders are implemented continuously to improve consumer protection in the tourism sector. These endeavors, which are coordinated by the Tourism Offices of Bali and DIY, also encompass tourism associations, sectors such as tour and travel agencies, and the aviation Socialization initiatives directed at tourist attraction managers and other stakeholders are implemented continuously to improve consumer protection in the tourism sector. These endeavors, which are coordinated by the Tourism Offices of Bali and DIY, also encompass tourism associations, sectors such as tour and travel agencies, and the aviation industry.



The Bali Tourism Office does not directly address visitors but is directed toward industry professionals and organizations. For instance, in 2022, the Bali provincial government implemented a socialization campaign focused on the "do's and don'ts" of tourists visiting the Bali region. Associations and airlines were provided with these guidelines to guarantee they were informed and could effectively communicate the regulations. Nevertheless, the resolution of tourist misconduct in Bali continues to be a distinct obstacle<sup>16</sup>. This method emphasizes the collaborative endeavor to promote ethical tourism by providing tourism stakeholders with the necessary knowledge and resources to manage visitor behavior effectively.

### ***Regulations for Protecting Tourists in Several Countries High-Risk Tourism Destinations***

Various countries have regulations to safeguard travelers, particularly in high-risk areas. According to researchers' analysis, these regulations typically include legal protections, safety standards, disaster mitigation systems, and rigorous oversight of tourism-related businesses. Several government institutions in the United States guarantee the protection of tourists. The National Park Service (NPS) manages high-risk natural attractions by enforcing safety standards, including warning signs, evacuation routes, and risk information, as well as the mandatory use of protective equipment for extreme activities. The Occupational Safety and Health Administration (OSHA) implements routine inspections to guarantee the security of tourist facilities and operators. Furthermore, the Federal Emergency Management Agency (FEMA)<sup>17</sup> assists in reducing risks in disaster-prone regions, such as Yellowstone National Park and hurricane-affected coastlines.

In the same vein, Japan has implemented specialized systems to protect visitors in regions that are susceptible to disasters<sup>18</sup>. The Disaster Countermeasures Basic Act requires safeguards for visitors in regions susceptible to earthquakes, tsunamis, and volcanic activity. These safeguards include evacuation routes and warning signs at attractions like Mount Fuji. Coastal regions receive early warnings from sophisticated technologies, including the Tsunami Warning System. Japan also mandates travel insurance for high-risk activities, such as skiing and mountain climbing, and requires tour operators to provide travelers

---

<sup>16</sup> Tia Mutiasari, 'Firm Sanctions for Misbehaving Tourists in Bali: Minister', *Antara News.Com* (Jakarta, September 2024) <https://en.antaranews.com/news/326355/firm-sanctions-for-misbehaving-tourists-in-bali-minister>

<sup>17</sup>FEMA, *National Disaster Recovery Framework*, 2024 [https://www.fema.gov/sites/default/files/documents/fema\\_national-disaster-recovery-framework-third-edition\\_2024.pdf](https://www.fema.gov/sites/default/files/documents/fema_national-disaster-recovery-framework-third-edition_2024.pdf)

<sup>18</sup> Sakiko Kanbara and Rajib Shaw, 'Disaster Risk Reduction Regime in Japan: An Analysis in the Perspective of Open Data, Open Governance', *Sustainability*, 14.1 (2021), 19 <https://doi.org/10.3390/su14010019>

with risk information. These measures illustrate that both countries prioritize the safety of tourists by implementing comprehensive regulations and practices.

Several developed countries, such as the United States and Japan, have adopted international standards in protecting tourists at high-risk tourist attractions, such as implementing UIAA standards (for mountain climbing) and ISO 21101 (for adventure tourism). Apart from that, developed countries also have travel insurance systems that cover various risks from high-risk activities. Developed countries have also utilized advanced technology, such as drones, Artificial Intelligence, and GPS, to monitor the safety of tourists and provide quick responses in emergencies. What is no less critical, developed countries have also implemented education by providing risk information safety procedures and prioritizing aspects of transparency in conveying risk data faced by tourists in various languages.

The above is, of course, different from developing countries. Developing countries face many challenges in protecting tourists at high-risk tourist destinations. Regulations in developing countries tend to vary, depending on the management level, economic capacity, and awareness of the importance of tourist safety. Despite the potential resource constraints that some developing countries may encounter, they have implemented fundamental regulations, safety policies, and community-based initiatives to safeguard visitors. India has instituted specific measures to ensure the safety of visitors, given its large population and diverse tourist attractions, as a developing nation. In 2018, the Guidelines for Adventure Tourism were implemented, which mandate that tour operators employ certified guides and provide sufficient safety apparatus for adventure activities like rafting and mountain climbing. Furthermore, the Disaster Management Act (2005) emphasizes the management of risks in tourist destinations susceptible to disasters, including the Himalayas, which are susceptible to floods and landslides. These initiatives underscore India's dedication to improving its tourism sector's safety standards and disaster preparedness.

Thailand, a prominent tourism destination in Southeast Asia, has established regulations and systems to prevent disasters and guarantee the safety of high-risk tourist attractions<sup>19</sup>. Protecting visitors from illegal tourism operators and fostering safety in marine tourism are the objectives of the Tourism Business and Guide Act (2008). Thailand's Marine Safety Regulations, in addition to establishing safety standards at tourist destinations, include the provision of life jackets, hazard warning signs, and other amenities to improve the safety of tourists. Thailand is dedicated to ensuring the security of its visitors, particularly in its popular coastal and marine tourism regions, as evidenced by these measures.

---

<sup>19</sup> Vilas Nitivattananon and Sirinapha Srinonil, 'Enhancing Coastal Areas Governance for Sustainable Tourism in the Context of Urbanization and Climate Change in Eastern Thailand', *Advances in Climate Change Research*, 10.1 (2019), 47–58 <https://doi.org/10.1016/j.accre.2019.03.003>

As a developing nation, Indonesia can benefit from the policies and procedures of countries with more sophisticated regulations and tourist protection systems<sup>20</sup>. Indonesia can fortify its tourism safety framework by implementing international standards, enhancing supervision at high-risk tourist attractions, and improving early warning systems. Nevertheless, these endeavors encounter numerous substantial obstacles. The development of critical safety infrastructure, including evacuation routes and early warning apparatus, is frequently impeded by budget constraints. Furthermore, the pursuit of optimal protection is further complicated by a need for more safety awareness among visitors and administrators of tourist attractions. Tourists frequently need more comprehension of potential hazards, while managers may need to implement sufficient safety measures. Inconsistent safety standards are another obstacle, as not all developing countries, including Indonesia, have uniform regulations for high-risk activities. Finally, Indonesia's capacity to implement state-of-the-art safety measures is further constrained by technological constraints, including restricted access to advanced systems such as AI-powered early warnings or drone monitoring. It is imperative to overcome these challenges to improve the protection of tourists in Indonesia.

Developing countries like Indonesia must be aware of various obstacles to optimize protection at high-risk tourist attractions<sup>21</sup>. Developing countries can take strategic steps in this effort, such as: a). Increasing safety infrastructure, namely by installing warning signs in disaster-prone areas, b). providing regular education and public awareness by giving tourists various outreach and safety training, c). Establish international cooperation to improve tourist safety and d). Implementing mandatory insurance where several developing countries such as Nepal and Thailand have required travel insurance for high-risk activities<sup>22</sup>.

### ***Artificial Intelligence (AI) for Tourist Legal Protection in High-Risk Tourism Destinations***

Artificial intelligence (AI) has been cited as one of the most essential tools in business, from enhancing customer experiences to managing risk and protecting consumers. AI can be used to strengthen customer service, such as using AI-driven chatbots for interactive and personalized communications before concluding sales<sup>23</sup>. Tourism industries can improve demand forecasting via AI's

---

<sup>20</sup> Basuki Antariksa and others, 'Towards Advanced Tourism Development in Indonesia: A Critical Review of Free-Visa Policy', *Aspirasi: Jurnal Masalah-Masalah Sosial*, 15.1 (2024) <https://doi.org/10.46807/aspirasi.v15i1.3822>

<sup>21</sup> Putu Devi Rosalina and others, 'Rural Tourism Resource Management Strategies: A Case Study of Two Tourism Villages in Bali', *Tourism Management Perspectives*, 49 (2023), 101194 <https://doi.org/10.1016/j.tmp.2023.101194>

<sup>22</sup> V.M Bier, 'On the State of the Art: Risk Communication to the Public', *Reliability Engineering & System Safety*, 71.2 (2001), 139–50 [https://doi.org/10.1016/S0951-8320\(00\)00090-9](https://doi.org/10.1016/S0951-8320(00)00090-9)

<sup>23</sup> Lilis Sulastris, 'The Role of Artificial Intelligence in Enhancing Customer Experience: A Case Study of Global E-Commerce Platforms', *International Journal of Science and Society*, 5.3 (2023), 451–69 <https://doi.org/10.54783/ijssoc.v5i3.1257>

predictive capabilities, resulting in more efficient resource allotment and cost savings. Subsequently, such enhanced experience enables audience targeting and further personalizes content, and finally, all this results in higher engagement and conversion rates. On top of those, AI has been an essential factor in upgrading the management of tourist attractions, event planning, and travel insurance underwriting. This capability consequently contributes to improved visitor experiences and operational efficiency. AI in the tourism industry can significantly empower customer satisfaction by improving the timeliness, creativity, and knowledge of service<sup>24</sup>. The study finds out that companies in the tourism industry confirm the need to leverage their business by maximizing the benefits of AI.

Even though tourism is one of those industries that benefit mainly from the efficiency of AI, such a phenomenon is open to risks and problems. Ethical concerns, including AI bias and potential job displacement, are seen as the dark side of AI. This led many to believe that developing a responsible AI is crucial in tourism. The legal and ethical framework for privacy, fairness, and transparency in AI algorithms is vital. Given those potentials and risks, using AI for business (such as tourism) takes work. To ensure AI delivers the desired results, we must ensure the proper implementation of such technology. AI development, deployment, and utilization must be done within an appropriate governance framework. Key domains of AI governance include accountability and transparency, explainability, interpretability and reproducibility, fairness and inclusiveness, privacy, and safety of end users, as well as the prevention of risks and cyber security of the AI systems<sup>25</sup>.

This issue of AI governance has invited many governments to come up with some legislative and policy direction measures, as we can see in some jurisdictions like the European Union and Malaysia<sup>26</sup>. The EU AI Act, for example, enumerates key principles to ensure that the development, deployment, and use of AI would ensure everyone's protection by establishing a risk-based regulatory framework<sup>27</sup>. In Malaysia, there is no similar legislation specifically on AI. Still, the Government

---

<sup>24</sup> Claudio Zancan, João Luiz Passador, and Claudia Souza Passador, 'Artificial Intelligence (AI) in the Management of Inter-Municipal Tourism Consortia', *Open Journal of Business and Management*, 11.04 (2023), 1454–78 <https://doi.org/10.4236/ojbm.2023.114080>

<sup>25</sup> Mark Anthony Camilleri, 'Artificial Intelligence Governance: Ethical Considerations and Implications for Social Responsibility', *Expert Systems*, 41.7 (2024) <https://doi.org/10.1111/exsy.13406>

<sup>26</sup> Daniel Mügge, 'EU AI Sovereignty: For Whom, to What End, and to Whose Benefit?', *Journal of European Public Policy*, 31.8 (2024), 2200–2225 <https://doi.org/10.1080/13501763.2024.2318475>

<sup>27</sup> European Union, *Regulation (Eu) 2024/1689 Of The European Parliament And Of The Council* (European Union, 2024) [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L\\_202401689#d1e1907-1-1](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689#d1e1907-1-1).

is developing a critical policy on the ethical use of AI that will apply across industries<sup>28</sup>.

The EU Artificial Intelligence Act delineates the primary requirements for developing high-risk AI systems, focusing on accountability, transparency, and safety. The establishment and maintenance of a comprehensive risk management system, the use of adequately developed training, validation, and testing datasets, and the preparation of technical documentation that must remain current before market introduction are all part of these requirements. Additionally, high-risk AI systems must incorporate mechanisms for human intervention through appropriate human-machine interfaces, guarantee transparent operation to facilitate proper use by deployers and integrate automatic event logging throughout their lifecycle. Furthermore, these systems must exhibit high cybersecurity, robustness, and accuracy. The significance of robust governance in the responsible and safe utilization of AI innovation is underscored by these requirements. These measures emphasize the necessity of comprehensive regulation to optimize AI's advantages and mitigate potential risks from a European perspective. This study emphasizes Indonesia's necessity to establish a comprehensive legal, regulatory, and governance framework for integrating AI into business operations, focusing on the safety and well-being of its customers.

The author creates a developing model, artificial intelligence, to address legal problems in which the implementation of legal protection in high-risk tourism destinations has not worked optimally. The proposed model is below:

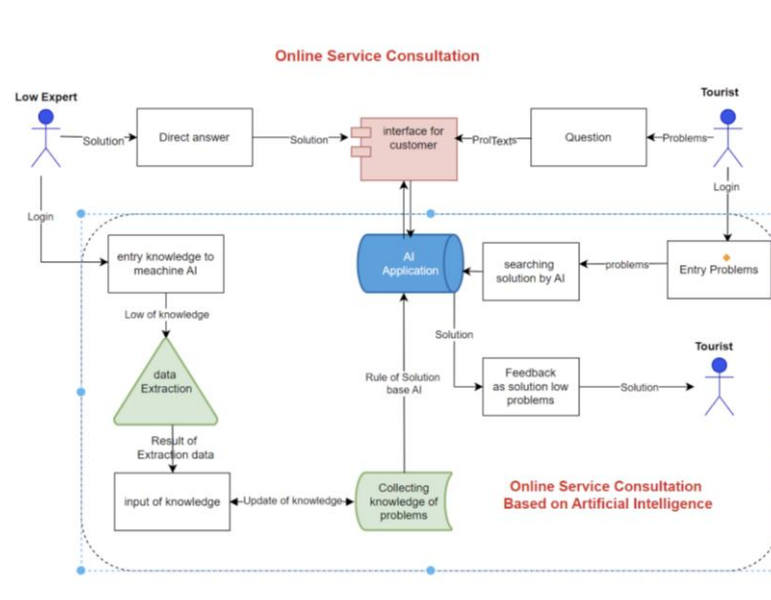


Figure 2. Model Artificial Intelligence

<sup>28</sup> Dodo Ruvic, 'Malaysia Developing AI Code of Ethics and Governance, to Be Ready by 2024', *Channelnewsasia.Com* (Kuala Lumpur, 2023) <https://www.channelnewsasia.com/asia/malaysia-artificial-intelligence-ai-code-ethics-governance-technology-3836801>

Consumer Services application. The first model is called online-based legal consultation, while the second is called legal aid services using Artificial Intelligence (AI). For the online-based service model, tourists can ask legal experts directly regarding problems faced in the tourist areas they visit; then, the legal experts will immediately provide answers. This process will, of course, be delayed because legal experts will not be present at all times, which will later be scheduled in the system. For the AI-based legal service model, problems raised by travelers can be addressed at any time because the machine's answers are as long as it is connected to the internet. Legal Experts, as a source of knowledge, are responsible for providing legal knowledge to handle legal problems in the tourist areas of Yogyakarta and Bali. After the knowledge is collected from legal experts, it will be extracted into rules, a form of knowledge representation called Rules of Production IF-THEN (situation-action) or rule-based reasoning. In the context of artificial intelligence, production rules are the main component that makes a very significant contribution to building and applying knowledge<sup>29</sup>.

In AI, knowledge representation is closely related to reasoning, which is obtaining new information from existing knowledge. Reasoning allows AI systems to make logical inferences, draw conclusions, and solve problems<sup>30</sup>. The knowledge that has been extracted and stored in an artificial intelligence (AI) computer machine can be used by the machine/computer to extract problems inputted by tourists (users) when consulting the AI application. This process is called consultation with an AI application called an Expert System. Users will be able to ask questions regarding legal problems and get solutions as if they were consulting with a legal expert. In developing an Expert system, its components need to be considered: a knowledge base, working memory, reasoning engine, translator, and human-computer interaction interface<sup>31,32</sup>. In creating an AI-based model of a legal protection system for tourists in high-risk tourist areas in this research, a knowledge base was built by conducting interviews with experts from the Ministry of Tourism Offices to build a knowledge base and crawling data through websites.

Regarding developing AI applications for the legal sector, regulations and control of the law enforcement system for using technological devices that apply in

---

<sup>29</sup> Anamitra Kanjilal, 'Knowledge Representation in Artificial Intelligence', *International Journal Of Intelligent Systems And Applications In Engineering*, 12.4 (2024), 2227–38 <https://www.ijisae.org/index.php/IJISAE/article/view/6577/5428>

<sup>30</sup> Christopher Collins and others, 'Artificial Intelligence in Information Systems Research: A Systematic Literature Review and Research Agenda', *International Journal of Information Management*, 60 (2021), 102383 <https://doi.org/10.1016/j.ijinfomgt.2021.102383>

<sup>31</sup> Haocheng Tan, 'A Brief History and Technical Review of the Expert System Research', *IOP Conference Series: Materials Science and Engineering*, 242 (2017), 012111 <https://doi.org/10.1088/1757-899X/242/1/012111>

<sup>32</sup> Promise Nierum Edward Ogheneovo, 'Knowledge Representation in Artificial Intelligence and Expert Systems Using Inference Rule', *International Journal of Engineering Research*, 11.4 (2020). [https://www.ijser.org/research-paper-publishing-april-2020\\_page4.aspx](https://www.ijser.org/research-paper-publishing-april-2020_page4.aspx)

Indonesia must be considered. In addition, there needs to be a careful and planned approach to overcome these limitations in Indonesia, although the implementation of AI offers excellent potential to improve the legislative process<sup>33</sup>. The application of AI for business purposes requires considering codes of ethics and policies when developing AI applications for legal protection. AI changes how tourist destinations operate, providing better service to visitors and providing long-term benefits for local communications and the environment<sup>34</sup>.

The Indonesian government accepts the role of AI in creating works and formulates a limited legal entity status created by AI. The government provides exclusive rights, copyright protection, moral rights, and economic rights to people or groups of people who produce AI because their contribution to society and the government is highly expected<sup>35</sup>. AI can be a solution for the government to meet the demands of public services in an era of disruption and complete automation. Artificial intelligence technology can speed up the public service process, reduce bureaucracy, validate data, and increase efficiency and quality of service. In this context, artificial intelligence can help the government to provide better, faster, and more responsive public services amidst changing times.

#### 4. Conclusion

There are already laws and regulations that aim to regulate the protection of tourists at high-risk tourist attractions in Indonesia. However, in its implementation, many problems were faced by the Indonesian government in its efforts to optimize tourist protection. The large number of accident cases that occur due to tourism activities indicates the weak implementation of tourist protection regulations at tourist attractions. Several factors cause less than optimal implementation of tourist protection at risky tourist attractions in Indonesia, such as budget limitations, limited infrastructure, and weak understanding of the community. As a developing country, Indonesia must learn from other countries such as the United States of America, Japan, India, and Thailand, where these countries have used international standards to protect tourists at high-risk tourist attractions. Developed countries like the United States, European Union, and Japan have also utilized artificial intelligence technology to optimize consumer protection. Therefore, the use of Artificial Intelligence is essential. Through the recommended models for using Artificial Intelligence by researchers, it is hoped

---

<sup>33</sup> Sri Winiarti, Miftahurrahma Rosyda, and Cindy Mayeza Putri, 'Pemetaan Kehartabendaan Muhammadiyah Untuk Optimalisasi Sistem Sistem Informasi Aset Dengan Penerapan Kecerdasan Buatan', *Sainteks*, 20.1 (2023), 71 <https://doi.org/10.30595/sainteks.v20i1.14537>

<sup>34</sup> Abdul Kadir Jaelani and others, 'Artificial Intelligence Policy in Promoting Indonesian Tourism', *Volkgeist: Jurnal Ilmu Hukum Dan Konstitusi*, 2024, 109–37 <https://doi.org/10.24090/volkgeist.v7i1.10623>

<sup>35</sup> Ranti Fauza Mayana and others, 'Legal Issues of Artificial Intelligence – Generated Works: Challenges on Indonesian Copyright Law', *Law Reform*, 20.1 (2024), 54–75 <https://doi.org/10.14710/lr.v20i1.61262>

that they will be able to optimize the protection of tourists at high-risk tourist attractions.

## 5. Acknowledgments

We want to extend our gratitude to the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia for funding this research under Grant No. 107/E5/PG.02.00.PL/2024, 0609.12/LL5-INT/AL.04/202 dan 094/PFR/LPPM-UAD/VI/2024. We would also like to thank Universitas Ahmad Dahlan, the DIY Tourism Office, and the Bali Provincial Tourism Office for the support provided and various parties who have helped carry out this research.

## References

- Anamitra Kanjilal, 'Knowledge Representation in Artificial Intelligence', *International Journal Of Ntelligent Systems And Applications In Engineering*, 12.4 (2024), 2227–38 <https://www.ijisae.org/index.php/IJISAE/article/view/6577/5428>
- Antariksa, Basuki, Addin Maulana, Rakhman Priyatmoko, and Siti Hamidah, 'Towards Advanced Tourism Development in Indonesia: A Critical Review of Free-Visa Policy', *Aspirasi: Jurnal Masalah-Masalah Sosial*, 15.1 (2024) <https://doi.org/10.46807/aspirasi.v15i1.3822>
- Bali, Badan Pusat Statistik Provinsi, *Banyaknya Kecelakaan Lalu Lintas Di Provinsi Bali 2021-2023* (Bali, 2023) <https://bali.bps.go.id/id/statistics-table/2/MjUxIzI=/banyaknya-kecelakaan-lalu-lintas-di-provinsi-bali.html>
- Bier, V.M, 'On the State of the Art: Risk Communication to the Public', *Reliability Engineering & System Safety*, 71.2 (2001), 139–50 [https://doi.org/10.1016/S0951-8320\(00\)00090-9](https://doi.org/10.1016/S0951-8320(00)00090-9)
- Camilleri, Mark Anthony, 'Artificial Intelligence Governance: Ethical Considerations and Implications for Social Responsibility', *Expert Systems*, 41.7 (2024) <https://doi.org/10.1111/exsy.13406>
- Chusnida, Nabilah Luthfiyah, 'Legal Protection of Tourists in High-Risk Tourism Activities According to Consumer Protection Law', *Jurnal Penelitian Hukum De Jure*, 23.1 (2023), 1 <https://doi.org/10.30641/dejure.2023.V23.1-14>
- Collins, Christopher, Denis Dennehy, Kieran Conboy, and Patrick Mikalef, 'Artificial Intelligence in Information Systems Research: A Systematic Literature Review and Research Agenda', *International Journal of Information Management*, 60 (2021), 102383 <https://doi.org/10.1016/j.ijinfomgt.2021.102383>
- Daoud, Ahmed Osama, Mohammed El Hefnawy, and Hossam Wefki, 'Investigation of Critical Factors Affecting Cost Overruns and Delays in Egyptian Mega Construction Projects', *Alexandria Engineering Journal*, 83 (2023), 326–34 <https://doi.org/10.1016/j.aej.2023.10.052>



- Dodo Ruvic, 'Malaysia Developing AI Code of Ethics and Governance, to Be Ready by 2024', *Channelnewsasia.Com* (Kuala Lumpur, 2023) <https://www.channelnewsasia.com/asia/malaysia-artificial-intelligence-ai-code-ethics-governance-technology-3836801>
- Jonaedi Efendi, Johnny Ibrahim, *Metode Penelitian Hukum: Normatif Dan Empiris* (Depok: Prenada Media Group, 2016)
- Edward Ogheneovo, Promise Nierum, 'Knowledge Representation in Artificial Intelligence and Expert Systems Using Inference Rule', *International Journal of Engineering Research*, 11.4 (2020) [https://www.ijser.org/research-paper-publishing-april-2020\\_page4.aspx](https://www.ijser.org/research-paper-publishing-april-2020_page4.aspx)
- European Union, *REGULATION (EU) 2024/1689 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL* (European Union, 2024) [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L\\_202401689#d1e1907-1-1](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689#d1e1907-1-1).
- FEMA, *National Disaster Recovery Framework*, 2024 [https://www.fema.gov/sites/default/files/documents/fema\\_national-disaster-recovery-framework-third-edition\\_2024.pdf](https://www.fema.gov/sites/default/files/documents/fema_national-disaster-recovery-framework-third-edition_2024.pdf)
- Guo, Zhicheng, and Yan Li, 'Analysis of the Decisive Factors of Government Attracting Tourists in Public Management from the Perspective of Environmental Protection', *Problemy Ekorozwoju*, 19.1 (2024), 285–95 <https://doi.org/10.35784/preko.5414>
- Jaelani, Abdul Kadir, Resti Dian Luthviati, Ahmad Siboy, Sholahuddin Al Fatih, and Muhammad Jihadul Hayat, 'Artificial Intelligence Policy in Promoting Indonesian Tourism', *Volksgeist: Jurnal Ilmu Hukum Dan Konstitusi*, 2024, 109–37 <https://doi.org/10.24090/volksgeist.v7i1.10623>
- Kanbara, Sakiko, and Rajib Shaw, 'Disaster Risk Reduction Regime in Japan: An Analysis in the Perspective of Open Data, Open Governance', *Sustainability*, 14.1 (2021), 19 <https://doi.org/10.3390/su14010019>
- Kornelius Benuf, Muhamad Azhar, 'Metodologi Penelitian Hukum Sebagai Instrumen Mengurai Permasalahan Hukum Kontemporer', *Jurnal Gema Keadilan*, 7.1 (2020) <https://doi.org/10.14710/gk.2020.7504>
- Lingga, Doriani, 'Analysis of Potentials and Strategies of Tourism Development at Mount Telomoyo', *Eko-Regional Jurnal Pengembangan Ekonomi Wilayah*, 13.1 (2018) <https://doi.org/10.20884/1.erjpe.2018.13.1.1158>
- Mayana, Ranti Fauza, Tisni Santika, Yin Yin Win, Jamil Adrian Khalil Matalam, and Ahmad M Ramli, 'Legal Issues of Artificial Intelligence – Generated Works: Challenges on Indonesian Copyright Law', *LAW REFORM*, 20.1 (2024), 54–75 <https://doi.org/10.14710/lr.v20i1.61262>

- Mügge, Daniel, 'EU AI Sovereignty: For Whom, to What End, and to Whose Benefit?', *Journal of European Public Policy*, 31.8 (2024), 2200–2225 <https://doi.org/10.1080/13501763.2024.2318475>
- Nitivattananon, Vilas, and Sirinapha Srinonil, 'Enhancing Coastal Areas Governance for Sustainable Tourism in the Context of Urbanization and Climate Change in Eastern Thailand', *Advances in Climate Change Research*, 10.1 (2019), 47–58 <https://doi.org/10.1016/j.accre.2019.03.003>
- NURJAYA, I Nyoman, 'Legal Policy Of Sustainable Tourism Development: Toward Community-Based Tourism In Indonesia', *Journal of Tourism Economics and Policy*, 2.3 (2022), 123–32 <https://doi.org/10.38142/jtep.v2i3.404>
- Rindrasih, Erda, Kurnia Cahyaningrum Effendi, and Dian Silviani, 'Progress in Disaster Science Expert Perspectives on Disaster Risk Reduction Strategies in the Tourist Area of Borobudur-Yogyakarta-Prambanan in Indonesia', *Progress in Disaster Science*, 24.January (2024), 100379 <https://doi.org/10.1016/j.pdisas.2024.100379>
- Rizal, Muhamad, and Yul Maulini, 'Development Of Indonesian Tourism Law In The Tourism Industry 4.0', *Social Values and Society*, 2.1 (2020), 09–15 <https://doi.org/10.26480/svs.01.2020.09.15>
- Rosalina, Putu Devi, Karine Dupre, Ying Wang, I. Nyoman Darma Putra, and Xin Jin, 'Rural Tourism Resource Management Strategies: A Case Study of Two Tourism Villages in Bali', *Tourism Management Perspectives*, 49 (2023), 101194 <https://doi.org/10.1016/j.tmp.2023.101194>
- Sulastri, Lilis, 'The Role of Artificial Intelligence in Enhancing Customer Experience: A Case Study of Global E-Commerce Platforms', *International Journal of Science and Society*, 5.3 (2023), 451–69 <https://doi.org/10.54783/ijsoc.v5i3.1257>
- Szromek, Adam R, Zygmunt Kruczek, Bartłomiej Walas, and Grzegorz Polok, 'Analysis of the Opinions of Tourism Experts from Prague and Cracow', *Journal of Open Innovation: Technology, Market, and Complexity*, 9.1 (2023), 100005 <https://doi.org/10.1016/j.joitmc.2023.02.002>
- Tan, Haocheng, 'A Brief History and Technical Review of the Expert System Research', *IOP Conference Series: Materials Science and Engineering*, 242 (2017), 012111 <https://doi.org/10.1088/1757-899X/242/1/012111>
- Tia Mutiasari, 'Firm Sanctions for Misbehaving Tourists in Bali: Minister', *Antara News.Com* (Jakarta, September 2024) <https://en.antaranews.com/news/326355/firm-sanctions-for-misbehaving-tourists-in-bali-minister>
- Tryasnandi, Agung, Enok Maryani, and Rini Andari, 'Concept Of Community-

- Based Tourism Development In Situ Tandon Ciater', *Journal of Tourism Sustainability*, 3.2 (2023), 101–5 <https://doi.org/10.35313/jtospolban.v3i2.34>
- Tz-Li, Wang, Muhammad Azizurrohman, and Risky Angga Pramuja, 'Attracting Tourists to Indonesia: How SEZs and Visa-Free Policies Influence International Arrivals', *Journal of Policy Research in Tourism, Leisure and Events*, 2024, 1–19 <https://doi.org/10.1080/19407963.2024.2432634>
- Wang, Jinwei, Zhihua Zhou, Ting Lei, Jie Sun, Hong Zhang, and Lili Qian, 'Journal of Destination Marketing & Management Tourists ' Sense of Place and Heritage Protection When Visiting Natural Disaster Memorials', *Journal of Destination Marketing & Management*, 32.1 (2024), 100875 <https://doi.org/10.1016/j.jdmm.2024.100875>
- Winiarti, Sri, Miftahurrahma Rosyda, and Cindy Mayeza Putri, 'Pemetaan Kehartabendaan Muhammadiyah Untuk Optimalisasi Sistem Sistem Informasi Aset Dengan Penerapan Kecerdasan Buatan', *Sainteks*, 20.1 (2023), 71 <https://doi.org/10.30595/sainteks.v20i1.14537>
- Yin, Jie, Xingqin Qu, and Yensen Ni, 'The Influence of Tourism Destination Safety Reminder Information Frame on Tourists ' Safety Compliance Behavior', *Safety Science*, 172.May 2023 (2024), 106422 <https://doi.org/10.1016/j.ssci.2024.106422>
- Zancan, Claudio, João Luiz Passador, and Claudia Souza Passador, 'Artificial Intelligence (AI) in the Management of Inter-Municipal Tourism Consortia', *Open Journal of Business and Management*, 11.04 (2023), 1454–78 <https://doi.org/10.4236/ojbm.2023.114080>