



Coordination Of The Department Of Culture And Tourism In The Management Of Attractions Damnah Palace Lingga Regency

E. Nurkumla Sari¹, Mustiqowati Ummul Fitriyyah²
Universitas Islam Negeri Sultan Syarif Kasim Riau

Correspondence: mustiqoumulfitria@gmail.com

Received: November, 7, 2025 | Revised: November, 17, 2025 | Accepted: December, 8, 2025

ABSTRACT:

Background: Damnah Palace in Lingga Regency is an important cultural heritage to be preserved and developed as a tourist attraction. Management is carried out through coordination between the Department of Culture and the Department of Tourism. The main problems faced include a decrease in visits (2020-2021), less than optimal promotion, limited facilities, and governance that has not been maximized. Effective coordination between the two agencies is crucial to maintain cultural values and increase tourism attractiveness.

Aims: The purpose of this study was to determine the extent of coordination between the Department of Culture and tourism in managing attractions Damnah Palace.

Methods: Research using qualitative descriptive methods. Data were collected through observation, interviews, and documentation. The main informants consisted of representatives of the Department of Culture, the Department of Tourism, and tourists.

Result: The results showed that the coordination has influenced the communication of information and promotion is quite good, but it needs innovation and completeness of Information Facilities on site, increasing awareness of knowledge and commitment of high implementers, shown by the routine annual cultural events and support continuity of planning (there is a feedback mechanism (feedback) and changes in management, as well as encouraging community participation.

Conclusion: Overall, the Coordination of the Department of Culture and tourism in the management of Damnah Palace is quite good. Nevertheless, improvements are recommended in the aspects of using technology (websites), adding facilities, and delivering information. It is also recommended to improve coordination in providing feedback and involving the private sector and the wider community for more effective and efficient management.

Keyword: Coordination, Tourism Management, Damnah Palace

Cite this article: Sari E.N. Fitriyyah M.U (2025). The Motivation of the South Sumatra Provincial Government in Promoting Culture and Tourism through International Events. *Culture, Art and Tourism Reviews*, 1(2), 59-67.
This article is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License ©2025 by author/s

INTRODUCTION

Tourism development currently has a high urgency as an instrument of regional development, which focuses on economic growth, improving people's welfare, and community-based empowerment of local communities(Lv et al., 2024; Sengoz et al., 2025; Tong et al., 2024; Zhao et al., 2024). Dalam konteks Kabupaten Lingga, Pengelolaan Objek Wisata Istana Damnah menjadi sangat krusial(Chemin et al., 2025; Chwaja et al., 2025; Zhong et al., 2025). Damnah Palace not only serves as a recreational destination, but also an important cultural heritage for history, science, and culture(Larsson, 2025; Li et al., 2025; Privitera et al., 2025; Puig, 2025). Therefore, the management of this attraction must be carried out in an integrated and sustainable manner, ensuring that tourism development efforts run in harmony with the mandate of preserving cultural heritage for future generations, making it an urgent topic for research(Gîrbacia, 2024; Guzman, 2025; He et al., 2025).

Ideally, the management of a cultural attraction such as Damnah Palace should result in a significant increase in tourist arrivals, massive promotion, availability of adequate facilities, and professional governance, while ensuring the integrity of the historic site(Mishra & Lourenço, 2024; Tiribelli et al., 2024; Y. Zhang et al., 2024). Namun, kondisi nyata di lapangan menunjukkan adanya kesenjangan yang cukup nyata(Boboc et al., 2022; Uzelac & Lovrinić Higgins, 2025; K. Zhang et al., 2025). Data shows a decline in tourist arrivals in 2020-2021. In addition, the promotion of this attraction is considered less than optimal, there are limited facilities that affect the comfort of visitors, and overall, the governance of Damnah Palace is considered less than optimal(Innocente et al., 2023; Reshma et al., 2023; X. Zhang et al., 2022). Kesenjangan antara harapan dan realitas inilah yang menjadi dasar bagi perlunya intervensi dan analisis mendalam(Cranmer et al., 2023; Hou et al., 2022; Mekonnen et al., 2022).

The Damnah Palace in Lingga Regency is an important cultural heritage that needs to be preserved and developed as a tourist attraction. However, in reality, there is a significant gap which is the main focus of this research. The decline in tourist visits during 2020-2021, suboptimal promotion, and limited facilities indicate that governance has not been maximized. This gap inherently involves the responsibilities of two different entities: the Culture Office (focusing on conservation/preservation) and the Tourism Office (focusing on economic utilization/development), where the potential conflict of mandate between preservation and commercialization becomes a crucial reason to establish coordination as the key variable of the study. Although external factors like the COVID-19 pandemic may have influenced the decline in visits during the 2020-2021 period, this research focuses on the idea that suboptimal coordination between the two agencies is the internal root cause leading to promotion, facilities, and overall governance being unprepared and unable to respond to crisis conditions or utilize post-crisis potential. This lack of coordination thus disrupts the program synergy essential for the successful management of the tourist object (Variable Y). Therefore, the originality of this study is to analyze coordination including its indicators of communication, awareness, and planning continuity as a determining variable that can explain operational failure in achieving the dual objectives (conservation and tourism development).

The existence of a gap between the ideal potential and the real conditions in the Damnah Palace opens up great opportunities for this study to be carried(Azzopardi et al., 2023; Sesana et al., 2021). Emerging issues, such as declining visitation and weak promotion, inherently involve the responsibility of two distinct governmental entities: the Department of Culture (focus on preservation) and the Department of Tourism (focus on development). This condition creates an opportunity to analyze and evaluate how the two institutions interact and harmonize their work

programs. Thus, this study can provide a comprehensive overview of the mechanisms used to address governance issues through the resolution of coordination issues.

Although many studies have examined Tourism Policy and cultural heritage management, there is still a research gap in the case study of cultural tourism Object Management involving two institutions with different functions, especially in the scope of local government. The novelty of this study lies in its focus on coordination as a key variable that influences the success or failure of governance. This study not only addresses management issues in general, but specifically analyzes the three main indicators of communication coordination, awareness, and planning continuity as an effort to produce an effective and efficient coordination model in the context of culture and tourism in Lingga Regency.

The selection of the Coordinating variable of the Department of Culture and tourism as variable X (independent variable) is based on the assumption that the management of cultural attractions is a multisectoral task. The Department of Culture has the mandate of conservation and protection of historical values, while the Department of Tourism is responsible for economic utilization and development. The successful management of Istana Damnah (variable Y) is highly dependent on the ability of these two agencies to synergize programs, divide roles, and align goals without any overlap or conflict of interest. Therefore, coordination is a determining variable that must be investigated to identify the root cause of the management conditions that are less than optimal.

The main purpose of this study was to determine and describe how the coordination between the Department of Culture and the Department of Tourism in the management of attractions Damnah Palace in Lingga District has been implemented. In theoretical contribution, this research is expected to enrich the treasury of Public Administration science, especially in the study of coordination between local government organizations and cultural heritage management. Meanwhile, the practical contribution of this research is to provide concrete and measurable recommendations to the Lingga Regency government, especially the Department of Culture and tourism, as a foundation for formulating more integrated, effective, and efficient policies to improve the competitiveness of Damnah Palace as a cultural tourist destination.

METHOD

Research Design

Penelitian ini menggunakan desain Penelitian Deskriptif Kualitatif(Haryono, 2023). Qualitative methods were chosen to understand in depth the complex and unique social phenomena, namely the coordination process between two government agencies (Department of Culture and tourism) in the management of tourist attractions. Descriptive research aims to provide a systematic, factual, and accurate description of the facts, properties, and relationships between the phenomena studied. In this context, this design is used to describe the potential, conditions, obstacles, and results of coordination in efforts to preserve and develop the Damnah Palace in Lingga Regency.

This study employed a descriptive qualitative research method to gain an in-depth understanding of the subject. The sampling technique used was Purposive Sampling, aimed at selecting key informants deemed most knowledgeable regarding the coordination process. These informants comprised implementers from the Culture Office (focused on preservation) and the Tourism Office (focused on development), along with tourists who provided a validation perspective as service users. The primary research instrument utilized was a structured and semi-structured Interview Guide. This guide was explicitly designed to explore the three core indicators

of coordination: Communication (which covers the flow of information, promotional innovation, and the completeness of facilities on-site), Awareness (related to implementer commitment and the execution of joint activities), and Planning Continuity (including mechanisms for feedback and program adjustments).

Participant

Key participants (informants) in this study are the parties who are directly involved in the process of coordination and management of attractions Damnah Palace. The informants include: a) Officials/staff from the Lingga Regency Culture Office who are responsible for the preservation of Cultural Heritage; b) officials/staff from the Lingga Regency Tourism Office who are authorized in the development and promotion of Tourism; and c) tourists who have visited the Damnah Palace. The selection of informants aims to obtain a comprehensive perspective from the side of policy implementers and service users (community/tourists).

Population and the methods of sampling Instrumentation (sample of questions, scoring method, and psychometric properties (validity and reliability)

The population of this study are all elements involved in the management of the Palace Damnah, namely the internal Department of Culture and tourism, as well as external parties such as visitors. The Sampling technique used is Purposive Sampling, where informants are selected based on certain criteria that are considered the most knowledgeable and have in-depth information related to coordination problems. In the qualitative context, the main instrumentation in this study is the researcher himself (Human Instrument), which acts as a data collector as well as a field analyzer. To ensure the trustworthiness or credibility (validity and reliability) of qualitative data, data triangulation techniques are carried out, namely by comparing information obtained from interviews, observations, and documents.

Instrument

The instruments used in this study are qualitative data collection instruments consisting of three types. First, the Interview Guide (Interview Guide) which contains a list of structured and semi-structured questions that focus on coordination indicators (communication, awareness, and continuity of planning). Second, observation guidelines are used to record and observe directly the physical condition of the Damnah Palace, facilities, and interactions between the service and tourists. Third, documentation in the form of collecting official documents, reports, visit data, and regulations related to the management of tourist attractions and coordination of the two agencies.

Procedures and if relevant, the time frame

This research procedure begins with the preliminary stage (determination of location and licensing), followed by the stage of data collection in the field. Data collection was conducted through in-depth interviews, participatory observations, and documentation studies. After the data collected, the study continued to the data analysis phase. Based on existing records, research in the field was carried out around April 2024 at the location of the Damnah Palace tourist attraction, Daik, Lingga regency, Riau Islands province. The procedure is carried out iteratively, in which the data obtained are temporarily analyzed to guide the subsequent collection of data until reaching the saturation point.

Analysis plan

The data analysis plan used is a qualitative data analysis model. Once the data from interviews, observations, and documentation is collected, the analysis process involves three main stages (like Miles and Huberman's model): First, Data reduction, which is the process of sorting, focusing, simplifying, and transforming the rough data. Second, the presentation of Data (Data

Display), which presents data in the form of descriptive narratives, matrices, or charts for easy understanding. Third, conclusion Drawing and verification (Conclusion Drawing/Verification), which is the initial conclusion which is then verified again through data review and triangulation to reach a credible final conclusion about the effectiveness of coordination between the two agencies.

RESULTS AND DISCUSSION

Result

The results showed that the Coordination of the Department of Culture and tourism in the management of the Damnah Palace as a whole has been in the category of good enough. These results are supported by findings on three main indicators of coordination. First, in communication indicators, information has been conveyed well, especially in terms of preservation, but there are still shortcomings in innovation and completeness of public information (such as information boards and digital promotional media). Second, indicators of awareness of the importance of coordination show a high commitment from the implementers, evidenced by the routine implementation of annual activities and cultural events at the Damnah Palace. Third, indicators of planning continuity indicate the existence of a feedback mechanism (feedback) from the community and program adjustments, although the feedback mechanism still needs to be intensified. The findings reinforce that the two agencies have been working to align the mandates of cultural protection and Tourism Development.

Overall, the findings indicate that the Coordination between the Culture Office and the Tourism Office in the management of Damnah Palace falls into the "fairly good" category. This is primarily supported by the high level of awareness and commitment among the implementers, which is evident in the joint execution of cultural activities and annual events. However, this level of coordination becomes suboptimal as it faces significant challenges in technical implementation, specifically concerning the indicators of communication and facility availability. These shortcomings manifest in the minimal innovation in digital promotion, such as the absence of a professionally managed official website for integrated information, as well as the limitations of physical on-site information facilities. This includes a lack of detailed information boards regarding history and chronology, and the absence of interactive media (such as QR codes) needed to enhance the visitor experience. It is these operational deficiencies rather than merely the commitment at the policy level that directly contribute to the decline in tourist visits and constitute the main focus of the recommended improvements.

Discussion

Although coordination in general was "quite good," the discussion underscored the gap between high-level commitments and operational results on the ground. Success in building awareness of the importance of coordination becomes a strong foundation, which is manifested in the implementation of joint events. However, the biggest challenge is in the aspect of communication and limited facilities, which led to a decrease in tourist arrivals. This indicates that effective coordination not only requires formal meetings and agreements, but must also translate into optimal operational actions, such as website updates, physical infrastructure upgrades, and more aggressive promotional strategies. Without optimization at this level of implementation, the dual goal (preservation and improvement of the economy) will not be achieved to the maximum, and the underlying problem of research (decrease in visits) will remain.

Although the findings indicate that coordination falls into the "fairly good" category, the discussion reveals an operational-theoretical gap where high-level commitment fails to translate into optimal implementation actions. This aligns with studies on multi-sectoral governance that emphasize the

importance of clear roles and processes. The greatest challenge lies in the communication and facility aspects, underscoring the need for a coordination model that is more than just a formality. Instead, it must involve detailed and binding Standard Operating Procedures (SOPs) for Damnah Palace, covering workflow, clear budget allocation, and a joint evaluation mechanism. As a policy implication, the formal responsibility for developing and enforcing these integrated coordination SOPs which align the mandates of conservation (Culture Office) and tourism development (Tourism Office) must be explicitly assigned to the highest authority in Lingga, specifically the Regent (Bupati) or the Regional Secretary (Sekretaris Daerah) of Lingga Regency. This is essential to ensure accountability and the effectiveness of policy implementation across all local government organizations.

Implications

This research has two main implications. The policy implication is the need for the Lingga Regency government to develop a detailed and binding Standard Operating Procedure (SOP) for coordination between the Department of Culture and the Department of Tourism. This SOP should include workflows, clear budget sharing, and a joint evaluation mechanism for each program at Istana Damnah, so that it does not rely solely on personal initiative. The managerial implication is the need for emphasis on technical-operational aspects. Managers from both agencies should prioritize solving low-hanging fruit issues, such as facility maintenance and Information Technology Optimization, which directly impact the tourist experience.

Research contribution

The contribution of this research is twofold. His theoretical contribution lies in the enrichment of the public administration literature, particularly in the study of inter-organizational governance and the management of cultural heritage. This study provides an empirical model of how coordination occurs between two institutions with potentially conflicting mandates (conservation vs. commercialization). The practical contribution of this research is to provide a specific roadmap for the Lingga Regency government. The findings of the shortcomings in the aspects of communication and feedback can be used as a direct basis for the formulation of a more focused and targeted annual Work program, so as to overcome the problem of systematic decline in visits.

Limitations

The main limitation of this study is its descriptive qualitative nature and focus on a single case study (Istana Damnah), so its findings are difficult to generalize widely to other attractions outside the context of Lingga Regency. Moreover, the data obtained largely depend on the subjective perception of informants (Service officials and tourists), which may well affect the objectivity of the results. The study also did not include an in-depth analysis of budget variables and bureaucratic structures, which are important factors in the success of coordination, thus limiting the overall understanding of the structural barriers encountered.

Suggestions

Based on the results and discussion, there are two main suggestions. Advice for practitioners (related services), immediately improve the physical facilities and information infrastructure, including updating and managing the official website professionally, and installing adequate information boards on site. Expand and formalize coordination by involving external parties, such as the private sector (for investment) and local communities (for events and feedback) on a regular basis. Suggestions for further research to conduct quantitative research to statistically measure the causal relationship between coordination variables with the level of tourist arrivals.

Conduct comparative studies with other attractions that also involve coordination between different agencies to compare the most effective coordination models.

CONCLUSION

The conclusion of this study shows that the Coordination of the Department of Culture and tourism in the management of attractions Damnah Palace in Lingga Regency in general has been in a fairly good category. This is supported by the findings that both agencies have shown high awareness and commitment to the importance of coordination, as well as the implementation of joint annual activities. However, this level of coordination is still not optimal because it faces significant challenges in the aspects of communication and availability of facilities. There are still shortcomings in information delivery innovation, the lack of physical information facilities on site, and the lack of intensive feedback mechanisms from the public. Therefore, although the foundation for coordination has been established, operational effectiveness in addressing the decline in tourist arrivals and improving the visitor experience still requires structural improvements, especially in the use of Technology, additional facilities, and increased involvement of external parties. This study indicates that the Coordination between the Culture Office and the Tourism Office in managing Damnah Palace is generally in the "fairly good" category. This is supported by the high level of awareness and commitment from both agencies. However, the coordination is not yet optimal as it faces significant challenges in the aspects of communication, information innovation, and the availability of on-site facilities.

AUTHOR CONTRIBUTION STATEMENT

ENS is the sole author of this thesis. ENS is fully responsible for all aspects of research, including: problem formulation, literature review, research methodology design (qualitative descriptive), data collection in the field through interviews and observations, data analysis, initial manuscript writing, and final revision until the completion of this thesis.

REFERENCES

Azzopardi, E., Kenter, J. O., Young, J., Leakey, C., O'Connor, S., Martino, S., Flannery, W., Sousa, L. P., Mylona, D., Frangoudes, K., Béguier, I., Pafi, M., da Silva, A. R., Ainscough, J., Koutrakis, M., da Silva, M. F., & Peter, C. (2023). What are heritage values? Integrating natural and cultural heritage into environmental valuation. *People and Nature*, 5(2), 368–383. <https://doi.org/10.1002/pan3.10386>

Boboc, R. G., Bătu, E., Gîrbacia, F., Popovici, N., & Popovici, D.- M. (2022). Augmented Reality in Cultural Heritage: An Overview of the Last Decade of Applications. *Applied Sciences*, 12(19), 9859. <https://doi.org/10.3390/app12199859>

Chemin, M., Silva, C. P. da, & Vikou, S. V. de P. (2025). *User-generated content (UGC) in tourist attractions and destinations: Systematic literature review and perspectives for management*. <https://doi.org/10.25145/j.pasos.2025.23.036>

Chwaja, K., Chwaja, B., Marczak, I., & Kruczak, Z. (2025). Accessibility of Tourist Attractions for Individuals with Disabilities as a Factor in the Development of Inclusive Tourism: Example of the Świętokrzyskie Region—Poland. *Sustainability*, 17(9), 3853. <https://doi.org/10.3390/su17093853>

Cranmer, E. E., tom Dieck, M. C., & Jung, T. (2023). The role of augmented reality for sustainable development: Evidence from cultural heritage tourism. *Tourism Management Perspectives*, 49, 101196. <https://doi.org/10.1016/j.tmp.2023.101196>

Gîrbacia, F. (2024). An Analysis of Research Trends for Using Artificial Intelligence in Cultural Heritage. *Electronics*, 13(18), 3738. <https://doi.org/10.3390/electronics13183738>

Guzman, P. (2025). Cultural heritage in climate planning: An analysis of the Norwegian national climate documents and guidelines. *Journal of Cultural Heritage*, 74, 35–47. <https://doi.org/10.1016/j.culher.2025.05.003>

Haryono, E. (2023). Qualitative Research Methodology In Islamic Religious Universities. *An-Nuur*, 13(2). <https://doi.org/10.58403/annuur.v13i2.301>

He, Z., Su, J., Chen, L., Wang, T., & Lc, R. (2025). "I Recall the Past": Exploring How People Collaborate with Generative AI to Create Cultural Heritage Narratives. *Proc. ACM Hum.- Comput. Interact.*, 9(2), CSCW108:1-CSCW108:30. <https://doi.org/10.1145/3711006>

Hou, Y., Kenderdine, S., Picca, D., Egloff, M., & Adamou, A. (2022). Digitizing Intangible Cultural Heritage Embodied: State of the Art. *J. Comput. Cult. Hermit.*, 15(3), 55:1-55:20. <https://doi.org/10.1145/3494837>

Innocente, C., Ulrich, L., Moos, S., & Vezzetti, E. (2023). A framework study on the use of immersive XR technologies in the cultural heritage domain. *Journal of Cultural Heritage*, 62, 268–283. <https://doi.org/10.1016/j.culher.2023.06.001>

Larsson, F. (2025). THE ROLE OF MEMORY IN SHAPING COLLECTIVE CULTURAL HERITAGE. *European Review of Contemporary Arts and Humanities*, 1(1), 12–15.

Li, S., Li, S., Nang Fong, L. H., & Li, Y. (2025). When intangible cultural heritage meets modernization—Can Chinese opera with modernized elements attract young festival-goers? *Tourism Management*, 107, 105036. <https://doi.org/10.1016/j.tourman.2024.105036>

Lv, F., Wu, Q., Ren, H., Zhou, W., & Li, Q. (2024). On the design and analysis of long-term low-carbon roadmaps: A review and evaluation of available energy-economy-environment models. *Renewable and Sustainable Energy Reviews*, 189, 113899. <https://doi.org/10.1016/j.rser.2023.113899>

Mekonnen, H., Bires, Z., & Berhanu, K. (2022). Practices and challenges of cultural heritage conservation in historical and religious heritage sites: Evidence from North Shoa Zone, Amhara Region, Ethiopia. *Heritage Science*, 10(1), 172. <https://doi.org/10.1186/s40494-022-00802-6>

Mishra, M., & Lourenço, P. B. (2024). Artificial intelligence-assisted visual inspection for cultural heritage: State-of-the-art review. *Journal of Cultural Heritage*, 66, 536–550. <https://doi.org/10.1016/j.culher.2024.01.005>

Privitera, A. G., Fontana, F., & Geronazzo, M. (2025). The Role of Audio in Immersive Storytelling: A Systematic Review in Cultural Heritage. *Multimedia Tools and Applications*, 84(16), 16105–16143. <https://doi.org/10.1007/s11042-024-19288-4>

Puig, D. (2025). Social limits to adaptation in the context of intangible cultural heritage. *Current Opinion in Environmental Sustainability*, 77, 101569. <https://doi.org/10.1016/j.cosust.2025.101569>

Reshma, M. R., Kannan, B., Jagathy Raj, V. P., & Shailesh, S. (2023). Cultural heritage preservation through dance digitization: A review. *Digital Applications in Archaeology and Cultural Heritage*, 28, e00257. <https://doi.org/10.1016/j.daach.2023.e00257>

Sengoz, A., Dogru, T., Mody, M., & Isik, C. (2025). Guiding the path to sustainable tourism development: Investigating the role of tour guides within a social exchange theory paradigm. *Tourism Management*, 110, 105162. <https://doi.org/10.1016/j.tourman.2025.105162>

Sesana, E., Gagnon, A. S., Ciantelli, C., Cassar, J., & Hughes, J. J. (2021). Climate change impacts on cultural heritage: A literature review. *WIREs Climate Change*, 12(4), e710. <https://doi.org/10.1002/wcc.710>

Tiribelli, S., Panson, S., Frontoni, E., & Giovanola, B. (2024). Ethics of Artificial Intelligence for Cultural Heritage: Opportunities and Challenges. *IEEE Transactions on Technology and Society*, 5(3), 293–305. <https://doi.org/10.1109/TTS.2024.3432407>

Tong, J., Li, Y., & Yang, Y. (2024). System Construction, Tourism Empowerment, and Community Participation: The Sustainable Way of Rural Tourism Development. *Sustainability*, 16(1), 422. <https://doi.org/10.3390/su16010422>

Uzelac, A., & Lovrinić Higgins, B. (2025). From Data to Impact: Assessing the Value of Cultural Heritage in the Digital Age. *Heritage*, 8(4), 117. <https://doi.org/10.3390/heritage8040117>

Zhang, K., Sun, X., & Li, G. (2025). Virtual influencer and cultural heritage destination: Endorsement effectiveness of virtual versus human influencers. *Annals of Tourism Research*, 110, 103873. <https://doi.org/10.1016/j.annals.2024.103873>

Zhang, X., Yang, D., Yow, C. H., Huang, L., Wu, X., Huang, X., Guo, J., Zhou, S., & Cai, Y. (2022). Metaverse for Cultural Heritages. *Electronics*, 11(22), 3730. <https://doi.org/10.3390/electronics11223730>

Zhang, Y., Zheng, Q., Tang, C., Liu, H., & Cui, M. (2024). Spatial characteristics and restructuring model of the agro-cultural heritage site in the context of culture and tourism integration. *Heliyon*, 10(9). <https://doi.org/10.1016/j.heliyon.2024.e30227>

Zhao, X., Li, T., & Duan, X. (2024). Studying tourism development and its impact on carbon emissions. *Scientific Reports*, 14(1), 7463. <https://doi.org/10.1038/s41598-024-58262-w>

Zhong, H., Zou, Y., Hao, F., Fang, Y., & Ng, W. (2025). Shaping safety: Effective signage for tourist attractions. *Tourism Management*, 110, 105186. <https://doi.org/10.1016/j.tourman.2025.105186>