



Tourism assistance through an example of content innovation programs at Kedung Gajah Sentolo: A robot demonstration

Indar Surahmat^{a,1,*}, Ikbar Kausar Rustan^{a,2}, Satria Giri Kusuma^{a,3}

^a Department of Electrical Engineering, Universitas Muhammadiyah Yogyakarta, Jalan Brawijaya Tamantirto Kasihan Bantul, Yogyakarta 55183, Indonesia

¹ indar.surahmat@umy.ac.id*; ² ikbar.kausar.ft21@mail.umy.ac.id; ³ satria.giri.ft21@mail.umy.ac.id

* Corresponding author

ARTICLE INFO	ABSTRACT
<p>Article history Received: 2023-02-06 Revised: 2023-05-173 Accepted: 2023-05-17 Published: 2023-06-20</p> <p>Keywords Tourism Recovery Sustainability Robot demonstration Financial benefit</p>	<p><i>The recovery programs of a tourism sector attract huge attention currently. After relaxation of travel restrictions, tourism stakeholders carry out some crucial actions. It includes the concept of participation of local authorities and residents. They formed groups of people who care about tourism "pokdarwis (kelompok sadar wisata)". Some community service programs have also contributed to the development. Those programs mostly provided training for tourism stakeholders such as managing a tourist attraction and digital marketing. Rarely, the program includes a real case of tourism content innovation how to attract visitors. This community service program took place in "Kedung Gajah" in Sentolo village and in collaboration with Pokdarwis Gerbang Sentolo. As a new tourism object, Kedung Gajah Sentolo requires some views of content innovation, and its operator needs to expand its visitor number. Therefore, this program was intended to provide an assistance to solve both problems. But, beside an assistance, this program also gave a real event. Three main steps were done including observations, coordination between the community service team and the operator of Kedung Gajah and performing a robot demonstration. The observation step resulted some recommendation on the development of Kedung Gajah. Furthermore, in the period of preparation, at least five meetings were conducted to exchange and share information. Finally, the robot demonstration could attract more than 500 people visited the object and these visitors gave benefit to the turnover more than five million rupiah from culinary in estimation.</i></p>
<p>Kata kunci Pariwisata Pemulihan Keberlanjutan Demonstrasi robot Keuntungan finansial</p>	<p>Pendampingan wisata melalui contoh program inovasi konten di Kedung Gajah Sentolo: Demonstrasi robot. Program pemulihan sektor pariwisata mendapatkan perhatian secara serius akhir-akhir ini. Setelah adanya relaksasi kebijakan perjalanan, pegiat sektor pariwisata melakukan beberapa langkah penting. Dalam hal ini, partisipasi pemerintah dan penduduk lokal suatu daerah juga termasuk. Mereka membentuk kelompok sadar wisata (pokdarwis). Beberapa program pengabdian masyarakat berkontribusi secara umum dalam bentuk pelatihan untuk pegiat pariwisata seperti manajemen pariwisata dan pemasaran secara digital. Sangat jarang, program yang menjangkau contoh aplikasi langsung inovasi konten wisata untuk menarik pengunjung. Pengabdian masyarakat ini bertempat di "Kedung Gajah" di Desa Sentolo dan berkolaborasi dengan Pokdarwis Gerbang Sentolo. Sebagai destinasi wisata baru, Kedung Gajah Sentolo memerlukan banyak wawasan inovasi konten wisata dan pengelola berusaha untuk meningkatkan jumlah pengunjung. Oleh karena itu, program ini ditujukan untuk melakukan pendampingan penyelesaian kedua permasalahan tersebut. Akan tetapi, disamping pendampingan, program ini juga menjangkau contoh nyata. Dalam pelaksanaan, program pengabdian melakukan tiga langkah yang terdiri dari observasi, koordinasi antara tim pengabdian dan pengelola, dan menyelenggarakan demonstrasi robot. Proses observasi menghasilkan beberapa rekomendasi untuk pengembangan wisata Kedung Gajah. Sementara itu, pada saat proses persiapan demonstrasi, tim pengabdian dan pengelola sudah melakukan pertemuan paling tidak 5 kali. Hasilnya, demonstrasi robot dapat menarik pengunjung wisata sejumlah lebih dari 500 orang dan kunjungan ini memberikan keuntungan perputaran uang dari layanan kuliner dengan estimasi lebih dari lima juta rupiah.</p> <p style="text-align: right;">Copyright © 2023, Surahmat et al. This is an open access article under the CC-BY-SA license</p> <div style="text-align: right;">  </div>

How to cite: Surahmat, I., Rustan, I. K., & Kusuma, S. G. (2023). Tourism assistance through an example of content innovation programs at Kedung Gajah Sentolo: A robot demonstration. *Journal of Community Service and Empowerment*, 4 (2), 229-235. <https://doi.org/10.22219/jcse/v4i2.24995>

INTRODUCTION

Tourism is one of focus fields for improving financial capacity of communities currently. It includes generating income and providing opportunity for new jobs (World Bank, 2018). In 2017, the report showed the proportion of 10.4 GDP worldwide. Unfortunately, pandemic situation influenced this condition to the contraction up to 65 reductions on tourist arrivals (Behsudi, 2020). Indonesia, which also focuses on this field, is undeniable influenced by the situation. Some regions which are greatly dependent on tourism such as Bali and Yogyakarta lost their potential income during the pandemic. Purdey (2022) wrote that Bali have its 70% of economy on tourism and in 2021 only received 45 international tourists. Although not as bad as Bali, KRJogja (2020) reported that Yogyakarta has lost 67 billion from the tourism sector.

Some recovery programs have been implemented to increase the number of visitors. It is done by stakeholders that involve government, tourism agents, and transportation companies. Government implemented policies that stimulate visitors perform travel. One of them, for example, is relaxing travel requirements that previously made people reluctant to perform travel. Moreover, almost all restrictions are now retracted, while health protocols and vaccinations remain in effect (Kementerian Kesehatan, 2022). As a result, tourism agents and transportation companies have their confidence to generate traveling traffics (Novianto, 2023). Routes and traveling packages are re-offered.

On the other hand, those recoveries are also greatly responded by tourism societies. A lot of tourism objects which were closed is now open for visitors. In addition, some new tourism destination objects were also introduced. In district level, local authorities and with their inhabitants form new local tourism communities to be more focus in this field. These communities, then, look for some objects that are potentially opened for tourism.

This situation make tourism is competitive. It means that tourism operators who are responsible directly for tourism objects must have good innovation to attract visitors. Knowledge and experiences of running services are crucial. To get more specific, innovation skills on marketing and creating contents is one of them. A good marketing skill provides assurance a tourism object is known and visited by tourists as well as sustainability of the object (Sharpley and Pierce, 2007). In addition, a well innovation skill of designing contents ensure people always experience new perception while visiting. Manhas et. al (2016) used the term "memorable experience" in this context. Visitors satisfaction may increase the potential for them to come again in the future (Ritchie, 2011).

In Sentolo, a village in Kulon Progo, Yogyakarta formed "Pokdarwis (kelompok sadar wisata)" which means a group of people who care for tourism. This group called "Pokdarwis Gerbang Sentolo". It has some sub-group namely "sub-pokdarwis" and in the community service location, which is in Jangkang Kidul, a sub-village in Sentolo, the group gave name "Sub-pokdarwis Pesona Sentolo". This group has responsibility as the operator of the management of "Kedung Gajah", a new tourist attraction.

As a new tourism object, "Kedung Gajah" is also experiencing some classical problems described above. Therefore, this community service program has scopes in two main aspects. First, this program share knowledge about designing a new innovative content potentially offered by "Kedung Gajah". Second, this program provides a real implementation of the content innovation. The program chose robot demonstration for some reasons.

Previous community services have provided some views on how to manage a tourism destination. Sarmiadi et. al (2021), Osei and Nyarko (2022) and Fajri et. al (2022) are some examples. Their community service programs stressed on increasing knowledge of stakeholders about tourism potentials. Sarmiadi et. al (2021) and Fajri et. al (2022) reported that Pokdarwis was also formed to elevate the goal. But, those community services stopped at the training and preparation of stakeholders on how to manage object. The operator often experiences lack of confidence and feel underestimate for running programs. They worry about number of visitors and the cost they are spending.

Fitriastuti et. al (2022) proposed the use of digital marketing to optimize a tourism object known by tourists. This option is now widely known by people when they want to introduce something digitally and is not a big issue. Almost all smartphone holders have at least one social media account. In addition, Wijaya et. al (2022) gave some views on optimizing website to deliver more information for targeted customers. On the same hand, Yudhiasta and Mijiarto (2023) provided training contained some steps to create digital contents for tourism-object operators. Similarly, the operator of Kedung Gajah have provided a special team for the digital marketing. They only have problem on what contents should be uploaded or posted in their account. Hence, this program gives more attention on providing a direct example on designing tourism contents by performing a real event through a robot demonstration to attract visitors.

As defined by World Trade Organization (WTO), tourism is a part of strategic industries in 2030 sustainable development agenda (UN, 2015). Pratt (2022) emphasized the relation of tourism with the agenda on some points. The relation can be positive or negative. The example of positive benefits includes the potential of creating jobs and incomes, while the drawbacks, as Scott (2021) mentioned is climate change issue if the tourism poorly managed. This community service program is a part of supports to those agenda by contributing to the local communities who focus on the goal, especially creating jobs and revenues as mentioned in the sustainable development goal point 8 and 12. The program did not stop at this point, but communication to the Kedung Gajah operator will be kept for a long-term concept of development.

METHOD

As briefly introduced in the introduction section, three main steps of this community service are provided in more details as the followings.

Observation step

Sudarti and Triyono (2022) divided the process of observation until getting result into four steps. Those are observation, data collection, data analysis and finally getting result. This program merged all those steps in observation activities. These activities were done in both digitally by browsing on internet and direct observations. By browsing on internet, especially on some well-known social medias, the program searched for some contents mentioning “Kedung Gajah” as a tourism object. It collected information about the number of photos and reviews made and uploaded by its visitors. On the other hand, data collections which were directly taken from the field was also conducted. The activities included taking pictures in some spots, interviewing the local operator, and monitoring the location in certain periods. This step result is beneficial for short- and long-term program of the tourism object development.

Meeting and discussion with local operators

A series of meetings with the stakeholders of this tourism object were hold. It includes both formal and informal meetings. The goal of this step is to gather information on some programs which have been implemented as well as planned for future actualization. Furthermore, an analysis can be made on the provided information. Potential problems and obstacles of the programs are two important aspects of the evaluation. In addition, the observation step result can provide additional views in the meetings.

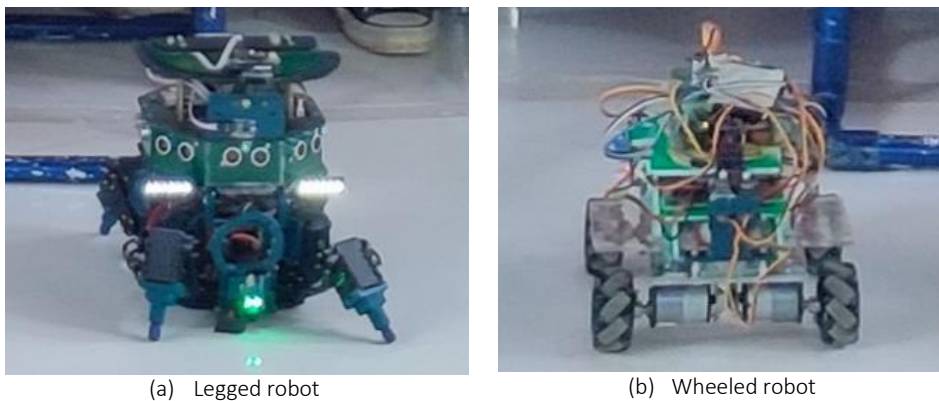


Figure 1. Type of robots used in the demonstration

Real implementation of program innovation

As a novelty of this community service, besides assistance, the program must provide a case of real content innovation. Based on scientific background, a robot demonstration program was selected. The other reason why this activity was chosen is that robotic is interesting currently. Some robotic competitions always grab huge attention globally. In Indonesia, for instance, some prestigious contests held by Ministry of Education-Culture-Research-and-Technology are followed by some universities every year. Unfortunately, it remains expensive to be accessed by people widely, or in other word, it is still an exclusive interest. By running a robot exhibition, the program expected that a lot of visitors are willing to spend their time in Kedung Gajah. In addition, there are some robots available in electrical engineering department of UMY. These robots were used in some robotic contests previously; therefore, this demonstration did not require much time for preparation. Figure 1 shows two-type robots used in the program.

RESULTS AND DISCUSSION

This community service program had been prepared in more than two months started November 2022. It started with informal communication between personals in Department of Electrical Engineering UMY and members of sub-pokdarwis Pesona Sentolo. Some early inputs and requests were communicated between two parties.

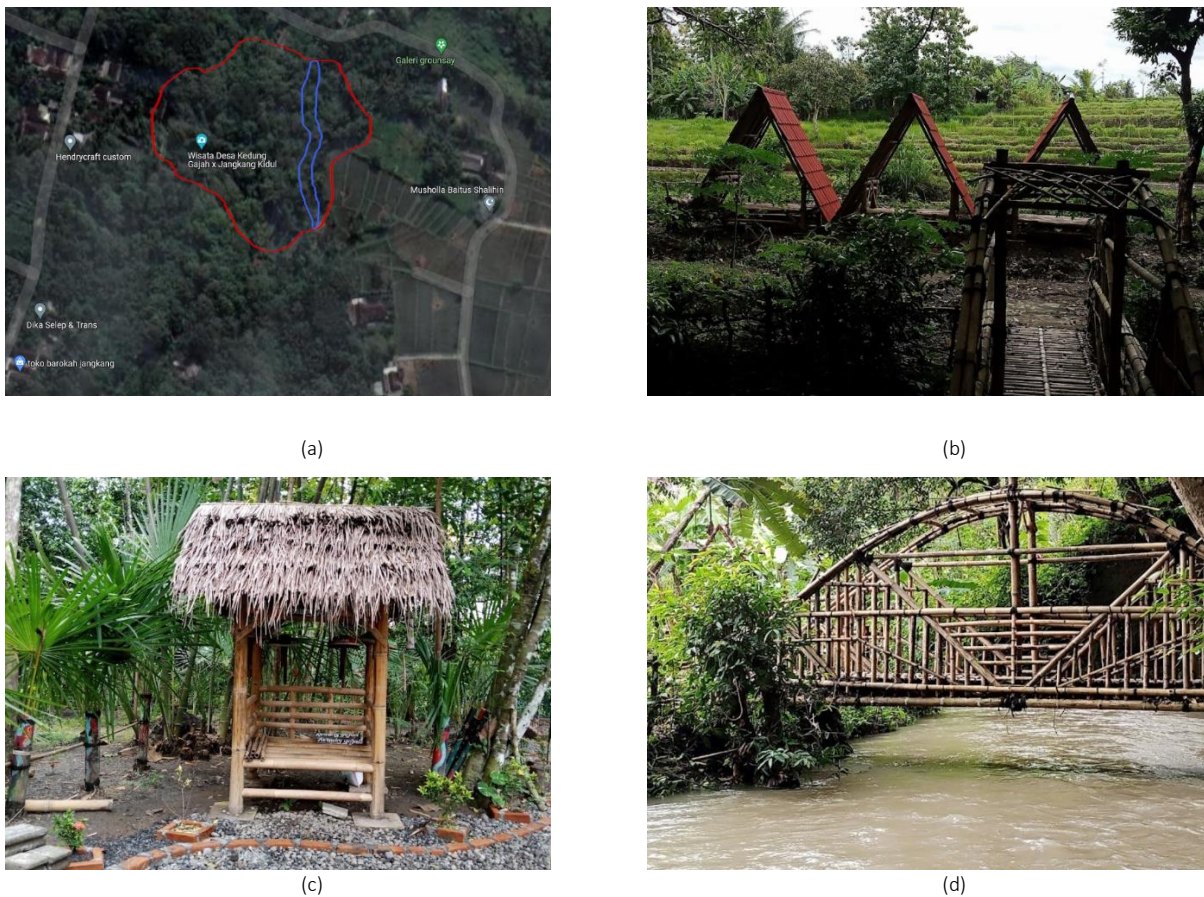


Figure 2. Situation of Kedung Gajah, (a) map; (b,c,d) buildings and surrounding views

Observation results

The spirit of the group to develop the object is great. It is proven by their progress to build some buildings in the location. The area of Kedung Gajah is about one hectare. Based on information on website, the first picture figured the location was uploaded in the middle of 2022. Figure 2 shows a map, a group of some buildings made of bamboo which is a characteristic of the site and its surrounding prospective spots. It offers the view of nature including a river (a blue area in fig. 2(a)), farmland in fig. 2(b), and gebang trees in fig. 2(c) which now are rarely found in the region. The buildings were made to accommodate visitors taking pictures. The stakeholders should consider the potential of the nature to be developed, especially the river and the surrounding environment. The concept of eco-tourism can be suitable for this object and the other similar works done by Hsu et. al (2020) and Eryani et. al (2021) can be used as references. The concept proved economic benefit, but as a trade-off, a good environmental management must be taken (Arif et. al, 2022).

Series meetings with site operators to prepare an event

To successfully transfer of ideas in content innovation, at least five meetings were held. Mostly, the meetings were conducted in the location since the operator have divided daily assignment around them. They shared about some events which were held previously such as art performance in the Independence Day of Indonesia and a routine gymnastic program every Friday morning. Moreover, the operator held a special gymnastic day on 24th December 2022, the day Kedung Gajah was officially opened. They prepared some door prizes to stimulate as many as possible visitors. At least 400 visitors came to the event. They wanted to expand the object which was not only known by local visitors and the gymnastic group, but also could be recognized by wider communities. They also shared an idea to include more local inhabitants to participate in the object management. The participation includes providing food services to visitors, or now is term as culinary. Regarding this, they planned to hold an even called "Pasar Rakyat" or public market. This event was planned originally one day market on 22nd January 2023. But, the management have a problem on how to invite more visitors. This is also another reason, a robot demonstration as a new content is suitable to generate more visitor traffic.

After some discussion, the event was held two days on weekends 21st and 22nd January 2023. At least 15 local culinary service providers joined the Pasar Rakyat. It was not easy to invite them on the event since some persons felt underestimate about the number of visitors. The reason can be explained that people change their behavior on spending money post Covid-19 pandemic (Orindaru et. al, 2021). Ulya and Santoso (2022) emphasized that the change of behavior depended on the level of Covid's risks. Regarding this, the management did some actions. As the part of the community service program, some contributions have also been given. Those included setting target of visitors for two days event, suggesting publications must be done, and giving contents of the publications. All of publication activities were done by the local operator. Besides, the communication between community service team and the management was also done

using social media platforms. Baruah (2012) mentioned that social media platforms have potential to increase the effectivity of communication. As a result, the communication was more intensive. It included sending data needed by both parties such as pictures, schedule, costs etc. Figure 3 shows a meeting between the community service team and the representation of Pokdarwis Gerbang Sentolo.



Figure 3. Formal meeting to exchange ideas on the development of Kedung Gajah

Robotic demonstration

As mentioned in the methodology section, the preparation of robots which were used in the demonstration took about one week only. The robots were transported from Electrical Engineering Laboratory to the location. After arrived at the destination, a robotic team consisted of two Electrical Engineering students set up robots for the demonstration. In the two-days event, five demonstration sessions were successfully conducted. Figure 4 pictures participants of two different sessions.

In average, every session was attended around 70 – 100 students ranging from early age to 15 years old. Interestingly, some adults which were not counted appeared also in the surrounding areas. It means that this demonstration grabbed attention not only young generation, but also their parents. It is undeniable that robotic is trending, but, this activity or some term it as a hobby is expensive for the average people in the region. Therefore, when the program could bring robots to them, they expressed their attention to the demonstration. They were very enthusiastic.



Figure 4. Participants of two of five demonstration sessions

On the first day of event, the operator reported that there were more than 250 students joined the exhibition and has already reached 80% of target 300 participants entire the two-days event. It did not include the parents or their relatives who accompany them. Unfortunately, the weather in the morning on the second day did not support outdoor activity. Indeed, this situation is one of drawbacks for tourism objects that offer outdoor concepts. However, the demonstration was still followed by more than 100 students.

Indirect impact of the program

The number of people visited the site on those two days have answered the concern of some persons. The management reported that total visitors including non-participants of robot demonstration reached more than 500. On the normal day, the visitors are fluctuated in range 20 – 50 per day. The event can increase the number of visitors 10 times. Moreover, a food service provider shared information that on the first day, they could earn more than one million rupiah. While on the

second day, the earning was less due to the weather and less visitors. Although not a focus, the program estimates that the total turnover for all food sellers on two days reached more than five million rupiah. It is a significant amount for a new tourist attraction. Liu et. al (2023) mentioned that economic benefit is one of the important aspects. This situation can be proven by the significant number of visitors spending their budget in the event. Interestingly, promoting local food is also part of sustainable development of tourism (Stalmirska, 2021). Furthermore, the operator has also claimed that some visitors are willing to use Kedung Gajah for some purposes such as official meetings and school reunions.

CONCLUSION

The community service program was successfully conducted. Both the community service team and the operator of Kedung Gajah get some new insights of the development of a tourism object through observation and a series of meetings. The program shows that by a proper design, the innovative content can attract more than 500 visitors although the object is relatively new. This fact improves the confidence level of the operator to develop the object shown by their claims and reports after the event. In addition, the residents who took participation on delivering culinary could get the earnings around five million rupiah as the indirect impact.

Furthermore, the assistance does not stop at this step. A follow up of this program is being prepared. As briefly mentioned in the observation step, an eco-tourism concept has been introduced. Both the community service team and Pokdarwis Gerbang Sentolo agreed to continue the collaboration to produce a mature concept on that.

ACKNOWLEDGEMENT

The program would like to thank to Pokdarwis Gerbang Sentolo and Sub-pokdarwis Pesona Sentolo as partners in the program and to Department of Electrical Engineering Universitas Muhammadiyah Yogyakarta for the great support on the successfulness of the program.

REFERENCES

- Anna Maria Stalmirska. (2021). Local food in tourism destination development: The supply-side perspectives, tourism planning & development, <https://doi.org/10.1080/21568316.2021.1928739>
- Arif, M., Behzad, H.M., Tahir, M. and Li, C. (2022). The impact of ecotourism on ecosystem functioning along main rivers and tributaries: Implications for management and policy changes. *Journal of Environmental Management*, 320 <https://doi.org/10.1016/j.jenvman.2022.115849>
- Baruah, T.D. (2012). Effectiveness of social media as a tool of communication and its potential for technology enabled connections: A micro-level study. *International Journal of Scientific and Research Publications*, 2(5), 1-10
- Behsudi, A. (2020). *Tourism-dependent economies are among those harmed the most by the pandemic*. <https://www.imf.org/en/Publications/fandd/issues/2020/12/impact-of-the-pandemic-on-tourism-behsudi> - Accessed Jan 2023
- Eryani, I.G.A.P., Arthana, I.N.N. & Astiti, N.M.A.G.R. (2021). Development Zoning of Bindu River ecotourism based on eco culture. *Civil and Environmental Science Journal (Civense)*, 4(2), 183-191. doi: <https://doi.org/10.21776/ub.civense.2021.00402.8>
- Fajri, H., Permana, I., Yuliarti, & Wahyuni, N. (2022). Peningkatan keterlibatan stakeholder dalam upaya pembangunan wisata nagari. *Jurnal Inovasi Hasil Pengabdian Masyarakat (JIPEMAS)*, 5(1), 221–233. <https://doi.org/10.33474/jipemas.v5i2.14055>
- Fitriastuti, F., Ginting, A., & Widiyanti, B. N. (2022). Wisata edukasi dan outbond lembah papah berbasis digital marketing di Desa Sentolo Kulon rogo pada masa pandemi covid-19. *Journal Adarma*, 9(2), 1 – 11. <https://e-journal.janabadra.ac.id/index.php/adarma/article/view/2333>
- Hsu, C., Lin, H. and Jhang, S. (2020). Sustainable tourism development in protected areas of rivers and water sources: a case study of jiuqu stream in China. *Sustainability*, 12(13), 5262. <https://doi.org/10.3390/su12135262>
- KR Jogja. (2020). *Dampak Covid-19, Pariwisata DIY Rugi Rp 67 M*. <https://www.krjogja.com/berita-lokal/read/307315/dampak-covid-19-pariwisata-diy-rugi-rp-67-m>
- Liu, YL., Chiang, JT. & Ko, PF. The benefits of tourism for rural community development. *Humanit Soc Sci Commun*, 10, 137 (2023). <https://doi.org/10.1057/s41599-023-01610-4>
- Manhas, P.S., Manrai, L.A, & Manrai, A.K. (2016). Role of tourist destination development in building its brand image: A conceptual model. *Journal of Economics, Finance and Administrative Science*, 21, 25-29. <http://dx.doi.org/10.1016/j.jefas.2016.01.001>
- Novianto, R. D. (2023). *Aktivitas wisata naik signifikan usai PPKM dicabut, Menparekraf: Okupansi hotel capai 100%*. <https://ekbis.sindonews.com/read/1009967/34/aktivitas-wisata-naik-signifikan-usai-ppkm-dicabut-menparekraf-okupansi-hotel-capai-100-1675119715>
- Orîndaru A, Popescu M-F, Alexoaei AP, Căescu Ş-C, Florescu MS, Orzan A-O. (2021). Tourism in a post-Covid-19 era: Sustainable strategies for industry's recovery. *Sustainability*, 13(12), 6781. <https://doi.org/10.3390/su13126781>

- Osei, G. B. & Nyarko, A. J. (2022). Health and safety-related issues at lake bosometwe, Ghana. *International Journal of Health Management and Tourism*, 7(1), 116-139. <https://dergipark.org.tr/en/pub/ijhmt/issue/69029/1092133>
- Pratt, Stephen. (2022). Can tourism contribute to the sustainable development goals? Evidence from Pacific Island Countries & Territories. *International Marketing Journal of Culture and Tourism (IMJCT)*, 1, 45-61. [10.33001/18355/IMJCT0102](https://doi.org/10.33001/18355/IMJCT0102).
- Purdey, Jemma. (2022). *Bali's pandemic, its impacts and legacies*. <https://www.insideindonesia.org/bali-s-pandemic-its-impacts-and-legacies> - Accessed Jan 2023
- Ritchie, J.R., Tung, V.W., & Ritchie, R.J. (2011). Tourism experience management research: Emergence, evolution and future directions. *International Journal of Contemporary Hospitality Management*, 23, 419-438.
- Sarmiadi, Yanita, N., & Suryani, Y. (2021). Pelatihan Pengelolaan Desa Wisata Bagi Kelompok Sadar Wisata Saiyo Desa Tungka Selatan Kecamatan Pariaan Utara Kota Pariaman. *Jurnal Abdimas: Pengabdian dan Pengembangan Masyarakat*, 3(1), 32 – 35. <https://ejournal2.pnp.ac.id/index.php/jppm/article/view/518>.
- Scott, D. (2021) Sustainable tourism and the grand challenge of climate change. *Sustainability*, 13(4), 1966. <https://doi.org/10.3390/su13041966>
- Sharpley, R. and Pearce, T. (2007). Tourism, marketing and sustainable development in the english national parks: the role of national park authorities. *Journal of Sustainable Tourism*, 15(5), 557-573. <https://doi.org/10.2167/jost613.0>
- Sudarti, S., & Triyono, M. B. (2022). Strategic management of local potential-based entrepreneurship through community empowerment on fish attractions Bendhung Lepen in Mrican Village Yogyakarta. *Journal of Community Service and Empowerment*, 3(3), 132-141. <https://doi.org/10.22219/jcse.v3i3.20230>
- United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development, <https://sdgs.un.org/publications/transforming-our-world-2030-agenda-sustainable-development-17981> - Accessed May 2023
- Wijaya, T. W., Azizah, L. M. ., Iqbal, M. ., & Santika, A. P. (2022). Optimalisasi sistem informasi desa berbasis website sebagai upaya peningkatan sumber informasi terhadap masyarakat. *Prosiding Seminar Nasional Program Pengabdian Masyarakat*, 5(1). <https://doi.org/10.18196/ppm.51.1000>
- World Bank. (2018). *Digital platforms and the future of tourism*. <https://www.worldbank.org/en/news/feature/2018/09/25/digital-platforms-and-the-future-of-tourism-a-world-tourism-celebration> - Accessed Jan 2023
- Yudhiasta, S., & Mijiarto, J. (2023). Digitalization of tourist attractions: Increasing the capacity of Sunrise Land Lombok tourism workers through digital marketing. *Journal of Community Service and Empowerment*, 4(1), 95–103. <https://doi.org/10.22219/jcse.v4i1.24606>
- Ulya, A. S., & Santoso, D. B. (2022). Perubahan perilaku konsumsi pada masyarakat Jawa Timur selama masa pandemi Covid-19. *Journal of Development Economic and Social Studies*, 1 (2), 185-199. <http://dx.doi.org/10.21776/jdess.2022.01.2.02>.