

NATURAL RESOURCE-BASED RECREATIONAL ACTIVITIES DURING COVID-19 PANDEMIC: A LOCAL COMMUNITIES PERSPECTIVE IN SABAH, MALAYSIA

Walter J. Lintangah^{1*}, Vilaretti Atin¹ and Khalid Nurul Izzah Izati¹

¹International Tropical Forestry Program, Faculty of Tropical Forestry, Universiti Malaysia Sabah, Malaysia

Corresponding author : **Walter J. Lintangah**, , Email : walterjl@ums.edu.my

Received 13th November 2021; accepted 22nd November 2021
Available online 20th May 2022

ABSTRACT: *The COVID-19 pandemic has disrupted many activities, including tourism and recreational activities. This study determines the local communities' perceptions of local recreational activities or staycation based on the natural resources in Sabah during the pandemic. Using the convenience sampling method, the questionnaire survey was distributed to respondents through social media and email. Respondents including students, government, and private sectors were from different socio-demographics. Most of them preferred recreational activities based on nature-panorama activities, followed by those who chose extreme activities such as hiking, cultural base recreation, river-based activities, leisure vacation and jungle trekking. The respondents opined that recreational activities could generate income for the state's economy. They perceived that the assistance provided by the government could help recover the present state to its original condition. Among the elements that needed special attention and improvement were related to the safety of visitors, the cleanliness of the surrounding recreation sites, the landscape beautification and basic infrastructure facilities. Among the roles that the government could contribute to stimulating and uplifting the tourism and recreation sectors include funding and finance allocation to help the industry players, promotion and publicity, upgrading and maintenance of facilities such as infrastructures and enforcement of related laws and policies. Reviving the local tourism is promising as long as the public observe the state's Standard Operating Procedure (SOP).*

KEYWORDS: COVID-19 Pandemic, Natural Resources-Based Recreation, Local Communities, Staycation, Tourism

INTRODUCTION

Natural resource-based recreational activities are referred to as vacations involving people connecting with the surroundings (Valentine P., 1992). The natural resources, also referred to as Alfresco or outdoor recreations, are the pull factors that draw visitors for recreational activities (Hall C.M., & Boyd S., 2005). In a broader term, tourism or ecotourism denotes the people's recreational activities. When it comes to the local level, the recreational activities are staycations in which the local community travels to local destinations for recreation. The additional themes that are used

locally to imply the natural resources for recreations and tourism in Sabah are biophysical (Pei Sung *et al.*, 2012), culture and heritage (Md Zain *et al.*, 2015; Latip, N.A. *et al.*, 2018), community-based tourism and indigenous tourism (Latip, N.A. *et al.*, 2018), rural tourism, agro-tourism (Jaafar M. *et al.*, 2013), Astro or star tourism (Fong, 2021), adventure (Nik Hashim *et al.*, 2020), as well as the idea of 'dark tourism,' which is less popular among the locals. (Masanti M., 2016).

Outdoor recreations and nature-based tourism provide ample benefits to individuals, communities, and society. Several studies have proved that visiting natural settings and outdoor activities could enhance human health, improve social connection, and connect people to nature and their natural heritage. Wolsko *et al.* (2019), for instance, reported that people who frequently engage in active nature-based activities such as fishing, camping, hunting and other physical recreations would experience self-restoration, stress reduction, well-being improvement and positive feelings. People also begin to be aware of the environmental problems and their commitments to protect the recreation sites. Kuo (2015) also suggested that exposure to a greener natural surrounding could reduce the risk of morbidity and mortality as natural environments carry chemical and biological agents which have health implications in the long run. Tourism in protected areas also benefits in terms of the financial sustainability of the nation, promoting the sharing of benefits amongst stakeholders, and increasing the possibility to achieve conservation and biodiversity goals (Synman & Bricker, 2019). Recreational and tourism activities have been significantly disrupted due to the government's movement control order, announced after the Covid-19 breakout in 2020. The literature section of the study will focus on the background of nature-based recreational activities and the overall impact of Covid-19. There have been few studies on the impacts of the COVID-19 pandemic on natural resource-based recreational activities locally. Therefore, this study aims to address the issues on the current and post-Covid prospects of nature-based recreations and tourism, particularly the preference of activities, destinations, and the general perceptions and considerations of improving the nature-based recreational activities from the perspectives of the local communities.

LITERATURE REVIEW

Sabah is known as the 'land below the wind', blessed with natural beauty as it is covered with extensive rainforests, captivating ancient caves, beaches, and islands. Sabah encapsulates the third largest island in the world (Amazing Borneo, 2021), with a vast diversity of landscapes, mountains, and environments. The biodiversity of flora and fauna, islands, cultures, and ethnic diversities, would satisfy most adventure seekers who enjoy nature-based recreational activities (Bedford, 2018). Among the most known and prominent natural resources-based destinations of interest in Sabah is Sabah Park, which consists of four terrestrial parks featuring the famous Mount Kinabalu and five marine parks. The Sabah Tourism Board has recorded 4,195,903 total visitors in 2019; about 1,469,475 were international tourists from China, South Korea, Brunei, Taiwan, Singapore, United Kingdom, Ireland, Japan, the Philippines, Australia, and the USA (Usop, 2020). The astronomical number of visitors shows that nature-based tourism is the fastest-growing sector. It appears that the protected areas have become the prominent destinations of interest (Winter *et al.*, 2019). However, the number of tourists plunged drastically in 2020 after the movement control orders (MCO) were introduced and enforced when the pandemic covid hit the country (Sabah Board Tourism, 2021).

The Coronavirus disease (Covid-19) has exponentially affected public health. The ongoing transmission of the pandemic has severely impacted most operations around the globe. Meanwhile, every state in Malaysia is recently under different phases of the National Recovery Plans (NRP). All activities have strictly adhered to Standard Operating Procedures (SOP) (Flanders Trade, 2021). The prolonged enforcement of the MCO, which was first imposed in March 2020, has been seen to severely impact most businesses and disrupt their economic revenues, especially those sectors which were not listed as essential services. These include tourism sectors such as airline and hotel businesses (Lee-Peng Foo et al., 2020). Dzulkifly (2020) reported that during the first two months of 2020, Malaysia had lost RM 3.37 billion in the tourism sector as most tour were cancelled, thus affecting those who worked with airlines, hotels, and transport industries. Malaysia's Gross Domestic Product (GDP) growth for the year deteriorated from 0.8 to 1.2 points, with an expected total loss of up to RM17.3 billion.

In January 2020, Sabah was the first state to ban the entry of tourists from China to halt the local spread of Covid-19 (Bernama, 2020a). Chinese tourists were perceived as the largest contributors to tourism economies in Sabah. There was a sudden decrease in tourist arrivals with a total of 567,108, which was about an 86.5% decline of tourists compared to tourist arrivals in 2019 (Goh, 2021). The restricted operation of these non-essential activities had caused many related companies, travel agents, communities, and individuals to lose their incomes due to the imposition of physical and social isolation to slow down the spread of the virus. According to Nga et al. (2021), the data retrieved from the Social Security Organization (SOCSO) showed that the loss of employment in Sabah were those with maximum wages less than RM2000 (about 74.6%). This makes Sabah the most severe state impacted by job loss in Malaysia. It was perceived that most businesses in Sabah are related to tourism, thus contributing to the unemployment issues.

The closure of the international border has hindered the entry of international tourists to Sabah. This has affected the livelihood of the local communities. This situation can be seen among low wage earners who depend solely on a single job. For example, a local tour guide in Kinabatangan, Sabah admitted that he had lost his source of income showing tourists Bornean pygmy elephants and proboscis monkeys because there were no tourists. He now lives on the government assistance (Wong, 2020). The United Nations World Tourism Organisation also reported that the continuing crisis might affect women involved in the tourism workforce. Since most of them are in the low-skilled or informal work categories which do not have access to social protection (UNWTO, 2021a). In Sabah, women are mostly engaged in community-based tourism. They generate their income by producing traditional handicrafts, sharing cultural festivals, introducing local delicacies, offering fish spas, providing homestays and many more (Tibok, 2018). Hence, their businesses are hit hard by the pandemic.

The natural-based recreational activities in Sabah are mostly associated with its natural biodiversity and wide-protected areas. During the Covid-19, none of these activities is allowed to operate, causing Sabah to lose its state revenue as tourism is the third-largest contributor to Sabah's GDP, which supports more than 80,000 jobs (The Borneo Post, 2020 & Sabah Tourism Board, 2021). The tourism loss of revenue may disrupt the source of conservation funding. The fund from tourism activities is used to maintain the protected areas, including law enforcement, poaching control and other illegal activities. The local communities rely on natural resources as they have already lost their

income (BIMP-EAGA, 2020). As reported by various local news, there were few cases in Sabah on illegal poaching and hunting of wildlife amid Covid-19 transmission. For instance, the enforcement operation against forest crime and wildlife poaching and trafficking led by the Sabah Forestry Department in 2020 had successfully made 68 arrests and confiscated RM3.1 million worth of forest produce from various illegal activities (Free Malaysia Today, 2021).

A similar event happened in early 2021, a male Bornean Pygmy elephant in Tongod, Sabah, was found dismembered and its body parts had several gunshot wounds (Geraldine, 2021). Due to the limited resources, monitoring in every forest reserved and protected area in the whole state has been somewhat impossible during the pandemic. Yet, the government authority managed to secure more than 200 enforcement operations to put pressure on poachers and illegal loggers (The Borneo Post, 2021). In addition, the Sabah Parks had also deployed their enforcement teams around the protected areas in Kinabalu Park to look out for intruders who intended to illegally collect valuable plants such as *Caladium* and *Alocasia* as many communities have shifted to gardening and this has fuelled the demand for wild plants (Daily Express, 2021).

It is suggested that the impacts caused by the pandemic is not completely obstructive. Some studies have pointed out that the transmission of pandemics gives opportunities for 'nature recovery'. Throughout the pandemic, it has shown that the mobility restriction improved the air quality (Monteiro *et al.*, 2021), reduced the emission of greenhouse gases due to reducing travel (Varzaru *et al.*, 2021) as well as reduced over-tourism (Higgins-Desbiolles, 2020). Fewer tourists' visitation in a protected area could give ample time for nature to recuperate and attract inhabitants back to their habitats, as reported in Kinabalu Parks protected area (Bernama, 2020b). It is also predicted that the rebound in international tourism, a return to pre-pandemic 2019 levels, will not occur before 2023 (UNWTO, 2021b). Thus, domestic demand would recover faster than international demand (Goh, 2021). The pandemic should not be viewed as a crisis but an opportunity to rethink sustainable tourism models without excluding the rights of the community and nation interests (Varzaru *et al.*, 2021). Sabah has a huge ecotourism attraction for tourists, which is an advantage for tourism recovery. It is expected that the travellers may have some behavioural patterns changing preference (Lai, 2021). Hence the pre-existing issues on tourism need to be reviewed, so that new approaches can be adopted to achieve more sustainable tourism (Goh, 2021).

MATERIALS AND METHODS

Using convenience sampling, the questionnaire survey through the online survey monkey was developed and emailed to the respondents. The data collection was conducted from November to December 2020. The questionnaire was divided into three main sections, namely (i) socio-demographic of respondents, (ii) preference and participation in natural resource-based recreation activities, and (iii) general perception and consideration of improvement needed for nature-based recreation activity in Sabah during the COVID-19 pandemic. The survey consisted of both open and closed-ended questions, statements were rated on 5 points Likert scale with 1- indicate Highly Not Agree, 2-Not Agree, 3-Moderate, 4- Agree, 5-Highly Agree. Data were analysed based on descriptive statistics that involved frequency, percentage, score ranking and weighted average.

RESULTS AND DISCUSSION

Results

215 respondents who participated in the study were in the 18-25 age group (55.61%), followed by 26-30 age group (11.66%) and 41-45 age group (8.88%). A total of 110 (51.40%) of the respondents were students, 33 (15.42%) were government employees, and 53 (24.76%) were private and self-employed employees. Most of the respondents, or 85.26% (131), were enthusiasts of natural resources-based recreational activities, while 13.07% (20) of them participated actively in the recreational activities. 11.76% (18) of the respondents were involved in recreational and tourism employments, while only 1.31% (2) were operators or the owners of the tourism businesses. The respondents' scores based on the preference for nature-based recreational activities were related to the nature panoramic or picturesque (Table 1). It is followed by extreme based activities such as mountain or hill climbing, cultural-based recreation, river-based activities (e.g., kayaking, swimming), leisure and jungle tracking.

Table 1: Ranking of Preference for Natural Resource-Based Recreational Activities

RANKING	Number of respondents (Percentage, %)						SCORE ± SD	n
	1	2	3	4	5	6		
Nature Panoramic	69 8.16%	27 18.37%	16 10.88%	20 13.61%	3 2.04%	12 8.16%	4.70 ± 1.59	147
Extreme based (mount climbing etc.)	19 12.67%	37 24.67%	35 23.33%	26 17.33%	16 10.67%	17 11.13%	3.77 ± 1.69	150
Cultural	12 8.39%	38 26.57%	24 16.78%	17 11.89%	21 14.69%	31 21.68%	3.37 ± 1.52	143
River-based (e.g., Kayaking, white water rafting)	15 10.14%	16 10.81%	34 22.97%	28 18.92%	34 22.97%	21 14.19%	3.24 ± 1.52	148
Leisure	25 16.78%	14 9.40%	16 10.74%	20 13.42%	33 22.15%	41 27.52%	3.03 ± 1.82	149
Exploration / Jungle Trekking	5 3.38%	13 8.78%	23 15.54%	37 25.00%	43 29.05%	27 18.24%	2.78 ± 1.33	148

Some keywords mentioned in the preferred destinations were specific towns, mountains or hills, forests and rivers, islands, villages, public parks, hot springs, beaches, waterfall, wildlife, resort, and cultural village (Figure 1). The most mentioned destinations were Ranau, Kundasang, mount Kinabalu and Kinabalu Park, Semporna, Kota Belud, Kiulu and Kinabatangan River, waterfalls, island, and beach. The respondents also mentioned other places of interest, which they have not visited yet but are looking forward to visiting these areas in the future, such as Mount Kinabalu, Maliau Basin, Kundasang, Ranau, Lembah Danum, Semporna and Sandakan. The places of interest

are related to various natural resources-based destinations, including islands, forests, and geographical characteristics like mountainous areas in Mt. Kinabalu in Kundasang and Ranau.

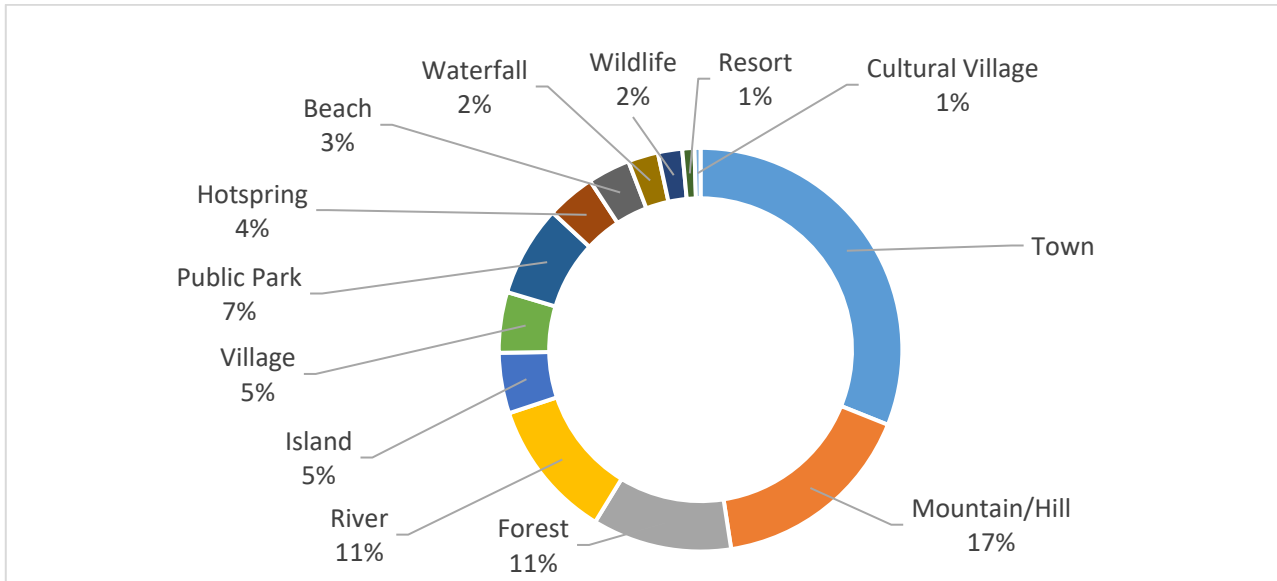


Figure 1: Preferred destinations for Recreational Activities (N=215).

The respondents' agreed that nature-based tourism has a great potential in generating income and creating many economic opportunities for the state with a weighted average of (4.59), based on the Likert Scale (1-Highly Not Agree, 2-Not Agree, 3-Moderate, 4- Agree, 5-Highly Agree). They also agreed that natural resource-based tourism was severely affected by the pandemic Covid-19 with a weighted average of (4.25). Those who perceived that they required dire assistance from the government to bring back the industry to its previous state was 4.34. On the special attention and improvement needed by the nature-based recreation and tourism, the highest agreement is on ensuring the safety of visitors, followed by the surrounding cleanliness of the recreation site and the beautification of the surrounding landscape (Table 2). The respondents also agreed on improving and maintaining or developing basic infrastructure and facilities such as roads, water, toilets, etc. They presumed that study is needed to determine the reasonable rates of charges and service fees, the visitor's carrying capacity, and the customer's satisfaction level.

Table 2: Consideration and improvement needed for nature-based recreation, N=156

	Number of respondents (Percentage, %)					Weighted Average ± SD	n
	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree		
Basic infrastructure and facilities	2 1.28%	0 0.00%	9 5.77%	42 26.92%	103 66.03%	4.56 ± 0.72	156
Surrounding cleanliness	2 1.29%	1 0.65%	3 1.94%	24 15.48%	12 80.65%	4.74 ± 0.65	156

Landscape beautification	2 1.28%	0 0.00%	11 7.05%	33 21.15%	110 70.51%	4.60 ± 0.73	156
Safety of visitors	2 1.28%	0 0.00%	8 5.13%	14 8.97%	132 84.62%	4.76 ± 0.66	156
Reasonable rates of charges and fees	2 1.28%	1 0.64%	9 5.77%	44 28.21%	100 64.10%	4.53 ± 0.75	156
Visitors carrying capacity studies	2 1.92%	1 0.64%	8 5.13%	49 31.41	95 60.90%	4.49 ± 0.79	156
Customer's satisfaction level	2 1.28%	0 0.00	15 9.62%	42 26.92%	97 62.18%	4.49 ± 0.77	156

To restore tourism and recreation, the respondents agree that the education and awareness programs for all levels of society is integral. The restoration and opening of recreation and tourism destinations can be done in phases with strict SOP. The reintroduction of the recreation and tourism package should come with reasonable fees. Besides, cooperation from all parties in the industry was essential. Other measures and considerations suggested were the promotions and campaigns for local tourism or staycation, and rehabilitation of the existing recreation sites. Providing incentives for local recreational and tourism activities and promoting programs through media were also recommended. The respondents also concurred that the industry needs assistance from the government, such as special funding, incentive, and a platform for promoting recreation and tourism activities.

Discussion

Based on the study, there are many prominent natural resources-based programs and activities in the state that could be integrated under nature-based recreation and tourism. Many recreations and tourist destinations can be incorporated in a package under nature-based tourism. Surely, the diversity and richness of the recreational programs and activities can help promote the state as an attractive destination for tourism (Zain et al., 2016). Since COVID-19 has influenced the ecotourism of the state, all related aspects of the tourism industry, the development or improvement of the recreational and tourism industry, and the nature-based recreation and tourism destinations should be integrated. All parties play vital roles to manage or develop the prospects of tourism and recreational activities. Collaboration with those directly involved with tourism and those from the local community is important. The government has a more prominent role in determining how to improve the recreation and tourism (UNEP and WTO, 2005).

It is time to upgrade the marketing or benefit-sharing by conducting research, promotion, enhancement, and rebranding. The recreation and tourism industry should be restored and upgraded (Abbas et al., 2021). The visitor's safety hygiene is the main focus. The promotional efforts in reviving the tourism industry in the 12th Malaysian Plan 2021-2025 are underway (Bernama, 2021). To revitalise the tourism sectors, several strategies have been adopted such as campaigns to restore the tourists' confidence, increase the incentives and promotion of domestic ecotourism products and services. Establishing monitoring mechanisms, reforming the governance, upgrading and marketing the products, and promoting the local communities' engagement with the private sectors are some of the strategies (Bernama, 2021).

After the post-pandemic, to attract international tourists, local recreations and tourism could be the starting point. The current progress and observation show how the government handles the pandemic COVID-19 situation is remarkable. It includes the enforcement of strict SOPs and MCO approaches to restrain the pandemic COVID-19 and by striving for the prospect of the industry. Funding and finance allocation to assist industry players, promotion and publicity, upgrading and maintenance of facilities such as infrastructures, and enforcement of related laws and policies are just a few of the roles that the government could play in stimulating and uplifting the tourism and recreation sectors.

CONCLUSION

Information and reflection from the local community on the local natural resource-based recreational programme and activity can contribute to the future progress of the industry. The diverse range of natural resource-based recreational programmes and activities has made Sabah a popular tourism destination for local and international visitors. The COVID-19 pandemic has affected the recreation and tourism industry. Consequently, restoring recreation and tourism at the local level is a way forward. Therefore, it is essential to rejuvenate the local tourism so that this industry is ready for the next phase vis-à-vis attracting international tourists to our state. Some of the considerations to refresh the nature-based recreational activities from the local communities include visitors' safety, and hygiene. Also, the beautification of the surrounding landscape is of paramount importance. When all of these are in place, recreation and tourism industry in Sabah is set to sustain its growth. With the current scenario of the COVID-19 that is still occurring, further study is recommended to be conducted from time to time to monitor the progress of the sector based on the latest development of the pandemic.

ACKNOWLEDGEMENT

This study is part of a project funded by an internal UMS research Grant under SDK0166-2020. We also would like to thank two anonymous reviewers for their valuable suggestions for improvement.

REFERENCES

Journals Articles

- Abbas J., Mubeen R., Iorember P.T., Saqlain Raza S., Mamirkulova G., (2021). Exploring the impact of COVID-19 on tourism: transformational potential and implications for a sustainable recovery of the travel and leisure industry. *Current Research in Behavioral Sciences, Volume 2*. <https://doi.org/10.1016/j.crbeha.2021.100033>
- Goh, H. C. (2021). Strategies for post-Covid-19 prospects of Sabah's tourist market—Reactions to shocks caused by pandemic or reflection for sustainable tourism? *Research in Globalization*, 3, 100056.
- Hall, C.M., & Boyd, S. (2005). *Nature Based Tourism in Peripheral Areas*. Clevedon: Channel View Publications

- Jaafar, M., Kayat, K., Tangit, T.M., & Firdous Yacob, M. (2013), "Nature-based rural tourism and its economic benefits: a case study of Kinabalu National Park", *Worldwide Hospitality and Tourism Themes*, 5 (4). 342-352. <https://doi.org/10.1108/WHATT-03-2013-0016>
- Kuo, M. (2015). How might contact with nature promote human health? Promising mechanisms and a possible central pathway. *Frontiers in psychology*, 6, 1093.
- Latip, N.A., Rasoolimanesh, S.M., Jaafar, M., Marzuki, A. and Umar, MU (2018), "Indigenous residents' perceptions towards tourism development: a case of Sabah, Malaysia", *Journal of Place Management and Development*, Vol. 11 No. 4, pp. 391-410. <https://doi.org/10.1108/JPMD-09-2017-0086>
- Lee-Peng Foo, Mui-Yin Chin, Kim-Leng Tan & Kit-Teng Phuah (2020): The impact of COVID-19 on tourism industry in Malaysia, *Current Issues in Tourism*, DOI: 10.1080/13683500.2020.1777951
- Md Zain N.A, Zahari M.S, Hanafiah M.H, Zulkifly M.I, (2015). Core Tourism Products and Destination Image: Case Study of Sabah, Malaysia. *World Academy of Science, Engineering and Technology International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering* Vol:9, No:7, 2015
- Monteiro, A., Eusébio, C., Carneiro, M. J., Madaleno, M., Robaina, M., Rodrigues, V., ... & Borrego, C. (2021). Tourism and Air Quality during COVID-19 Pandemic: Lessons for the Future. *Sustainability*, 13(7), 3906.
- Nga, J. L. H., Ramlan, W. K., & Naim, S. (2021). Covid-19 pandemic and its relation to the Unemployment situation in Malaysia: A Case Study from Sabah. *Cosmopolitan Civil Societies: An Interdisciplinary Journal*, 13(2).
- Nik Hashim N.A, Fatt B.S., Mohtar T., Awang Z., Omar R.N., Zain E.N., Mahshar M, Nasir M.J. (2020). "Adventure Tourism: A Study Of Tunku Abdul Rahman Park, Sabah". *European Journal of Molecular & Clinical Medicine*, 7, 8, 2020, 2440-2446.
- Sung, T.P., Bagul, A.H., Sentian, J., & Dambul, R. (2012). Developing and promoting a highland community livelihood for sustainable tourism: The case of Kg. Bundu Tuhan, Ranau, Sabah. *Geografia: Malaysian journal of society and space*, 8, 94-99.
- Snyman, S., & Bricker, K. S. (2019). Living on the edge: Benefit-sharing from protected area tourism. *Journal of Sustainable Tourism*, 27(6), 705-719.
- United Nations World Tourism Organization (UNWTO). (2021a). UNWTO Inclusive Recovery Guide – Sociocultural Impacts of Covid-19, Issue 3: *Women in tourism*, UNWTO, Madrid, DOI: <https://doi.org/10.18111/9789284422616>
- United Nations World Tourism Organization (UNWTO), (2021b). Impact Assessment Of The Covid-19 Outbreak On International Tourism. *UNWTO*, Madrid.
- Valentine, P. (1992). 'Nature-based tourism', Special Interest Tourism. London: Belhaven Press.
- Vărzaru, A. A., Bocean, C. G., & Cazacu, M., (2021). Rethinking Tourism Industry in Pandemic COVID-19 Period. *Sustainability*, 13(12), 6956.
- Winter, P. L., Selin, S., Cervený, L., & Bricker, K. 2020. Outdoor recreation, nature-based tourism,

and sustainability. *Sustainability*, 12(1), 81.

Wolsko, C., Lindberg, K., & Reese, R. (2019). Nature-based physical recreation leads to psychological well-being: Evidence from five studies. *Ecopsychology*, 11(4), 222-235.

Zain, N. A. M., Zahari, M. S. M., Hanafiah, M. H., & Zulkifly, M. I., (2016). Core Tourism Products and Destination Image: Case Study of Sabah, Malaysia. *World Academy of Science, Engineering and Technology, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 9(7), 2605-2613.

Book

Masanti M. (2016). Understanding Dark Tourism Acceptance in Southeast Asia: The Case of WWII Sandakan–Ranau Death March, Sabah, Malaysia. In: Mandal P., Vong J. (eds) *Development of Tourism and the Hospitality Industry in Southeast Asia. Managing the Asian Century*. Springer, Singapore. https://doi.org/10.1007/978-981-287-606-5_8

UNEP and WTO. 2005 Making Tourism More Sustainable: A Guide for Policy Makers. United Nations Environment Programme and World Tourism Organization.

Supplementary

Amazing Borneo, (2021_). About Sabah. At: <https://www.amazingborneo.com/sabah/about-sabah>. Accessed on 3 September 2021.

Bedford, S., (2018). 11 Amazing Reasons to Visit Sabah, Malaysia, Culture Trip. At: <https://theculturetrip.com/asia/malaysia/articles/11-amazing-reasons-to-visit-sabah-malaysia/>. Accessed on 3 September 2021.

Bernama (2020a)(. Coronavirus Outbreak: All Flights From Sabah to Wuhan Suspended. *Bernama*, 26 January. At: https://bernama.com/en/general/news_covid-19.php?id=1809388. Accessed on 4 September 2021.

Bernama, (2020b). Orang Utan Nest Spotted at Poring Hot Spring. *Bernama*, 18 April. At: https://www.bernama.com/en/general/news_covid-19.php?id=1833480. Accessed on 6 September 2021.

Bernama, (2021). Strategies to Revitalise Tourism Sector Outlined. *Dailyexpress*. 28 September 2021.

Brunei Darussalam-Indonesia-Malaysia-Philippine-East Asean Growth Area (BIMP-EAGA) , (2020). Why We Need to Save Ecotourism in a Post-Pandemic World. At: <https://www.bimp-eaga.asia/article/why-we-need-save-ecotourism-post-pandemic-world>. Accessed on 5 September 2021.

Daily Express,(2021). Poaching Alert After Surge In Demand For Wild Plants. *Daily Express*, 25 January. At: <https://www.dailyexpress.com.my/news/165309/poaching-alert-after-surge-in-demand-for-wild-plants/>. Accessed on 6 September 2021.

Dzulkifly, D. 2020. Muhyiddin: Tourism industry hit hardest by Covid-19 faces RM3.37b loss. *Malay Mail*, 13 March. At:

- <https://www.malaymail.com/news/malaysia/2020/03/13/muhyiddin-tourism-industry-hit-hard-by-covid-19-to-lose-rm3.37b-while-gdp-s/1846323>. Accessed on 3 September 2021.
- Flanders Trade (2021). Coronavirus – The situation in Malaysia. At: <https://www.flandersinvestmentandtrade.com/export/nieuws/coronavirus-%E2%80%93-situation-malaysia>. Accessed on 3 September 2021.
- Free Malaysia Today. (2021). Special Sabah Team Fights Poachers And Those Who Plunder Forest Produce. *Free Malaysia Today*, 30 January. At: <https://www.freemalaysiatoday.com/category/nation/2021/01/30/special-sabah-team-fights-poachers-and-those-who-plunder-forest-produce/> Accessed on 6 September 2021.
- Fong D.R., (2021). Sabah looks to the stars to revive tourism. *Free Malaysia Today*, 15 September. At: <https://www.freemalaysiatoday.com/category/nation/2021/09/15/sabah-looks-to-the-stars-to-revive-tourism/>
- Geraldine, A., (2021). Critically Endangered Elephant Found Dismembered In Tongod Plantation. *New Straits Times*, 22 January. At: <https://www.nst.com.my/news/nation/2021/01/659804/critically-endangered-elephant-found-dismembered-tongod-plantation#:~:text=Critically%20endangered%20elephant%20found%20dismembered%20in%20Tongod%20plantation,By%20Avila%20Geraldine&text=KOTA%20KINABALU%3A%20The%20carcass%20of,on%20Wednesday%20at%20about%208am>. Accessed on 6 September 2021.
- Higgins-Desbiolles, F. (2020). The End Of Global Travel As We Know It: An Opportunity For Sustainable Tourism. *The Conversation*, 18 March. At: <https://theconversation.com/the-end-of-global-travel-as-we-know-it-an-opportunity-for-sustainable-tourism-133783>. Accessed on 6 September 2021.
- Lai, N. (2021). Sabah to see slower tourism recovery. *The Borneo Post*, 31 January. At: <https://www.theborneopost.com/2021/01/31/sabah-to-see-slower-tourism-recovery/>. Accessed on 7 September 2021.
- Sabah Tourism Board. (2021). General Information-About Us. At: <https://www.sabahtourism.com/about-us/?locale=en>. Accessed on 5 September 2021.
- The Borneo Post. 2020. Sabah's Tourism Industry In Dire Straits. *The Borneo Post*, 28 July. At: <https://www.theborneopost.com/2020/07/28/sabahs-tourism-industry-in-dire-straits/>. Accessed on 5 September 2021.
- The Borneo Post. (2021). 68 arrests as Sabah foresters turn up on poachers. *The Borneo Post*, 29 January. At: <https://www.theborneopost.com/2021/01/29/68-arrests-as-sabah-foresters-turn-up-on-poachers/>. Accessed on 6 September 2021.
- Tibok, E. (2018). Empowering Communities Through Tourism in Sabah, Malaysian Borneo. At: <https://www.borneoecotours.com/blog/empowering-communities-through-tourism-in-sabah-malaysian-borneo/>. Accessed on 5 September 2021
- Usop, C. (2020). Statistik STB Rekod Peningkatan Kehadiran Pelancong Ke Sabah. *Utusan Borneo*, 14 August. At: <https://www.utusanborneo.com.my/2020/08/14/statistik-stb-rekod-peningkatan-kehadiran-pelancong-ke-sabah>. Accessed on 3 September 2021.

Wong, S.L. (2020). When Covid Resets Ecotourism. *Earth Journalism Network*, 8 September. At: <https://earthjournalism.net/stories/when-covid-resets-ecotourism>. Accessed on 5 September 2021.