Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/19920
DOI URL: http://dx.doi.org/10.21474/IJAR01/19920

RESEARCH ARTICLE

INTRODUCING KAMPUNG SAPIT AS A POTENTIAL PROSPECT FOR ASTRONOMY GLAMPING ACTIVITIES IN SARAWAK

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Manuscript Info

Manuscript History
Received: 11 September 2024
Final Accepted: 21 October 2024
Published: November 2024

Key words:-
Kampung Sapit, Astronomy Glamping, Dark Sky Area, Stargazing, Celestial Observation

Abstract

Astrotourism, an emerging niche in the travel industry, offers enthusiasts and curious travellers the opportunity to explore the wonders of the cosmos from various corners of the globe. This burgeoning trend caters to individuals fascinated by the mysteries of the universe, providing experiences ranging from stargazing under pristine dark skies to visiting observatories and participating in celestial-themed activities. Astrotourism destinations, often located in remote areas with minimal light pollution, not only offer breathtaking views of the night sky but also provide educational insights into astronomy, cosmology, and the importance of preserving our natural environment. Whether seeking awe-inspiring views of the Milky Way, witnessing meteor showers, or immersing oneself in the cultural significance of celestial events, astrotourism promises an unforgettable journey beyond Earth's confines. The aim of this study is to highlight Kampung Sapit as one of astrotourism attractions in Sarawak. The result of the study shows that Kampung Sapit is highly potential as a new astrotourism attraction in Sarawak based on geographical area, sceneries, and dark sky area. With the increasing urbanization and light pollution obscuring the night sky in many regions, there's a growing interest in seeking out remote destinations such as Kampung Sapit with pristine dark skies for stargazing and astronomical observation. As awareness of the importance of preserving these dark sky areas grows, so too does the appeal of astrotourism.

Introduction:-

Astrotourism, also known as space tourism or astronomy tourism, has been steadily gaining popularity worldwide over the past few decades. In the early 20th century, astrotourism, though not yet termed as such, began to emerge as a result of growing interest in space exploration and astronomy (Matos 2017). The idea of space travel and

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exploration has fascinated humanity for centuries, but it wasn't until the mid-20th century that significant strides were made in space exploration. Milestone events in space exploration, such as the launch of Sputnik 1 by the Soviet Union in 1957, captured the world's attention and sparked a renewed fascination with space (Kuznetsov et al. 2015). In addition, events such as the moon landing in 1969 as well captured the world's imagination and sparked widespread interest in space travel and astronomy.

In the early 2000s, private companies like SpaceX, Blue Origin, and Virgin Galactic began developing technologies to enable commercial space travel. These companies aimed to make space travel more accessible to the public, not just astronauts. Companies like Space Adventures have facilitated space tourism experiences by arranging trips for private individuals to visit the International Space Station (ISS) aboard Russian Soyuz spacecraft (Space Adventures 2024). While these trips are extremely expensive and limited to a select few, they represent the beginnings of space tourism as a commercial industry. While companies like Virgin Galactic and Blue Origin are developing suborbital space tourism flights, where passengers experience a few minutes of weightlessness and see the curvature of the Earth from the edge of space. These trips are shorter and less expensive than orbital space travel but still offer a taste of the space experience (Virgin Galactic 2024).

In addition to space travel experiences, astrotourism also encompasses activities like stargazing and observing celestial events. Locations with minimal light pollution, known as dark sky areas, have become popular destinations for tourists seeking clear views of the night sky. These areas often offer guided stargazing tours, astronomy lectures, and other educational activities (Ozder 2024). Dark sky tourism offers an opportunity to escape light pollution and witness the full majesty of the cosmos. Light pollution from cities and urban areas obscures the view of the night sky by scattering artificial light into the atmosphere (Fernandez-Hernandez et al. 2022). Dark sky tourism destinations are often designated as dark sky reserves or parks by organizations such as the International Dark-Sky Association (IDA). These areas implement measures to minimize light pollution, such as using low-intensity lighting and implementing outdoor lighting ordinances (Blundell et al. 2020).

This article aims to highlight the special features and uniqueness of Kampung Sapit through the astronomy glamping activities available in that area. In addition, the historical, cultural, environmental and sceneries present in Kampung Sapit will be emphasized to attract tourists to experience the new attraction of astrotourism in Sarawak, thereby boosting economic activities in that area.

Literature Review:-

According to Wassenaar and Coetzee (2024), South African National Parks (SANParks) are tasked with generating operational income through innovative resource development. Astrotourism has emerged as a potentially viable income-generating activity. While various astrotourism initiatives operate globally, their suitability within the South African context remains uncertain. This study assessed successful global astrotourism initiatives to ascertain their potential applicability to SANParks. The study offers valuable insights by highlighting key concepts crucial for fostering viable astrotourism development in SANParks. Considerations for providing tourists with quality experiences include identifying suitable locations for astrotourism activities, addressing light pollution, understanding climate and seasonality factors, fostering community engagement, ensuring well-trained presenters, implementing carefully curated programs, and developing appropriate management policies to preserve dark skies. These efforts should be tailored to accommodate the unique circumstances of each park.

Hvenegaard and Banack (2024) emphasized that dark sky tourism represents a burgeoning yet relatively understudied segment within ecotourism. While existing research has explored its economic impacts, regional sustainability, and management, there remains a dearth of understanding regarding tourist experiences and outcomes. This study aims to fill this gap by investigating visitor outcomes such as satisfaction, learning, attitudes, and behavioural changes among participants of the Jasper Dark Sky Festival in Alberta, Canada. The study cohort comprised middle-aged individuals, with a balanced gender distribution, who travelled an average distance of 430 km, primarily from urban areas. Most attendees were first-time visitors, stayed for two or more days, and participated in over five festival events. Survey respondents expressed high levels of satisfaction, attributing it to the affordability and variety of events, as well as the welcoming demeanour of the community, presenters, and volunteers. Participants reported significant learning experiences, particularly regarding celestial phenomena and nocturnal wildlife. Specifically, organizers may address barriers to behavioural change by emphasizing the value of preserving dark skies and providing guidance on reducing light pollution.

Mardita and Perwitasari (2023) enlightening that astrotourism serves as a platform for space education and fostering space awareness, catering to a specific niche market comprised of individuals interested in astronomy and nature. However, the target audience extends beyond amateur astronomers, encompassing children and families seeking superior sky views compared to those available in their urban settings. To cultivate astrotourism in Kupang Regency, Nusa Tenggara Timur (NTT), reliance solely on the national observatory as the primary attraction is insufficient. Instead, there's a need to integrate astrotourism attractions with non-astrotourism elements to ensure its sustained viability through integrated routes. Non-tourism attractions should capitalize on local resources while adhering to sustainability principles, preserving the dark sky area and respecting community activities. Employing observatory participatory analysis alongside surveys and documentary sources, this research focused on areas proximate to the village observatory and within a 5 km radius of dark sky park zones. The findings indicate that Bitobe Village, Fatumonas Village, and Lelogama Village exhibit potential for developing supportive route destinations for astrotourism, particularly Sonan Hamlet, based on community-based tourism in Central Amfoang District. The proposed astrotourism product integrates both daytime and nighttime sky observation with cultural and physical attractions. The strategic development of astrotourism routes in this region necessitates integration with the dark sky park to safeguard and preserve the sustainability of the night sky at the Timau Observatory.

According to Alva et al. (2023), lack of attention has been given to the enactment of dark sky conservation through environmental policy and legislation, despite the cultural, ecological, and economic value of dark skies as natural resources. Employing the Multiple Streams Framework and analyzing qualitative data from over 300 policy documents, we delineate the challenges, proposed policy solutions, and political dynamics surrounding the protection of night sky resources. Stakeholders perceive the primary policy challenge to be the encroachment of light pollution resulting from urban development, leading decision-makers to advocate for policy solutions such as establishing Dark Sky Parks within protected landscapes through rigorous scientific processes. These technical proposals for Dark Sky Parks are disseminated to decision-makers at both park and landscape levels. Additionally, dark sky conservation is recognized as a political process, garnering bipartisan support from policymakers across different political affiliations due to the economic potential of astrotourism. Our research has broader implications for the role of managers and non-governmental organizations (NGOs) in shaping science policy, engaging the public, and effecting policy change, as demonstrated by the International Dark Sky Association's provision of resources, technical expertise, and support to facilitate actions at various levels aimed at safeguarding disappearing dark skies.

Rodrigues et al. (2024) in his article discussed that astrotourism encompasses a range of nocturnal activities that necessitate a nuanced understanding of the cognitive and emotional processes shaping tourists' experiences and fostering loyalty. This research delves into the interplay between astrotourism stimuli and cognitive states, influenced by knowledge and engagement levels, as well as the subsequent impact on emotional states, characterized by hedonistic and refreshing sensations. Furthermore, it examines how these emotional states elicit responses such as recommendations and loyalty. By integrating cognitive appraisal theory and incorporating stimuli, cognitive, and emotional states previously overlooked in research, this study enriches the S-O-R (Stimulus-Organism-Response) framework.

According to Butar-Butar et al. (2022), astrotourism involves experiencing astronomical phenomena and outer space attractions. Tourists engage in activities such as observing eclipses, meteor showers, and other celestial events under dark sky conditions. Essential for the development of astrotourism in an area is the presence of dark skies, characterized by minimal light pollution and favourable atmospheric conditions including clear skies, moderate temperature, humidity, wind speed, and precipitation. In order to assess the suitability of Barus as a potential astrotourism destination, atmospheric data were collected using a portable weather station and sky brightness data with a Unihedron Sky Quality Meter LU-DL device from July 10th to 11th, 2021.

Additionally, data on atmospheric particle content and cloud coverage were gathered as well for the same dates. The findings revealed Barus as a promising astrotourism site, particularly in Northern Sumatera or more broadly in Indonesia. Light pollution in Barus city is relatively low, with maximum sky brightness values of 21.6, 20.8, and 21.8 MPSAS in the east, zenith, and west directions, respectively. Atmospheric conditions are favourable, with an average temperature of 25.9 °C, humidity of 89.2%, wind speed of 2.07 km/h, rainfall of 33.1 mm, atmospheric particle content of 0.13 AOD, and a heat index of 27.2 °C. Further research is warranted from various perspectives to fully establish Barus as a premier astrotourism destination in Indonesia.

Research Methodology:-

This study conducts both qualitative and quantitative research, a document analysis, driven by the objective formulated, an analysis over data recorded for three days in Kampung Sapit, Sarawak. The method is recognized for its ability to encompass various theoretical aspects, thereby enhancing the validity and reliability of the data.

Site inventory and observation were carried out to directly gather information on the condition of sites and their surroundings. In terms of heritage conservation, firsthand data obtained from on-site observations enable researchers to delve into and deepen their understanding of the site, facilitating a richer visualization of its heritage significance and fostering engagement and communication with its history (Nayan et al. 2022). Direct observation allows researchers to establish a more direct connection with the case studies. Collecting data from site observation involves systematically recording information directly from a physical location to study specific phenomena or processes. This method includes defining clear objectives, selecting an appropriate site, and developing a detailed observation plan (Van der Vleuten & Driessen 2009). Tools like laptop, cameras, and GPS device are used to gather data. Ethical considerations, such as obtaining permissions and respecting privacy, are requested before start.

In addition, a Sky Quality Meter (SQM) was used to measure the brightness of the night sky, primarily for assessing light pollution levels. It provides quantitative data on the sky's luminance, typically expressed in magnitudes per square arcsecond, which helps astronomers, environmental scientists, and urban planners understand the extent of artificial light intrusion in natural settings (Costa-Duarte et al. 2020; Díaz-Coronaet al. 2019). The SQM is easy to use, portable, and often equipped with a digital display or connectivity options for data logging. By systematically collecting sky brightness data, SQMs aid in monitoring trends in light pollution, informing the implementation of lighting regulations, and promoting initiatives to preserve dark skies for astronomical observations and ecological health (Angeloni et al. 2024).

The collected data is then organized, analyzed, and reported to provide rich, contextual insights that support research objectives and inform decision-making. Analyzing data from site observation involves organizing and cleaning the collected information, categorizing it into relevant themes, and employing both qualitative and quantitative analysis methods. For quantitative data, statistical tools are used to identify patterns, trends, and correlations, while qualitative data is analyzed for recurring themes and behaviours. Visualizations such as graphs, charts, and maps help in interpreting complex data. Integrating different data types through triangulation enhances the robustness of the findings. Finally, insights are extracted, conclusions drawn, and recommendations made, with the entire process documented in a comprehensive report to inform decision-making regarding the potential of Kampung Sapit as astrotourism attraction.

Analysis and Discussion:-

Glamping, a fusion of 'glamorous' and 'camping', refers to a style of camping with amenities and, in some cases, resort-style services not usually associated with traditional camping (Sun & Huang 2023; Brochado & Pereira 2017). In Malaysia, the history of glamping can be traced back to around 2015, when the concept started gaining popularity among locals and tourists seeking a unique outdoor experience combined with comfort and luxury. The initial introduction of glamping in Malaysia was influenced by global trends and the increasing demand for sustainable and experiential travel. The Malaysian government, recognizing the potential of this niche tourism sector, began promoting glamping as part of its broader tourism development strategy. Efforts were made to create awareness and interest in glamping, emphasizing the country's rich natural landscapes and cultural heritage as perfect backdrops for this new travel experience (Schmitz & Herrero-Jauregui 2021; Alvarez-Garcia et al. 2019).

The rise of glamping in Malaysia can also be linked to the broader movement towards eco-tourism and sustainable travel. As travellers became more environmentally conscious, there was a growing interest in experiences that allowed them to connect with nature without compromising on comfort (Adamovich et al. 2021). Glamping sites began to spring up in various scenic locations across Malaysia, including lush rainforests, highland retreats, and pristine beaches. Key areas like Janda Baik, Cameron Highlands, and Taman Negara quickly became popular glamping destinations, offering a range of accommodations from luxury tents and treehouses to eco-friendly lodges. These sites often include modern amenities such as comfortable beds, en-suite bathrooms, and gourmet dining options, blending the rustic charm of camping with the luxury of high-end resorts (Shahane 2023).

Local entrepreneurs and international investors saw the potential in this market and began developing glamping sites that catered to different segments of travellers, from families and couples to adventure enthusiasts and wellness seekers. The glamping trend in Malaysia has continued to grow, driven by the desire for unique, immersive experiences that highlight the country's natural beauty and cultural richness (Balasubramanian & Hanafiah 2022). Today, glamping in Malaysia represents a harmonious blend of nature and luxury, attracting both local and international tourists looking for memorable, eco-friendly adventures (Azam & Safiai 2023). The ongoing development of glamping sites and the continuous efforts to promote sustainable tourism ensure that this trend remains a vibrant part of Malaysia's tourism landscape (Samori et al. 2023).

Kampung Sapit, located in Sarawak, Malaysia, is a remote village nestled in the Borneo highlands near the Indonesian border. Known for its serene landscapes and traditional Bidayuh culture, the village offers a unique glimpse into rural life. The community lives sustainably, relying on agriculture and eco-tourism. Kampung Sapit is accessible via a rugged trail, adding to its untouched charm. Visitors can experience the village's rich heritage, traditional crafts, and breath-taking views, making it an emerging destination for astrotourism and cultural immersion in Sarawak (Salang et al. 2017; Rahman et al. 2013).

Figure 1:- Map of Kampung Sapit, Sarawak
Source: Author, 2024. Image retrieved from (Google Earth, 2024).

Astrotourism in Kampung Sapit, Sarawak, is a burgeoning attraction, leveraging the village's pristine natural environment and minimal light pollution to offer visitors spectacular stargazing experiences. Located in the highlands of Borneo, Kampung Sapit provides an ideal setting for astronomy glamping activities because the area is free from urban light interference. This makes it a prime destination for astronomy enthusiasts and casual stargazers alike. The local community, recognizing the potential of astrotourism, has begun developing facilities such as chalets and campsites, as well as organizing events to attract visitors interested in the cosmos. Guided night tours and stargazing sessions are conducted by knowledgeable locals, who provide insights into the constellations, planets, and other celestial phenomena. These activities not only enhance the visitor experience but also foster an appreciation for the natural and cultural heritage of the area.

Astrotourism in Kampung Sapit also aligns with the broader goals of sustainable and eco-friendly tourism. There are several areas that have been developed into astronomy glamping sites, such as Shiroh Chalet & Campsite, Kiyau Campsite, De Remin and Sunrise View Village Stay. By promoting stargazing as a key attraction, the village encourages low-impact tourism that benefits the local economy while preserving the environment. Visitors can enjoy the dual experience of exploring the unique Bidayuh culture and immersing themselves in the natural beauty of the night sky, making Kampung Sapit a distinctive destination for astrotourism in Sarawak.

Among the main attractions there are jungle trekking, hill hiking, and exploring natural waterfalls. These activities are among the primary sources of income for the residents of the village. Typically, they offer services as guides to visitors who wish to do jungle trekking, hiking, and find waterfalls in the area. Fees are charged in packages, either individually or in groups. Kampung Sapit can be categorized as still well-preserved and not fully explored by outsiders, thus the natural environment there remains beautiful and intact. Due to the response and demand from both local and international visitors for tourism activities, the local community of Kampung Sapit got the idea to

build accommodation for those visiting the village. Since Kampung Sapit is within Bortle Scale Class 2 and the sky brightness there is around 21.93 mag.arc/sec², an observer in that area will be able to see the Triangulum Galaxy, the Milky Way Galaxy, the moon, planets, and most constellations can be identified and seen with the naked eye.

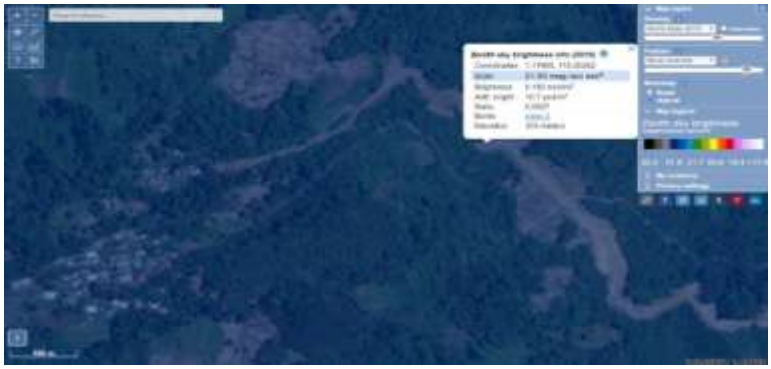

Figure 2:- Sky brightness magnitude and Bortle scale of Kampung Sapit, Sarawak
Source: Author, 2024. Image retrieved from (Light Pollution Map, 2024).

Most tourists who come for these recreational activities usually enter and exit on the same day. However, after requests from several regular visitors, glamping site operators began to intensify efforts to provide resting areas for them. The first seven campsites built included Shiroh Chalet & Campsite itself. The uniqueness there is the combination of glamping and ecotourism concepts. Mr. Jassing who is the owner built the glamping site on his own land and planted various types of fruit trees throughout the glamping site area.

Responsible travel, or ecotourism, has gained significant popularity during and after the pandemic, with reports indicating that 81% of travelers worldwide consider sustainable travel important. For glamping business owners aiming to align with traveler values and engage directly with this sector, adopting sustainable practices is crucial (Fernandez et al. 2020). Glamping business owners globally can leverage this understanding to enhance their holiday rental businesses. By adopting sustainable actions, they not only protect the environment, economy, and society but also increase profitability by catering to a growing segment of conscious global travelers (Lee et al. 2020).

Figure 3:- Shiroh Chalet & Campsite
Source: Author, 2024. Image retrieved from (Facebook Shiroh Chalet & Campsite, 2024).

The idea for Shiroh Chalet & Campsite was born from the opportunities and potential in meeting this demand. On average, about 100 people visit the area daily for natural exploration activities. The local residents established an association named the Kampung Sapit Community Tourism Operators Association to enable them to build accommodation sites around Kampung Sapit. Of the seven campsites built, only two have dome-shaped tents. Kiyau Campsite was the first to offer accommodation in dome-shaped tents, followed by Shiroh Chalet & Campsite. The

concept of astronomy glamping is applied to both campsites by organizing night sky observation activities with visitors and offering very friendly astronomical tourism elements. Streetlights are installed to not be too bright and can be turned off if necessary.

Figure 4: Kiyau Campsite
Source: Author, 2024. Image retrieved from (Facebook Kiyau Campsite, 2024).

According to the owner of Kiyau Campsite, sky observation activities have been conducted by public visitors for as long as he has been operating the glamping site. Amateur astronomy enthusiasts come to the glamping site with their own equipment to conduct astronomy activities. Observation planning can be done using software on smartphones. Among the night sky observation activities that attract attention is the observation of Milky Way Galaxy. Typically, Milky Way observation activities can be carried out from around February to May. During this time, the Milky Way is in the sky throughout the night.

Figure 5:- Milky Way
Source: Author, 2024. Image retrieved from (Facebook Kiyau Campsite, 2024).

Conclusion:-

Astronomy glamping activities are expected to continue to develop in Kampung Sapit, Sarawak. High demand and enthusiastic responses are evident as visitors always want to experience the unique accommodations, especially in dome-shaped tents. Astronomy glamping activities are increasingly becoming popular among outdoor enthusiasts. Social media can play a crucial role in raising awareness about the dangers of light pollution, which is becoming more widespread across the country. The trend in travel activities among the community is starting to show a shift, with visitors also showing a high interest in natural tourism activities, not just city vacations or shopping trips. Such opportunities should be given to the local community in Kampung Sapit, Sarawak. This study found that astronomy tourism in Kampung Sapit, Sarawak is still in its early stages and has the potential to expand as a new area for astronomy glamping activities in Malaysia. The efforts of the site owners can progress further with the support and patronage of local visitors. Publicity on social media, websites, and with government assistance can ensure the

future of these glamping activity sites. Therefore, this study hopes to highlight the capabilities of the glamping sites in Kampung Sapit in incorporating features of astronomy glamping models that can contribute to astronomical knowledge and generate income for the country.

Acknowledgement:-

This study was financed by the Fundamental Research Grant Scheme (FRGS/1/2022/SSI13/UKM/02/6), Ministry of Higher Education, Malaysia; Dana Pecutan Penerbitan and Dana Insentif Penerbitan, Faculty of Islamic Studies, Universiti Kebangsaan Malaysia.

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