



# Nature Recreation Impact Monitoring and Response Report 2025

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## Introduction

Maliau Basin Conservation Area (MBCA), famously known as the "Lost World of Sabah," has developed into a hub for research, environmental education, training, and nature recreation. In recent years, nature recreation activities in MBCA such as guided jungle trekking, wildlife observation, birdwatching, nature photography, and forest camping have significantly increased. These activities are designed not only to promote appreciation for nature but also to generate revenue to support the operational and management costs of the conservation area.

The income generated through nature recreation has become a vital financial resource, helping to sustain core operations, improve infrastructure, support conservation efforts, and reduce reliance on external funding. Additionally, MBCA actively promotes research collaborations with universities and institutions, while also conducting environmental education (EE) programs for school children to foster awareness and a sense of responsibility toward nature from an early age.

However, while these activities offer many benefits, they also pose potential risks to the natural and cultural integrity of the area if not properly managed. Unregulated nature recreation could lead to environmental degradation, habitat disturbance, cultural erosion, and socio-economic imbalances within nearby communities. Therefore, this report provides a summary of the monthly monitoring outcomes related to the **socio-economic, cultural, and environmental impacts** arising from visitor activities in MBCA. It highlights the key **issues identified, mitigation actions taken, and recommendations** for maintaining a sustainable balance between nature recreation development and conservation objectives.

## METHODOLOGY

This report applies a structured monitoring approach to assess the socio-economic, cultural, and environmental issues associated with visitor activities within the Maliau Basin Conservation Area (MBCA). Given the unique nature of MBCA—where no permanent local communities reside and visitor activities are managed solely by staff and temporary personnel—the methodology was adapted to reflect on-site realities and available human resources.

Data collection was carried out monthly through a combination of **direct field observations**, and **staff feedback**. The methodology prioritizes low-cost, repeatable practices that allow MBCA personnel to regularly monitor key impact areas.

- **For socio-economic aspects**, data was gathered through feedback from MBCA staff and temporary workers who assist in nature recreation-related operations such as guiding, camp maintenance, and logistics. This includes informal interviews and monthly reporting on the Overtime payment, monthly salary, and claim porter.
- **Cultural monitoring** was limited to the assessment of tourist behaviour and awareness, as MBCA does not host resident communities or traditional cultural practices. Observations focused on how visitors comply with established rules, respect for the natural environment, and any reported incidents of inappropriate conduct.
- **Environmental data** was collected primarily through structured site inspections using checklists. These inspections were conducted by rangers and staff along frequently visited areas such as trails, skybridges, observation towers, campsites, and the research station. The focus was on identifying signs of degradation, litter accumulation, noise disturbance, and overuse. Photographic evidence and visitor log data were also used to support observations.

This methodology enables MBCA to maintain an ongoing understanding of how nature recreation impacts the area, ensuring that timely management responses can be implemented to protect its ecological integrity and support sustainable operations.

## Findings

The following findings summarize the outcomes of monthly monitoring activities conducted within the Maliau Basin Conservation Area (MBCA) to assess the socio-economic, cultural, and environmental issues related to nature recreation. These findings are based on the data collected through direct staff observations, field checklists, informal interviews, and internal reporting systems, as outlined in the methodology.

### I. Socio – Economic issues and responds

| Observed Issues   | Description   | Responses/Actions Taken  | Status             |
|---|---|--|--------------------|
| High workload among temporary staff during peak visitor seasons | Temporary staff such as guides and porters experienced heavy workloads, especially during school holidays or research influx periods. | Adjusted staff schedules; added support staff during peak periods to balance workload.                             | Ongoing monitoring |
| Limited local economic benefit to surrounding communities       | Supplies and services were largely sourced from nearby towns, but opportunities to involve more local vendors were limited.           | Initiated efforts to procure more supplies (e.g., food, transport) from nearby communities to boost local economy. | In progress        |

|   |  |   |                     |
|---|--|---|---------------------|
| Limited skill development for local workforce | Many temporary staff (including porters) have limited formal training in hospitality and recreational, safety, or customer service, which affects the overall quality of services provided | Assistance was arranged from the headquarters to send a certified trainer to Maliau Basin, who provided basic guide training for both permanent staff and porters | done                |
| Seasonal fluctuations in income               | Temporary workers and local providers earn mainly during peak seasons, leaving gaps in off-peak months.  |   | On going monitoring |

|  |   |  |          |
|--|---|--|----------|
|  |   | <p>The reservation team ensures that trekking and center packages are consistently promoted and sold to visitors, maintaining steady demand for porter services.</p> <p>Additionally, an increase in research activities this year has created more opportunities for porters, helping to stabilize the income of temporary staff throughout the year.</p> |          |
| Limited economic linkages with surrounding communities | Economic benefits from nature recreation activities to nearby communities remain limited. | Promote community-based products such as handicraft made by the families staff   | On going |

Table 1.0: Socio – economic Issues and Responses in MBSC

ii. Cultural issues and responses

| Observed Issues  | Description  | Responses/Actions Taken   | Status                                      |
|--|--|---|---|
| Limited visitor awareness of MBCA's conservation importance              | Some visitors lack awareness or understanding of the ecological and conservation value of the Maliau Basin, which occasionally results in noncompliance with rules and best practices. | Visitor briefings were improved, and additional educational signage was installed at key locations such as trailheads, campsites, and visitor centers to raise awareness.       | On going<br><br>needs continuous monitoring |
| Minor incidents of rule violations (e.g., going off-trail, making noise) | A small number of visitors were reported straying off marked trails or creating excessive noise, which can disturb the natural environment and wildlife.                               | Increased ranger and guide presence along popular trails, added clear trail markers, and reinforced behaviour reminders during pre-activity briefings to minimize disturbances. | On going monitoring                         |

Table 1.1: Cultural Issues and Responses in MBSC

### iii. Environmental Issues and Responses

| Observed Issues                                 | Description   | Responses/Actions Taken  | Status                                 |
|---|---|--|--|
| Trail erosion and degradation                   | High foot traffic on popular trails (especially during rainy seasons) has caused soil erosion, exposed roots, and degraded trail conditions.                  | Regular trail maintenance, installation of boardwalks in sensitive areas, and visitor briefings on staying on designated trails.                                   | Ongoing                                |
| Litter accumulation at campsites and rest stops | Waste such as plastic bottles, snack wrappers, and food packaging is often left behind at high-use areas like Belian Camp, Skybridge, and observation towers. | Increased frequency of clean-up patrols, and stronger visitor briefings on pack-in, pack-out principles.   | Improving, needs continuous monitoring |
| Wildlife disturbance from noise                 | Noise from visitors (talking, music, or equipment) along trails or at campsites may disturb sensitive wildlife, including birds and mammals.                  | Rangers and guides are trained to remind visitors to minimize noise; new signage added at sensitive areas; group sizes are also limited for certain activities.    | Under active management                |
| Water quality risk in rivers and streams        | Increased visitor use near rivers (for washing, picnicking, or crossing) may introduce waste, soap, or sediment that impacts water quality.                   | Visitors are strictly prohibited from washing in rivers; monitoring of water quality near high-use sites; educational briefings emphasize protection of waterways. | Stable, with ongoing checks            |
| Introduction of non-native species              | Risk of visitors or researchers inadvertently bringing in non-native seeds or organisms attached to   | Implementing boot-cleaning stations at trailheads, awareness posters for researchers, and periodic checks by conservation staff.                                   | Early stage, needs scaling up          |

|   |   |   |                             |
|---|---|---|-----------------------------|
|   | clothes, shoes, or equipment.   |   |                             |
| Energy and resource use at research station and camps | Electricity and water consumption, as well as waste from station and camp operations, put pressure on local resources and require careful management. | Shift toward solar energy where possible; water-saving measures; better waste sorting and recycling at the station and camps. | Improving, medium-term goal |

Table 1.2: Socio – economic Issues and Responses in MBSC

### Conclusion

The monitoring conducted in the Maliau Basin Conservation Area (MBCA) has provided valuable insights into the socio-economic, cultural, and environmental issues arising from visitor activities, as well as the effectiveness of the responses implemented.

For the socio-economic dimension, the provision of additional guide training and the increase in research-related activities have helped stabilize the income of temporary staff, particularly porters, ensuring more consistent employment throughout the year. Efforts to involve local suppliers and communities are underway, although further engagement is still needed to maximize local economic benefits.

On the cultural front, while no resident communities live within the MBCA, challenges were observed in terms of visitor awareness and behavior. Enhanced visitor briefings, improved signage, and increased ranger presence have contributed to better compliance with conservation rules, particularly at high-use sites like Belian Camp. However, continuous reinforcement of these messages remains important to maintain responsible visitor behavior.

From an environmental perspective, responses such as regular trail maintenance, waste management improvements, noise control measures, and group size limits have yielded positive outcomes, reducing the immediate environmental impacts of visitor activities. Ongoing monitoring has been essential in identifying emerging concerns, such as the potential introduction of non-native species and energy use at field stations, allowing management teams to plan early-stage interventions.

Overall, the combined efforts of management, staff, and supporting partners have led to steady progress in mitigating visitor activities impacts in the Maliau Basin. However, continuous monitoring, adaptive management, and community engagement remain critical to ensuring the long-term sustainability of both conservation and nature recreation activities in the area.

## Picture of report



**Picture 1.0:** The group of visitors undertaking the trekking activity with the ranger and porter of Maliau Basin



**Picture 1.1:** The responsibilities of porters at Maliau Basin include the roles of Food Porter, Personal Porter, and Maintenance Porter.



Picture 1.2: valued guest and daily visitors of MBCA