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(RESEARCH ARTICLE)

Effectiveness of Gunung Meja Nature Tourism Park Management Based on METT

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Abstract

Evaluation of conservation area management is an important part of managing the area to understand the dynamics of management. Gunung Meja Tourism Park area had a METT score of 65%, indicating that it was being managed less effectively due to limitations in its management. The achievement of management effectiveness was heavily influenced by process elements, including suboptimal equipment maintenance, the lack of a commercial tourism operator, and the absence of fees. Furthermore, the output element was influenced by the lack of visitor facilities, and the outcome element was influenced by economic benefits and the condition of cultural values.

Keywords: Context; Input; Process; Output; Outcome; METT; Gunung Meja; Nature Tourism Park

1. Introduction

Currently, there were 579 KSA, KPA, and TB units, including 214 Nature Reserves, 96 Wildlife Sanctuaries, 57 National Parks, 145 Nature Tourism Parks, 51 Grand Forest Parks, and 10 Hunting Parks, as well as 6 areas whose conservation functions had not been designated. Administratively, these conservation areas were located in 38 provinces, 355 regencies, and 1,614 sub-districts, where there were approximately 7,043 buffer villages with approximately 9.5 million residents who depend on the natural resources within these conservation areas [1]. These communities often exist long before the conservation areas were designated/established. Facts also prove that conservation area management cannot be carried out exclusively by managers at the site level due to limited resources from the government, both in terms of human resources, budget, and facilities and infrastructure.

Conservation area management was based on Law Number 5 of 1990 as amended by Law Number 32 of 2024 concerning Amendments to Law Number 5 of 1990 concerning Conservation of Biological Natural Resources and their Ecosystems as per Government Regulation No. 108 of 2015 concerning Amendments to Government Regulation No. 28 of 2011 concerning Management of Nature Reserve Areas and Nature Conservation Areas that KSA and KPA management were systematic efforts undertaken to manage the area through planning, protection, preservation, utilization, supervision and control activities. Maintaining the existence of important types of natural resources was one of the mandates of existing conservation area management. For this reason, it was necessary to continuously monitor the condition of existing conservation area management. This was not only to ensure that the area was managed in accordance with the stated objectives, but also as a tool to correct existing weaknesses. Monitoring the management of conservation areas through the Management Effectiveness Tracking Tool (METT), developed by the World Bank and WWF in 2007, was one tool used to comprehensively evaluate all conservation area units [2], [3].

According to [4], [5], there were currently 19 areas managed by the Papua Natural Resources Conservation Agency (NRCA), 27 by the Southwest Papua Natural Resources Conservation Agency (NRCA), and 4 National Parks,

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demonstrating management effectiveness figures for these National Parks. It was further stated that the characteristics of conservation areas differ significantly from those of other conservation areas. Differences in legal status, management organization, and allocation of human and financial resources influence management conditions. Furthermore, finding a management framework that aligns with the facts on the ground was not easy. Furthermore, field data had not been comprehensively collected and referenced, and used in area management planning.

Gunung Meja nature tourism park was a nature conservation area in West Papua Province, as stipulated in the Decree of the Minister of Forestry No. 91/Menhut-II/2012 dated February 3, 2012, covering an area of 462.16 ha. Located at an altitude of 16-177 meters above sea level, this area serves as a natural laboratory with a high diversity of flora, fauna, and ecosystems [3]. It was home to over 100 types of forest vegetation, 65 species of medicinal plants, and various types of wildlife [6] and stores approximately 1.6 million tons of water annually through seven active springs for the surrounding community [4].

Gunung Meja nature tourism park was a pilot conservation area management program in West Papua province. It had an Area Decree (SK), Management Block Decree (SK), Management Plan for 2022-2031, and a management agency (Region II of Southwest Papua Nature Resources conservation agency), boasting diverse potential, including natural forests, wildlife, caves, Japanese monuments, and various tourism potentials that support its management. This conservation area was managed through a management unit which was faced with various conditions that influence performance achievement.

2. Research Method

2.1. Research Time and Place

This research lasted for 2 months (May–June 2026), covering the preparation and implementation stages of the research and was located at the Gunung Meja nature tourism park and the Office of region II of Southwest Papua Nature Resources conservation agency in Manokwari.

2.2. Tools and Materials

The equipment used in this study was a camera, writing instruments, and a computer for data collection and analysis. The materials used were data from the evaluation of the Gunung Meja nature tourism park management based on METT, which included area information data, data on threats to the conservation area, and data from the evaluation of area management.

2.3. Research Procedure

The data collected consists of primary (main) data in the form of data from the results of the evaluation of area management based on METT including area data/information, data on threats to conservation areas and the effectiveness of area management (context, input, process, output and outcome) and secondary (supporting) data in the form of research location conditions (Gunung Meja nature tourism park and region II of Southwest Papua Nature Resources conservation agency in Manokwari).

2.4. Data Analysis

The collected research data was analyzed according to each component, as follows.

2.4.1. Area Data/Information

Data on area conditions, including name, size, and location, conservation area code (WDPA), national area designation, and IUCN conservation area category, ownership, staff size, and budget, METT participants, and international designation of the assessed area were analyzed descriptively.

2.4.2. Conservation Area Threat Data

Data on threats facing the Gunung Meja nature tourism park, including threats and their impacts on the conservation area, were analyzed descriptively.

2.4.3. Area Management Effectiveness

The assessment of conservation area management effectiveness for conservation areas with a management mandate covering land used terrestrial METT. This facilitates the analysis of previously generated recommendations and allows for the monitoring of the progress of area management and the identification of inhibiting factors in improving the effectiveness of conservation area management. [7] analyzed various results of conservation area management effectiveness assessments worldwide. Management effectiveness scores could be divided into three categories:

- <33%: Inadequate (ineffective) area management
- 33-67%: Inadequate (less effective) area management
- >67%: Fairly good (effective) area management

3. Results and Discussion

3.1. METT Assessment Elements

The achievement value of the effectiveness of the management of the Gunung Meja nature tourism park area was 65%, including the Context element or current condition of 100%, the Planning element or planning element 82%, the input element/element 61%, the process element/element 65%, the output element/element 0% and the outcome element/element 71%. In repeating this assessment process, it was done by looking at/referring to the results of the previous assessment. This was to make it easier to find out the recommendations produced previously and then be able to observe the extent of the development of area management and see the inhibiting factors in increasing the effectiveness of conservation area management. According to [3] METT transformed from METT to METT 3 and METT was directed to facilitate the assessment process effectively and efficiently.

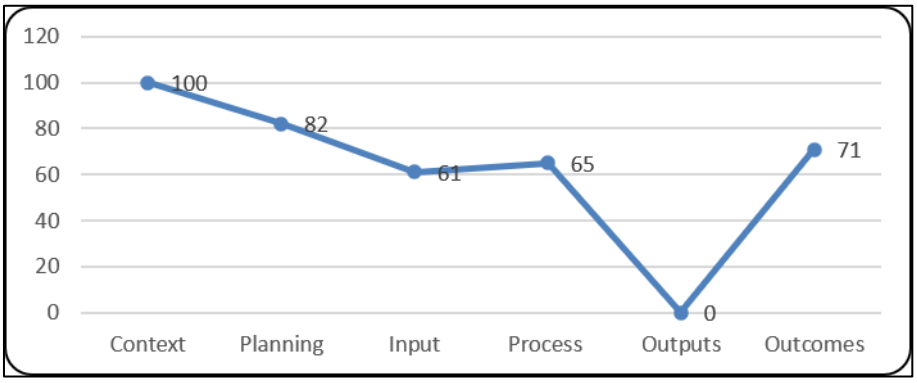

Figure 1 Achievement of Management Effectiveness Based on METT Elements

The process element was influenced by suboptimal equipment maintenance, the lack of a commercial tourism operator, and the absence of levies. Furthermore, the output element was influenced by the lack of visitor facilities, and the outcome element was influenced by economic benefits and the condition of values. The graphic above summarizes the scores for each question across the six assessment elements as follows:

3.1.1. Context Element

The context element indicator consists of questions describing the current or current condition of the management unit and the managed area at the time of the assessment. This indicator was represented by questions related to legal status, which were described as follows.

Legal Status

The Gunung Meja Nature Park had a clear legal status through Decree of the Minister of Forestry No. SK.91/Menhut-II/2012 dated February 3, 2012, therefore this indicator was given a score of 3. Follow-up: Optimization of area regulations and mandates and preparation of the RPJPn document.

3.1.2. Planning Elements

Conservation Area Regulations

The RPJP (Long-Term Development Plan), block layout, master plan site design, and DED (Development Plan) for the Gunung Meja nature tourism park were in place, thus receiving a score of 3. The follow-up plan for implementation aligns with the management plan and the RPJPn document.

Main Objectives of the Conservation Area

The main objectives of the conservation area exist, but had not been fully translated into a long-term management plan and strategic plan, therefore receiving a score of 2. Follow-up steps include raising public awareness, both in the field and through social media.

Conservation Area Design

The conservation area design was in place and aligned with the area's potential, therefore receiving a score of 3. Follow-up steps include maintaining the conservation area design.

Long-Term Management Plan for the Gunung Meja nature tourism park (Long-Term Management Plan/RPJP)

The Gunung Meja nature tourism park management plan exists and had been approved by a Director General Decree, but had not been fully implemented, therefore receiving a score of 2. Follow-up steps include encouraging area management in accordance with the RP and collaborative management.

Short-Term Management Plan (RPJPn)

The short-term management plan for the Gunung Meja nature tourism park exists and had been approved by the Director General's Decree, but had not been fully implemented, and therefore was given a score of 2. Follow-up measures encourage area management in accordance with the RP and collaborative management.

Short-Term Management Plan (RPJPn)

A Short-Term Management Plan (RPJPn) was not yet available/compiled, and therefore was given a score of 0. Follow-up measures include the development of a short-term management plan document.

Land and Water Use Planning

Land and Water Use Planning for the Gunung Meja nature tourism park had been incorporated into area management through the division of management blocks and the provision of reservoirs around the area that supply clean water for community use. However, these had not been fully managed optimally, and therefore was given a score of 2. Follow-up measures encourage the need for maintenance at each water source to maintain water quality and flow.

3.1.3. Input Indicators

Regulation Enforcement

Employees were familiar with the management regulations applied to the area's management, but they were not consistently implemented, and therefore, a score of 1 was given. Follow-up measures include ongoing training and refresher courses.

Resource Inventory

A resource inventory had been conducted regarding the area's potential and problems, and a score of 2 was given. Follow-up measures include increased monitoring and evaluation.

Number of Employees

Based on the Minister of Administrative and Bureaucratic Reform's Regulation (Permenpan RB) and the Ministry of Environment and Forestry's job analysis for the Southwest Papua natural resources conservation agency, the number of employees and functional personnel was still far below standard, and a score of 2 was given. Follow-up measures include regular training and refresher courses for employees at the resort, regional, and Manokwari levels.

Employee Training

Staff were trained and their skills were adequate, but need to be improved to fully achieve management objectives, and a score of 2 was given. Follow-up measures include regular training and refresher courses for employees at the resort, regional, and Manokwari levels.

Current Budget

The available budget was sufficient but needs to be increased to fully achieve effective management, so it was given a score of 2. Follow-up steps include allocating funds for management improvements.

Budget Certainty

The budget sourced from the State Budget (APBN) was already available, but no other sources were available, so it was given a score of 2. Follow-up steps include seeking other funding sources.

Equipment

The available facilities were not yet fully able to support the management activities of the TWA GM conservation area, so it was given a score of 1. Follow-up steps include conducting an inventory and assessment.

Supporting facilities and infrastructure development, such as the Gunung Meja nature turism park resort building and other equipment.

3.1.4. Process Elements

Area Establishment

The area boundaries were clear and known to the management and surrounding community, thus awarded a score of 2. Follow-up steps include maintaining the boundary markers and providing information to stakeholders regarding the area boundaries.

Protection System

Forestry Police personnel were present, therefore awarded a score of 3. Follow-up steps include conducting routine monitoring activities.

Research

Research activities were still frequently conducted, but did not go through the permit process at the natural resources conservation agency to obtain SIMAKSI (Tourism Park and Wildlife Conservation Agency) and therefore awarded a score of 2. Follow-up steps include implementing SIMAKSI.

Resource Management

The area block had been reorganized to facilitate management, therefore awarded a score of 2. Follow-up steps require re-demarcation of the area block boundaries, as several boundary markers had been damaged or missing.

Budget Management

The available budget was sufficient for basic management needs but did not fully cover some programs, so it was given a score of 2. Follow-up measures require an increase in the budget through management partners.

Equipment Maintenance

Equipment maintenance had not been carried out routinely, so it was given a score of 2. Follow-up measures require regular equipment maintenance.

Education and Awareness

Environmental education outreach had been conducted in several high schools, and conservation cadres had been formed through the Bina Cinta Alam program, so it was given a score of 2. Follow-up measures include environmental education outreach and nature awareness programs being carried out on an ongoing basis.

Government and private sector in the surrounding area

Communication had been established between the area manager and the surrounding land and water authorities/users, but no further agreement had been reached, so it was given a score of 2. Follow-up measures require a cooperation agreement regarding the management of the GM TWA area to optimize its management.

Indigenous and Indigenous/Traditional Communities

Indigenous communities were involved in the management of the GM TWA area, so it was given a score of 2. Follow-up measures require the involvement of indigenous communities in all management and sustainable use activities.

Local Communities

Local communities were involved in the management of the Gunung Meja nature tourism park area, so it was given a score of 2. Follow-up measures require the involvement of indigenous communities in all management and sustainable use activities.

Monitoring and Evaluation

Regular monitoring and evaluation activities had been conducted, so it was given a score of 3. Follow-up measures require regular and routine monitoring and evaluation activities.

Commercial Tourism Operators

There was no collaboration between the area manager and commercial tourism operators, so it was given a score of 1. Follow-up measures require collaboration between the area manager and commercial tourism operators. so that area management could be optimized.

Levies (PNBP or other levies)

There had been no non-tax state revenue (NTSR) levies collected from the Gunung Meja nature tourism park, so it was given a score of 0. Follow-up steps need to be implemented by SIMAKSI to generate income for the management, which could be used for the sustainable management of the Gunung Meja nature tourism park. There was a need for infrastructure development, such as adequate resort buildings, public toilets, clean water supply, and other supporting facilities that could be utilized in the management of the Gunung Meja nature tourism park.

3.1.5. Output Elements

Visitor Facilities

Several visitor facilities were available, but their maintenance was not optimal, so it was given a score of 0. Follow-up steps require the development of infrastructure, such as adequate resort buildings, public toilets, clean water supply, and other supporting facilities that could be utilized in the management of the GM Natural Park area.

3.1.6. Outcome Elements

Economic Benefits

The local community had not yet experienced the economic benefits from the management of the Gunung Meja nature tourim park, so it was given a score of 2. Follow-up steps need to include community empowerment activities (social forestry) around the area.

Condition of Values

Several endemic species were becoming increasingly difficult to find, so they were assigned a score of 2. Follow-up measures require strict monitoring of the area to reduce/minimize actions that could potentially degrade the area's importance.

3.2. Evaluation of Management Implementation

Based on observations and a review of the METT (Metrically, Incentive-Based Assessment) assessment elements, the Gunung Meja nature tourim park area had a METT score of 65%. This overall score had changed from the baseline management score of 47% in 2015, which subsequently experienced quite dynamic changes based on the evaluation results of the assessment period.

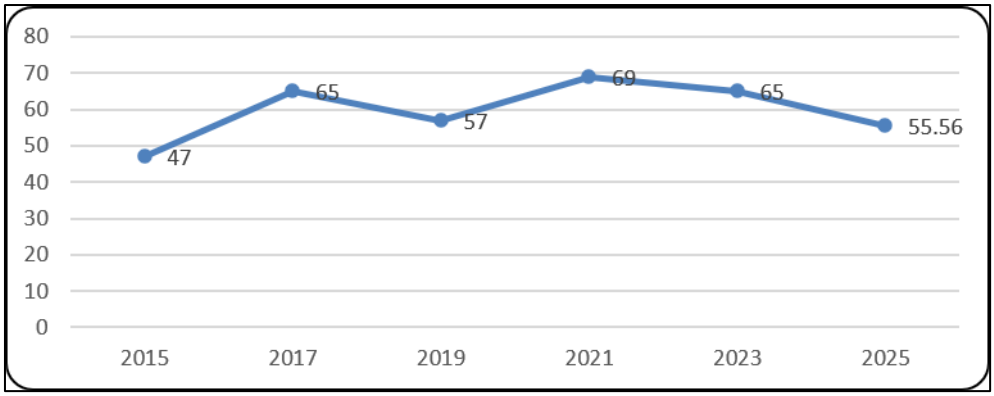

Figure 2 Evaluation of Gunung Meja Nature Tourism Park Management Based on METT

These changes were influenced not only by management performance but also by adjustments to the assessment method from METT to METT 3 and METT 4 in 2025, which bases management aspects on several aspects, including management impacts. The 65% score in the METT version represents an adjusted achievement from METT4 of 55.56%, indicating that other aspects form the basis for management evaluation in the revised evaluation method. Fluctuations in the METT score indicate changes in the management agency's performance based on the performance target recommendations in the previous evaluation. According to [3], the fundamental aspect of performance assessment using METT was not the score but rather the follow-up to the assessment results. This follow-up involves implementing all recommendations resulting from the assessment process with a more adaptive management model and new methods that were more acceptable to stakeholders, including the community. According to [8], conservation area management should be directed towards methods that improve the area's function.

4. Conclusion

The Gunung Meja nature tourism park area had a METT score of 65%, indicating that it was being managed less effectively due to limitations in its management. The achievement of management effectiveness was heavily influenced by process elements, including suboptimal equipment maintenance, the lack of a commercial tourism operator, and the absence of fees. Furthermore, the output element was influenced by the lack of visitor facilities, and the outcome element was influenced by economic benefits and the condition of cultural values.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no conflict of interest regarding the publication of this paper.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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