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Evaluation of Cleanliness, Health, Safety, and Environmental Sustainability in Baturraden

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ABSTRACT

Background: Effective implementation of cleanliness, health, safety, and environmental sustainability is essential at tourism destinations, yet certification does not necessarily ensure consistent day-to-day practice. This study evaluated implementation at Lokawisata Baturraden against SNI 9042:2021. **Method:** A qualitative descriptive evaluation was conducted from January to April 2026. Six purposively selected informants represented destination coordination, cleanliness, health, safety, environmental management, and visitors. Data from semi-structured interviews, structured observation, and documentation were coded against the standard indicators and triangulated across sources and methods. **Results:** Routine cleaning, covered bins, a health post, emergency procedures, evacuation information, hazard-warning signs, and periodic waste collection were in place. However, monitoring logs were not standardized; cleanliness and health-promotion media were sparse; handwashing and sex-separated toilet provision was limited; first-aid resources were concentrated in one location; fire-protection equipment and emergency training were incomplete; and waste bins did not support source segregation. Implementation was therefore only partially aligned with the standard, with recurrent gaps in monitoring, resource distribution, staff competency, and visitor communication. **Conclusion:** Certification should be followed by risk-based facility placement, documented inspection and corrective-action cycles, recurrent emergency training, source-separated waste systems, and behaviorally designed visitor messages.

1. Introduction

Tourism destinations are simultaneously leisure environments, workplaces, and public spaces. Their operation therefore depends not only on attractions and services but also on hygienic facilities, rapid health assistance, hazard control, and responsible use of natural resources. In Indonesia, SNI 9042:2021 (Standar Nasional Indonesia, the Indonesian National Standard) integrates these expectations through four dimensions—cleanliness, health, safety, and environmental sustainability—across management, human resources, facilities, and visitor participation [1]. A field evaluation at a disaster-prone tourism village has shown why these dimensions need to be examined together: physical facilities can be present while monitoring, emergency readiness, or visitor communication remains uneven [2].

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Certification can provide a governance framework, increase destination credibility, and signal that minimum precautions have been considered. The operational value of certification nevertheless depends on what happens after the certificate is issued. Evidence from Indonesia indicates that certification benefits are strengthened when standards are translated into routine supervision, shared value among stakeholders, and continuous service improvement [3], [4]. Other studies have linked cleanliness, health, safety, and environmental sustainability practices with revisit intention, guest confidence, and the protection of tourists' rights [5]–[7]. These outcomes are unlikely to be sustained when equipment is difficult to reach, inspection records are incomplete, only a small proportion of staff are trained, or instructions are invisible at the point where visitors make decisions.

Most previous studies have emphasized tourists' perceptions, behavioral intentions, or the general benefits of certification. Fewer studies have examined post-certification implementation at indicator level by combining managers' accounts, frontline experience, visitor perspectives, direct observation, and documentary evidence. This distinction is important because perceived readiness and operational readiness are not identical. A health post may exist but remain difficult to locate; a fire extinguisher may be available but poorly mounted; and waste bins may be numerous but unable to support separation at source. A site-level evaluation can therefore identify where a formal commitment has become a reliable routine and where it remains only partially embedded.

Lokawisata Baturraden in Banyumas Regency is a certified destination with high visitor mobility, water-based attractions, landscaped areas, changing weather, and terrain-related hazards. Preliminary observations suggested that the destination had established several important controls but still faced gaps in sanitary facilities, emergency equipment, documentation, waste segregation, and visitor information. This study aimed to evaluate the implementation of SNI 9042:2021 at Lokawisata Baturraden and to determine practical priorities for improvement. The study contributes an integrated, evidence-based assessment of the four dimensions and converts observed gaps into a manageable improvement agenda.

2. Methods

2.1. Study design and setting

A qualitative descriptive evaluation was conducted at Lokawisata Baturraden, Baturraden District, Banyumas Regency, Central Java, Indonesia, from January to April 2026. The evaluation focused on how existing practices aligned with the management, staff, facility, and visitor-participation expectations in SNI 9042:2021 [1]. A qualitative design was selected because the study sought to explain how procedures were implemented, how frontline personnel experienced them, and why observable gaps persisted, rather than to produce a population prevalence estimate.

2.2. Participants and sampling

Participants were selected purposively according to their direct responsibility for, or experience of, the four evaluation dimensions. Six informants were included: one site coordinator as the key informant; four frontline staff responsible respectively for cleanliness, health, safety, and environmental management as main informants; and one visitor as a supporting informant. Recruitment ended once every pre-specified operational role was represented. The sample was intended to provide role coverage and triangulation within one destination, not statistical representation of all staff or visitors. The composition of the informant group is presented in Table 1.

Table 1. Informant composition and contribution to the evaluation

Informant category	n	Primary contribution
Key informant: site coordinator	1	Governance, procedures, resources, referral, and inter-agency coordination
Main informants: four operational staff	4	Daily implementation in cleanliness, health, safety, and environmental management
Supporting informant: visitor	1	Visibility, accessibility, and usability of facilities and information

2.3. Data collection and evaluation framework

Data were collected through semi-structured in-depth interviews, structured observation, and review of available documentation. The interview guide explored routine tasks, monitoring, equipment availability, staff preparedness, referral and emergency mechanisms, waste handling, and visitor communication. The observation checklist was mapped to the four dimensions of SNI 9042:2021. Photographs were used to document visible facilities and conditions, including bins, cleanliness messages, first-aid storage, fire extinguishers, and hazard signs. The documentary review considered procedures and information made available by the destination.

Each indicator was classified using an evidence rule established for this evaluation. “Compliant” indicated that the expected practice or facility was present and consistently supported by interview, observation, or documentary evidence. “Partially compliant” indicated that an element existed but its coverage, placement, documentation, consistency, or reach was incomplete. “Not compliant” indicated that the expected element was absent or that no supporting evidence could be identified. These categories are qualitative judgments for improvement planning; they are not a substitute for formal certification scoring by an accredited body.

2.4. Data analysis and trustworthiness

Interview notes, observation results, photographs, and documents were organized in a within-site matrix. Data were reduced into meaning units, coded by dimension and actor level, compared with the relevant standard indicator, and then synthesized into findings and improvement priorities. The analysis followed the principles of transparent thematic analysis, including an explicit coding frame and a traceable link between evidence and interpretation [8]. Source triangulation compared the coordinator, frontline staff, and visitor accounts, while method triangulation compared interviews with observations and documents [9]. Convergent evidence strengthened a classification; divergent evidence was retained as an implementation gap rather than forced into agreement.

2.5. Ethical considerations

Ethical approval was granted by the Health Research Ethics Committee of Universitas Muhammadiyah Purwokerto (KEPK-UMP), registration number KEPK/UMP/175/XII/2025, dated 22 December 2025. The approved protocol included participant-information and informed-consent documents.

3. Results and Discussion

Implementation was strongest where operational responsibilities were concrete and repeated, such as routine cleaning, basic first-aid provision, emergency information, hazard warnings, and periodic waste collection. Weaknesses recurred in four cross-cutting areas: documented monitoring, spatial distribution of facilities, staff competency coverage, and visitor-facing communication. Table 2 summarizes the indicator-level assessment, while Figure 1 presents selected field evidence. The classifications should be interpreted as a diagnostic profile rather than a numerical certification score.

Table 2. Evidence-based assessment against selected SNI 9042:2021 indicators

Dimension	Evaluated indicator	Status	Field evidence
Cleanliness	Routine cleaning before and during opening hours	Compliant	Zone-based cleaning duties were performed before opening and continued during visitor hours.
Cleanliness	Covered bins in strategic visitor areas	Compliant	Covered bins were observed in multiple areas and were emptied as part of routine work.
Cleanliness	Documented inspection and corrective-action monitoring	Not compliant	Cleaning was practiced, but no standardized checklist, inspection log, or close-out record was identified.
Cleanliness	Visitor messages and supporting sanitary facilities	Partially compliant	One cleanliness sign was seen near the pool; handwashing access and sex-separated toilet provision were limited.

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Dimension	Evaluated indicator	Status	Field evidence
Health	Health post and external referral mechanism	Compliant	A health room, basic supplies, stretcher, emergency procedure, insurance pathway, and referral links were available.
Health	Distributed and readily accessible first aid	Partially compliant	First-aid resources were concentrated in the health room rather than distributed by risk and distance.
Health	Visitor health-promotion information	Not compliant	No consistent health-promotion media or wayfinding to health assistance was observed across the site.
Safety	Emergency procedures, routes, maps, and assembly points	Compliant	Emergency procedures and evacuation information were available, supported by coordination with the local disaster agency.
Safety	Fire-protection readiness	Partially compliant	Only one dry-chemical extinguisher was identified; it was placed on the floor without sufficiently clear mounting or location marking.
Safety	Coverage of emergency-response training	Partially compliant	Selected staff had received first-aid training, but coverage was not site-wide and firefighting training was not reported.
Safety	Warnings at site-specific hazards	Compliant	Warnings were visible at slippery or higher-risk locations.
Environmental sustainability	Routine waste collection and external transport	Compliant	Waste was collected and periodically transferred by a third party to final disposal.
Environmental sustainability	Waste separation at source	Not compliant	Bins did not consistently distinguish organic and inorganic waste streams.
Environmental sustainability	Environmental behavior and resource-conservation messages	Partially compliant	General waste control existed, but messages on segregation, water, energy, and low-impact behavior were limited.

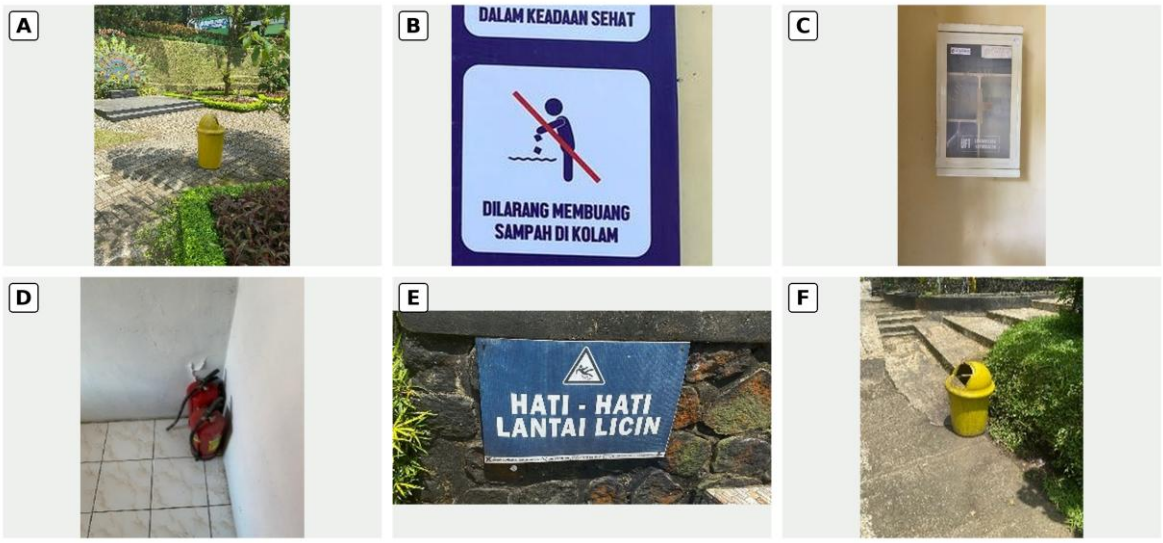

Figure 1. Selected field evidence: (A) covered bin; (B) cleanliness message near the pool; (C) first-aid cabinet; (D) fire extinguisher placed on the floor; (E) slippery-floor warning; and (F) bin without source-segregation labeling

3.1. Cleanliness

Cleanliness was supported by a clear division of daily work. Staff cleaned assigned zones before the destination opened and continued to remove litter during operating hours. Covered bins were available in several visitor areas, and the general visual condition was clean at the time of observation. These practices indicate that cleanliness had been integrated into frontline routines rather than treated as an occasional activity. The evaluation nevertheless found no standardized monitoring log linking an inspection, a detected defect, a responsible person, and confirmation that corrective action had been

completed. Without this audit trail, management cannot readily distinguish an isolated lapse from a recurrent service failure or verify that standards remain stable during peak periods.

Sanitary support and visitor communication were less consistent than general area cleaning. A cleanliness message was visible near the pool, but comparable prompts were not distributed across high-use locations. Handwashing access was limited, and toilets were not consistently separated or clearly organized by sex. User-centered research on public toilets shows that cleanliness, privacy, accessibility, safety, and maintenance jointly shape acceptability; the physical presence of a toilet alone is therefore an incomplete performance measure [10]. Handwashing is also a well-established community infection-control measure [11], [12], while Indonesian environmental health regulation places sanitation and environmental risk control within the responsibility of public-place operators [13].

The practical priority is to connect routine work with verifiable control. A short zone-based checklist should specify inspection frequency, critical items, defect ownership, and closure time. Peak-use toilets, food areas, pools, and entrances should receive risk-adjusted checks rather than an identical schedule. Handwashing facilities and sex-appropriate toilet arrangements should be mapped against visitor flow, while concise messages should be placed at the exact point where the behavior occurs. This combination would preserve the destination's visible cleanliness while making performance measurable and less dependent on individual initiative.

3.2. Health

The destination had a health room containing a first-aid cabinet, basic medicines, a stretcher, and an emergency procedure. Informants also described an insurance pathway and referral to nearby health facilities when an incident exceeded on-site capability. These arrangements provide an important escalation pathway. Their main limitation was spatial coverage: supplies were concentrated in one health room, and health-promotion or wayfinding information was not consistently visible across a dispersed attraction. Indonesian first-aid regulation emphasizes accessible equipment and designated capability at the workplace [14]. At a tourism destination, accessibility should be interpreted in relation to travel time, terrain, crowd density, and the foreseeable severity of an event.

Health protection also extends beyond treating injuries. Visitors may experience dehydration, gastrointestinal illness, fatigue, heat stress, or worsening of an existing condition; travel medicine evidence illustrates how quickly a common illness can disrupt a trip and require support [15]. Baturraden should therefore map small, sealed first-aid points or response bags to higher-risk or distant zones, identify trained responders on each shift, and display a simple route or contact method for obtaining help. Stock checks should record expiry dates, seal integrity, and replenishment, not only the presence of a cabinet. Brief messages on hydration, hygiene, and when to seek assistance would extend health protection from a reactive service to a preventive system.

3.3. Safety

Safety implementation combined several mature elements with important readiness gaps. Emergency procedures, evacuation routes, assembly points, and safety maps were available, and the destination coordinated with the Banyumas disaster-management agency. Hazard signs were also visible at slippery or otherwise risky locations. This is a meaningful strength: well-designed attraction signage can shape safe decisions when it is specific, visible, and placed before exposure to the hazard [16]. Evidence from Indonesian tourism settings likewise suggests that safety culture influences behavior through awareness [17]. Signage, however, works best as one layer of control and cannot compensate for inadequate equipment, training, or supervision.

Training coverage was also incomplete. Some personnel had first-aid training, but competence was not distributed across all shifts and areas, and firefighting training had not been reported. Meta-analytic evidence shows that both individual and situational factors shape safe performance [18], while more engaging and practice-oriented training generally produces stronger safety outcomes than passive information alone [19]. The destination should maintain a competency matrix showing who can provide first aid, lead evacuation, operate fire equipment, account for visitors, and communicate with

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external responders. Scenario-based drills should be followed by short after-action reviews and tracked corrective actions.

The existing relationship with the disaster-management agency provides a sound platform for this work. Tourism research emphasizes that destinations recover and respond more effectively when they are connected to formal emergency-management structures [20], when stakeholder roles are clarified before a crisis [21], and when networks are actively maintained rather than assumed to function [22]. Emergency maps should therefore be reconciled with staff roles, communication channels, equipment locations, and procedures for people who need assistance.

Fire readiness was the most visible equipment concern. Only one dry-chemical extinguisher was identified, and it was positioned on the floor without sufficiently prominent location marking. The observation does not, by itself, establish the number or type of units required for the entire destination; that determination should follow a documented fire-risk assessment considering building use, fuel load, travel distance, and response capacity. Extinguishers should nevertheless be serviceable, unobstructed, mounted or placed according to the applicable requirements, clearly signed, and included in a recorded inspection program. The absence of an internal hydrant should similarly trigger a risk-based engineering review rather than an unsupported assumption that every outdoor tourism site requires the same system. Indonesian requirements for portable extinguishers provide a minimum reference for installation, visibility, and maintenance [23]. Visitor protection is both an operational and a legal concern, and destination managers should be able to demonstrate that foreseeable risks have been assessed and reasonably controlled [24].

3.4. Environmental sustainability

Environmental management was strongest at the collection stage. Bins were available, staff removed accumulated waste, and a third party periodically transported waste to final disposal. The missing link was separation at source: the observed bins did not consistently distinguish organic and inorganic materials, and visitor instructions on separation were limited. This arrangement can keep a site visually tidy while still mixing recoverable and residual materials downstream. Indonesia's Waste Management Law prioritizes reduction and handling beyond simple removal [25], and an evaluation at the Tongging tourism area similarly identified the importance of adequate facilities, roles, and system-wide control [26].

Tourism and hospitality research shows that waste performance depends on coordination across purchasing, service, visitor disposal, storage, collection, and final treatment [27]. Food waste requires particular attention because prevention, measurement, redistribution where appropriate, and separation for recovery are more effective than relying only on end-of-pipe disposal [28]. At Baturraden, paired and consistently colored bins should be introduced first in food-service and high-volume visitor zones. Labels should use locally understandable examples, and the same waste streams must remain separate during internal collection and handover to vendors. Otherwise, source separation becomes symbolic.

Visitor participation is more likely when infrastructure and communication reinforce each other. Nature-based tourism can improve environmental knowledge and attitudes, but behavior does not change automatically [29]. Theory-based messages placed at the moment of disposal can reduce littering [30], and recent behavioral research highlights the roles of norms, perceived control, and personal obligation in litter prevention [31]. Pro-environmental intention is also shaped by values and expected outcomes [32]. Messages should consequently be specific—what goes in each bin, why separation matters, and what other visitors normally do—rather than limited to generic appeals. Monthly measurement of waste volume, contamination, and collection frequency would provide a baseline for subsequent reduction targets. Similar point-of-use prompts can support water and energy conservation.

3.5. Cross-dimensional priorities and implementation pathway

Across all four dimensions, the principal gap was not the total absence of activity but the distance between an activity and a controlled management system. Cleaning occurred without a complete inspection trail; first aid existed without distributed access and wayfinding; emergency procedures

existed without comprehensive competency coverage; and waste collection occurred without separation at source. Certification should therefore be treated as the beginning of a continuous assurance cycle. The destination needs evidence that each critical control is assigned, performed, checked, corrected, and reviewed.

A phased approach is preferable to adding isolated facilities. During the first three months, management can standardize checklists, map facility and response-time gaps, correct the mounting and marking of emergency equipment, and pilot source-separated bins in one high-volume zone. The next phase can expand infrastructure based on the pilot data, deliver scenario-based training, and harmonize visitor messages. Management review should then use a small set of indicators to decide whether controls are improving. Table 3 translates the evaluation into an actionable monitoring framework without imposing unsupported numerical targets.

Table 3. Proposed improvement and monitoring framework

Priority	Immediate action	Suggested process indicator	Review horizon
Documented assurance	Introduce zone-based inspection and corrective-action logs.	Inspection completion and proportion of identified defects closed within the agreed time.	Monthly
Risk-based coverage	Map sanitary, first-aid, fire, evacuation, and information points against visitor flow and travel time.	Unserved high-risk zones and estimated response or access time.	Initial map, then after operational changes
Emergency competency	Create a role-and-shift competency matrix and conduct practical drills.	Coverage of required roles and number of drill findings closed.	Quarterly
Waste segregation	Pilot paired, labeled bins and preserve separation through vendor handover.	Waste-stream contamination and volume by stream.	Monthly during pilot
Visitor communication	Place concise health, hygiene, safety, and environmental prompts at decision points.	Coverage of priority locations and observed compliance during spot checks.	Monthly

3.6. Limitations

This study has several limitations. It evaluated one destination, involved six informants, and included only one visitor perspective. The findings therefore describe implementation at Lokawisata Baturraden and should not be generalized statistically to other destinations. Observations were conducted within a limited period and may not represent peak-season or extreme-weather conditions. The qualitative categories also do not constitute a formal certification audit score. Future research should include a larger and more diverse visitor sample, repeated observations across seasons and operating loads, response-time testing, waste-flow measurement, and follow-up evaluation after corrective actions.

4. Conclusion

Lokawisata Baturraden had implemented important elements of SNI 9042:2021, including routine cleaning, covered waste bins, a health post and referral pathway, emergency procedures and evacuation information, hazard warnings, and periodic waste collection. Implementation was nevertheless only partially aligned with the standard, because monitoring records were not standardized, sanitation and health information had limited coverage, first-aid resources were concentrated in one location, fire readiness and staff training were incomplete, and waste was not separated at source. The most consequential improvement is to convert existing activities into a documented assurance system: risk-based placement of facilities, named responsibility on every shift, recurrent practical training, point-of-decision visitor communication, and measurable corrective-action follow-up. This approach would make certification more visible in daily operations and strengthen protection for visitors, workers, and the destination environment.

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Declaration

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Conflicts of Interest: The authors declare no conflict of interest.

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