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Project Resource Allocation and Performance Optimisation of Nyandungu Ecotourism Wetland Park, Rwanda

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Abstract: *This study examined the effect of project budget allocation and project scheduling on the performance optimization of Nyandungu Ecotourism Wetland Park, an urban wetland restoration and ecotourism project in Kigali, Rwanda. A mixed-methods design combined a descriptive survey with a case study. The target population of 200 comprised staff of the Rwanda Environment Management Authority and Rwanda Development Board (25), QA Venue Solutions (30), park employees (60), local community members (45) and park visitors (40). Yamane's formula produced a sample of 133, drawn through proportionate stratified random, purposive and convenience sampling; 122 questionnaires (91.7%) were usable. Structured questionnaires, interview guides and a document review guide collected the data, which were analyzed with descriptive statistics, Pearson correlation and multiple regression in SPSS version 30, and with thematic analysis. Respondents generally agreed that budgets ($M = 4.06$) and schedules ($M = 3.93$) were adequate but agreed most strongly that financial delays impair service delivery ($M = 4.35$) and least that schedule delays are communicated promptly ($M = 3.75$). Budget allocation ($r = .75$) and scheduling ($r = .68$) correlated strongly with performance optimization. In a model that also controlled for human resource allocation, budget allocation ($\beta = .421$, $p < .001$) and scheduling ($\beta = .233$, $p = .003$) were significant predictors ($R^2 = .692$). The study recommends ring-fenced operating budgets with timely fund release, and flexible, digitally tracked schedules with prompt communication of changes to stakeholders.*

Keywords: *Ecotourism; Budgeting; Scheduling; Performance; Wetland; Allocation; Rwanda*

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1. Introduction

Ecotourism is widely promoted as a way of financing conservation while delivering livelihoods to local people. Protected areas attract an estimated eight billion visits a year, and the value of that visitation far exceeds what is spent on managing the areas (Balmford et al., 2009). Yet the evidence that ecotourism delivers on its promise is mixed. Stronza et al. (2019) concluded that conservation and community outcomes depend heavily on how projects are governed, financed and managed, while Kiss (2004) cautioned that conservation money invested in ecotourism can yield uncertain returns unless projects are carefully planned and sustained over the long term.

Ecotourism developments are, at their core, projects: temporary undertakings with scarce money and finite time. The project management literature treats cost and time, together with scope and quality, as the classic constraints against which performance is judged (Atkinson, 1999; Kerzner, 2017; Project Management Institute, 2021). Across sectors and continents, projects regularly breach those constraints. Flyvbjerg et al. (2002) found cost escalation in nine of ten transport infrastructure projects they examined, and Assaf and Al-Hejji (2006) reported time overruns in most of the large construction projects in their Saudi Arabian sample. Studies in Africa show similar patterns: Kaliba et al. (2009) documented cost escalation and schedule delays in Zambian road projects and linked them to factors such as adverse weather and changes in scope.

Rwanda has made ecotourism and wetland restoration part of its development agenda and aligned them with its National Strategy for Transformation (Government of Rwanda, 2024). The flagship example is Nyandungu Ecotourism Wetland Park, a park of about 121 hectares in eastern Kigali that the Rwanda Environment Management Authority (REMA) developed from a degraded urban

wetland from 2016 (Rwanda Development Board [RDB], 2023). The Park opened to the public on 8 July 2022 and is managed by QA Venue Solutions (RDB, 2022). REMA reports that the project created about 4,000 green jobs (REMA, n.d.), and annual visits rose from 48,813 in 2022 to 111,710 in 2025 (The New Times, 2025, 2026). Studies of the park have concentrated on the ecological and socio-economic outcomes of the restoration (Bagirinka & Gasirabo, 2026; Niyomugabo, 2026; Yankurije et al., 2025). What they do not show is how the way the park's money and time are managed relates to how well the park performs.

1.1 Statement of the problem

Documentary evidence suggests that budget and schedule management have been persistent concerns at Nyandungu. The project was designed in 2015 and works began in 2016, with a plan to finish within five years at an estimated cost of Rwf 2.4 billion. By 2020 the budget had been revised to Rwf 5.04 billion after the project was redesigned and the contractor changed, and the Minister of Environment told Parliament that works stood at 33 per cent (The New Times, 2020b). A revised schedule targeted completion by May 2021 (The New Times, 2020a), yet the park opened to the public in July 2022 (RDB, 2022). Official sources also report different totals for the investment: Rwf 4.5 billion in the opening announcement (RDB, 2022) and about Rwf 6.33 billion on REMA's project page (REMA, 2022).

Since opening, visits have grown strongly, but visitor growth alone does not show whether the park has met its targets or why. Public sources do not report approved budgets against actual expenditure, or planned against actual activity timelines, and no study of the park has tested statistically whether budget and schedule management are associated with its performance. Managers, REMA and RDB therefore lack evidence on which of the two matters more or what to fix first, at a time when the government is seeking partners to expand and commercialise the park (RDB, 2023). This study addresses the gap for the operational period 2022 to 2025.

1.2 Research objectives

The general objective was to examine the Project Resource Allocation and Performance Optimization of Nyandungu Ecotourism Wetland Park, Rwanda. The specific objectives were:

1. To examine the effect of project budget allocation on the performance optimization of Nyandungu Ecotourism Wetland Park.
2. To determine the effect of project scheduling on the performance optimization of Nyandungu Ecotourism Wetland Park.

1.3 Hypotheses

$H0_1$: Project budget allocation has no significant effect on the performance optimization of Nyandungu Ecotourism Wetland Park.

$H0_2$: Project scheduling has no significant effect on the performance optimization of Nyandungu Ecotourism Wetland Park.

2. Literature Review

2.1 Theoretical Review

Three theories frame the study. The resource-based view holds that organisations gain lasting advantage from resources that are valuable, rare and hard to imitate (Barney, 1991). Applied to a park, money is valuable only when it is directed to what sustains the park's distinctive assets, namely restored habitat, facilities and visitor services. It is therefore the adequacy, prioritisation and control of the budget, rather than its size alone, that should matter for performance. Contingency theory holds that the best way to organise depends on circumstances (Fiedler, 1967). A wetland park works to ecological cycles, weather and uncertain disbursement dates, so schedules that can adapt should serve performance better than rigid ones. Stakeholder theory asks managers to account for the groups that affect or are affected by the organisation (Freeman, 1984). For scheduling, this points to coordination between REMA, RDB and the operator, and to timely communication of changes to staff, visitors and neighbouring residents.

2.2 Empirical Review

Budgeting is the process through which scarce funds are matched to priorities and controlled over time. Global evidence shows why it matters. Cost escalation is the norm rather than the exception in public projects (Flyvbjerg et al., 2002), and the PMBOK Guide treats cost management as a core discipline for delivering intended value (Project Management Institute, 2021). In ecotourism, Kiss (2004) warned that conservation funds spent on tourism enterprises do not automatically produce conservation or livelihood returns, and Stronza et al. (2019) concluded that financing arrangements and governance shape results. Taken together, these studies point to four budget attributes that plausibly affect performance: adequacy, fair distribution and prioritisation of funds, effective control, and timeliness of release. The Nyandungu record shows why timeliness and control deserve attention, since cost estimates almost doubled between launch and 2020 (The New Times, 2020b). None of the studies cited, however, tests the budget–performance relationship statistically in an African urban wetland park.

A schedule sequences activities, allocates time to them and provides the baseline against which progress is tracked (Kerzner, 2017). Delay is both common and costly. Assaf and Al-Hejji (2006) found time overruns in most large projects in their sample, and Kaliba et al. (2009) attributed

delays in Zambian road projects partly to weather and scope changes. The same pressures apply to wetland parks, where rainfall, procurement lead times and ecological cycles can disrupt plans. Atkinson (1999) cautioned that adherence to time, cost and quality is an incomplete measure of success, which is why this study relates scheduling to a wider set of performance outcomes. The main schedule attributes considered are realism, flexibility, adherence to the agreed calendar, alignment with ecological cycles, coordination among institutions, and communication of plans and delays.

Research on Nyandungu has documented what restoration achieved. Yankurije et al. (2025) combined surveys, interviews and remote sensing and reported the planting of 17,000 indigenous trees, habitats for more than 100 bird species and about 4,000 green jobs, with strong correlations between restoration effort and ecological, economic and social outcomes. Bagirinka and Gasirabo (2026) examined livelihood effects and Niyomugabo (2026) examined ecosystem services. These studies treat restoration as the explanatory variable, not the management of budgets and schedules. At the operating stage, the government sought a private partner to develop and maintain the park (RDB, 2023), and QA Venue Solutions now manages it under a ten-year agreement (KT Press, 2026). How funds and time are managed is therefore also a question about how a private public arrangement performs.

2.6 Research gap

Three gaps emerge. General project management studies are not specific to ecotourism. Ecotourism studies seldom test resource-management variables statistically. Studies of Nyandungu describe outcomes but do not link them to budget and schedule management.

3. Methodology

3.1 Research Design

The study used a mixed-methods approach that combined a descriptive survey with a case study of Nyandungu Ecotourism Wetland Park. The survey produced numerical data to test the relationships between budget allocation, scheduling and performance. The case study, based on interviews and document review, explained how budgeting and scheduling work in practice. Using both provided triangulation, which strengthens the credibility of findings (Creswell & Creswell, 2023).

3.2 Population and sampling procedures

The target population was 200 stakeholders directly involved in the management, operation and use of the park (Table 1). Yamane's (1967) formula, $n = N / (1 + Ne^2)$, with $N = 200$ and a 5% margin of error, gave a sample of 133. The sample was allocated to five strata in approximately the same proportion (about 66.5%) as the population. Stratified random selection was used within each stratum. Purposive sampling ensured that technical staff of REMA, RDB and QA Venue Solutions with expertise in resource management were included, and convenience sampling was used for park visitors and community members, who are hard to list in advance (Saunders et al., 2019).

Table 1: Target Population and Sample

Stakeholder group	Population (N)	Sample (n)
REMA and RDB staff	25	17
QA Venue Solutions staff	30	20
Park employees	60	40
Local community members	45	30
Park visitors	40	26
Total	200	133

3.3 Data collection Instruments

A structured questionnaire measured the study variables on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). It was administered on paper and, where convenient, through Google Forms. Semi-structured interview guides collected the views of key informants drawn from the five stakeholder groups, in person or by telephone or video, on how budgets and schedules are set, how delays arise and how they affect performance. A document review guide structured the analysis of project proposals, strategic plans, budgets, monitoring and evaluation reports and policy documents obtained from the park management and REMA.

3.4 Validity and Reliability

Content validity was established by expert review of the instruments by the academic supervisor and professionals in project management and environmental conservation, and construct validity by aligning items with the study variables. For reliability, a test–retest procedure was applied to 15% of respondents, with the same instrument administered

twice two weeks apart. Internal consistency was assessed with Cronbach's (1951) alpha, with 0.70 or above regarded as acceptable (Nunnally, 1978). The alpha coefficients obtained were: [insert coefficients for the budget, scheduling and performance scales from the SPSS output].

3.5 Data Analysis

Quantitative data were analysed in SPSS version 30. Data were screened for accuracy and completeness, and Likert responses were coded 1 to 5. Normality was checked with the Shapiro–Wilk test and Q–Q plots, and multicollinearity with variance inflation factors, with values below 5 regarded as acceptable (Hair et al., 2019). Descriptive statistics (frequencies, means and standard deviations) summarised respondents' views. Because the item on financial delays is negatively worded, it is reported separately and the overall budget mean is calculated on the seven positively worded items. Pearson correlation and multiple regression tested the hypotheses (Field, 2018) using the model $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$, where Y is performance optimization, X_1 is budget allocation, X_2 is scheduling, X_3 is human resource allocation (the control) and ε is the error term. Interview and document data were analysed thematically following the six steps of Braun and Clarke (2006), with NVivo supporting coding, and the themes were cross-checked against the survey results and documents.

3.6 Ethical Considerations

Permission to access the park was obtained from the park management and REMA, and an introduction letter was provided by Mount Kigali University. Participants gave informed consent, took part voluntarily and could withdraw at any time. Responses were anonymous, with code numbers in place of names. Hard copies were kept in locked storage and electronic files were encrypted, in line with Rwanda's law on the protection of personal data and privacy (Republic of Rwanda, 2021).

4. Results and Discussion

Results are organised around the two research questions. Survey results are presented first, then the interview and documentary evidence, and each is discussed in relation to the literature.

4.1 Response Rate and Respondent Profile

Of the 133 questionnaires distributed, 122 were usable, a response rate of 91.7% (Table 2). Response rates were high in every stakeholder group, so the views of managers, operators, employees, residents and visitors are all represented.

Table 2: Questionnaire Response Rate

Stakeholder group	Distributed	Usable	Response rate (%)
REMA and RDB staff	17	15	88.2
QA Venue Solutions staff	20	19	95.0
Park employees	40	37	92.5
Local community members	30	27	90.0
Park visitors	26	24	92.3
Total	133	122	91.7

Men made up 54.9% of respondents and women 45.1%. Most respondents were in the 35–44 (39.3%) and 25–34 (29.5%) age groups, with 23.8% aged 45 and above and 7.4% aged 18–24. Bachelor's degree holders were the largest group (35.2%), followed by diploma holders (27.0%), those with secondary or vocational education (23.0%) and postgraduates (14.8%). By role, park employees were 30.3% of the sample, community members 22.1%, visitors 19.7%, QA Venue Solutions staff 15.6% and REMA and RDB staff 12.3%.

4.2 Project Budget Allocation and Performance Optimization

Respondents agreed with every statement on budget allocation (Table 3). Between 73.0% and 91.0% agreed or strongly agreed with each item. Among the seven positively worded items, agreement was highest that the budget is sufficient for day-to-day operations (M = 4.21), that allocations are aligned with strategic conservation goals (M = 4.17) and that ecological restoration receives budget priority (M = 4.16). Agreement was lowest for contingency funds (M = 3.88, SD = 1.07), where 12.3% disagreed, and for budget control mechanisms and long-term maintenance funding (both M = 3.98). The overall mean for the seven items was 4.06. The negatively worded item drew the strongest agreement of all: 91.0% agreed that financial delays affect service delivery (M = 4.35, SD = 0.77).

Table 3: **Views on Project Budget Allocation**

Item	Disagree (%)	Neutral (%)	Agree (%)	M	SD
The budget is sufficient for day-to-day operations	4.9	7.4	87.7	4.21	0.85
Allocations are aligned with strategic conservation goals	4.9	9.0	86.1	4.17	0.85
Ecological restoration receives priority in budgets	5.7	8.2	86.1	4.16	0.86
Financial resources are fairly distributed across key activities	8.2	9.8	82.0	4.07	0.95
Budget control mechanisms are effective	9.8	12.3	77.9	3.98	1.01
Funding is sufficient for long-term infrastructure maintenance	10.7	11.5	77.9	3.98	1.03
Contingency funds are available for unexpected expenses	12.3	14.8	73.0	3.88	1.07
Overall (seven positively worded items)				4.06	
Financial delays affect service delivery[a]	3.3	5.7	91.0	4.35	0.77

Three themes emerged. First, budgets are planned and monitored. REMA and RDB officials said the annual budget is built from strategic priorities and tracked through quarterly financial reports, audits and performance contracts (*Imihigo*). Second, funding covers core operations but not everything else. Officials said expansion, community outreach and facility maintenance often depend on development partners, and QA Venue Solutions staff said limited budgets reduce the quality or frequency of some activities. Park employees said shortages delay tools, equipment and maintenance. Third, timing is the weak point. Officials and operators described delays in disbursement caused by administrative and procurement procedures, and community members said funding constraints reduce meetings and training and that they are rarely involved in final budget decisions. Visitors described clean, well-maintained facilities, which is consistent with the high ratings for operational sufficiency. Project reports reviewed also identified funding limitations, delayed implementation of some activities and maintenance costs.

Discussion. The pattern fits the resource-based view. Respondents rated budgets highest where money is tied to the park's core assets (operations, ecological restoration, conservation goals) and lowest where it protects against shocks or sustains assets over time (contingency funds, long-term maintenance). That is the distinction the theory draws between having resources and deploying them in ways that sustain advantage (Barney, 1991). It also echoes Kiss (2004) and Stronza et al. (2019), who stressed that long-term financing and sound management, not the initial injection of funds, determine ecotourism outcomes. The strong agreement that financial delays harm service delivery matters because delay and escalation have already marked this project. The estimate rose from Rwf 2.4 billion to Rwf 5.04 billion before 2020 (The New Times, 2020b), a pattern that Flyvbjerg et al. (2002) found to be typical of public projects. Respondents' largely favourable ratings of current budgets refer to the operating period from 2022 and are perceptions rather than audited budget-against-actual figures, so they should not be read as evidence that the delivery-phase problems have disappeared.

4.3 Project Scheduling and Performance Optimization

Respondents also agreed with all scheduling statements (Table 4), with agreement between 69.7% and 85.2%. Visitor programmes planned and executed on schedule (M = 4.13) and maintenance and landscaping that follow an agreed calendar (M = 4.03) scored highest. The overall mean was 3.93, lower than for budgets. The weakest items concerned flexibility and communication: prompt communication of schedule delays (M = 3.75, SD = 1.09; 14.8% disagreed), timely communication of joint activities (M = 3.85) and flexibility to address unexpected challenges (M = 3.85). Coordination among REMA, RDB, QA Venue Solutions and employees (M = 3.89) and alignment with ecological cycles (M = 3.98) fell in between.

Table 4: Views on Project Scheduling

Item	Disagree (%)	Neutral (%)	Agree (%)	M	SD
Visitor programmes are planned and executed on schedule	4.9	9.8	85.2	4.13	0.81
Maintenance and landscaping follow an agreed calendar	6.6	11.5	82.0	4.03	0.87
Schedules are aligned with ecological cycles	8.2	13.1	78.7	3.98	0.94
Project schedules are realistic and achievable	9.0	13.9	77.0	3.93	0.95
Coordination on scheduling among REMA/RDB, QA Venue Solutions and employees is adequate	10.7	13.1	76.2	3.89	0.99
Schedules are flexible enough to address unexpected challenges	11.5	14.8	73.8	3.85	1.01
Joint activities are communicated on time	13.1	12.3	74.6	3.85	1.06
Schedule delays are promptly communicated to affected stakeholders	14.8	15.6	69.7	3.75	1.09
Overall				3.93	

Officials said schedules are set during annual planning and reviewed through progress meetings, and that delays postpone milestones, affect reporting deadlines and require changes to work plans and budgets. QA Venue Solutions staff considered schedules realistic but said heavy rainfall, procurement delays, equipment breakdowns and staffing constraints sometimes force adjustments. Park employees said that when activities slip, work accumulates and must be completed in less time, raising workload and requiring extra hours. Community members said meetings and activities are sometimes held in farming seasons or working hours, making attendance difficult, and that some outreach and infrastructure activities were delayed by funding shortages. Visitors reported clear schedules for tours and educational activities but occasional minor delays at the entrance and for guided tours at peak times.

Contingency theory expects schedules to cope with weather, procurement and funding uncertainty (Fiedler, 1967), and flexibility was among the lowest-rated items. The interviews explain why: the causes of slippage that respondents named, namely rainfall, procurement delays and funding shortages, are the kinds of external disturbances reported in other African projects (Kaliba et al., 2009) and elsewhere (Assaf & Al-Hejji, 2006). Stakeholder theory points to communication as the vulnerable point (Freeman, 1984). Prompt communication of delays received the lowest rating of any scheduling item, and community members' accounts of meetings clashing with farming seasons show how poorly timed or poorly communicated schedules can reduce participation. The delivery-phase record of a revised completion target of May 2021 and an opening in July 2022 (The New Times, 2020a; RDB, 2022) shows that schedule slippage has been a feature of the project. The link with budgets is also visible in the data: employees and community members attributed some delays to funding shortages, and budget allocation and scheduling were correlated ($r = .62$, Table 6).

4.4 Performance Optimization

Respondents agreed that the park performs well on all five indicators (Table 5; overall $M = 4.07$). Agreement was highest that local people gain employment and business benefits ($M = 4.23$) and that ecological targets are achieved ($M = 4.13$), and lowest that revenue and visitor numbers have improved ($M = 3.88$), although visitor numbers have in fact risen each year since 2022 (The New Times, 2025, 2026). Revenue figures were not available to verify that perception.

Table 5: Views on Performance Optimization

Item	Disagree (%)	Neutral (%)	Agree (%)	M	SD
Local community gains employment and business benefits	4.1	7.4	88.5	4.23	0.79
Ecological maintenance and restoration targets are consistently achieved	5.7	8.2	86.1	4.13	0.85
The park aligns with national green-growth and conservation priorities	6.6	9.0	84.4	4.10	0.88
Visitor satisfaction with amenities and services is high	8.2	12.3	79.5	4.00	0.94
Revenue and visitor numbers have improved since establishment	11.5	13.9	74.6	3.88	1.02
Overall				4.07	

4.5 Effect of budget allocation and scheduling on performance optimization

Budget allocation ($r = .75$, $p < .01$) and scheduling ($r = .68$, $p < .01$) were both strongly and positively correlated with performance optimization (Table 6). The two predictors were also correlated with each other ($r = .62$).

Table 6: Pearson Correlations Among Study Variables

Variable	1	2	3	4
1. Budget allocation	—			
2. Scheduling	.62**	—		
3. Human resource allocation (control)	.65**	.59**	—	
4. Performance optimization	.75**	.68**	.71**	—

Note. **p < .01 (two-tailed).

The regression model was statistically significant, $F(3, 118) = 88.72$, $p < .001$, and explained 69.2% of the variance in performance optimization ($R = .832$, $R^2 = .692$, adjusted $R^2 = .684$, standard error of estimate = 0.312). Multicollinearity was not a concern: variance inflation factors computed from the predictors' intercorrelations ranged from 1.80 to 2.03, well below 5. Table 7 shows that budget allocation ($\beta = .421$, $p < .001$) and scheduling ($\beta = .233$, $p = .003$) each had a significant positive effect after the other predictors were held constant. Holding the other two predictors constant, a one-point rise in the budget score was associated with a 0.38-point rise in the performance score, and a one-point rise in the scheduling score with a 0.21-point rise.

Table 7: Multiple Regression of Performance Optimization on Budget Allocation, Scheduling and Human Resource Allocation

Predictor	B	SE	β	t	p	95% CI for B
Constant	0.742	0.291		2.55	.012	[0.17, 1.32]
Budget allocation	0.382	0.071	.421	5.38	< .001	[0.24, 0.52]
Scheduling	0.214	0.071	.233	3.01	.003	[0.07, 0.36]
Human resource allocation (control)	0.279	0.081	.296	3.44	.001	[0.12, 0.44]

$H0_1$ was rejected: project budget allocation has a significant positive effect on performance optimization ($t = 5.38$, $p < .001$). $H0_2$ was rejected: project scheduling has a significant positive effect on performance optimization ($t = 3.01$, $p = .003$).

Budget allocation was the stronger predictor, with a standardised effect about 1.8 times that of scheduling. This supports the resource-based view: funds that are adequate, prioritised and controlled are associated with better performance. It also suggests where improvement should start, because the budget items that scored lowest (contingency, control and long-term maintenance) are the ones that protect the park against shocks. Scheduling still made a significant, independent contribution, which supports contingency and stakeholder reasoning that adaptable, well-communicated schedule improve outcomes. Because schedules depend on funds being released on time, part of the scheduling effect is shared with the budget ($r = .62$), and the regression isolates only the unique contribution of each.

4.6 Limitations of the evidence

The survey measured perceptions at one point in time at one park, so the results show association rather than proven causation and should not be generalised to other parks without testing. Visitors and community members were selected by convenience, and respondents' own roles may colour their ratings. The study had no audited figures of approved against actual expenditure or planned against actual schedules, and the project documents reviewed were not quantitative enough to supply them. Future studies should combine such figures with perception data.

5. Conclusion and Recommendations

5.1 Conclusion

The findings demonstrate that project budget allocation and project scheduling have significant positive effects on the performance optimization of Nyandungu Ecotourism Wetland Park, with budget allocation emerging as the stronger predictor ($\beta = .421$, $p < .001$; $r = .75$) compared to project scheduling ($\beta = .233$, $p = .003$; $r = .68$). Although respondents generally consider budget allocations adequate to support park operations, ecological restoration and conservation activities, delayed release of funds remains the most significant challenge ($M = 4.35$), while contingency provisions, financial control mechanisms and long-term maintenance funding require improvement. Similarly, project schedules are generally perceived as workable, particularly for visitor programmes and maintenance activities, although limited flexibility and inadequate communication of delays undermine implementation. Interview findings further indicate that project delays are associated with funding shortages, procurement challenges, adverse weather conditions and community meetings that coincide with farming seasons. Collectively, budget allocation, project scheduling and staffing explain 69.2% of the variation in perceived park performance ($R^2 = .692$), demonstrating their substantial combined contribution to performance optimization. These findings highlight that effective park management requires not only adequate financial resources and realistic schedules but also timely fund disbursement, stronger financial controls, flexible scheduling and effective communication of implementation changes. Accordingly, the null hypotheses $H0_1$ and $H0_2$ are rejected, confirming that both project budget allocation and project scheduling have statistically significant positive effects on the performance optimization of Nyandungu Ecotourism Wetland Park.

5.2 Recommendations

Based on the findings the following recommendations are made:

1. REMA and RDB should ring-fence the park's operations and maintenance budget and set up expedited disbursement, so that approved funds reach the park on schedule. Financial delay was the item respondents agreed with most strongly (91.0%).
2. REMA and RDB should link fund releases to agreed ecological and service milestones and publish budget execution reports, so that staff and community members can see how funds are used.
3. QA Venue Solutions should establish a contingency reserve and a long-term maintenance fund, and report expenditure against approved budgets regularly, because contingency funds, control mechanisms and long-term maintenance were the lowest-rated budget items.
4. QA Venue Solutions should use rolling schedules that are reviewed regularly and built around the rainy seasons and the ecological calendar, with allowance for procurement lead times.
5. QA Venue Solutions should adopt digital project management tools to track activities in real time and a standard protocol for notifying staff, partners and visitors promptly when schedules change, since communication of delays was the lowest-rated scheduling item.
6. The Park should hold community meetings and training outside farming seasons and working hours, and involve community representatives in annual planning.
7. REMA, RDB and the operator should align disbursement and procurement calendars with the activity schedule, since funding and procurement delays were the main causes of slippage that interviewees named.
8. Future studies should replicate the analysis at other Rwandan ecotourism sites, use audited budget-

against-actual and planned-against-actual schedule data alongside perception data, apply longitudinal designs, and compare public, private and community-managed parks.

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