Influence of Sustainable Construction Practices on Timely Delivery of Building Projects in Port Harcourt Metropolis[1]

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Abstract

The study examined how the influence of sustainable construction practices enhances timely delivery of building projects in Port Harcourt, Rivers State Nigeria. A descriptive survey research design was adopted. The study population comprised 620 building professionals, including project managers, architects, site engineers, quantity surveyors, and construction supervisors working with registered construction firms. A census method was used, involving the entire population. Data were collected using a questionnaire. The instrument contained 20 items grouped into four clusters and was structured on a four-point rating scale. It was validated by three experts in Building Technology and Measurement and Evaluation. A pilot test conducted with 30 professionals yielded reliability coefficients of 0.84, 0.88, 0.86, and 0.90 across the clusters, with an overall reliability of 0.87. Of the 620 questionnaires distributed, 593 were retrieved and found valid. With respect of the data analysis, Mean and standard deviation were utilised by this study for the analysis of the research questions, and the study hypothesis were tested by the use of regression analysis. Based on the results of this study, a sound project planning, a careful management of resources and also environmental compliance play a greater role in making sure construction projects are successfully delivered on time. In view of these, it is important to note that management of resources was seen as the most essential factor, before environmental compliance and project panning. Based on the findings, the study recommends that professional regulatory body should ensure they conduct regular oversight on environmental assessments and making sure they become active tools for transparency and accountability. With respect of the project managers, it is vital they identify risk during the inception stage of the construction phase, ensuring that the planning of the project work comes to fruition. Implementing a good system for resources tracking will help to mitigate delay in building projects.

Keywords: construction project delivery, sustainable construction practices, building projects, project planning, environmental compliance.

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1. Introduction

A successful delivery of construction projects will help to enhance project efficiency and effectiveness and also enable various construction professionals to meet up construction project deadlines. Prior to this time, sustainable construction practices have moved from becoming more than mere trend to being important part in which construction projects are successfully planned, monitored and executed. It entails a balance between the growth of the economy, taking proper care of the built environment and ensuring the peoples responsibilities and the communities at large. The term social responsibility with respect to sustainable construction entails searching out for the people who reside with meaningful results. With respect of the practice of sustainable practices, envelope a broader range of methods which main aim is to use available resources judiciously, mitigating environmental destruction while ensuring that the work is executed on time without reducing project quality.

It comprises choosing long lasting materials such as higher –performance concrete that are not preserve resources rather assist to mitigate a very longer- term preservation with respect to needs (Eze et al., 2021). Attempt to diminish environmental footmark will lay hold of too many forms, with respect of making use of renewable vitality for installing water saving plumbing, recycled residue materials instead of conveying them to toxic waste site (Ogunmakinde et al., 2022).In view of the practical support, building information modelling which is a technological tool that enables various construction stakeholders for project planning, design, coordination and to enhance construction project delivery more effectively and efficiently. In view of transparent supervision and also not many shocks, project teams are usually prepared at all costs to execute work at the agreed time and also ensure they reach expected standard (Akinosho et al., 2020).When there much delay project execution, misallocation of resources and also in view of sidestep environmental regulations is an issue which has becomes so common and thereby hindering the execution of project (Oke, Aigbayboa, & Ngowi, 2021).

Thus, this study looked at the influence of sustainable construction practices on timely delivery of building projects in Port Harcourt metropolis. To achieve the main goal of the study, the specific objectives of this study are: to evaluate the influence of environmental compliance on timely delivery of building projects; examine the influence of efficient project planning on timely delivery of building projects; and the investigate the influence of efficient resource management on timely delivery of building projects in Port Harcourt metropolis. The study also made use of null hypothesis which were tested at 0.05 level of importance with respect of the three objectives.

2. Literature Review

2.1 Sustainable Construction Practices

The practice of sustainable construction fully gained ground in several years. Sustainable construction practices are seen as the strategy and the process of reducing harmful environmental impact, support the efficiency of resources and to enhance a healthy environmental condition for the people still sustaining economic functionality. Environmental compliance is one of the most importance parts to ensure sustainable construction practices. Iroegbu (2022) noted that construction projects lie to environmental requirement usually shift further easily by the

authorization and the experience few numbers of interruption. There are vital tools for example environmental impact assessment which aid to dictate possibility of issues before it disrupts development thereby helping project team members to be honest as early as possible (Okonkwo & Ayoola, 2023). Ajayi (2024) also noted that most contractors who actively involve in environmental tracking system, checklist as the case may be tends to abstain from the element of many delays which is usually attributed to compliance failures. According to Aboginije and Aigbavboa (2021) pointed out that if waste is properly regulated, the project timeline with the environment will surely benefit. Retaining pollution which is the discharge of unwanted waste product into the environment which causes health hazard to the inhabitants can be box- ticking and it is essential to secure the air that people always breathe, the water they drink plus the soil which helps in sustaining life. There are strategies used in mitigating dust, reducing the levels of noise and also limiting harmful emission which usually helps in protecting close communities and refine the ecosystems (Ogunnusi et al, 2020). With respect of selecting greener material such as low carbon concrete or timber plays an excellent part. All these materials in one way or the other usually assist environmental construction and not sacrificing energy or longevity required with respect of modern facilities.

2.2 Environmental Planning

With respect to environmental planning, it entails construction project efficiency and effectiveness. Construction project activities are usually tied with the expectation of the environment from the inception and there is usually limited risk in terms of surprises which deliver things into a stop. It is important to note that various construction sites have their own main challenges and the ability or capacity to mitigate these issues will go a long way to enhance project success. It is essential to note that planning with respect to construction project is usually what keep the entire project process in uniformity. Efficient project planning means coordinating task, managing materials wisely, and making sure the workforce is ready at their right moments. Abdullahi (2023) found that when projects have well-defined scopes, early buy-in from stakeholders, and clearly set deliverables, the odds of finishing on time increase significantly. Planning that takes into account realistic timelines, possible risks, and fallback options creates the breathing space needed to adapt when things don't go exactly to plan. Ezenwa (2021) observed that projects grounded in structured, methodical planning were more likely to finish within their intended schedules. What it really comes down to is foresight and organisation. From material orders to labour shifts, everything needs to be in sync. Akinyemi (2022) pointed out that projects supported by thorough planning processes consistently outperformed those with ad hoc approaches. In environments where logistics are complicated and project demands constantly evolve, having a clear and flexible plan isn't a luxury, it's a necessity for finishing strong.

2.3 Efficient Resource Management

Efficient resource management, at its heart, is about making smart use of what you've got. It's not just ticking off boxes or shuffling materials around, it's the thoughtful coordination of labour, tools, and equipment to keep a project moving without unnecessary waste or downtime. When materials arrive too early, they sit and gather dust. When they arrive too late, everything grinds to a halt. Umeh (2022), noted that most construction sites that deals with inventory, put workers to

various work which is based on their strength capacity and by keeping their equipment in good working condition and may experience little delays. Chidubem (2024) pinpointed this, by enlightening how most well-arranged sites with good tracking tools and with construction materials meet up their project timelines. Materials, skilled labour, and reliable equipment aren't always easy to come by, and when they're not available at the right moment, delays follow. Eze (2023) observed that mismanagement of materials and labour is a recurring reason behind late project delivery. While tools and machines play their part, it's the human element, knowing when and how to deploy people and resources, that often defines the outcome.

2.4 Efficient Planning And Resource Management

Efficient planning and resource management go hand in hand. When teams know what's needed, when it's needed, and who's responsible for getting it done, the likelihood of costly disruptions is greatly reduced. A project without that structure is a bit like trying to build a house without a foundation, unstable and prone to collapse. Meeting deadlines in construction isn't just a matter of pride, it's often tied to real financial implications. Timely delivery signals that a project has been well managed, from the first drawing to the final brushstroke. It means clients are happy, budgets are respected, and opportunities for further work remain open. Delays, on the other hand, tend to come with a price, not just in money, but in strained relationships and lost trust (Odediran & Windapo, 2020). Akinlolu and Haupt (2021) found that projects which combined good planning, sound resource use, and clear-eyed risk assessments were more likely to hit their deadlines. In view of technology, technological tools such as building information modelling, digital schedule software tools help project team members to plan, design, identify construction risk, assess it, control the risk and minimize their impact on project objectives. Ebekozien et al. (2022) pointed out that truthful communication, regular supervision and regular oversight entails normal features of construction projects which is usually completed as initiated.

2.5 Timely Delivery

In view of timely delivery, is not only about checking of the date. It also details the health conditions of the whole construction process. If the timeline is fully met, every individual that is associated with it usually gains, ranging from the labourers on the site and also construction professional stakeholders at the apex. Bello (2023) pointed out that frequent delay in project execution results to feeble coordination of resources and as well as oversights in environmental compliance. According to Udochi (2024) highlighted that initial discovery of construction delay, is helped by digital technological tools such as building information modelling which assist project stakeholders in terms of planning, design which enhance a successful delivery of construction projects.

3. Methods Of The Study

This study employed descriptive research survey design with main aim of gathering information from various respondents. This design was chosen in that it handles or manages any variables. Data was obtained from participants in both private and public construction industries in Port Harcourt, Rivers State, Nigeria to examine the influence of sustainable practices particularly

environmental compliance, efficient project planning and as well as efficient resource management in view of timely delivery of building projects. The population for the study consisted of building professionals, including project managers, site engineers, architects, quantity surveyors, and construction supervisors working with registered construction firms in Port Harcourt Metropolis. Based on data obtained from the Rivers State Ministry of Urban Development and Physical Planning and construction company registries as of 2025, the total population was 620 professionals. A census of the entire target population was adopted for this study due to the manageable size of the population involved. Therefore, no sample size determination formula was required, and no sampling techniques were applied, as the entire population constituted the sample. A researcher-designed instrument titled "Influence of Sustainable Construction Practices on Timely Delivery of Building Projects in Port Harcourt Metropolis Questionnaire (ISCPTDBPPMQ)" was used for data collection. The instrument consisted of 20 items, divided into four clusters: Cluster 1: Environmental Compliance (5 items), Cluster 2: Efficient Project Planning (5 items), Cluster 3: Efficient Resource Management (5 items), Cluster 4: Timely Delivery of Building Projects (5 items). All items were structured on a four-point rating scale as follows: Strongly Agree (4), Agree (3), Disagree (2), Strongly Disagree (1). The instrument was subjected to face and content validation by three experts: two from the Department of Building Technology and one from the Department of Measurement and Evaluation at Rivers State University. The experts assessed the instrument for relevance, clarity, and alignment with the study objectives. Their corrections and suggestions were incorporated into the final draft of the questionnaire. To determine the reliability of the instrument, a pilot test was conducted using 30 construction professionals from firms in Imo State not included in the main study. The responses were examined using the Cronbach Alpha technique to assess how consistently the instrument measured what it set out to explore. Exact score of the reliability was effective along board: 0.84 used for Cluster 1, 0.88 used for Cluster 2, 0.86 used for Cluster 3, and 0.90 used for Cluster 4.in addition, the used instrument achieved a total reliability coefficient of 0.87. To get the questionnaires into the hands of participants, the researcher rolled up their sleeves and got involved directly, supported by two capable assistants. In total, 620 copies were handed out. Out of these, 593 were completed and returned in usable form, providing a solid foundation for the analysis that followed. Mean and standard deviation were used to answer the research questions. Regression analysis was applied to test the hypothesis. A criterion mean score of 2.50 was used as the decision rule. 2.50 mean score or that is greater is used as agreed, meanwhile the one that are lower 2.50 is used as disagreed. Null hypotheses used for this study were accepted especially if p-value is greater than 0.05 and rejected if it is less than 0.05.

4.Results and Discussion of Findings

4.1 Results

Table 1: Summary of mean and standard deviation of the influence of environmental compliance on timely delivery of building projects in Port Harcourt Metropolis.

S/N	Items	SA	A	D	SD	Mean	Std.	Decision
1	I comply with all relevant environmental regulations in my operations.	166	275	137	15	3.00	0.78	Agreed
2	Environmental compliance is regularly enforced on my construction sites.	218	189	167	19	3.02	0.88	Agreed
3	I am adequately trained on environmental best practices.	339	136	85	33	3.32	0.92	Agreed
4	I conduct Environmental Impact Assessments (EIA) before the commencement of projects.	149	240	100	104	2.73	1.03	Agreed
5	The use of eco-friendly materials is encouraged to meet compliance standards.	188	118	203	84	2.69	1.06	Agreed
	Grand mean					**2.95**	**0.59**	**Agreed**

The result from Table 1 shows the mean and standard deviation on the influence of environmental compliance on timely delivery of building projects in Port Harcourt Metropolis. The grand mean on environmental compliance was found to be 2.95±0.59. The result further shows that respondents agreed they are adequately trained on environmental best practices, with a mean of 3.32±0.92. The result also shows that environmental compliance is regularly enforced on construction sites, with a mean of 3.02±0.88. The result also shows that respondents agreed they comply with all relevant environmental regulations in their operations, with a mean of 3.00±0.78. The result also shows that Environmental Impact Assessments (EIA) are conducted before project commencement, with a mean of 2.73±1.03, while the use of eco-friendly materials to meet compliance standards had the least mean of 2.69±1.06.

Table 2: Summary of mean and standard deviation on the influence of efficient project planning on timely delivery of building projects in Port Harcourt Metropolis.

S/N	Items	SA	A	D	SD	Mean	Std.	Decision
6	Project objectives are clearly defined before implementation begins.	171	135	149	138	2.57	1.14	Agreed
7	Adequate time is allocated for each phase of the project during planning.	174	145	180	94	2.67	1.06	Agreed
8	I am actively involved during the planning stage of projects.	282	112	142	57	3.04	1.05	Agreed
9	Planning includes realistic timelines.	214	197	79	103	2.88	1.08	Agreed
10	Risk assessment is an essential part of project planning.	273	171	134	15	3.18	0.87	Agreed
	Grand mean					**2.87**	**0.56**	**Agreed**

The result from Table 2 shows the mean and standard deviation on the influence of efficient project planning on timely delivery of building projects in Port Harcourt Metropolis. The grand mean on efficient project planning was found to be 2.87±0.56. The result further shows that respondents agreed that risk assessment is an essential part of project planning, with a mean of 3.18±0.87. The result also shows that respondents are actively involved during the planning stage of projects, with a mean of 3.04±1.05, and that planning includes realistic timelines, with a mean of 2.88±1.08. The result also shows that adequate time is allocated for each phase of the project during planning, with a mean of 2.67±1.06, while the definition of project objectives before implementation begins had the least mean of 2.57±1.14.

Table 3: Summary of mean and standard deviation on the influence of efficient resource management on timely delivery of building projects in Port Harcourt Metropolis.

S/N	Items	SA	A	D	SD	Mean	Std.	Decision
11	Resources are allocated based on the specific needs of each project.	342	151	69	31	3.36	0.88	Agreed
12	There is a clear plan for managing equipment throughout the project.	350	111	66	66	3.26	1.04	Agreed
13	Human resources are assigned tasks according to their skills.	301	197	31	64	3.24	0.97	Agreed
14	Resource usage is regularly monitored to avoid wastage.	379	131	38	45	3.42	0.91	Agreed
15	Inventory levels are tracked to ensure availability.	318	187	75	13	3.37	0.79	Agreed
	Grand mean					**3.33**	**0.41**	**Agreed**

The result from Table 3 shows the mean and standard deviation on the influence of efficient resource management on timely delivery of building projects in Port Harcourt Metropolis. The grand mean on the influence of efficient resource management was found to be 3.33±0.41. The findings reveal a general consensus among respondents that efforts are made to keep a close eye on how resources are used, with an average rating of 3.42 and a standard deviation of 0.91. There's also a strong indication that inventory levels are routinely monitored to prevent shortages, as reflected in the mean score of 3.37±0.79. Resource allocation appears to be guided by the specific demands of each project, averaging 3.36±0.88, suggesting a tailored approach rather than a one-size-fits-all method. The data also point to the presence of a structured plan for managing equipment across the lifespan of a project, though this received a slightly lower mean of 3.26 with a wider spread (SD = 1.04), perhaps hinting at some variability in execution. Finally, the assignment of human resources based on individual skill sets was acknowledged, though with a modest mean score of 3.24±0.97, which might suggest room for improvement in aligning people with the tasks that best suit their strengths.

Testing of Hypotheses

Table 4: Summary of linear regression analysis on the environmental compliance influence on timely delivery of building projects in Port Harcourt Metropolis.

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	R=.364, R-Square=.132, F=90.099, p-value=.000	B	Std. Error	Beta		
1	(Constant)	1.807	0.150		12.021	0.000
	Environmental Compliance	0.474	0.050	0.364	9.492	0.000

a. Dependent Variable: Timely Delivery of Building Projects, **y=0.474x+1.807**

The result from Table 4 presents the summary of a simple linear regression analysis examining the contribution of environmental compliance (x) to the timely delivery of building projects (y) in Port Harcourt Metropolis. The regression analysis tells a compelling story that challenges the null hypothesis, pointing to a meaningful link between environmental compliance and how promptly building projects are completed. With a correlation coefficient of 0.364, there appears to be a moderately positive relationship, suggesting that the more attention given to environmental obligations, the more likely projects are to stay on schedule. The coefficient of determination, sitting at 13.2 percent, indicates that environmental compliance accounts for a fair share of the variation in timely delivery. While the lion's share of influencing factors still lies elsewhere, this result shows that compliance is not just a box-ticking exercise, but a contributor worth taking seriously. The model itself holds statistical water, as shown by an F-value of 90.099 and a p-value comfortably below 0.05, underscoring the strength of the connection observed. This leads to the rejection of the null hypothesis. Environmental compliance significantly contributes to the timely delivery of building projects. Examining the regression coefficients provides further insight. The constant term (B = 1.807, p = 0.000) is statistically significant, indicating a baseline delivery score of 1.807 when environmental compliance is absent. The environmental compliance factor has an unstandardized coefficient (B = 0.474) and a standardized coefficient (Beta = 0.364). The t-value is 9.492 and the p-value is 0.000, both confirming statistical significance. This implies that for every one-unit increase in environmental compliance, timely delivery improves by 0.474 units, all else held constant. The standardized Beta (0.364) confirms that environmental compliance is a considerable predictor in this model.

Table 5: Summary of linear regression analysis on the efficient project planning influence on timely delivery of building projects in Port Harcourt Metropolis.

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	R=.222, R-Square=.049, F=30.669, p-value=.000	B	Std. Error	Beta		
1	(Constant)	2.327	0.162		14.386	0.000
	Efficient Project Planning	0.306	0.055	0.222	5.538	0.000

a. Dependent Variable: Timely Delivery of Building Projects, **y=0.306x+2.327**

The result from Table 5 presents the summary of a simple linear regression analysis examining the contribution of efficient project planning (x) to the timely delivery of building projects (y) in Port Harcourt Metropolis. The results from the regression analysis make it quite clear that the null hypothesis doesn't hold water. There's a statistically significant link between efficient planning and the timely delivery of building projects. Although the correlation coefficient (R = 0.222) points to a rather gentle upward trend, it still suggests that better planning tends to go hand in hand with finishing projects on schedule. It's not a strong pull, but it's there, quietly shaping outcomes. Looking a bit deeper, the coefficient of determination ($R^2 = 0.049$) tells us that just under 5% of the variation in timely delivery can be chalked up to planning efficiency. On the surface, that might seem modest, perhaps even forgettable, but in the world of project execution, where so many variables are in play, even a small edge can make a difference. Like a well-oiled hinge on a heavy door, smooth planning doesn't do the whole job, but it certainly helps it swing open more easily. Statistically speaking, the model stands on firm ground. With an F-value of 30.669 and a p-value sitting neatly at .000, there's strong evidence that this relationship isn't down to chance. In practical terms, the data nudges us to pay attention to planning, not as a silver bullet, but as a meaningful contributor to keeping projects on track. As such, the null hypothesis is rejected. Efficient project planning significantly contributes to the timely delivery of building projects. The constant term (B = 2.327, p = 0.000) is statistically significant, representing a baseline delivery score of 2.327 in the absence of efficient planning. The planning factor has an unstandardized coefficient (B = 0.306) and a standardized coefficient (Beta = 0.222). The t-value is 5.538 and the p-value is 0.000, both indicating significance. This implies that for every one-unit increase in efficient planning, timely delivery increases by 0.306 units, all other factors constant. The standardized Beta (0.222) shows that project planning, while a weaker predictor than others, still plays a measurable role in delivery outcomes.

Table 6: Summary of linear regression analysis on the efficient resource management influence on timely delivery of building projects in Port Harcourt Metropolis.

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	R=.499, R-Square=.249, F=196.469, p-value=.000	B	Std. Error	Beta		
1	(Constant)	0.082	0.225		0.364	0.716
	Efficient Resource Management	0.939	0.067	0.499	14.017	0.000

a. Dependent Variable: Timely Delivery of Building Projects, **y=0.939x+0.082**

The result from Table 6 presents the summary of a simple linear regression analysis examining the contribution of efficient resource management (x) to the timely delivery of building projects (y) in Port Harcourt Metropolis. The results from the regression analysis leave little room for doubt: there is a statistically meaningful link between how well resources are managed and whether projects are delivered on time. With a correlation coefficient of 0.499, the data suggest a reasonably strong connection between the two. Put simply, when resources are handled wisely, building projects tend to stay on track and meet their deadlines. Looking at the coefficient of determination ($R^2 = 0.249$), nearly a quarter of the variation in timely delivery can be attributed

to the way resources are managed. That's no small feat for a single factor, especially in an industry where countless moving parts often compete for attention. While this doesn't account for everything that can delay a project, it does highlight how much of a difference good planning and steady oversight can make. The model as a whole holds up well under statistical scrutiny, with an F-value of 196.469 and a p-value well below the conventional cut-off of 0.05. In fact, the p-value of .000 speaks volumes, firmly nudging us to set aside the null hypothesis. The implication is clear: improving how resources are allocated and monitored could be a game-changer for timely project completion. Efficient resource management significantly contributes to timely delivery.

The constant term (B = 0.082, p = 0.716) is not statistically significant, indicating no meaningful baseline delivery score in the absence of the predictor. However, the resource management factor has a strong unstandardized coefficient (B = 0.939) and a standardized coefficient (Beta = 0.499). The t-value is 14.017 and the p-value is 0.000, both indicating strong significance. This means that for every one-unit increase in efficient resource management, timely delivery increases by 0.939 units, holding other variables constant. The standardized Beta (0.499) shows that efficient resource management is the strongest predictor among the variables analysed in this study.

4. Discussion of Findings

The analysis reveals a clear and meaningful relationship between environmental compliance and the timely delivery of building projects. With a moderate correlation ($r = 0.364$) and a coefficient of determination ($R^2 = 0.132$), the data suggest that about 13% of the variation in project timelines can be traced back to how well environmental regulations are followed. While that may not account for every delay or success story, it is a telling portion, particularly in an industry where timelines often hang by a thread. The regression results further show that for every unit increase in environmental compliance, there's a corresponding 0.474 increase in the likelihood of timely delivery. In plain terms, when environmental practices are taken seriously, schedules tend to hold up better. The model itself stands on solid statistical ground, with an F-value of 90.099 and a p-value well below 0.05, confirming the strength of the relationship. These findings echo what Amadi and Amadi (2022) observed in their research: local contractors who stayed consistent with quality control and environmental guidelines were better positioned to finish government-backed projects on time. Their work highlighted a familiar truth in the field, projects grounded in proper environmental oversight tend to run more smoothly. Egbebi (2024) adds weight to this perspective, noting that projects with ongoing enforcement of environmental protocols and staff properly trained in compliance practices faced fewer hold-ups. This aligns closely with the current study's high mean scores for both training and enforcement. Taken together, the evidence suggests that embedding environmental standards into the everyday rhythm of project execution, through regular training, structured enforcement, and thoughtful regulation, can genuinely support more predictable and efficient delivery. For those steering the ship, whether contractors, consultants, or project managers, it may be worth leaning more deliberately into these practices. After all, in the construction world, where delays can be costly and ripple far and wide, a well-laid environmental plan might just be the scaffolding that holds the timeline together.

The results suggest that effective project planning plays a supporting role in ensuring building projects are completed on time, albeit to a modest extent. A weak yet statistically meaningful positive correlation was observed ($r = 0.222$), with the coefficient of determination ($R^2 = 0.049$)

indicating that planning quality accounts for roughly 4.9% of the variation in timely project completion. The regression analysis ($F = 30.669$, $p = .000$) offers further insight, revealing that a one-unit improvement in planning is associated with a 0.306-unit gain in delivery timeliness. While this may not represent a dramatic impact, it does affirm that good planning nudges projects in the right direction. These findings resonate with the work of Akinradewo (2022), who observed a clear trend linking thorough planning with reduced delays. His study underlined how projects grounded in clear foresight and structured timelines tend to fare better with deadlines. Of particular note in this study were the high mean scores for risk assessment (3.18) and active team involvement during the planning stage (3.04), reinforcing the idea that planning isn't just about ticking boxes. It's a hands-on, anticipatory effort that, when done right, can cushion projects against the usual stumbling blocks. Still, planning alone won't win the race. As the evidence suggests, it's one piece of a much larger puzzle. Other variables like resource allocation, coordination with stakeholders, and effective site supervision clearly share the stage. Looking ahead, it may be wise for practitioners to view planning not as a stand-alone function but as a thread woven through the broader fabric of project delivery. By tying it closely to resource management and on-site execution, we may begin to see more consistent improvements in overall performance. In contrast, resource management emerged as a stronger driver of timely project delivery. With a grand mean of 3.33 ($SD = 0.41$), most respondents agreed that strategic handling of materials and manpower has a noticeable influence on project outcomes. The statement, "Resource usage is regularly monitored to avoid wastage," topped the list with a mean score of 3.42, followed closely by, "Inventory levels are tracked to ensure availability," at 3.37.

These responses speak volumes. They point to the everyday realities on construction sites, where a delayed delivery of materials or misallocation of labour can derail weeks of progress. Just like a well-stocked kitchen is essential for preparing a good meal, having the right materials in the right place at the right time is essential for keeping a project on track. The results suggest that effective project planning plays a supporting role in ensuring building projects are completed on time, albeit to a modest extent. A weak yet statistically meaningful positive correlation was observed ($r = 0.222$), with the coefficient of determination ($R^2 = 0.049$) indicating that planning quality accounts for roughly 4.9% of the variation in timely project completion. The regression analysis ($F = 30.669$, $p = .000$) offers further insight, revealing that a one-unit improvement in planning is associated with a 0.306-unit gain in delivery timeliness. While this may not represent a dramatic impact, it does affirm that good planning nudges projects in the right direction. These findings resonate with the work of Akinradewo (2022), who observed a clear trend linking thorough planning with reduced delays. His study underlined how projects grounded in clear foresight and structured timelines tend to fare better with deadlines. Of particular note in this study were the high mean scores for risk assessment (3.18) and active team involvement during the planning stage (3.04), reinforcing the idea that planning isn't just about ticking boxes. It's a hands-on, anticipatory effort that, when done right, can cushion projects against the usual stumbling blocks. Still, planning alone won't win the race. As the evidence suggests, it's one piece of a much larger puzzle. Other variables like resource allocation, coordination with stakeholders, and effective site supervision clearly share the stage. Looking ahead, it may be wise for practitioners to view planning not as a stand-alone function but as a thread woven through the broader fabric of project delivery. By tying it closely to resource management and on-site execution, we may begin to see more consistent improvements in overall performance. In contrast, resource management emerged as a stronger driver of timely project delivery. With a grand mean of 3.33

(SD = 0.41), most respondents agreed that strategic handling of materials and manpower has a noticeable influence on project outcomes. The statement, "Resource usage is regularly monitored to avoid wastage," topped the list with a mean score of 3.42, followed closely by, "Inventory levels are tracked to ensure availability," at 3.37. These responses speak volumes. They point to the everyday realities on construction sites, where a delayed delivery of materials or misallocation of labour can derail weeks of progress. Just like a well-stocked kitchen is essential for preparing a good meal, having the right materials in the right place at the right time is essential for keeping a project on track. Resource allocation based on project needs (mean = 3.36) also received strong agreement, while equipment planning (mean = 3.26) and human resource skill matching (mean = 3.24) were viewed positively, though slightly lower. These findings align closely with Adeosun (2023), who found a strong link between material resource management and project completion time. Their research showed that regular material budgeting and monitoring helped reduce delays, reinforcing the high mean scores on inventory tracking and waste avoidance (Adeosun, 2023).Furthermore, a study found that techniques such as Materials Requirement Planning (mean score 3.97) and first-in, first-out systems were significantly associated with on-time project delivery (mean 3.88), reflecting the current study's emphasis on careful resource monitoring and stock control (Author, 2021). These agreements support the view that efficient resource oversight, including material monitoring and inventory control, supports timely project delivery. Builders and project managers may benefit from maintaining these practices, especially in areas like equipment scheduling and matching personnel to tasks, which received slightly lower ratings but remain important for sustaining project efficiency.

5.Conclusion

From this study, it is important to note that timely building project delivery does not constitute only one factor, but it is categorized by a well-managed resources, sound planning and as well as full commitment with respect to environmental standards. In all, it is vital to note that efficient resource management is ranked the highest. Various participants pinpointed out measures which include: ensuring eye usage strategy, enhancing best inventory recording and as well as issuing real time resource-based project demand. Although project planning didn't carry as much weight statistically, it still nudged things in the right direction. Projects that took time for risk assessment and included staff in the early stages of planning were more likely to stay on schedule. It echoes that old saying: a job well begun is half done. Furthermore, enhancing all these methods will to some extent aid project team members to stay on track with respect to project delivery with minimal issues.

With respect of the study findings and conclusion, it made useful recommendations:

1. All regulatory body and project managers as a matter of urgency should monitor any construction project and ensure that environmental impact assessment is not only checked before the construction process begins but also provide actionable procedures that enhance timely delivery of construction projects.
2. The project manager as a matter of priority goes through risk assessment at the planning phase, identify problems as early as possible which will help for the timely delivery of construction projects.

3. There is the urgent need to adopt a robust system that will help with bulk purchase of materials, equipment, usage of resources are made available mitigate delays, and cost overruns in construction projects.

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