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Effects of Contract Negotiation, Contract Monitoring and Relationship Management on Construction Projects Performance. A Case of Water Treatment Plants for Wasac

[1]RUKINIRWA Egide, [2*]MBONIMANA Gamariel

[1]Student at University of Kigali [2*]Academic Supervisor

Abstract: *- The aim of this study was to determine the effects of contract negotiations, contract monitoring and relationship management on construction projects Performance with the case of water treatment plants for WASAC. Study findings enlightened project engineers, procurement and contractors staff the need to, critically monitor contracts during project execution. The study used an explanatory research design, a target population of 110 employees including WASAC staff and Contractors/Consultants. Simple random sampling method employed and the sample size was 110 respondents. Data were collected using questionnaire, analyzed using SPSS. The study found a coefficient of determination R-square of 0.326 which implies that 32.6% of the independent variable explained dependent variable (construction project performance). It was also found the statistically significant F value of 14.829 as indicated by a p value of p=0.004<0.05. Therefore, it was concluded that performance of construction projects in WASAC was depending on how contracts are negotiated, monitored and how agency and contractors' relationship management is maintained. To enhance projects performance vis-a-vis time, cost and quality, the study recommends that WASAC management should strengthen contract negotiations, monitoring and relationship management by structuring the continuous capacity building and knowledge transfer through trainings of staff and overseeing young engineers for all ongoing projects, setting up internal rules and procedures for contract management in order to be consistent in all matters.*

Introduction

Background to the Study

In this vibrant and aggressive enterprise environment, Rwanda is one of the global nations struggling to reinforce their economies. It is one of the growing countries in the global that have always determination of being indexed amongst progressive nations.

For the government of Rwanda to accomplish its population development satisfaction, every year a major portion of budget is allocated for procurement of works of different kinds for different public agencies as per requirements of diversified projects. Works include mainly Water Supply Infrastructure, Energy Infrastructure, transport infrastructures, Building Infrastructures, etc. In some organizations, procurement of Works accounts for the lion portion of total budget like in WASAC, REG, RHA, RTDA, etc.

The Government of Rwanda is also encouraging the active participation of local private service providers and operators in the water supply sub-sector and will ensure that the principles advocated by the Policy are adhered to in the entire process of water supply services provision. Further, the Government strongly recognizes the initiatives of international and regional communities and will continue to cooperate with them to achieve the Sustainable Development Goals under the 2030 Agenda. (National Water Supply Policy, 2016).

The execution of government programs to ensure service delivery is largely dependent on contracting with persons or entities in the private sector. Contracting, accordingly, forms an integral part of conducting business in the public sector.

Contract management takes place during the operational phase of the contract i.e., after the

contract has been awarded to the preferred supplier or service provider and the goods/works delivered and service/s are up and running. Contract management should be aligned to the strategic goals and objectives of the relevant institution of government as well as risk mitigation strategies and supported by an established framework and policy. The focus should be on why the contract is being established and on whether the contractor will be able to deliver in time and technical terms. Careful consideration must be given to how the contract will work one it has been awarded. After the contract has been formulated and awarded, the process turns to three main namely works delivery, contractor relationship and contract administration. (World Bank, 2018).

A contract management system is critical to protecting the interests of the organization which include "establishing standards and evaluation criteria for assessment; ensuring the various stakeholders know what their roles and responsibilities are; measuring, monitoring, and evaluating performance; collecting reliable data for decision-making; documenting poor performance; and establishing a process to apply corrective measures. The primary purpose of a contract management system, as a business process within procurement process, is to provide a comprehensive solution, which will ensure that all contracts are performed in compliance with the terms and conditions thereof. (UN, Sep. 2012)

Contract management practices

A contract is the establishment of the basis and upkeep of a favorable relationship between the contracting firm and contracting entity. It too shapes a basis for the acknowledgment of the extend deliverables consequently ensuring the accomplishment of value for money. On the off chance that a contract comes up short to address the significant issues required within the understanding, such as, word ambiguities, it gets to be difficult for the contracting agency to base a positive working relationship with the contracting company. In cruelty of that, certainly there are practices that the contracting authority can carry out upon granting a contract to boost the contractor's execution and subsequently the adequacy within the contract execution. (Lowe, 2013)

Management of contract commences with contractor monitoring and approval administration. This is vital in empowering the contracting organization to find out that the contracting company is undertaking his duties and satisfying his commitments in compliance with the contract. This too permits the contracting organization to pinpoint any issues or issues before that may emerge and offer timely arrangements. Especially, the blueprint of contractor supervision and approval management includes checking, controlling, and assessing the contractor's execution; assessing the quantity and quality of administrations, works, or items conveyed; and distinguishing and dealing with risks (Cropper, 2008).

Project Performance

The implementation of projects was given different meanings as per some literature reviews from researchers, those reviews enlightened how project implementation can cause or be related to its performance. Characterized as the framework that declares to the structure of an organization embraced by clients for the execution of project practices and possible operations for them. In any agreed project execution, it is deeply impacted by the sort of extend procurement method used to convey the project. Thus, extend clients regularly look for to choose the leading method that can offer assistance to realize better way project comes about. Diverse shapes of extend execution ways exists from which clients can select from. There are terms of allotment of activities sequencing, prepare, method and organization approach in project execution. (Chan. 2007).

Statement of the problem

An effective contract encompasses everything from establishing the business case and confirmation of need through to relationship management and reviewing performance. The foundations for effective and successful of government projects is procurement and contract management which rely upon careful, comprehensive and thorough implementation of pre-award activities.

There are issues that are being observed as poor contract management and performance causes and affecting government contracts steam. Those were failure to undertake due diligence, failure to conduct need assessment, unclear definition of the scope of work or terms of references or technical specifications, failure to observe fundamental principles governing public procurement like transparency, competition, economy and fairness. It was observed that; the current contract management issues include deviation from the initial purpose of the contract, execution of additional works without a prior written addendum, additional works exceeding 20%, delays to respond to contractor's notices, delayed payments or partial payment which cause delays in execution of contracts, failure or delay by procuring entity to take measures in case of default by the contractors. The extent of poor public contract management, especially in procurement of works projects leading to government loss is remaining challenging in Rwanda. It is worth noting that projects suffer from the frequent lack of good contracts management. Therefore, this research intended to investigate the relationship between contract negotiation, monitoring and relationship management and water treatment plants construction projects performance; and provides recommendations for performance of related contracts improvement and helps Government benefiting reasonable and relative advantages by overcoming any related defies. (MINIJUST, 2020)

Specifically, in WASAC different projects faced the challenge of extensions and addenda by time and variations which make some projects be completed beyond the initial contract amount and schedule. (OAG, 2020)

Specific Objectives:

1. To investigate to which extent contract negotiations practices relates to the performance of water treatment plants construction projects in Rwanda;
2. To determine the relationship between contract monitoring practices and performance of water treatment plants construction projects in Rwanda;
3. To examine the link between relationship management practices and performance of water treatment plants construction projects in Rwanda

Literature Review

Concept of Project performance

Examining Key Performance Indicator (KPI) reports submitted by any provider and apply sanctions or penalties or rewards is not Performance management. That only is very inadequate, as KPIs never talk on complete story and can be easily manipulated or explained. That is a measured value indicating the way effective a organization is in achieving its important business goals. Project management wise this indicate the successfulness of the project being in benefit of all the people involved: stakeholders, customers, employees, and the community as well. Without KPIs, it would not be possible to assess the progress of the projects towards fulfilling the goals set. (Cullen. 2014).

There are six such key performance indicators that will ensure success in managing your project portfolio.

Customer satisfaction: The service at the end of the day is to serve our customers and clients. So, the ultimate measure of success in a project is customer satisfaction. Surveys are carried out to get their feedback. After that is calculated as (total points from the survey) * 100 / (number of questions).

Productivity: Productivity measures the output of a resource as compared to its input. For every unit of input, what is the output? One way to measure this would be revenue per employee; the ratio of revenue per employee to the average salary per employee gives a productivity ratio for the organization. We could measure the number of projects done per employee or the number of lines of code per employee as well.

Cost efficiency: Cost Performance Index is the ratio of the value earned and the cost incurred to obtain that value. This helps organizations reduce financial risk by keeping the capital cost in check and allocating the capital wisely.

Time: The time taken from the beginning to the end of a project is referred to as the cycle time. Similar schemes can have a standard benchmark of cycle time to measure against. A shorter cycle time means a faster return on investment to the organization. Also, giving time for more projects to be taken up.

Return on investment (ROI): ROI can be calculated as the total benefit divided by the total cost, expressed as a percentage (multiply by 100). It measures the returns for every dollar invested. Benefits can include the profits, cost savings, increased outputs expressed as a dollar amount while costs can consist of the cost of resources, travel expenses, cost of design and maintenance of a project.

Alignment with goals of the organization: You also need to measure if the projects you are doing are right for you keeping in mind the purposes of the organization as a whole. Surveys can be conducted along with alignment ratings where the business managers, leaders and project managers are the participants.

With these KPIs in mind, you are on your way to effectively manage any project that serves the goals of your organization. Successful performance, and the ultimate benefit realisation of the contract, is comprised not only of the provider's outputs, but that of its inputs and processes as well all contributing to the desired outcomes. (Thinking Portfolio OY, 2019)

Concept of contract management practices

Contract administration and management includes ensuring, to the extent possible, that the contract requirements are satisfied, that the goods/services are delivered in a timely manner, and that the financial interest's of the Institution are protected. Contract administration and oversight includes the following four (4) processes which are planning, monitoring Performance, Payment Approval and Contract Close-out. Depending on the specific issues and circumstances surrounding a contract, contract administration may also include one or more of the following three (3) processes, Change Management, Dispute Resolution and Termination. (Cullen, 2014).

Theoretical review

Agency Theory

Agency theory emerged in the 1970s. At its core, the theory states that parties will act in their own self-interest. Put simply, the provider (agent) will act in a manner that increases margin and/or revenue; the buyer (principal) will take advantage of opportunities to minimise costs. This leads to the problem of moral hazard whereby one party maximises its own interests to the detriment of others. It is this concept of moral hazard as to why the Australian Consumer Law has been applied to small businesses as of 12 November 2016 to protect against unfair contract terms issued by principals in their standard form contracts.

According to Williamson (2013), contract management problems stem from relationships in which a principal (a contracting government) contracts with an agent (a vendor) for the production of goods and services in which the agent has expertise. The principal looks to prevent the agent from opportunistically exploiting its information advantages by carefully designing contracts, offering incentives, and monitoring the agent so that it performs according to contract specifications.

Jensen and Meckling (1976) define the agency relationship as a contract under which one party (the principal) engages another party (the agent) to perform some service on their behalf. As part of this, the principal will delegate some decision-making authority to the agent. These agency problems arise because of the impossibility of perfectly contracting for every possible action of an agent whose decisions affect both his own welfare and the welfare of the principal, Brennan (1995). Arising from this problem is how to induce the agent to act in the best interest's of the principal.

Managers bear the entire cost of failing to pursue their own goals, but capture only a fraction of the benefits. Jensen and Meckling (1976) argued that this inefficiency is reduced as managerial incentives to take value maximising decisions are increased. As with any other costs, agency problems will be captured by financial markets and reflected in a company's share price. Agency costs are can be seen

as the value loss to shareholders, arising from divergences of interests between shareholders and corporate managers. Jensen and Meckling (1976) defined agency costs as the sum of monitoring costs, bonding costs, and residual loss. (Cullen, 2017)

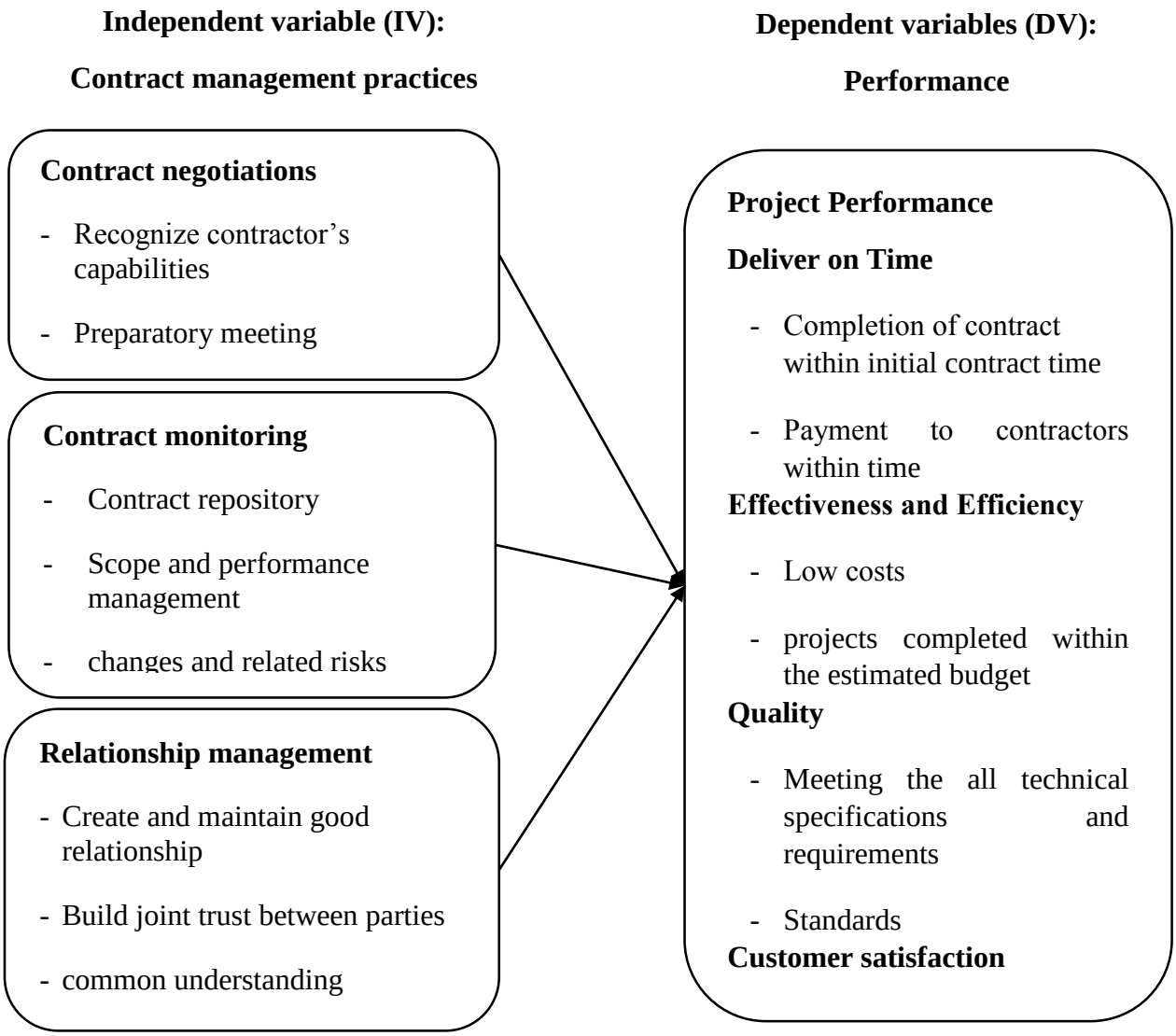
For those wanting to write complete contracts, another economic theory comes into play that of transaction cost economics (TCE). Two Nobel Economics prizes have been awarded in this space to Ronald Coase in 1991 and Oliver E. Williamson in 2009. Basically, TCE concerns itself with the total cost of contract, rather than just the 'sticker price'. It is comprised of the cost of: (1) finding a supplier (search and information costs), (2) negotiating with it (bargaining costs), and (3) managing the contract (policing and enforcement costs). To make a sound decision, these must be included in the business case not just the price on offer. (Cullen, 2017)

It has seen that procurement focus heavily on reducing the principal's first TCE through e-tenders and templates, and legal on reducing the second TCE with standard form contracts. However, these have led to cumbersome bidding processes and one-sided, opaque template contracts.

Behaviours are influenced by the written contract, but are influenced more by the psychological contract, which my colleagues and I at the University of Melbourne are currently focused on. The psychological contract represents the mental beliefs and expectations individuals have on the obligations formed within a relationship – the spirit of the agreement. Like the written contract, the psychological contract can be breached. When this occurs, it creates conflict and breaks down trust. This leads to us back to a higher than normal TCE and acting in self-interest (agency theory). These are some of the core theories. There are many more facets of contract theory such as game theory (choices regarding getting a payoff from an action), hold-up (creating a situation where one party gains a later advantage over the other), and mechanism design (designing incentives to achieve objectives), to name just a few. (Cullen, 2017)

Conceptual framework

The framework comprises of the two types of variables namely independent and dependent, those are contract management practices and project performance, respectively. Independent variable comprises three independent variables including contract negotiations, contract monitoring, and relationship management. The conceptual framework exhibits how contract management practices affects performance.



Source: Researcher, 2020

Research Methodology

Research Design

The study employed an explanatory research design examining on the relationship between independent and dependent variables. The main purpose of explanatory research is to explain why phenomena occur and to forecast future incidents. Explanatory studies are characterized by research hypotheses that specify the nature and direction of the relationships between or among variables to be studied. Probability sampling is normally necessary in explanatory research since the goal is commonly to generalize the results to the population from which the sample is to be taken. The data are quantitative and almost always require the use of a statistical test to establish the validity of the relationships. For instance, explanatory survey research investigated the factors that contribute to customer satisfaction and determine the relative weight of each factor, or seek to model the variables that lead to shopping cart abandonment.

The study aimed at collecting information from respondents to identify relationship between contract management practices and performance of water treatment plants construction projects, case of WASAC, Rwanda.

Study Population

The target population was 110 people including 97 WASAC staff, 5 from contracting companies' staff, 5 from consulting firms' staff and 3 from development partners' representatives (Projects Task Team Leaders).

Table 3.1: Study population

SN	STUDY GROUP	STUDY POPULATION
1	Staff	97
2	Contractors's representatives	5
3	Consultants's representatives	5
4	Development partners represenattives	3
Total		**110**

SOURCE: (field data, 2021)

Sample size

Considering that the population size is closer to 100 people, no sampling was done, census approach deemed to be appropriate and the sample size equal to the population. Respondent included Procurement Unit staff, Projects Management Team, Contractors and Consultants Teams, Top Managers.

Sampling Procedure

During any kind of research, data collection is a key factor to achieve objectives, data are collected from a given population and different techniques are use, these are called sampling. Sampling follows two different ways or types (Probability or None Probability). In some cases, it is possible to measure the entire population to get an accurate picture of the population at hand (the exhaustive survey) and in some cases however, sub-group of the population is feasible. This sub-group is called "sample" and can be chosen following probabilistic or non-probabilistic sampling techniques as above stated.

In this research only non-probability sampling applied to select research respondents. Purposive non-probabilistic sampling used because of a limited number of individuals possess the trait of researcher's interest. More specifically a "total population" purposive sampling engaged to examine the entire population of procuring entity and stakeholders, purposive sampling was adopted to gather information from individuals.

Summary, Conclusion and Recommendations

Summary of the Study Findings

The relationship between contract negotiations practices and performance of water treatment plants construction projects.

Respondents indicated that contract negotiations practice has relates to performance where it was agreed that understanding others views in order of having a better opportunity to find solution that suits both sides is an element of WASAC team consideration (mean=4.1), the WASAC do research and look at the contractor's financials and performance capabilities to get a better view of possible contractor-related risks and opportunities (mean=4.0), the WASAC try to go back and look at the lesson learnt from previous negotiations in order to avoid similar mistakes (mean=4.0), the negotiating team make a preparatory meeting in advance (mean=3.8) and there is a way to manage negotiating team by identifying and elimination any conflict of interest (mean=3.8) affected performance significantly.

Following regression analysis, the study found out a coefficient for contract negotiations practice to be 0.318, which implied that holding contract monitoring and relationship management, a unit increase in contract negotiations will increase performance by 31.8%. Furthermore, hypothesis tests revealed that contract negotiations practices has significant relationship with water treatment plants construction project performance for WASAC.

The relationship between contract monitoring practices and performance of water treatment plants construction projects

Respondents indicated that contract monitoring practice has no significant relationship with performance, where it was agreed with the fact that the project engineers understand the contract terms and conditions (mean = 4.00) and the mechanism of managing any changes to the contract with all related risks (mean = 4.00), but the respondents remain neutral with Filing for Client Performance Form (mean = 3.1), central contract repository (mean = 3.3) and with the tool for monitoring the contractor's

progress and performance(mean=3.3), which affected negatively the performance.

Following regression analysis, the study found out a coefficient for contract monitoring practice to be 0.056, which implied that holding contract negotiations and relationship management, a unit increase in contract negotiations will increase performance by 5.6%. Also, hypothesis tests revealed that contract monitoring practices has no significant relationship with water treatment plants construction project performance for WASAC.

The link between relationship management practices and performance of water treatment plants construction projects

Respondents indicated that relationship management practice relates to the performance where it was agreed that good relationship between WASAC staffs, management with the contractors and the institution (mean=4.1), there is a joint trust between parties, common understanding between the organization and the contractors and the management try to handle disagreements and disputes, prevent and treat internally and not through third parties. (Mean=3.9) and correspondence management (mean=3.7), this affected performance significantly.

Following regression analysis, the study found out a coefficient for relationship management practice to be 0.306, which implied that holding contract negotiations and contract monitoring, a unit increase in relationship management will increase performance by 30.6%. Furthermore, hypothesis tests revealed that relationship management practices is linked to water treatment plants construction project performance for WASAC.

Conclusion of the study

Following study results, it was concluded that definitely, contract negotiations practice has a significant relationship with the performance of water treatment plants construction projects in WASAC. The contract monitoring practice does not have significant relationship with the performance of water treatment plants construction projects in WASAC. Lastly relationship management has also significant link with performance of water treatment plants construction projects. This is since regression analysis results revealed a statistically significant increase of 31.8%, 5.6%, and 30.6% for contract negotiations practices, contract monitoring practice and finally relationship management practice respectively. Hypothesis tests also confirmed these relationship.

Recommendations of the study

Contract negotiation practice and performance of water treatment plants construction projects

Considering the good practice found in the WASAC, associated to contract negotiations and its positive relationship with performance of water treatment plants construction projects. It is therefore recommended that a capacity building and knowledge transfer plan be structured and put in place in order to eliminate any cause that can lead to future negligence of negotiations practices which may lead to significant long term issues with WASAC contractors/consultants and eventually, either a contentious renegotiation or contract cancellation that may negatively affect projects performance. It is from that, the contract can be built correctly and lay foundation for a mutually advantageous relationship.

Contract monitoring practice and performance of water treatment plants construction projects

From the study findings, it was noted a loophole in contract monitoring, considering that poor contract monitoring practice was evaluated as the one factor affecting negatively water treatment plants construction project performance, thus no good effect on it. It is therefore, recommended that once the contract is signed, the responsible project engineer start monitoring performance by collecting information which will help to measure actual contract achievement. This is essential for effective control.

Observations have to be made in order to collect all information related to those aspects of performance that, when measured, will describe the progress of the work by having a basis of comparing actual achievement with planned milestones in order to exert control. The WASAC must direct its attention internally to ensure that it is fulfilling its own obligations, and externally to ensure that the other part is also fulfilling its obligations towards cost, time, compliance with specifications, terms of reference, statement of work, compliance with terms

and conditions, paperwork requirement and administrative aspects of the performance. The affected tools of contract monitoring practices, which needs much attention and more inputs as per study results are; 1.Creating contract repository for easy reference, 2. Putting in place a tool for monitoring the contractor's progress and performance to ensure works conform to the contract requirements and value for money attained by eliminated unnecessary contractual time extensions and additional cost, lastly 3. Provision of filing for Client Performance Form, complete it and filing it appropriately for any signed contract and all related documentation.

The WASAC management has to ensure that a system exists in the organization for documenting and reporting on a contractor's performance in meeting contract requirements, and assign responsibility and management accountability for completeness of the contractor's performance for documenting and reporting on a contractor's performance.

The following components are recommended as necessary for an effective contract monitoring system; continuous training of WASAC staff in contract monitoring, setting up internal rules and procedures for contract management in order to be consistent in all matters, contingency plans, setting up performance measures, and post-award meetings, contract administration plan, organized contract files, payments modalities linked to satisfactory performance, regular programmatic reports and access to records and right to documentation.

Relationship management practice and performance of water treatment plants infrastructure construction projects

It is to be noted that for any construction project, it is essential that everyone within the team focus on completing it on time with quality within the estimated budget. This leads to share success, greater trust and more effective working relationship, which help toward delivering long-term benefits for both parties. Therefore, it is recommended that WASAC keep creating and maintaining good relationship with the contractors, keep a working environment which provides a joint trust between parties, keep understanding between the organization and the contractors, keep systematic exchange between contracting parties (correspondence management) and thereafter handle disagreements and disputes, without passing to third parties. Well thing, is also having a strategic knowledge transfer by training young engineers for future projection on the transaction.

Area for further research

The study recommends further study in the future, to be conducted on:

- Contract management challenges for water treatment plants construction projects;
- Internal and External factors impacting procurement of water treatment plants construction projects in Rwanda;
- E-procurement challenges in contract management for water treatment plants construction projects;
- Strategic sourcing on procurement performance for donor funded projects in Rwanda;
- Systematic approach to green and sustainable contract management practices in water treatment plants construction projects in Rwanda.

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