International Journal of Economics, Commerce and Management
United Kingdom Vol. III, Issue 8, August 2015
http://ijecm.co.uk/ ISSN 2348 0386

THE EFFECTS OF PROJECTS FUNDING ON THEIR PERFORMANCE IN RWANDA

A CASE STUDY OF BUKOMANE-GIKOMA ROAD

Jean Baptiste Siborurema
Jomo Kenyatta University of Agriculture and Technology, Kigali, Rwanda
jeansibo20@gmail.com

Jaya Shukla
Jomo Kenyatta University of Agriculture and Technology, Kigali, Rwanda
js.jayashukla@gmail.com

Zenon R. Mbera
Jomo Kenyatta University of Agriculture and Technology, Kigali, Rwanda
rutsiri@gmail.com

Abstract

This research entitled "The Effects of Projects Funding on their Performance in Rwanda" has considered a case study of Construction of BUKOMANE-GIKOMA Road in GATSIBO District, Rwanda which represents all the projects having the problems that are similar to those found in typical projects of this research's interest. Such projects in Rwanda have common problems related to financial resources, project technical designs which affect the project implementation time. The general objective of this research was to evaluate the effects of projects funding on their performance. The project funding factors which had been considered during this research are the project cost estimation, the project technical design, and the project funding policy applicable in Rwanda which influences the project budgeting, these three factors were the research independent variables on one hand; and the project performance which has been measured in matter of project implementation time and was considered as the dependent variable for this research on the other hand. The target population was composed of two groups; one group was formed by the personnel involved in the projects planning and funding,

and the other group was formed by the people involved in projects implementation management. Specially conceived questionnaire, consultation of existing documents and interviews were used to collect data. On analysis of the data, it has been found that both the cost estimation and technical design interfere with the projects funding policy and affect negatively the scheduled projects implementation time. With reference to the findings, conclusions and good practice based recommendations were formulated.

Keywords: Stakeholder, Technical design, Cost estimation, Budget, Implementation time, Project

INTRODUCTION

The implementation of projects in Rwanda had been a challenge for a long time; so as to satisfy the public needs, projects used to be implemented through procurement of works and supplies and to do so, Rwanda had been applying the royal order, established in 1959 by the King to overcome the problems that were arising in acquiring the first transport infrastructure, as he had full responsibility and decision making power on all public issues. The royal order concerned only works and goods, because consultancy services were not given importance at that time since public works were too small to require detailed technical specifications and resources planning (RPPA, 2012).

After the independence of 1962, the same royal order continued to be applied. As the country development went on growing rapidly especially during the last two decades, it became more difficult to acquire the government needs as the decision making power was no longer possessed by one person. Shortly after the genocide when Rwanda was facing many problems related to the rehabilitation of the entire country since many infrastructure were damaged or destroyed by the war; the government of Rwanda, established in 1997, a centralized public institution known as National Tender Board with the aim of overcoming the rising procurement and projects management issues. At the beginning, this institution was given the responsibilities of undertaking the procurement processes, monitoring different projects implementation and handling contracts management issues (TIR, 2009).

Ten years later, came the declaration of Paris on aid effectiveness endorsed on 2nd March 2005 and Accra agenda for action drawn in 2008 that is embedded in a set of five inter-related principles whose aim was to make aid more effective and accountable to the benefiting communities, Rwandan public procurement had to undergo radical reforms in order to comply with these principles so as to make a profitable use of donor funds in a more effective and transparent manner and facilitate the donors and partners' commitments to make aid more

effective in reducing poverty. Therefore the government established a law to govern not only the acquisition of its needs but also the monitoring of its projects implementation, and with the increasing of public needs in line with the growth of the population, which implied a growing number of public projects to satisfy the population needs, it became necessary to decentralize the system up to the district level and the former National Tender Board was changed to Rwanda Public Procurement Authority with the latter established by the law Nº63/2007 of 30/12/2007 and remained with the responsibilities of establishing public procurement regulations, capacity building and development of public institutions in the domain of procurement, auditing the procurement system of public institutions and monitoring different public procurement plans execution and different projects implementation processes (TIR, 2009).

However, the achievement of Rwandan government projects is until today facing many challenges due to the weaknesses found in procuring entities' procurement systems. The main challenges are related to the projects planning which are illustrated by different problems that arise during the projects implementation and their related contracts management, among which the financing problems come on the first place. The poor planning results from badly done projects studies especially construction projects which use the biggest portion of the national budget. There have been projects which were abandoned without being completed and others took longer execution period than the planned ones. This has caused the government to incur important losses and extra unnecessary costs, the recent example is the fiscal year 2012-2013 during which nine projects worth FRW 908 million were abandoned by the contractors and FRW 23 billion were lost in poor contracts management procedures (OAG,2014).

Recently, following the unceasing critics by the public and government top officials and blames about pertaining problems in public procurement and especially at the stage of contracts management; Rwanda Public Procurement Authority has undertaken a monitoring of contracts in progress but considering those whose amount is equal or higher than five hundred million Rwandan francs (FRW 500,000,000). The monitoring of these contracts execution revealed that the contract management in Rwanda encounters many problems including inadequate follow up of the contracts management by the government officials in charge of contract management; technical and financial capability as well as professionalism to execute contracts among local companies, the poor or lack of project studies, lack of clearly defined roles and responsibilities of officials involved in contract management, etc. The same monitoring exercise also revealed that there are contractors' payment problems due to incomplete documents, poor performance by contractors, untimely and inappropriate follow up on payment, budget problems, poorly prepared tender documents and contracts that lead to disputes, etc. (RPPA, 2014a).

Some public projects cost used to be underestimated, and that problem is still unsolved until now. This underestimation of cost is caused by badly defined scope of works or estimated quantity of goods to be purchased where inappropriate estimation method are used, the lack of knowledge of personnel in the domain of cost estimation and who sometimes do not understand the purpose of the project. The scarcity of personnel qualified in procurement is also a general problem in Rwanda until today; the procurement officers in different public institutions frequently change their jobs when they start to acquire some experiences through trainings and the institutions are obliged to hire new inexperienced procurement officers and that has been hindering the development and stability of procurement systems in different public institutions; the reasons of this brain migration are not known, and that is the reason why this issue is not managed until today. The underestimation of project costs has the effects on the planned budget because for some projects, the public institutions have requested the non-objection from Rwanda Public Procurement Authority to be able to pay additional amount for extra works resulting from poor project design and cost estimation. The payment these of amounts delays since they are not planned before (RPPA, 2014b).

During the hardest period in which Rwanda was highly depending on foreign aids as any country in extreme needs for rehabilitation after civil war including genocide against the Tutsis in 1994; the top leaders were busy handling many and different issues and to manage the projects, budget managers were appointed and left on their own with the responsibility of management of public funds whose a big portion was from foreign aids and loans. Henceforth, all these people have not been charismatic, some of them used the allocated budget to enrich themselves, others had no enough skills in budget management and mismanaged the allocated budget, etc. Following the frequent misuse of public funds in different projects, the government of Rwanda together with its partners and donors has set up a policy in 2011 which has to be applied for different projects' funds disbursement. The policy of disbursing projects funds based on their performance was adopted and from then the procuring entities have no longer the projects' funds in their bank accounts as it used to be before the adoption of that policy. Nowadays, all the funds for all public projects are kept in central bank and are paid depending on payment order from the Ministry of Finance and Economic planning; the payment is made only for what have been done and the remaining funds are used to finance other projects (MINECOFIN, 2011).

Since this policy was adopted, it has been preventing the misuse of public project funds have increased somehow transparence in contracting the public projects. Before its adoption many aids were misused and controlling the public funds use was the biggest challenge; the budget managers could use the public funds in their own interests and that had left many

projects unfinished or poorly implemented. The remaining funds were not all reported and unreported ones ended in the pockets of budget managers. Despite that misuse of public funds, some projects implementation have been delayed or completely failed due to the cut of promised aids by donors; this have been being caused by political issues and tensions in relationship with the donors' countries. Not only political issues were the causes but also the economic crisis experienced by donors' countries during the last few years in between. Even if there has been an effort to mitigate all those problems there still many things to be done to make the situation better than today (MINECOFIN, 2014).

After this research, the results confirmed the hypotheses of the research and it has been found that the implementation of most of projects in Rwanda, especially those concerning the public works use to take more time than the scheduled one due to poorly estimated costs which use to be revised and involve additional costs and poor technical designs which use to be modified during the projects implementation implying therefore, the unplanned additional works which involve additional costs. These factors combined with the projects funding policy in Rwanda which is very strict about projects budget revisions, cause considerable delays in projects while making appropriate decisions in order to overcome the problems.

Statement of the problem

The management of public projects in Rwanda has been a challenge until today; as stated in the budget execution report of the fiscal year 2013-2014 by the Ministry of Finance and Economic Planning; the country is still depending on aids from developed country with 40% of the national budget. To execute the important projects without depending on donors and grants is still the main issue Rwanda. The project financing policy applicable in Rwanda, combined with the poorly designed projects especially in scope definition and cost estimation generates many problems in projects management during their execution. Due to the poor projects studies especially the construction projects, the procuring entities face the problem of explaining to the ministry of finance and economic planning the reasons of their request for additional contracts to be able to pay the contractors for the unplanned additional works because the budget requested for those projects has been underestimated during the preparation of the procuring entities' procurement plans. A little number of procuring entities has overestimated the cost of their projects and this disturbs the management of budget execution by the ministry in charge. The issues of poor designs and cost estimation have resulted in delay of payments of contractors' invoices due to the lack of funds for direct payments and this has been affecting the projects implementation time (RPPA, 2014c).

Many problems also result from the project design especially for the civil work projects which require the architectural design and quantity estimations. Several civil work projects in general have had additional contracts related to unplanned works and therefore additional cost which is not planned before their beginning. To execute the additional works, the contractor has to be given additional time and therefore, the objectives and purpose of the projects is not achieved on scheduled time which results in poor performance of the projects. The procuring entities cannot be blamed alone, the consultants who do the design and the staff which validate the studies are also to be blamed and considering the problems encountered in the projects they have designed their professionalism and credibility can be put in doubt (RPPA, 2014d).

Even if the consultants can be blamed; they have no role in budget estimation; the mistakes result from the budget system itself where according to the Rwanda Public Procurement Authorities regulations, the public procuring entities are required to submit their procurement plans for the next fiscal year by 31 January of each year, which is to be approved by 30 June before the beginning of the following fiscal year on 01 July of each year; and the procurement plans include civil work projects for which the studies and implementation are supposed to be procured in the same fiscal year. This is quite wrong since the study is supposed to provide the baseline for estimation projects' costs. The public procuring entities therefore provide the estimated costs for the projects to be implemented during the following fiscal year without solid baselines and end up by facing the budget problems in their budget line as the Ministry of Finance and Economic Planning hardly accepts the changes in public institutions' budget lines (RPPA, 2007).

Considering all the facts stated above, the projects funding in Rwanda, which is influenced by the projects scope definition, technical design, costs estimation and public projects funding policy have an impact on the project performance in matter of completion time since many projects especially civil work projects are delayed or even abandoned by the contractors due to the problems related the public projects funding in addition to the incapacity of contractors in some cases.

General Objective

The general objective of this research was to clearly illustrate the effects of public projects funding in matter if their cost estimation and technical design on their performance in matter of implementation time especially the public civil works projects which have been focused on.

Specific objectives

1. To evaluate the effect of project cost estimation on its budget execution;

2. To assess the impact of project technical design on its budget execution;
3. To illustrate the relationship of Rwandan public project funding policy and its implementation time management.

Research hypotheses

1. H_o: Project cost estimation does not affect its budget execution.
2. H_o: Project technical design has no impact on its budget execution.
3. H_o: The Rwandan public projects funding policy has no relationship with their implementation time management.

RESEARCH METHODOLOGY

Research design

The research design is the strategic plan for a research project or research program, setting out the broad outline and key features of the work to be undertaken, including the methods of data collection and analysis to be employed, and showing how the research strategy addresses the specific aims and objectives of the study, and whether the research issues are theoretical or policy-oriented. Hence also, the process of developing such a document, choosing between alternative types of study, their relative size, whether triangulation will be employed, and adjusting plans to the available resources and timetable (Gordon, 1998).

This research applied both qualitative and quantitative methods, it had a practical aspect, and the researcher has collected primary data on site. Qualitative method is primarily exploratory research. It provides insights into the problem or helps to develop ideas or hypothesis for potential quantitative research. Qualitative research is also used to uncover trends in thought and opinions, and dive deeper into the problem (Susan, 2011). Quantitative method is used to quantify the problem by way of generating numerical data or data that can be transformed into useable statistics. It is used to quantify attitudes, behaviors, and other defined variables; and generalize results from a larger sample population. Quantitative research uses measurable data to formulate facts and uncover patterns in research (Susan, 2011).

Population

The target population is the group of people to whom we want our research results to apply (Jennifer, 2014). This research has focused on the project of construction of BUKOMANE-GIKOMA earth road; a 47 km road located in Eastern Province, GATSIBO District. The research target population was composed of the staff involved in the project funding and the staff

involved in project management. Both groups made a total of 60 people as the target population.

Sampling frame

The target population was chosen because it represents the people who have the ability of providing useful information. Other staff was not considered because people like guards, cleaners, and gate keepers do not have access to the project important information and this fact make them unable to provide useful data for this research, therefore they were ineligible.

Sample and Sampling technique

For this research the entire target population was considered; the sample size was equal to the target population since the census method was used. The census method intends to collect data from every member of the population being studied rather than choosing a sample (Jamie, 2006).

Instruments

As primary were to be used in this research, the instrument which was used for data collection is the questionnaire, specifically designed for the best understanding of the respondents opinions and documents from institutions in charge of financing and management of public projects. The questionnaire is a means of eliciting the feelings, beliefs, experiences, perceptions, or attitudes of some sample of individuals. As a data collecting instrument, it could be structured or unstructured (James, 1997).

Data collection procedure

The data collection was done by addressing the questionnaire to the target population and consulting the annual activity report of GATSIBO District. The questionnaire has been addressed to people classified in two categories; the first category was composed of people who were involved in the project financing and the other was composed of people who were involved in the project management. Secondary data were collected from the project periodic and final reports and analyzed for drawing sound interpretations.

Data processing

After data collection using the above stated instruments and procedures, the collected raw data were properly processed through: 1) Editing which consisted of correction, condensation, organization and many other modifications were performed with the intention of producing a

correct, consistent, accurate and complete work. 2) Coding which concerned data encryption to make their use easier. 3) Classification which consisted of putting the data related to the same key variable in the same category, it simply consisted of sorting out the data. 4) Tabulation which consisted of putting data in tables considering interrelated key variables, cross tabulation was also done where necessary.

Data analysis

For data analysis, inferential and descriptive statistics were used, and results have been graphically presented in order to illustrate them for clear and understandable discussion; analysis and formulation of useful recommendations. For this task statistic data analysis tools and software were used.

Descriptive statistics is summarizing and presenting data that were actually measured. Inferential statistics is making statements about a population based on measurements of a smaller sample (Stan, 2013).

RESEARCH FINDINGS AND DISCUSSION

In this chapter consisting of presentation of the findings from the field research and discussion of results in comparison with the research questions and key variables, raw data are presented for each key variable and the presentation is immediately followed by the analysis and discussion of the results with focus on the case study as a typical example. So as to ensure that the information from the respondents is consistent and valuable, the target population was composed of people with the following characteristics:

Table 1. Classifications of respondents per age

S/N	Group of Age	Number of respondents
1	20-25	0
2	26-30	12
3	31-35	16
4	36-40	4
5	41-45	8
6	46-50	8
7	51-55	12
8	56-60	0
9	61-65	0
Total		**60**

The above table shows that respondents were aged between 26 and 55. This interval of ages groups mature people who can provide reliable data.

Table 2. Classification of respondents according to their level of education

S/N	Level of education	Number of respondents
1	Primary Education	0
2	Professional training	0
3	Ordinary level	0
4	A level/Secondary Education	0
5	Some University courses	0
6	Bachelors	52
7	Masters	8
8	PhD	0
9	Professor	0
Total		**60**

The table above shows that the respondents are educated enough to provide the consistent data as they really understand what matters in this research.

Table 3. Classification of respondents per year of experience in projects management

S/N	Experience in years	Number of respondents
1	Less than 1 year	0
2	1-2 years	12
3	3-5 years	20
4	6-9 years	12
5	10-14 years	16
6	More than 15 years	0
Total		**60**

This table shows that the respondents are experienced enough and familiar with projects management to be able to provide the trustworthy data.

The inferential results are presented with reference to each objective of the research. Data are presented in tables as they were generated by the questionnaire and tables are followed by data analysis where Chi-Square Test was used since the research's objectives is to analyze the relationship between considered variables. Below are the results, their analysis and interpretations. For the data analysis using Chi-Square, the conventionally accepted significance level was considered; that level is 0.05 (i.e. $p > 0.005$) (John, 2014).

Project cost estimation

The project cost estimation was the first key variable that was considered in this research. Some factors thought to mainly influence the cost estimation were included in the questionnaire and respondents were expected to give their opinion on each factor by confirming whether they

strongly agree, agree, disagree, strongly disagree or have no opinion. The respondents were also given the option of adding other factors different from those given to them. The following table shows the results as they were provided by the respondents.

Table 4. Factors that influence the project cost estimation and affect its budget according to the number of respondents

Factors	Strongly agree (5)	Agree (4)	No opinion (3)	Disagree (2)	Strongly Disagree (1)
Not conducting the market research	32	20	0	8	0
Inexact list of project activities	28	20	4	8	0
Financial stability	12	12	0	28	8
Stakeholders' contribution	16	24	0	20	0
Financial capability	8	20	0	32	0
Use of wrong project cost estimation methods	16	20	4	20	0

In order to present the results, the factors and sets of data were denoted as follows:

The level of influence of the factors was presented according to whether the respondents strongly agreed, agreed, disagreed, strongly disagreed or had no opinion and the following notations were used: SAG to mean strongly agree, AG to mean agree, DAG to mean disagree, SDAG to mean strongly disagree and NO to mean no opinion. The factors were symbolized by letters from A to F with respect to their ascending order in the table above.

The following table shows the levels of the given factor's influence on project cost estimation based on the percentages of respondents who strongly agreed, agreed, disagreed, strongly disagreed or had no opinions.

Table 5. Levels of Factor's influence on the project cost estimation according to the percentages of respondents

	SAG (%)	AG (%)	DAG (%)	SDAG (%)	NO (%)
A	53.4	33.3	13.3	0	0
B	46.7	33.3	13.3	0	6.7
C	20	20	46.7	13.3	0
D	26.7	40	33.3	0	0
E	13.3	33.3	53.4	0	0
F	26.7	33.3	33.3	0	6.7

The respondents classified the factors according to their influence levels on project cost estimation. The first level has been where the respondents strongly agreed, the second level has been where they agreed, the third level has been where they disagreed, the fourth level has been where they strongly disagreed and the fifth level has been where they had no opinions.

The first level (SAG) of influence of factors on the project cost estimation, in which some respondents placed the them considering that they have the highest influence on the project cost estimation, not conducting the market research (A) in order to have an idea about the prices on market at the time of the project cost estimation has been judged the most important with 53.4% of the respondents and that makes this factor, the main source of mistakes frequently found in project cost estimation; it is followed by the inexact list of project activities (B), which has been referred to as the project activities breakdown structure with 46.7% of respondents; the Stakeholders' contribution (D) and the use of wrong project cost estimation methods (F) comes at the third place of importance with 26.7% of respondents; at the fourth place of importance comes the financial stability (C) which is referred to as the variation of economic growth in the country with 20% of respondents; and at the financial capability (E) which is referred to as the availability of the financial resources comes at the fifth place with 13.3% of respondents.

The second level (AG) of influence of factors on the project cost estimation, in which some respondents placed the factors considering that they have the medium influence on the cost estimation, the Stakeholders' contribution (D) was given the highest importance with 40% of respondents; it is followed by not conducting the market research (A), inexact list of project activities (B), financial capability (E) and use of wrong project cost estimation methods (F) with 33.3% of respondents and lastly comes the financial stability (C) with 20% of the respondents.

Other factors influencing the project cost estimation according to the respondents are inexperience or lack of required skills of the planners, poor projects preliminary studies, embezzlement of projects and misuse of power, wrong estimation with the intention of cheating, non-participation of all project stakeholders, non-verification and validation of projects' cost estimates and inflation. But since these factors were mentioned by some respondent without the opinion of other respondents the research did not give them further attention.

From the results of the research about the factors influencing the project cost estimations as presented above, it is remarkable that the respondents confirmed the hypothesis concerning the causes of mistakes frequently encountered in project cost estimations where some are underestimated and others overestimated. Considering the combined percentages of respondents who strongly agreed and simply agreed and taking into account those confirmed by 50% of respondents and above; the poor project cost estimations result mainly from not conducting the market research as confirmed by 86.7% of respondents, followed by not having exact list of project activities as confirmed by 80% of respondents, at the third place comes the contribution of stakeholders as confirmed by 66.7% of respondents and lastly comes the use of wrong project cost estimation methods as confirmed by 60% of respondents.

Concerning this research's case study project; all those factors have influenced its cost estimation. According to the interviewed staff involved in its management and the annual activities report from GATSIBO District, the project was planned to cost FRW511,011,866 and ended up by costing FRW849,611,546 due to additional works which required additional contract. While estimating the project cost, the comparison method was used where similar projects executed in neighboring districts were referred to, whereas despite being similar and having the same desired outcomes, these projects locations and their implementation conditions were completely different; the interviewed staff also stated that the project cost estimation was done without conducting market research for some construction materials, fact that lead to their cost underestimation, the additional works proved that at the beginning, there was no exact list of project activities. The claims against terms and conditions applied to the land expropriation payment or exchange were lodged by some local habitants and proved the poor intercommunication between the project stakeholders.

Test of hypothesis on project cost estimation

As the first objective of this research is to evaluate the effects of project cost estimation on its budget execution; the use Chi-Square to test whether the above factors influence the project cost estimation and affect the budget execution or not, the four columns i.e. where respondents were strongly agreed, agreed, disagreed or strongly disagreed were considered and the column where the respondents had no opinion was not used since the respondents who had no opinion could not confirm the hypothesis or not. For first objective of this research the hypothesis is the following: Null Hypothesis (H_o): Project cost estimation does not affect its budget execution.

The following results as generated by Mathbeans provide the basis for decision of whether accepting H_o or rejecting it and accepting H_1

Table 6.a. Results from respondents

	SAG	AG	DAG	SDAG	
A	32	20	8	0	60
B	28	20	8	0	56
C	12	12	28	8	60
D	16	24	20	0	60
E	8	20	32	0	60
F	16	20	20	0	56
	112	116	116	8	352

Table 6.b. Expected results

	SAG	AG	DAG	SDAG
A	19.1	19.8	19.8	1.36
B	17.8	18.5	18.5	1.27
C	19.1	19.8	19.8	1.36
D	19.1	19.8	19.8	1.36
E	19.1	19.8	19.8	1.36
F	17.8	18.5	18.5	1.27

Chi-Square = 91.5
Degrees of Freedom = 15
Probability = 0.000

From the results of the Chi-Square test, where its value 91.5 with the degree of freedom which is 15, the corresponding probability very small and almost equal to 0; and since this probability is less than 0.05 which was considered as the conventionally accepted significance level, the **Null Hypothesis (H_o) is rejected and the Alternative Hypothesis accepted**. This means that the test confirmed that the given factors influence the project cost estimation and affect its budget execution. The management interpretation is that if these factors are not given much attention during the project cost estimation, it will be difficult for the project managers to implement the project within the planned budget. Whatever the best they will try to do, the project budget will be subjected to modifications or adjustments.

Relationship between project cost estimation and its budget execution

Different mistakes that affect the project budget result from its cost estimation; several factors influence the project cost estimation and affect the project budget later. Referring to the results of this research figure 4.2, it has been found that the main sources of mistakes commonly found in cost estimates are the fact of not conducting the market research in order to have an idea on the charged prices on the market of materials at the time of estimation; having inexact list of project activities and their requirements which hinder the accuracy of the detailed cost estimates; the stakeholders contribution such as the end user who sometimes provides incomplete list of needs and insufficient information about them; then comes the use of wrong cost estimation methods where in many cases similar project are often used as reference for

cost estimation ignoring that each project is unique and that it has its own features, constraints and facilities.

With the projects funding policy which is strict on budget execution, not focusing on those source of mistakes in project cost estimation affects the project budget and disturb the project implementation without forgetting the energy spent to convince the Ministry of Finance and Economic Planning which in charge of public projects funding in Rwanda and persuade its economists to increase the project budget in case the project cost has been underestimated. It also gives a headache to explain the reasons under-execution of budget in case the project cost has been overestimated since convincing arguments are not found, it affects even the budget of the entity's future projects. The effects of the project cost estimation are clear and sources of errors in cost estimation are to be given attention to avoid budget problems during the project implementation as it has been the case in this research case study project.

Project technical design

The project technical design was the second key variable of this research and refers to the architectural and engineering design as in the research case study project, the technical study concerns drawings, quantity estimates, determination of desired quality, safety features, technical requirement of materials to be used, strategy to manage the risks associated to the project, maintenance period and techniques and determination of desired durability of the project deliverables. As for project cost estimation, the respondents were given some factors thought to have the main influence on the project technical design. Responses were provided depending on whether the respondents strongly agreed, agreed, disagreed, strongly disagreed or had no opinions. Furthermore, the respondents were given the option of adding other factors different from those given to them. The following table shows the results as they were provided by the respondents.

Table 7. Factors that influence the project technical design and affect its budget according to the number of respondents

Factors	Strongly agree (5)	Agree (4)	No opinion (3)	Disagree (2)	Strongly Disagree (1)
Badly defined project scope	32	16	0	12	0
Insufficient product technical specifications	28	32	0	0	0
Technological requirements	8	16	0	28	8
Required quality standard	8	24	0	20	2
Stakeholders' contribution	12	24	0	24	0
Incapacity or negligence of the designers	28	24	0	8	0

So as to present the results, the factors and sets data were denoted as follows:

The level of influence of the factors was presented according to whether the respondents strongly agreed, agreed, disagreed, strongly disagreed or had no opinion and the following notations were used: SAG to mean strongly agree, AG to mean agree, DAG to mean disagree, SDAG to mean strongly disagree and NO to mean no opinion. The factors were symbolized by F_1, F_2, F_3, F_4, F_5 and F_6 with respect to their ascending order in the table above. The following figure represents each factor as judged by the respondents.

The following table shows the levels of the given factor's influence on project technical design based on the percentages of respondents who strongly agreed, agreed, disagreed, strongly disagreed or had no opinions.

Table 8. Levels of Factor's influence on the project technical design according to the percentages of respondents

	SAG (%)	AG (%)	DAG (%)	SDAG (%)	NO (%)
F1	53.3	26.7	20	0	0
F2	46.7	53.3	0	0	0
F3	13.3	26.7	46.7	13.3	0
F4	13.3	40	33.4	3.3	0
F5	20	40	40	0	0
F6	46.7	40	13.3	0	0

The respondents classified the factors according to their influence levels on project technical design. Once again, the first level has been where the respondents strongly agreed, the second level has been where they agreed, the third level has been where they disagreed, the fourth level has been where they strongly disagreed and the fifth level has been where they had no opinions.

The first level (SAG) of influence of factors on the project technical design, in which some respondents placed the them considering that they have the highest influence on the technical design, badly defined project scope (F_1) has been judged the most important with 53.3% of the respondents; it is followed by the insufficient product technical specifications (F_2) and incapacity or negligence of the designers (F_6) given the main importance by 46.7% of respondents; the technological requirements (F_3) and required quality standard(F_4) came at the third place with 13.3% of respondents; and lastly, the Stakeholders' contribution (F_5) was given less importance in this level of influence with only 20% of respondents.

The second level (AG) of influence of factors on the project technical design, in which some respondents placed the factors considering that they have the medium influence on the

technical design, insufficient product technical specifications (F_2) was given the highest importance with 53.3% of respondents; it is followed by required quality standard (F_4), Stakeholders' contribution (F_5) and incapacity or negligence of the designers (F_6) with 40% of respondents and lastly come the badly defined project scope (F_1) and technological requirements (F_3) with 26.7% of the respondents.

Among other factors influencing the project technical design according to the respondents are the lacks of ownership of stakeholders and their partners and the incapacity or negligence of those who approve the project studies reports. But since these factors were mentioned by some respondent without the opinion of other respondents the research did not give them further attention.

From the results of the research about the factors influencing the project technical design as presented above, it is remarkable that the respondents confirmed the research hypothesis concerning the causes of mistakes frequently encountered in project technical design where some use to lack some items which are found to have been forgotten and others to be subject of major modifications during the project implementation implying therefore the extra costs and delays in projects implementation. Considering the combined percentages of respondents who strongly agreed and simply agreed and focusing on those confirmed by50% of respondents and above; the poor project technical designs result mainly from insufficient product technical specifications as incontestably confirmed by 100% of respondents, followed by incapacity or negligence of the designers as confirmed by 86.7% of respondents, at the third place comes the badly defined project scope as confirmed by 80%. The Stakeholders' contribution was considered by 60% of the respondents as contributing to the mistake found in the projects technical design and required quality standard was so considered by 53.3% of respondents.

With reference to the case study project; all the above factors confirmed as influential on the project technical design have contributed to the mistake found in its technical design. Technically the project design was void since many key components of the roads were forgotten and some of them had underestimated quantities; this prove that the project was undertaken without knowing the project's needed output due to badly defined scope and technical specifications. The project designers did not provide detailed design for major components of the road structures such as drainage system, size, quantity and quality of culverts, etc. and that shows how the designer was incapable or has neglected the issue that finally resulted from the poor design during the project implementation. The project has been financed by LODA, but the project procurement and management responsibilities were assumed by the district within a constrained budget; when the problems of additional works arisen the district technicians could

not find an explanation about the forgotten road components of the road and the financing agency refused to pay the extra cost within that fiscal year and the district was forced to look for a quick solution. As a solution some components were ignored under pretext that there was no budget and that solution compromised the quality of expected outcome. The beneficiaries were not informed by the district authorities who wanted to cover their mistakes and that is ethically wrong for leadership and this proves the stakeholders' contribution to the project poor management since every stakeholder did not duly assume his responsibilities.

The used techniques for this project implementation also contributed to the encountered problems. For such type of works, the contractor was supposed to use machines and a limited number of manpower where necessary, but for this project this was not the case because a part of the works was done by manpower hired from TIG a national governmental organization which deals with the enforcement of justice resolutions for genocide perpetrators sentenced to execution of works of public interest. This approach was quite wrong since manpower could not work on the same speed as machines supposed to work behind them and this caused the delays in project execution; machines used to be parked waiting for the manpower to work on enough distance before they can be used. After a certain time, the manpower could not work on the pace of machines and resigned; this delayed the works for a long time while those in charge were looking for solutions and caused considerable losses to the contractor whose machines were not working since he could not do what was not stated in the contracts. This proves that the project scope had been badly defined from the beginning (RPPA, 2014).

Test of hypothesis on project technical design

As the second objective of this research is to assess the effects of project technical design on its budget execution; the use Chi-Square to test whether the above factors influence the project technical design and affect the budget execution or not, the four columns i.e. where respondents were strongly agreed, agreed, disagreed or strongly disagreed were considered and the column where the respondents had no opinion was not used since the respondents who had no opinion could not confirm the hypothesis or not. For second objective of this research the hypotheses are the following:

Null Hypothesis (H_o): Project technical design has no impact on its budget execution.

The following results as generated by Mathbeans provide the basis for decision of whether accepting H_o or rejecting it and accepting H_1

Table 9.a. Results from respondents

	SAG	AG	DAG	SDAG	
F1	32	16	12	0	60
F2	28	32	0	0	60
F3	8	16	28	8	60
F4	8	24	20	2	54
F5	12	24	24	0	60
F6	28	24	8	0	60
	116	136	92	10	354

Table 9.b. Expected results

	SAG	AG	DAG	SDAG
F1	19.7	23.1	15.6	1.69
F2	19.7	23.1	15.6	1.69
F3	19.7	23.1	15.6	1.69
F4	17.7	20.7	14.0	1.53
F5	19.7	23.1	15.6	1.69
F6	19.7	23.1	15.6	1.69

Chi-Square = 106.
Degrees of Freedom = 15
Probability = 0.000

From the results of the Chi-Square test, where its value 106 with the degree of freedom which is 15, the corresponding probability very small and almost equal to 0; and since this probability is less than 0.05 which was considered as the conventionally accepted significance level, the **Null Hypothesis (H_o) is rejected and the Alternative Hypothesis accepted**. This means that the test confirmed that the given factors influence the project technical design and affect its budget execution. The management interpretation is that if these factors are not given much attention during the project technical design, it will be difficult for the project managers to implement the project within the planned budget. Whatever the best they will try to do, there will be modifications in the project technical design and its budget will be subjected to adjustments.

Relationship between project technical design and its budget execution

The project technical design may directly or indirectly affect the project budget. By inducing the project budget planners in errors during the estimation of the project cost through inappropriate project activities breakdown structure and badly defined requirements for each activity, it indirectly affects the project budget and when the project requires the changes in technical design due to poorly designed or forgotten features, it directly affects the project budget and in such a case the project cost estimation has nothing to do with this.

According to the results of this research, it has been found that most of mistakes in project technical design result from the insufficient product technical specifications where the project beneficiaries use not to clearly define the project requirements to satisfy their needs and request for changes during the project implementation; incapacity or negligence of designers who sometimes do not provide enough project details as it has been the case for this research case study project; the badly defined project scope which sometimes mislead the project designers through wrong interpretations of project requirements; the stakeholders contribution where they sometimes give the designer varying orders individually since the project has different authorities involved in its management whose orders interfere because each of them want to prove his power and rightness and the required quality standard which are sometimes difficult to satisfy and require special skills which tends to lack in local and inexperienced designers.

By not emphasizing on those factors which affect the project technical design; the project designers frequently provide poorly designed projects and such technical designs lead to the wrong project cost estimates, affecting therefore the project budget indirectly when it is found that the budget is not enough for the project implementation. These poor designs do not only lead to wrong project cost estimates, they also affect the budget when they are subjected to modifications or changes and involve extra costs which imply the increase of project budget. However, it becomes complicated to obtain extra funds for rising up the project budget since the project funding policy applicable in Rwanda is very strict on such budget variation. More attention should be given to the project technical designs especially for construction projects which consume the biggest portion of national budget. Even though mistakes are to be avoided in project technical designs, the project financing agencies are also to be blamed for accepting to finance projects without discussing with the project owners and beneficiaries about their consistency and validity.

Project financing policy in Rwanda

So as to have the opinions of respondents on the toughness of the projects funding policy applicable in Rwanda on their budgets execution respondent were given four options and were requested to select one of them according to their point of view. The question was the following: The Project Funding Policy applicable in Rwanda plays a key role on public project budgets management. According to your point of view, how do you judge this policy compared to the public project budget?

The 60 respondents were requested to say whether this policy is (Much friendly, Complicated, Very Bureaucratic or Need to be revised) compared to the projects budget execution. The following table shows the opinions provided by the respondents.

Table 10. Opinions of respondents on Rwandan projects funding policy versus their budget execution

Option	Number of respondents	Percentages
Much friendly	28	46.67
Complicated	12	20
Very bureaucratic	16	26.67
Need to be revised	4	6.66
Total	**60**	**100**

With 46.67% of respondents who judged the projects funding policy applicable in Rwanda much friendly, 20% who consider it as complicated, 26.67% who think that it is very bureaucratic and only 6.66% who suggested that it should be revised; it is remarkable that the policy itself is strong and effective as far as control of budget execution is concerned because without it the government would be losing a lot of public funds and accused of mismanagement by the Rwandans. For that reason, having this policy deserves to be rejoiced for. However, the fact that it was considered by some respondent as very bureaucratic, its application should be analyzed so as to detect any misapplications and take further measures for the sake of its best application.

The respondents who judged it as complicated, stand on the side of those who either do not understand it well or just complain because it prevents them from mismanaging the public funds in their own interests. Finally, those who suggested that it should be revised are wrong because due to its effectiveness revising it completely may weaken it and make it less effective. However, this policy may have weaknesses in some areas which need to be strengthened and those who suggested its revision should provide ideas on how to eliminate those weaknesses instead of simply proposing its revision.

Project implementation time

The project implementation time in this research was considered as dependent variable and considered as measure of project performance. It depends on various factors which are closely related to the independent variables of this research. To assess the causes of mismanagement of projects implementation time, a certain number of factors thought to mainly influence the project implementation time were included in the questionnaire and respondents were expected to give their opinion on each factor by confirming whether they strongly agree, agree, disagree, strongly disagree or have no opinion. Note that these factors are elements of projects funding since they are considered while making the funding decisions. Once again, the respondents were given the option of adding other factors different from those given to them. The following table shows the results as they were provided by the respondents.

Table 11. Factors which are element of project funding and affect the project implementation time

Factors	Strongly agree (5)	Agree (4)	No opinion (3)	Disagree (2)	Strongly Disagree (1)
Sequence of project activities	4	24	0	28	4
Inefficient resources allocation	12	40	0	4	4
Contractors performance	32	24	0	4	0
Financial adequacy	12	20	4	20	4
Environmental situation	12	12	0	24	12
Project budget disbursement schedule	8	36	4	12	0
Inefficient communication between project stakeholders	16	32	0	8	4

In order to present the results, the data were coded as follows:

The level of influence of the factors was presented according to whether the respondents strongly agreed, agreed, disagreed, strongly disagreed or had no opinion and the following codes were used: SAG to mean strongly agree, AG to mean agree, DAG to mean disagree, SDAG to mean strongly disagree and NO to mean no opinion. The factors were symbolized by Factor 1, Factor 2, Factor 3, Factor 4, Factor 5, Factor 6 and Factor 7with respect to their order in the table above.

The following table shows the levels of the given factor's influence on project technical design based on the percentages of respondents who strongly agreed, agreed, disagreed, strongly disagreed or had no opinions.

Table 6. Levels of Factor's influence on the project implementation time according to the percentages of respondents

	SAG (%)	AG (%)	DAG (%)	SDAG (%)	NO (%)
Factor 1	6.7	40	46.7	6.6	0
Factor 2	20	66.7	6.7	6.6	0
Factor 3	53.3	40	6.7	0	0
Factor 4	20	33.3	33.3	6.7	6.7
Factor 5	20	20	40	20	0
Factor 6	13.3	60	20	0	6.7
Factor 7	26.7	53.3	13.3	6.7	0

With reference to the figure above, the respondents classified the factors according to their influence levels on project implementation time. Also for this assessment, the first level has been where the respondents strongly agreed, the second level has been where they agreed, the third level has been where they disagreed, the fourth level has been where they strongly disagreed and the fifth level has been where they had no opinions.

The first level (SAG) of influence of factors on the project implementation time, in which some respondents placed the factors considering that they have the highest influence on the implementation time, contractors performance (Factor 3) has been judged the most important with 53.3% of the respondents; it is followed by the inefficient communication between project stakeholders (Factor 7) given the main importance by 26.7% of respondents; the inefficient resources allocation (Factor 2), financial adequacy (Factor 4) and environmental situation (Factor 5) followed with 20% of respondents; at the fourth place came the project disbursement schedule (Factor 6) with 13.3% of respondents and lastly the sequence of project activities (Factor 1) was given less importance in this level of influence with only 6.7% of respondents.

The second level (AG) of influence of factors on the project implementation time, in which some respondents placed the factors considering that they have the medium influence on the implementation time, inefficient resources allocation (Factor 2) was given the highest importance with 66.7% of respondents; it is followed by project budget disbursement schedule (Factor 6) with 60% of respondents, inefficient communication between project stakeholders (Factor 7) followed with 53.3% of respondents, sequence of projects activities (Factor 1) and contractors performance (Factor 3) came at fourth place with 40% of respondents, the financial adequacy (Factor 4) emerged at fifth place with 33.3% of respondents and lastly come the environmental situation (Factor 5) with 20% of the respondents.

Some other factors influencing the project implementation time according to the respondents include the negligence of supervisors, lack of accountability during the project implementation, undertaking many projects at once by the contractors, unavailability of plant

equipment on sites, delays in approval of reports, insufficient progressive monitoring and regular site meetings, collaboration between the supervisor and the contractor, additional works due to poor studies and corruption. But since these factors were mentioned by some respondent without the opinion of other respondents the research did not give them further attention.

From the results of the research about the factors influencing the project implementation time as presented above, it is remarkable that the respondents confirmed the research hypothesis concerning the causes of time mismanagement frequently noticed during the projects implementation. Considering the combined percentages of respondents who strongly agreed and simply agreed and focusing on those confirmed by 50% of respondents and above; the poor project implementation time management result mainly from contractors performance as confirmed by 93.3% of respondents, followed by inefficient resources allocation as confirmed by 86.7% of respondents, at the third place comes the inefficient communication between project stakeholders as confirmed by 80%. The project budget disbursement schedule was considered by 73.3% of the respondents as contributing to the mismanagement of projects implementation time and financial adequacy was so considered by 53.3% of respondents.

As far as the case study project is concerned, all the research factors have contributed to the mismanagement of its planned implementation time. The project was initially planned to be executed in 9 months but was finally executed in more than 3 years. The performance of manpower hired from TIG considerably slowed down the work progress and after they gave up and their contract terminated, the works were suspended for a long time. When the project was resumed after almost one year of suspension, the contractor's invoices were delayed due to the unavailability of funds and this caused further delays in project implementation since the contractor was reluctant to continue the works without being paid. In addition, the contractor was never informed about the real reasons of delays in payment of his invoices, the district authorities did not want to disclose such information in order to cover their mistakes while they were looking for alternative solutions, delaying furthermore the project implementation. The situation worsened when the contract was subjected to amendment in order to add the works that had been forgotten during the study; the district authorities took long time to make a decision and finally with the budget constraint they decided to cancel some important components of the project and this decision has compromised the quality of the project deliverables. All this hard decisions to be made resulted mainly from poor planning, study and lack of accountability of the district authorities which contrasted with the budget disbursement schedule and project funding policy.

Test of hypothesis on project implementation time

As the third objective of this research is to illustrate the relationship of Rwandan projects funding policy and their implementation time management; the use Chi-Square to test whether the above factors affect the project implementation time or not, the four columns i.e. where respondents were strongly agreed, agreed, disagreed or strongly disagreed were considered and the column where the respondents had no opinion was not used since the respondents who had no opinion could not confirm the hypothesis or not. For second objective of this research the hypotheses are the following:

Null Hypothesis (H_o): The Rwandan public projects funding policy has no relationship with their implementation time management.

The following results as generated by Mathbeans provide the basis for decision of whether accepting H_o or rejecting it and accepting H_1

Table 13.a. Results from respondents

	SAG	AG	DAG	SDAG	
Factor1	4	24	28	4	60
Factor2	12	40	4	4	60
Factor3	32	24	4	0	60
Factor4	12	20	20	4	56
Factor5	12	12	24	12	60
Factor6	8	36	12	0	56
Factro7	16	32	8	4	60
	96	188	100	28	412

Table 13.b. Expected results

	SAG	AG	DAG	SDAG
Factor1	14.0	27.4	14.6	4.08
Factor2	14.0	27.4	14.6	4.08
Factro3	14.0	27.4	14.6	4.08
Factor4	13.0	25.6	13.6	3.81
Factor5	14.0	27.4	14.6	4.08
Factor6	13.0	25.6	13.6	3.81
Factor7	14.0	27.4	14.6	4.08

Chi-Square = 118.
Degrees of Freedom = 18
Probability = 0.000

From the results of the Chi-Square test, where its value 118 with the degree of freedom which is 18, the corresponding probability very small and almost equal to 0; and since this probability is less than 0.05 which was considered as the conventionally accepted significance level, the **Null Hypothesis (H_o) is rejected and the Alternative Hypothesis accepted**. This means that the test confirmed that the given factors which are also the elements of project funding policy affect the project implementation time. The management interpretation is that if these factors are not given much attention during the project budgeting in order to request funds from public treasury, it will be difficult for the project managers to manage the time for their projects implementation as planned since the budget will interfere with this funding policy and disturb their projects implementation schedules. Whatever the best they will try to do, there will be additional time in order to compensate the lost time during the budget increment negotiations and their approval by the management of public treasury, process which is governed and controlled by the Rwandan projects funding policy.

Relationship between project budget and its implementation time

Project implementation time which was targeted as the main measure of the project performance is tremendously affected by the project budget which is itself conditioned by the project cost estimation and technical design. In Rwanda, it is remarkable that project execution time is not often respected. Different issues are behind such delays especially for construction projects and the main cause of these delays is the project budget constraints and funding policy in Rwanda. Especially, the implementation time for public construction projects such as the project of case study in this research may be extended due to two main reasons, either there are additional works which require not only additional financial resources but also time for their execution or the payment of contractors' invoices are not paid as stated in their respective contracts with the public institutions with the authority of awarding the contracts to implement their plans of actions. In both cases, project budget is involved since even when prior to the project commencement the project cost had been well estimated, but the project requires modifications in its technical design, the budget is disturbed and disturbs itself the project implementation time because finding additional budget requires several operations and time.

The project implementation delays may be caused by the poor performance of the contractor, but always the budget constraints and funding policy mainly affect the project implementation

since with close supervision and proper communication between public institutions and their contractors, the performance of the contractors can be controlled unless they had been selected by the authorities of these institutions ignoring their incapacity or with hidden purposes involving corruption or mutual interests.

SUMMARY

In this research, public projects were focused on and constituted the research's point on interest. For such projects, having different key stakeholders permitted the researcher to select four main stakeholders who were judged as playing key roles in public projects implementation and recommend them some actions and changes in the current system to be made so that to improve the situation of public project management. The recommendations will be addressed to the Ministry of Finance and Economic planning, Rwanda Public Procurement Authority and public project budget managers. However, other issues may interest researchers and the latter will also be recommended some issues on which they focus their researches.

Since the last two decades, from when a new system for acquiring needs and achieving goals of the government of the Republic of Rwanda was established; there were different issues concerning the public projects management especially those related to infrastructure development. Most public projects used to take longer than expected to be implemented and several causes have been behind such delays. However, despite the effort of the government to mitigate the public projects mismanagement, many public projects are still having problems related to their management. Different people had been arguing that the most projects implementation delays result from the financial resources allocated to different projects, others have been blaming the capacity and professionalism of local and regional contractors and others have been questioning the credibility of project planners and managers. Considering these arguments from different people including public servants, private contractors, top leaders, decision makers, and civil society, it has been thought that all of them had reason since these arguments are technically interrelated and all of them affect the public projects performance in matter of implementation time.

It is in that context that the research topic has been "The Effects of Projects Funding on Their Performance in Rwanda" in order to analyze the role of projects resources allocation and disbursement on their performance in matter of implementation duration. This research has focused on the case study project of construction of BUKOMANE-GIKOMA earth road which had all the problems of this research's interest and can represent all similar projects. The research considered that projects funding has also its influential variables which have remarkable effects on the project budget and its execution, and the main two which are project

cost estimation and project technical design were selected for this research. These two variables which mainly influence the project budgeting have a moderating variable which is the project funding policy applicable in Rwanda. The first two variables were focused on to assess their influence on budget and the these variables combined with the project funding policy were found to have influences on the projects funding which has itself effects on projects performance in matter of implementation time.

So as to conduct this research, objectives and research hypothesis were formulated based on the variables and the tools such as questionnaire, consultation of documents and reports from relevant institutions were used in data collection. Both qualitative and quantitative primary and secondary data were used in this research. Data analysis by using statistical analysis tools and result discussion were done and the findings provided the answers to the research hypothesis which were in line with the research objectives. The research hypotheses were confirmed and the effects of project funding on their performance in Rwanda were illustrated. It has been found that due to the mistakes commonly made during the projects' cost estimations and technical designs, factors that influence projects' budgets which are the bases for funding the projects use to contrast with the projects funding policy and affect the projects implementation time when these budgets are subjected to modifications during the project implementation, fact that is frequent in public projects in Rwanda, especially construction projects.

CONCLUSIONS

From the findings of this research whose hypotheses and were based on its objectives and which have been confirmed by the results; more attention should be given to the projects technical design and projects cost estimation. There are many modifications which are done on project budget as it can be proved by frequent additional contracts and time. These modifications result commonly from poor technical designs which affect directly the project cost estimates, even though some mistakes may be committed during the projects costs estimation independently to the technical designs as it has been illustrated. In whatever case, this affects the projects budget later, and for that reasons they must be focused on to avoid future requests to modify the projects budget which contrasts with the projects funding policy applicable in Rwanda; affecting therefore the projects performance in matter of project implementation time, since such budget modifications need many discussions and it takes longer to get a consensus and make appropriate decisions. However, sometimes the projects implementation may be delayed by the poor performance of the contractor, but with close supervision and effective

communication, the latter's performance can be controlled and unnecessary delays avoided, unless there are hidden collusions between projects' stakeholders.

RECOMMENDATIONS

Projects management in Rwanda encounters different problems especially infrastructure development projects where their implementation time uses to be longer than expected, hindering therefore the achievement of major government goals and delaying therefore the national development in general. However, different actions can be taken by different stakeholders in order to mitigate the problems and accelerate the development in general. The recommendations for the following stakeholders can considerably reduce the effects of projects funding on their performance in matter of implementation time.

To the Ministry of Finance and Economic Planning

The Ministry as the overall planner, funder and supervisor of most of the public projects and manager of public treasury is the most concerned by these problems. As recommendations it should revise some regulations especially those regarding the preparation of procurement and set more requirement to prevent the planner of the public institutions to plan the project studies and their execution within the same financial year because these planner cannot explain how they get the budget for the project implementation without complete studies whereas the latter should provide cost estimates depending on the technical designs. This mistake is made by different public institutions and should be avoided in order to limit the biased cost estimates which lead to budget revision and delays of the projects implementation.

The Ministry should also set up teams of technicians with the task of assessing and challenging the projects plans so as to make sure they are not badly planned before the budget lines for the public institutions are confirmed. The Ministry's government financing partners should also apply the same policy because it has been found that mistakes are made from the beginning while planning for projects.

To Rwanda Public Procurement Authority

Rwanda Public Procurement Authority as a public institution in charge of setting regulations, monitoring auditing and ensuring the overall projects management and provision of assistance to public institutions where necessary; it should change its operation methodology because when consulting the documents of this institution, many reports show that it focus on auditing rather than monitoring. Monitoring should be focused on from the beginning of the projects planning to their complete implementation. By operating so, the mistakes and risks will be

detected and dealt with before they occur and disturb the projects whereas keeping the current operation method will only detect the already occurred mistakes for which nothing can be done to reverse the situation except facing losses and project failures. Changing the operation method will tremendously improve the public projects management and ease the work of the Ministry of Finance and Economic planning under which this institution operates.

Another action which can contribute to the reduction of budget problem if implemented by this institution is to make it mandatory that before advertising the tender a market research and study validation by competent people reports should be prepared and filed together with other documents. During the audit or monitoring if it takes place, these two documents should be the first to be assessed to check their compatibility with the requirement in the tender documents. This will prevent public institutions from having inconsistent project cost estimates and avoiding budget issues during the projects implementation.

To the Public Projects Budget Managers

The public project managers in public institutions as the ones who are blamed for the failure of the projects implemented by their respective institutions, should together with their staffs, strengthen the project planning during which validation of studies and market research should be done without being requested to do so by projects supervising the institutions and other stakeholders since this practice will prevent them from having to explain the mistakes made in projects planning while negotiating for additional funds and allow them to achieve goals and therefore honor the performance contract signed between them and his Excellence the President of the Republic of Rwanda.

SCOPE FOR FURTHER RESEARCHES

The project cost estimations and technical designs are not only influenced by the factors assessed in this research, they can also be influenced by other factors such as those provided by the respondents which need further assessment in order to know the level of their influence on these project budget variables. Project cost estimations and technical designs are not the only variables which contrast with the projects funding policy applicable in Rwanda to affect the project budgets there are other variables which need to be analyzed.

The project funding is not the only factor to have effects on the project implementation time. Other factors such as the risk planning, political issues, international economic crisis, etc. can also affect the project implementation time. Lastly, the projects performance especially the construction projects cannot be measured only in matter of implementation time. Other indicators of project performance such as durability of project deliverables, quality of the project

outputs, satisfaction of beneficiaries, etc. also need to be assessed. Researchers are encouraged to do researches on those issues to help the government decision makers to improve the projects management in Rwanda and therefore accelerate the national development.

REFERENCES

Advancing Professional Construction and Program Management Worldwide. (2012). *An Owner's Guide to Project Delivery Methods.*

Amanda, M. G. (2013). *Result based financing, Evidence from performance-based financing in the health sector, Bonn.*

Ayman, A. E. O. (2013). *Challenges of Mega Construction Projects in Developing Countries.*

Bob, M. PE. (2005). *Challenges Facing Today's Construction Manager.*

Canadian Ministry of Transportation and Infrastructure. (2013). *Project Cost Estimating Guidelines.*

David, E. (2010). *Mathbeans Project.* National Science Foundation DUE-9950473.

Directorates of the European Commission.(2010).*Understanding and Monitoring the Cost-Determining Factors of Infrastructure Projects*. *A User's Guide.* (a: p.10, b: p.12)

Eric, M. (2011).*Project Implementation Schedule: The Key Components.*

Eric, M. (2011).*The Definition And Steps Of The Budgeting Process.*

Evans & Peck. (2008). *Best Practice Cost Estimation for Publicly Funded Road and Rail Construction.*

Federal Highway Administration. (2007). *Major Project Program Cost Estimating Guidance.*

GATSIBO District. (2014). *Annual activities report for the financial year 2013-2014.*

Gordon, M. (1998). *A dictionary of Sociology. Research Design.*

James, P. K. (1997). *Research design in Occupational Education.* Oklahoma State University.

Jamie, H. (2006). *The SAGE Dictionary of Social Research Methods.*

Jennifer, V. (2014). *Population and Samples.*

John, H. M. (2014). *Handbook of Biological Statistics. Basic Concepts of Hypothesis Testing.*

Jonathon, E. B. (2002). *Best Practices for Highway Project Cost Estimating.* Arizona State University.

Louisa, R., Miriam S., Gyuri F., & Laurent M. (2008).*Rwanda Performance-Based Financing in the Public Sector.*

Ministry of Finance and Economic Planning. (2014). *Budget Execution Report 2012-2013.*

Ministry of Finance and Economic Planning (2011).*Rwanda Aid Policy Manual of Procedures.*

Ministry of Transportation and Infrastructure (2013). *Project Cost Estimating Guidelines.*

Office of the Auditor General (2014). *Audit report for financial year 2012-2013.*

Project Management Institute (2008). *Project Management Body of Knowledge, Fourth Edition.*

Project Management Institute (2013). *A Guide to the Project Management Body of Knowledge (PMBOK® Guide).*

Richard, C. (2002). *Essential of Project Design.*CARE International.

Rwanda Public Procurement Authority (2014b). *Public Projects Monitoring Report 2013-2014* (b).

Rwanda Public Procurement Authority (2007). *Rwanda Public Procurement Law and Regulations.*

Rwanda Public Procurement Authority (2012). *Public Procurement Training Manual.*

Rwanda Public Procurement Authority (2014). *Monitoring of Large Projects report* (a).

Rwanda Public Procurement Authority (2014). *Quarterly report on Monitoring of public projects Contracts Management (*c).

Rwanda Public Procurement Authority. (2014). *Annual Activity report, 2012-2013* (d).

San Diego County Water Authority. (2007). *Development Of Best Management Practices To Execute A Successful Capital Improvement Program.*

Stan, B. (2013). *Stats without tears.*

Susan, E. W. (2011). *Difference between qualitative and quantitative research methods.*

Transparency International Rwanda. (2009). *The Procurement Assessment System in Rwanda.*

United States Government Accountability Office. (2009). *Best Practices for developing and managing Capital Program Costs.*