

## ANALYSIS OF PROJECT SCOPE CHANGE MANAGEMENT AS A TOOL FOR PROJECT SUCCESS: CASE STUDY OF AKAZI KANOZE PROJECTS (2011 -2014)

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### ABSTRACT

**T**his study was about to analyze the scope change management as a tool for project success in Rwanda. The study covered projects that were implemented in Akazi Kanoze. The purpose of this study is to find out if the changes in project scope would lead to success of the project in term of delivering quality results. The general objective of this study was to find out the impact of project scope change on the success of the project. The specific objectives of this study are: to determine the causes for scope change; to analyze the effect of adjusting project activities on project success; to analyze the influence of changing project cost, time on product/ service quality derived; and to identify challenges associated with changing the project scope in Akazi Kanoze Projects. The descriptive research design is identified as the design of this study. The population of this study was 30 employees working in the area of projects operations and management. The study has used a census sampling technique. Primary data has been collected using interview and questionnaire and secondary data has been collected by review published materials. This research has found out that when managing a project there are times when project implementers will have to make decision to change the project scope to be able to meet the project objectives. The research found out that changes in project activities provoke the changes in project cost, time and quality of the product/service of the project. When the project cost and time are increased, it gives the opportunity to provide quality product by using quality materials/services and using advanced technology which leads to the beneficiaries' satisfaction because of receiving product/service of the good quality.

**Key words:** Project, project scope, project scope change.

## 1. Introduction

Achieving the right results is the primary test of effective performance in project management; and this is observed through fulfilling the scope. It takes precedence over the constraints of deadlines and budgets. The failure to manage and control this aspect of the project could be a principal reason why projects would fail. The projects are managed looking at their success, and success is based on being on schedule, within budget, and within the time frame which is fulfillment of project scope. In project management, stakeholders would be looking at the completion of the project and how it produce intended outcome. The completion is good when it comes when it was expected. And also the outcome is good when it does not bring in unexpected work and cost. This is why before a project begins, there is necessity for having clearly defined requirements for it acceptance. Defining and planning a project are necessary in successfully managing a project. After planning the work, there follows to work the plan. The agreed work to deliver has to be completed within the timeframe and budget allocated it which in other words is the scope management. The scope management is to ensure that all the work required, and only the work required to complete the project, is included in the project throughout the life of a project. The project scope management is management of the process required to ensure that the project includes all the work required and to complete the project successfully, (Ghosh, 2007).

The scope of work is defined very early in the project planning and estimation phases. Fageha & Aibinu, (2013) state that an incomplete scope definition in early stages of a project's life cycle is a common source of difficulty in project implementation process. Karl (2014) adds that a well-defined scope sets expectations among the project stakeholders. The scope definition helps the project manager assess the resources needed to implement the project and make realistic commitments.

The scope is the most important element to understand about any project. All planning and allocation of resources are done to this understanding. This does not mean that this scope is fixed; changes to scope can happen during project lifecycle. Unexpected circumstances may arise during the project life cycle which will lead to scope change. Mochal (2004) states that part of the work-the-plan process is preparing for the inevitable fact that, once the project starts, the client will probably end up asking for more (or different) work than what was originally agreed to. This is why scope-change management is used. Scope can change for a number of reasons including internal factors (stakeholder requires insight into a problem), or external factors (government regulations, market conditions).

Changes can trickle into the project and cause problems with quality. Even the most small changes can cause unexpected problematic situation to the project. However, there has to be an overall control over project scope. The control does not necessarily mean preventing changes. On the contrary, if changes are needed in order to fulfill current requirements that are more actual than the original requirements, those changes must be implemented (Nguyen, 2010). Controlling and managing scope change is critical to the success of any project, as scope changes can significantly impact the cost, schedule, risks and quality of the entire effort. Knapp (2011) states that failing to clearly define and manage project scope are one of the most common reasons that can projects fail. Project change is inevitable and you must be prepared to deal with it when it happens, (Suchan, 2007). But without change control, the project scope becomes a moving target and the project at risk of missing one or more of project success factors. The ability to manage and control change, particularly that of project scope could be a key to reaching goals and a typical performance indicator for a project manager.

## 2. Statement of the problem

Project managers should pay a great deal of attention to managing scope. Harrington & McNellis, (2006) argue one of the most common reasons for project failure is the inability to properly define or effectively manage scope. The prime focus for the Project manager should not be to deliver the agreed scope on time and on budget, but to optimize the benefit that is generated by the project. If that means allowing the scope to change then that scope change is a good thing, not a bad thing. Where there is thinking that a scope change generates improved benefit, it should be proposed to the project's decision making body and if approved, be done. Allowing the project's scope to change mid-course usually means increasing costs and longer duration which leads to a greater risk lacking resources during project implementation. A project can fail due to poor management of those increases. An increase in scope that doesn't include a corresponding adjustment to project cost or timeline may result in the project being delivered late or over budget. Mochal (2004) stated that without scope change management, projects end up trying to complete more work than what was originally agreed to and budgeted for. In other words, projects would be heading down the road to trouble. This is the reason why the purpose of this study is to find out if the changes in project scope would lead to success of the project in term of delivering quality results leading to the satisfaction of beneficiaries and the achievement of desired outcomes.

## 3. Objectives of the study

### 3.1. General objective

The general objective of this study is to analyze the impact of project scope change on the success of the project.

### 3.2. Specific objectives

The specific objectives of this study are:

- i. To determine the causes for scope change in Akazi Kanoze projects
- ii. To analyze the effect of adjusting project activities on project success in Akazi Kanoze projects;
- iii. To analyze the influence of changing project cost, time on product/ service quality derived;
- iv. To identify challenges associated with changing the project scope in Akazi Kanoze Projects;

## 4. Research questions

This research intended to revolve the following questions:

- i. What are reasons that lead to project scope change in Akazi Kanoze projects?
- ii. What are effects of changing project activities during implementation on project success in Akazi Kanoze projects?
- iii. What is the influence of changing the initial project cost and time on the quality of product/service derived?
- iv. What are challenges accounted when managing schedule change in Akazi kanoze projects?

## 5. Research design

In order to achieve its objectives, this study has applied the descriptive research design as it has collected data with a view to describe and analyze the effect of scope change management on project success. A descriptive research is concerned with conditions, practices, structures, differences or relationships that exist, opinions held, processes that are going on or trends that are evident. Kothari (2004), defined descriptive research studies as those studies which are concerned with describing the characteristics of a

particular individual or of a group. Coupled with the above, the research has also adopted a case study design which according to Lankshear and Knobel (2004) and Woodside (2010) is a study that “investigates contemporary phenomenon within its real life context.

## **6. Target population**

The entire population of this study was 30 employees of Akazi kanoze projects. Those are ones who are in the area of projects operations and management.

## **7. Sampling technique and sample size**

In this study census technique was used in getting data from different members of different sections that deal with all project management work and project success. The census technique is defined as a complete enumeration of all items in the population (Kothari, 2006). The researcher has used census technique as all the staff regardless of the post they occupy at the project of Akazi kanoze. The sample size of this study therefore, was 30 employees Akazi kanoze who are in direct relation with project implementation.

## **8. Data collection**

### *8.1. Data collection instruments*

#### **8.1.1. Primary data**

Primary data was acquired directly from original sources. To collect primary data two methods as questionnaire and personal interviewing was used.

The face-to-face interview was held between the researcher and respondents which aimed at understanding perspectives of respondents to issue of scope change process and its effect on project success.

A questionnaire was developed and distributed to staff of Akazi kanoze projects. questionnaire is a document containing all respondent’s answers or reactions. It helps to ask the same set of questions to several people in short period as many respondents can be filling it at the same time.

#### **8.1.2. Secondary data collection**

The researcher has collected secondary data through existing materials including journals, reports, internal policy and other documents available in libraries and internet based research produced justifiable results. Secondary data is the data that have been already collected by others people and readily available from other sources. Such data are cheaper and more quickly obtainable than the primary.

## **9. Data analysis**

After collection of data, data was processed to meaningful results. Data processing refers to the transformation of respondent’s view into meaning form. Both quantitative and qualitative techniques were used to process and analyze the collected data. Using these techniques, the presentation and organization of findings made it very easy to comprehend and draw conclusions based on findings. The qualitative data was analyzed by setting responses for respondents based of which response that was repeated several times and rephrase them in the text. To analyze quantitative data into meaningful form the following steps were used data editing, data coding /categorizing and data presentation.

## 10. Research findings and discussion

### 10.1. Project scope change during implementation

*Table 1: Changing the project scope during projects implementation in 2011 to 2014*

Responses	Frequency	Percentage
Yes	30	100
No	0	0
Total	30	100

**Source: Primary data, 2015**

The table above indicates that 100% of the respondents agreed that sometimes scope of project changes during project implementation. This means that requirements, procedures and limit time and cost that were agreed upon in the project design may be found as not leading to intended results or as not enough and changes will be proposed. The findings from interview indicate that changes in project scope are likely to take place within the implementation because it is necessary for all projects to be adapted to the reality of environment in which they are implemented in.

### 10.2. The reasons governing the project scope changes

The indicated reasons by respondents are listed below in respect of their frequencies.

*Table 2: The causes of project scope change*

Reasons	Frequency	Percentage
Adjusting project activities	9	30
A new regulation can cause	3	10
Error in defining project scope	7	23
Beneficiaries see the outcome and wants changes	4	13
Implementing a contingency plan	5	17
Value-adding change	2	7
Total	30	100

**Source: Primary data, 2015**

The findings above show that 30% of respondents agreed that changing project scope is due to adjusting project activities, 10% said that it is due to managing project time, 23% said that scope changes are caused by conditions of managing project cost, 13% said that changes can be made because of the fact that beneficiaries sees the project in progress and wants change in respect with their needs, 17% said that scope change is due to implementing contingency plan and 7% said that it is due to value added change.

In the interview respondents designated that scope changes do happen because project implementation requires meeting with some assumptions of field such as stakeholder requirement, policy and new regulations, adjusting to climate changes and others which were not planned during project design. Respondents added that since the project has to meet its initial objectives, any challenge that is in contraction with this should be taken into consideration. If this consideration indicates that project scope change is a better way to success, then there should start the process to analyze in which ways the scope will be changed. The project scope change will be proposed and analyzed to see if it will give a better way to the achievement of the project objectives.

### 10.3. Management of project scope change process

The following are the steps identified by respondents to be passed through in order to get the donors' approval for changing the initial agreed project scope.

*Table 3: Ways used by project managers in Akazi Kanoze to manage the process of project scope change.*

Statements	Ratings in percent				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Fill a scope change request form	85	10	3	2	0
Document and justify reason for scope	90	6	2	1	0
Review the scope change request	60	20	2	17	1
Approve the scope change request by donors.	86	10	0	4	0

**Source: Primary data, 2015**

The table above shows that respondents stated a four steps process of scope change. This process is composed with filling a scope change request form which was supported by 85% of respondents, documenting and justifying reason for scope which was mentioned by 90% of respondents, review the scope change request was supported by 60% of respondents and 86% of respondents stated that there should be an approval of the project scope change request. In the interview, project managers stated that in documenting and justifying reasons for scope change the concept note to be discussed with donors should be done, which explains clearly the reasons for the change (for time change, budget change, etc). Based on project progress, the concept note gives details on how the current situation is likely not to lead to the expected outcome/impact. The concept note expresses challenges that were met in the implementation and proposes change due to the facts observed in the environment.

### 10.4. Affected areas in project scope change that adjusts project activities

The table below brings into reflection some areas of project management that are exposed to be affected by the project scope change.

*Table 4: Areas of project management that change in respect to project scope change*

Affected areas	Frequency	Percentage
Project schedule/time	12	40
Project cost	8	27
Project outcome quality	10	33
Total	30	100

**Source: Primary data, 2015**

The above table shows that 40% of respondents stated that when there is change in project coverage, it will bring change in the initial project time. 33% of respondents said that the project outcome quality is to be affected and 27% said that the initial cost of the project is also to be affected. The findings from interview indicate that when there is need to adjust the project activities to reality of environment, it will bring change to time because activities might be added or changed to the ones that have different time compared to the initial ones. In this case, cost is likely to change, but respondents emphasized on the fact that project implementers must look for possible ways of not increasing the cost because it would not be easy to get additional funds. Participants of interview added that project implementers will go through the process of

changing project activities when there is hope that those changes will have addition elements on the product quality. Respondents said that they will carry out the process of scope change when they have evaluate the project progress and get indicator of not having good quality outcome which means that continuing with initial activities are leading to unexpected quality of outcome.

#### 10.5. Effect of project cost change on quality of project product

The table below presents the findings from questionnaire about effect of cost change on the project product quality.

*Table 5: Effect of cost change on quality of the project product*

Effects	Frequency	Percentage
Productivity /quality increased	8	27
Customer/Beneficiaries satisfaction by good quality	10	33
Change to high technology in production	7	23
Lack of resources of quality	5	17
Total	30	100

Source: Primary data, 2015

The table above shows that 27% of respondents said that the change in project cost effects project activities in a way that quality of product delivered can be increased, 33% said that cost change leads to the beneficiaries satisfaction by getting the good quality product/service, 23% stated that cost change facilitate the project implementers to be able to adopt advanced technology in production and 17% said that there could be lack of resources in case the cost of the project is reduced. In the interview, respondents said that when the cost of project is increased, this gives the opportunity to pull up the quality of product by using quality materials/services and using advanced technology. This leads to beneficiaries' satisfaction because of good quality product/service. When the cost is low, project implementers tend to look for cheap services/materials which are likely to be of low quality and as result the project will deliver low quality product.

#### 10.6. Effect of project time change on project product quality

In project management, time is an important element to be controlled. The change done on project time may affect all other components of project management. The following findings show the effects that could be provoked by changing the project time.

*Table 6: Project time change effect on project product quality*

Effects	Frequency	Percentage
Increased labor	6	20
Increased quality of production	4	13
Increased cost of project	9	30
Increased materials	11	37
Total	30	100

Source: Primary data, 2015

The respondents talked about project time change in case it is increased. 37% of respondents said that when project time is increased, the materials to be used will also be increased in quantity. 30% of respondents said that increasing project time will make the entire project cost be increased, 20% of respondents mentioned that increasing project time leads to the increase of needed labor and 13% of respondents said that time increase leads to the increase in the quality of the production of the project. The findings from interview show that when time of project is increased, it will help the project team to adjust project activities when necessary and help the project to deliver the quality product. Respondents added that most of the time the project time will be increased when the project team gives a request. The project time will be reduced when stakeholders evaluate the project and find out that the initial time allocated to it is much than what is necessary. Respondents said that with the experience, project time is likely to be increased not to be reduced. This is because reducing the project time leads to negative effects on the project production quality.

### 10.7. Project scope change and project success

The research considered to analyze determinants of project success in comparison with any change that is done on one of the three constraints of the project or on all the three. The following table shows the results from questionnaire in relation with scope change and its effect on project success.

*Table 7: Ways in which scope change affects project success*

Ways	Frequency	Percentage
Achieve the desired outcome	13	43
Meet the need of beneficiaries	8	27
Satisfy quality expectations	9	30
Total	30	100

**Source: Primary data, 2015**

Every project must have a picture of the product or service it will deliver to its beneficiaries. The findings of this research indicate that changing the project scope affects the project product positively. In this line, 43% of respondents said that scope change helps to achieve its desired outcome, 30% accredited the fact of meeting the need of beneficiaries and 27% talked about the satisfaction of quality expectations. The interviewers emphasized on the same by saying that scope change will happen because there are observable need to adjust project activities for them to produce intended outcome. But what is defined as intended outcome may not be the one that satisfies the beneficiaries need or in another words the one that respond to beneficiaries problem/need. In this case, scope is also to be changed to orient it to needed solution. This is because when the project is carried out as planned but does not solve the beneficiaries' problem it will not be viewed as a success but instead as a waste of money, time and energy of participants.

### 10.8. Challenges experienced when managing scope change

While changing initial definition of the project scope, managers are likely to experience different types of challenges. This research tried to found out if in the management and implementation of scope change in Akazi Kanoze team does meet any type of challenge and/or difficulties. The following is the result of mentioned challenges by respondents.

*Table 8: Challenges accounted when managing scope change in Akazi Kanoze projects*

Challenges	frequency	Percentage
Increased risks	3	10
Reduced team morale	2	7
Managing increased work in a short time	16	53
Reorganize the project budget	9	30
Total	30	100

**Source: Primary data, 2015**

The table above shows that 53% of respondents said that the most likely challenge met when managing changes of the scope is the management of the increased work in the short time. The results from interview explained that some time project activities will be changed and something is added but the time is not change for the reason of not adding the cost or for the reason of completing the project on its initial time. In this case, the project team will have to incorporate the additional work in the initial time and budget of the project. This situation will lead to the reduction of the team morale as mentioned by 7% of respondents. Other challenges are reorganization of the project budget as mentioned by 30% of respondents and the increase of risks as mentioned but 10% of respondents. This is about increasing the risk of not completing the project on time as well risk of not having enough resources to allocate to those added activities because resources allocation was already done. This shows that changing project scope during implementation would be best to be avoided as they bring the challenge of increasing cost and schedule. It would be difficult to get add finance resource that is why it is important to justify the causes of any scope changing request in order to get additional funds if it can not be avoided.

### 10.9. Improvement in the process of scope change management

The respondents were asked to propose ways in which Akazi Kanoze projects could use to have a better understanding of project scope change management. The following table shows the recommendations proposed by participated respondents.

*Table 5: Improvement in the process of scope change management as proposed by respondents*

Suggestions	frequency	Percentage
To involve the beneficiaries	10	33
To respect donor's conditions	8	27
To conduct evaluation before changing project scope	7	23
To justify the reasons for changing project scope	5	17
Total	30	100

**Source: Primary data, 2015**

Participated respondents recommended the following: 33% said there is a need to involve beneficiaries when proposition of scope are being carried out, 27% recommended that to change the project scope, the project implementers should consider in the first place the conditions of donor(s) and 23% said that a project evaluation should be conducted before making decision to change the project scope. The respondents for interview said that some time proposition to change the scope will come before doing an evaluation. Respondents said that external evaluation should help to decide in which way the scope should be changed. This will help project implementers to avoid carrying out the process of scope change more than once during the project life cycle. Interviewers added that some time scope could be changed without implications of beneficiaries' wishes and propositions and then later the implementers will find out that there are unconsidered needs for beneficiaries. In this case the process of scope change will be reviewed again and changes will be done once again.

## **11. Conclusions and recommendations**

### **11.1 Conclusion**

This research has found out that when managing a project there are times when project implementers will have to make decision to change the project scope. Although the project has to meet its objectives but there are times when implementers will see that meeting the project objectives without making any changes in project activities is impossible. The changes in project activities are done when they bring a contribution to the achievement of project objectives. The research found out that changes in project activities provoke the changes in project cost, time and quality of the product/service of the project. The study indicated that when activities are changed without changing project cost or time and new activities are many, this leads to the risk of not completing the project on time as well risk of not having enough resources to allocate to those added activities because resources allocation was already done. In this study, it was mentioned that getting additional finance is not easy and that is the reason why changing project scope during implementation would be done when all the components of project management are possible to be changed. When the project cost is increased, it gives the opportunity to pull up the quality of product by using quality materials/services and using advanced technology. Enough finance resources supports beneficiaries' satisfaction because of receiving product/service of the good quality. When the finance resource is not in reality enough, project will use low cost materials which are likely to be of low quality and as result the project will deliver low quality product.

### **11.2. Recommendations**

The recommendations of this study are that involving beneficiaries in the definition of project scope would help to understand more their expectation to avoid changing the scope based on this condition. Considering donor(s) requirements is another point to put in mind when carrying out the process of project change. When defining the initial project scope, the environment factors should considered and assure what will be done if they change. To get the proper direction to take when changing the project scope, the project evaluation should be done before making decision to change the project scope. The project progress gives an idea of where the project is going and likelihood of achieving its objectives. It could a best indicator to give a direction on how to orient the project activities if found that first activities are not leading to achievement of the objectives.

## REFERENCES

1. Ahsan, K., & Gunawan, I. (2010). Analysis of cost and schedule performance of international development projects. *International Journal of Project Management*. 28(1): pp. 68-78.
2. Anderson, D.S., Molenaar, K.R., & Schexnayder, J.C. (2007). *Guidance for cost estimation and management for highway projects during planning, programming and preconstruction*. Washington, DC: Transportation research board.
3. Atkinson, R., Crawford, L., & Ward, S. (2006). *Fundamental uncertainties in projects and the scope of project management*. *International journal of project management*. 24(8), pp. 687-698.
4. Buser, A.R., Massis, E.B., & Pollack, M. (2014). *Project management for libraries: A practical approach*. Carolina: McFarland & Company, Inc., Publishers.
5. Chandran, E. (2004). *Research methods: A quantitative approach with illustrations from Christian ministries*. Nairobi: Daystar University.
6. Cooke-Davies, T. (2001). The real project success factors. *International Journal of Project Management*, 20(3): pp.185-190.
7. Cox, M. D. (2013). *Project management at work*. California: iUniverse. Retrieved on 13 February, 2015 from <https://books.google.rw>.
8. Creswell, W. P. (2002). *Research design: Qualitative, quantitative and mixed method approaches*. London: Sage Publications.
9. Creswell, W. P. (2003). *Research design: Qualitative, quantitative and mixed method approaches*. London: Sage Publications.
10. Davis, J., & Papakonstantinou, P. (2012). *Research project success: The essential guide for science and engineering students*. London: Royal society of chemistry.
11. De Furia, L.G. (2008). *Project Management Recipes for Success*. New York: CRC Press.
12. Fageha, M.K., & Aibinu, A.A. (2013). Managing project scope definition to improve stakeholders' participation and enhance project outcome. *Journal of Procedia - Social and Behavioral Sciences*. 74: pp. 154–164. Retrieved on 15 February 2015 from [www.sciencedirect.com](http://www.sciencedirect.com).
13. Ghosh, A. (2007). *Importance of Scope in Project Management*: India. Retrieved on 10 February, 2015 from [AspAlliance.com](http://AspAlliance.com).
14. Gravetter, J. G., & Wallnau, B. L. (2007). *Statistics for the behavioral sciences* (7<sup>th</sup> ed.). Belmont: Thomson Wadsworth.
15. Harrington, H.J., & McNellis, T. (2006). *Project management excellence: The art of excelling in project management*. Washington DC: Paton press LLC.
16. Heldman, K. (2011). *PMP project management professional exam study guide*. San Francisco: John Wiley & Sons.
17. Heldman, K. (2005). *Project manager's spotlight on risk management*. California: SYBEX Inc.
18. Herson, P., & Whitman, R. J. (2001). *Delivering satisfaction and service quality: A customer-based approach for libraries*. Chicago: The American Library Association.
19. Heywood, C., & Smith, J. (2006). Integrating stakeholders during community FM's early project phases. *International Journal of management*. 24(7/8): pp. 300-313.
20. Hill, G.M. (2010). *The complete project management methodology and toolkit*. New York: Taylor & Francis group.
21. Hyvärinen, I. (2006), "Project management effectiveness in project-oriented business organizations", *International Journal of Project Management*. 24: pp. 216–225.
22. John, W. (2013). *Perspectives and techniques for improving information technology project management*. Washington DC: IGI G
23. Jones, E.G., Snyder, C., Stackpole, C., & Lambert, L. (2011). *PMP certification all-In-One desk reference for dummies*. New Jersey: John Wiley & Sons, Inc.
24. Judge, P., & Muller, A. (2005), Transformational and transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology* No.89, pp.755-768.

25. Karl, W. (2014). *Defining the project scope: context and use case diagram*. Retrieved on 11 February, 2015 from <http://www.processimpact.com>
26. Kerzner, H.R. (2013). *Project management: A systems approach to planning, scheduling, and controlling*. New Jersey: John Wiley & Sons, Inc.
27. Knapp, D. (2011). *A guide to customer service skills for the service desk professional*. Boston: Cengage Learning.
28. Kombo, K. D., & Tromp, L. D. (2006). *Proposal and writing: An introduction*. Nairobi: Paulines Publications Africa
29. Kothari, C. R. (2004). *Research methodology: Methods & techniques*. New Delhi: New Age International Limited Publishers.
30. Kothari, C. R. (2006). *Research methodology: Methods & techniques*. New Delhi: New Age International Limited Publishers.
31. Kurnar, R. (2005). *Research methodology: A Step-by-Step guide for beginners*. New Delhi: Sage Publications.
32. Lankshear, C., & Knobel, M. (2004). *A handbook for teacher research. From design to implementation*. London: McGraw-hill.
33. Low, P.S., & Ong, J. (2014). *Project quality management: Critical success factors for buildings*. London: Springer.
34. Luckey, T., & Phillips, J. (2006). *Software project management for dummies*. New York: Wiley publishing Inc.
35. Marchewka, J.T. (2012). *Information Technology Project Management*. New Jersey: John Wiley & Sons, Inc.
36. Mochal, T. (2004). *Poor scope-management practices could precipitate project failure*. Retrieved on 10 February 2015 from <http://www.techrepublic.com/article>.
37. Nguyen, S. (2010). Project scope management. The basic principles. Retrieved on 10 February 2015 from <http://pmreviews.org>.
38. Nicholas, M.J., & Steyn, H. (2012). *Project management for engineering, Business, and Technology*. New York: Routledge.
39. Njau, N.J. (2012). *Factors influencing implementation of the African development bank funded project in the ministry of higher education, science and technology- Kenya*. Nairobi: University of Nairobi.
40. Parviz, R., & Ginger, L. (2002). *The advance project management office: A comprehensive look at function and implementation*. USA: St. Lucie Press.
41. Passenheim, O. (2009). *Project management*. Ventus publishing. Retrieved on 14 February, 2015 from bookboon.com.
42. Peck, R., Olsen, C., & Devore, J. (2009). *Introductions to statistics and data analysis* (3<sup>rd</sup> ed.). Belmont: Cengage Learning, Inc.
43. Pretorius, S., Steyn, H., & Jordaan, J.C. (2012). Project management maturity and project management success in the engineering and construction industries in Southern Africa \_\_\_\_\_ *South African Journal of Industrial Engineering*. vol.23 (3). Pp. 79-86.
44. Richman, L. (2006). *Improving your project management skills*. New York: American management association.
45. Richardson, G.L. (2010). *Project management theory and practice*. New York: Taylor & Francis groups. LLC.
46. Rose, K. (2005). *Project quality management: Why, what and how*. Florida: Ross Publishing, Inc.
47. Schwalbe, K. (2010). *Information Technology Project*. Mexico. Cengage Learning.
48. Schwalbe, K. (2014). *Information technology project management*. Boston: Cengage Learning.
49. Suchan, J. (2007). *How to evaluate project change requests*. Washington Dc.
50. Ubani, E. C., Nwachukwu, C. C., & Nwokonkwo, O. C. (2010). Variation factors of project plans and their contributions to project failure in Nigeria. *American journal of social and management sciences*. 1(2). pp. 141-149.

51. Venkataraman,R.R., & Pinto, K.J (2008). Cost and Value Management in Projects. New Jersey: John Wiley & Sons, Inc.
52. Wilson, M.S. (2008). *The experiences of dislocated workers offered services through workforce centers to help them regain employment: A Phenomenological Study*: ProQuest. Retrieved on 16 February, 2013 from <https://books.google>.
53. Woodside, G.A. (2010). *Case study research: Theory, methods, practice*. Londo. Emerald group publishing.
54. Zuofa, T., & Ochieng, E.G. (2014). Project Failure: The way forward and panacea for Development. London: Canadian center of science and education. *International journal of business and management*. Vol. 9, No. 11.