

Effect of Project Formulation Process on Sustainability of Projects in Rwanda: A Case Study of Project for Rural Income through Exports

Alfred Twahirwa¹, Dr. Patrick Mulyungi²

¹Jomo Kenyatta University of Agriculture and Technology

²Jomo Kenyatta University of Agriculture and Technology

Abstract: *The general objective of this study was to assess the effect of project formulation process on sustainability of government projects in Rwanda. Specifically, the study intended to determine the relationship between project formulation process of government projects and their sustainability. The study adopted the correlation research design where quantitative methods of data collection and analysis were used. For this study the target population was 62 employees of all categories in the project. A sample size of 54 respondents was determined from a total population of 62 individuals. The primary data were collected using questionnaires. The data were collected, examined and checked for completeness and comprehensibility. The study findings, revealed that Identification of tasks and their deliverables within Price was mainly done by putting in place a well detailed work breakdown structure or a list of all tasks that will be performed from the start to completion according to all research participants, identifying of all deliverables attached to each task in the WBS to be performed from start to completion of the project as it was reported by 88.9% of the respondents, results of correlation between identification of tasks and their deliverables and Sustained increase of returns to farmers was at the rate of 0.787 meaning that the act of identifying tasks and their deliverables influence the sustained increase of return to farmers at the level of 78.7%. Research findings demonstrate that the correlation between identification of tasks and their deliverables and empowered capacity for rural farmers was at the rate of 0.685 revealing that empowered capacity for rural farmers is influenced by identification of tasks and their deliverable at the level of 68.5%. The result of correlation between identification of tasks and their deliverables and Sustained increase of economic opportunities for poor farmers as shown in the above table, was at the rate of 0.858. There is a significant relationship between identification of tasks and their deliverables on project sustainability because their p-value (0.017) is statistically significant at 5% level of significance with lower bound of -3.76 and upper bound of .183, the result of Correlation of estimating resources needed to perform task and Sustained increase of returns to farmers was at the rate of 0.859 meaning that the influence of estimating resources needed to perform task on sustained increase of returns to farmers is 85.9%. The research findings revealed that, project managers perform identification of known and unknown risks according to 92.6 % of all respondents, a 100.0% of all respondents, 70.8 % reported that the organization assess the risks in terms of severity of impact, likelihood of occurrence and controllability. According to the interpretation of collected and analyzed data during the course of this study the researcher came up with the following conclusions: The collected and analyzed data during the course of this study showed that the effect of the variables like identification of tasks and their deliverables, estimating resources needed to perform tasks, identification of the anticipated and known risks in executing the project, identifying stakeholders, their involvement and contribution are important to the project sustainability.*

Keywords: Project, Project formulation process, Project sustainability

1. Introduction

Rwanda has had a decade of rapid growth, development and institutional transformation but poverty reduction remains a huge challenge. Despite high economic growth rates poverty has declined by only four percentage points for the rural population, from 60.4% in 2000 to 56.9% (the last recorded value) in 2006 whilst extreme poverty fell from 41.3% to 36.9% in the same period. Women, for reasons that will be explored in Section III, have a higher than average level of poverty and are particularly vulnerable to extreme poverty. Regarding socio-economic categories small-holders and agricultural laborers are most likely to suffer from food insecurity, and amongst them, households headed by women, illiterate, and households with will less than 0.3 ha are particularly vulnerable.

2. Statement of the Problem

Cash and export crops such as coffee and tea have the potential to generate substantial income for poor farmers and generate employment in rural areas. However production also carries a risk for poor farmers because

they may displace food crops; income is dependent on market prices and institutional structures around the value chain that enable the farmer to leverage profit; the start-up costs are substantial and the farmer is dependent on technical inputs and advisory services to enable sufficiently high production from poor soils. Whilst the majority of smallholders are poor there are significant variations in the levels of poverty and the resources and capacities of the poor. Project sustainability is still a big challenge in government projects in Rwanda, especial the agricultural projects. In order to ensure the project sustainability, it is of great importance to undergo a well detailed formulation process. The project formulation process positively influence performance and sustainability of projects since it identifies tasks and their deliverables, estimates resources needed to perform tasks, identifies the anticipated and known risks in executing the project, identifies stakeholders, their involvement and contribution etc. However Government projects in developing countries like Rwanda continue to experience failure due to ineffective project formulation process, poor implementation process, poor project monitoring and

evaluation, poor risk management practices and so forth (Rutaganira, 2008).

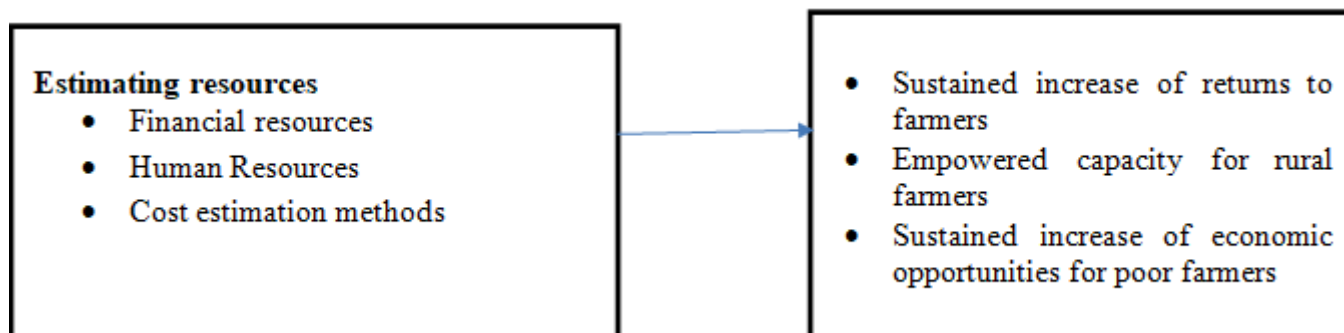
In Rwanda, especially in field of agriculture and livestock, there is a significant increase in projects aimed at improving the agricultural production. However most of them failed to achieve their objectives due to ineffective formulation process where some key aspects are overlooked. Therefore the researcher is eager to identify the gap as even when the project formulation process is well undertaken in these projects, we still have a lot of projects failing to achieve their expected results. Therefore, this research aims at investigating the effect of project formulation process on sustainability of

government projects in Rwanda by survey the Project for Rural Income through Exports (PRICE). It also intends to highlight issues that affect sustainability of Government projects in Rwanda and introduces tools which can be used to enhance sustainability at project formulation stage.

3. Objectives of the Study

The general objective of this study was to investigate effect of project formulation process on sustainability of government projects in Rwanda. Its second specific objective was to assess the influence of resources needed on sustainability of government projects in Rwanda.

4. Conceptual Framework



5. Research Methodology

- **Research Design:** The researcher used correlation research design where quantitative methods of data collection and analysis were used.
- **Target Population:** For this study the target population is equal to 62 employees of all categories in the project.
- **Sample size:** For the purpose of this study, a sample size of 54 respondents was determined from a total population of 62 individuals using the formula by Yamane (1967).
- **Data Collection tools:** In collection of primary data questionnaires were used
- **Data Analysis and Processing Technique:** Descriptive statistics like means, standard deviation and frequency

distribution were used to analyze data. Data presentation was done by the use of frequency tables for ease of understanding and interpretations. Inferential statistics such as regression and correlation analysis were used to describe the relationship project formulation process and project sustainability of government projects in Rwanda. A simple linear regression was developed to establish the relationship between the independent and dependent variables.

6. Summary of Research Findings

6.1: Assessment of the extent to which estimating resources needed to perform tasks affect sustainability of government projects in Rwanda

Table 1: Respondents' perception on process documentation

Process documentation implementation	Frequency	Percent
Estimating all financial resources from start-end	51	94.4
Use of known methods for cost estimation	37	68.5
Estimating all needed human resources from start-end	49	90.7

The research findings revealed that, according to 94.4% of the research respondents reported that cost estimation was considering all resources that PRICE project will need since the beginning of the project up to its end, and 68.5% of respondents agree that while estimating cost managers were using known methods of cost estimation such as

parametric estimating, analogous, expert judgment, bottom up etc. while 90.7% of respondents agree that cost estimation in PRICE was done also by taking into account the number of human resource the project need to work perfectly from the beginning up to its end.

Table 2: Correlation between estimating resources needed to perform task and Sustained increase of returns to farmers

		Resources estimation	Sustained increase of returns
Rscs estimation	Pearson Correlation	1	.859**
	Sig. (2-tailed)		.007
	N	54	54
Sustained increase of returns	Pearson Correlation	.859**	1
	Sig. (2-tailed)	.007	
	N	54	54

Table above revealed that, the result of Correlation of estimating resources needed to perform task and Sustained increase of returns to farmers was at the rate of 0.859 meaning that the influence of estimating resources needed to perform task on sustained increase of returns to farmers is 85.9%. Therefore there is a significant relationship between estimating resources needed to perform task on sustained increase of returns to farmers. by considering the

level of significance which is 0.05, hence there is a significant relationship between estimating resources needed to perform task on sustained increase of returns to farmers because their p-value (0.007) is statistically significant at 5% level of significance hence a high correlation between process estimating resources needed to perform task on sustained increase of returns to farmers.

Table 3: Correlation between estimating resources needed to perform tasks and empowered capacity for rural farmers

		Resources estimation	Empowered capacity for rural farmers
Resources estimation	Pearson Correlation	1	.963**
	Sig. (2-tailed)		.014
	N	54	54
Empowered capacity for rural farmers	Pearson Correlation	.963**	1
	Sig. (2-tailed)	.014	
	N	54	54

According to the above table, the result of Correlation of estimating resources needed to perform tasks and empowered capacity for rural farmers was at the rate of 0.963 meaning that estimating resources needed to perform tasks is significant to empower capacity for rural farmers at the level of 96.3% hence a significant relationship between estimating resources needed to perform tasks and

empowered capacity for rural farmers. On the other hand, by considering the level of significance which is 0.05, there is therefore a significant relationship between estimating resources needed to perform tasks and empowered capacity for rural farmers because their p-value (0.014) is statistically significant at 5% level of significance.

Table 4: Correlation between estimating resources needed to perform tasks and Sustained increase of economic opportunities for poor farmers

		Resources estimation	Sustained increase of economic opportunities
Resources estimation	Pearson Correlation	1	.788**
	Sig. (2-tailed)		.026
	N	54	54
Sustained increase of economic opportunities	Pearson Correlation	.788**	1
	Sig. (2-tailed)	.026	
	N	54	54

This table revealed that, the result of Correlation of estimating resources needed to perform tasks and Sustained increase of economic opportunities for poor farmers at the rate of 0.788 meaning that estimating resources needed to perform tasks contribute to sustained

increase of economic opportunities for poor farmers at the level of 78.8%. Basing to this Pearson's correlation rate there is a significant relationship between estimating resources needed to perform tasks and Sustained increase of economic opportunities for poor farmers.

Table 5: Correlation between estimating resources needed to perform tasks and project sustainability

		Resources estimation	Project sustainability
Resources estimation	Pearson Correlation	1	.861**
	Sig. (2-tailed)		.009
	N	54	54
Project sustainability	Pearson Correlation	.861**	1
	Sig. (2-tailed)	.009	
	N	54	54

The above table revealed that, the result of Correlation between estimating resources needed to perform tasks and project sustainability was 0.861 meaning that estimating resources needed to perform tasks influences project sustainability at the level of 86.1% which proves the strong relationship between estimating resources needed to

perform tasks and project sustainability. If the researcher considers the level of significance which is 0.05, there is therefore a significant relationship between estimating resources needed to perform tasks and project sustainability because their p-value (0.009) is statistically significant at 5% level of significance.

Table 6: Estimate parameters between estimating resources needed to perform tasks and project sustainability

Model	Unstandardized Coefficients		Sig.	95% Confidence Interval for B	
	B			Lower Bound	Upper Bound
Constant (β_0)	2.209		.000	1.784	2.711
Resources estimation (X)	.095		.009	-.512	.274

a. Dependent Variable: Project sustainability

According to the information from table above, if: Y= Project sustainability and X= resources estimation, project sustainability will change in function of resources estimation, Thus, if resources estimation is equal to one unite and constant (β_0) is zero (0), project sustainability will increase 0.095 time resources estimation. Hence, $Y=2.209+0.095X$. There is a significant relationship between estimating resources needed to perform tasks and project sustainability. Because their p-value (0.009) is statistically significant at 5% level of significance with lower bound of -.512 and upper bound of 0.274.

7. Conclusions and Recommendations

7.1 Conclusions

According to the interpretation of collected and analyzed data during the course of this study the researcher came up with the following conclusions:

Estimating resources needed to perform tasks is also an important activity to influence the sustainability of government projects in Rwanda, according to research results, Correlation between estimating resources needed to perform tasks and project sustainability was 0.861 meaning that estimating resources needed to perform tasks influences project sustainability at the level of 86.1% while findings revealed by the simple linear regression were Y= Project sustainability and X= resources estimation, project sustainability will change in function of resources estimation, Thus, if resources estimation is equal to one unite and constant (β_0) is zero (0), project sustainability will increase 0.095 time resources estimation. Hence, $Y=2.209+0.095X$. There is a significant relationship between estimating resources needed to perform tasks and project sustainability because their p-value (0.009) is statistically significant at 5% level of significance with lower bound of -.512 and upper bound of 0.274.

7.2 Recommendations

As the findings show a positive and a very high strong correlation between identification of tasks and their deliverables on sustainability of government projects in Rwanda ($[0.75<0.941<-1.00]$ means a positive and very high correlation, the researcher recommend to the project

team to put in place a well detailed work breakdown structure (WBS), identified all milestones signifying the important decision making points in the entire life cycle of the project.

According to the study findings there is a positive and high correlation between identification of the anticipated and known risks in executing the project affect sustainability of government projects in Rwanda ($[0.75<0.876<-1.00]$ the researcher recommend that the project manager and stakeholders to identified all the known and unknown risks associated with the project, prioritize the risks as well as elaborating a strategic plan to prevent and eliminate risk that may affect the project.

References

- [1] Udhayam, Ngo Trichy (2013). *The Art of Project Formulation* Project Management, 19 (4): 205-2225
- [2] Ananda, J. and Herath, G. (2003) *Incorporating stakeholder values into regional forest planning: A value function approach*, Ecological Economics, 45, 75-90.
- [3] Andler N. 2008: Andler, Nicolai; *Tools for Project Management, Workshops and Consulting: A must have compendium of essential tools and techniques*; Erlangen: Publicis Corporate Publishing, 2008
- [4] APM (Association for Project Management) 2006, *The APM Body of Knowledge*, 5th ed., Association for Project Management.
- [5] Araujo, L.M. and Bramwell, B. (1999) *Stakeholder assessment and collaborative tourism planning: the case of Brazil's Costa Dourada Project*, Journal of sustainable Tourism, 7(3/4), 356-378.
- [6] Argyris C. 2005: Argyris, Chris; *Double Loop Learning in Organizations: a Theory of action Perspective*; in: Smith, Ken; Hittl Michael; *Great Minds in Management: the Process of Theory Development*; Oxford: Oxford University Press, 2005
- [7] Barr S. 2008: Barr, Stewart; *Environment and society: sustainability, policy and the citizens*; Aldershot: Ashgat, 2008
- [8] Binder J. 2007: Binder, Jean; *Global Project Management: Communication, Collaboration and Management Across Borders*; Hampshire: Gower Publishing, 2007

- [9] Bryson, J.M. (2004) *What to do when stakeholders matter: stakeholder identification and Analysis techniques*, Public Management Review, 6(1), 21-53.
- [10] Chen, Z., Li, H. & Turner, R. 2007, Managing the environment, in J.R. Turner (ed.) , *Gower Handbook of Project Management* 4th ed., Gower Publishing, Aldershot, UK.
- [11] Claud, G.M. (2006). *Project Sustainability and Participatory Planning Approach*. A Case of Rural Water Supply and Health Project In Marginal Areas, Kondo District., Dodoma, Tanzania.
- [12] David, H. and Joseph, N. (2001). *Agricultural Project Planning Approach in Tanzania: A handbook on Cycle and Sequencies*: Mzumbe University, Tanzania Development and Project Centre, University of Bradford, UK.
- [13] Denis, B. (2002). *Integrated Project Management*. Prentice Hall
- [14] Doppelt B. 2003: Doppelt, Bob; *Leading change towards sustainability: a change management guide for business, government and civil society*; Sheffield: Greenleaf Publishing, 2003
- [15] Eid, M. 2002, *A sustainable approach to the project management odyssey*, paper presented at the PMI Research Conference 2002: Frontiers of Project Management Research and Application, Seattle, WA.
- [16] El-Gohary, N.M., Osman, H. and El-Diraby, T.E. (2006) *Stakeholder management for public private partnerships*, International Journal of Project Management, 24, 595-604.
- [17] English Nature (2002) *An introduction to deliberative methods of stakeholder and public participation*, English Nature Research Reports, Number 474.
- [18] Epstein, M.J. 2008, *Making Sustainability Work: Best Practices in Managing and Measuring Corporate Social, Environmental, and Economic Impacts*, Berrett - Koehler Publishers, San Francisco, CA.
- [19] Erik, W.L., & Clifford, F.G. (2001). *Project Management. The Managerial Process (5thed)* Mc Graw-Hill, Irwin.
- [20] Gerard, M.H. (2010). *Complete Project Management Methodology and Toolkit 2010*. Taylor and Francis Group, LLC.
- [21] Hampton, J. (2006). *Risk pro knows value of networking*. *Business Insurance* 40, no 45:5
- [22] Harold, K. (2001). *Strategic Planning for Project Management using a Project Management Maturity Model*. John Wiley & Sons, Inc.
- [23] Harvey, A, L (2002). *Practical Project Management Tips, Tactics, and Tools*. John Wiley & Sons, Inc.
- [24] He, Z. (1995). *Risk Management for Overseas Construction Project*. International Journal of Project Management.
- [25] Jaafari, A. 2007, *thinking of sustainability as a dimension of managerial competency*, PM World Today, vol. ix, no. ix.
- [26] Joseph, H. (2012). *Fundamentals of Project Management (4thed)*. American Association of Management
- [27] Kerzner, H. (2003). *Project Management: A system Approach to Planning, Scheduling, and Controlling (8thed)*. Indianapolis: John Wiley and Sons, Inc.
- [28] Larry, R. (2002). *Successful Project Management (3rded)*. American Management Association
- [29] Meri, W. (2008). *The Principles of Project Management*. Site Point Pty. Ltd.
- [30] Mochal, & Jeff M. (2011). *Lessons in Project Management*. Springer-Verlag New York, Inc.
- [31] Mugenda, O. M., & Mugenda, A .G. (2003). *Research Methods: Quantitative and Qualitative approaches*. Nairobi: Acts Press
- [32] Mui, D.H.F. & Sankaran, S. 2004, *An effective project management - based application model for sustainable urban renewal in Hong Kong*, Project Management Journal, vol. 35, no.4, 15 - 34.
- [33] Norman, R.H. (2001). *Modern Project Management. Successfully Integrating Project Management Knowledge Areas and Processes*. American Management Association.
- [34] Planning and Assessment." Transportation Research Board and National Research Council. *Assessing and Managing the Ecological Impacts of Paved Roads*. Washington, DC: The National Academies Press, 2005
- [35] PMI (Project Management Institute) 2006, *The Standard for Program Management*, Project Management Institute, Newtown Square, PA.
- [36] Ralph, L.K. (2012). *Ethics and Project management*. Taylor & Francis
- [37] Robert, K.W. (2004). *Project Management Process Improvement*. Artech House Inc.
- [38] Saunders, M., Lewis P., & Thornhill, A. (2007). *Research Methods for Business Students (4thed)*. London. Prentice Hall.
- [39] Tam, G.C.K. 2010, *Sustainability competence requirements for project manager*, paper presented at the IPMA International Expert Seminar 2010 – Survival and Sustainability as Challenges for Projects, 18 - 19 February 2010, Zurich, Switzerland.
- [40] *Uncertainty reduction and predictability of behavior in low- and high- context cultures: An exploratory study*. Communication Quarterly, 3 1, 49-55.
- [41] Vivien, m. (2006). *Managing Project in Human resources, Training and Developing (2nd ed)*. London and Philadelphia. Kogan Page Limited
- [42] Zambruski, M.S (2009). *A Standard for Enterprise Project Management*. Taylor and Francis Group.
- [43] Zwickau, O (2008), *Risk Management Framework for Construction Projects in developing countries*, Vol.3 No1, pp.15-44