

Critical Success Factors Influencing Agriculture Sector Projects: A Perspective of Agriculture Sector Projects in Ghana

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Abstract

Agriculture sector remains one of the most potentially dominant sectors to reduce poverty, raise incomes and improve food security for developing and poor nations (AfDB, 2006). Africa possesses over one-quarter of the world's total arable land. However, several project initiatives by government and private sectors in this sector have not been that much successful (Dewbre, J., et al., 2011). Project failure rates and its associated resultant costs in Ghana have been a major concern from time immemorial and have incalculable costs on the economy of Ghana (AfDB, 2006). According (Ika, L.A., et al., 2012), project failure rate at the World Bank was over 50% in Africa in 2000 and 39% of World Bank projects were also unsuccessful in 2010. This study examined the critical success factors that impact on project management and project successes or failures in the agriculture sector of the Ghanaian economy.

This research is a perceptual study which employed a quantitative approach. It examined the research critical success factors (CSFs) which by design were grouped into four categories namely; management of project factors; resource availability factors; execution methodology factors; and out of project management control factors. (based on Pinto and Slevin, 1987; Baker et al., 1988; Shenhar et al., 2001; Cooke-Davies, T. 2002; Matta & Ashkenas, 2003; Judgev & Muller, 2005; Ika, 2009; Amponsah & Darmoe, 2014; Project Implementation Profile CSFs). Data was collected from individuals (public, private, NGOs etc.) engaged with Agriculture projects in Ghana. This study employed a structural equation model generated through AMOS to test the relationships between the critical success factors and project management success (PMS) and project success (PS). One hundred and fifty-five (155) questionnaires were distributed, and we received 120 properly completed representing a response rate of 77%.

The study was researched in the agriculture sector (AS) of the Ghanaian economy. Out of the four grouped factors, the management of project factor which had indicator variables (as lack of effective planning, ineffective monitoring and evaluation, poor analysis of project risk, poor estimated cost of activities and budget) significantly impacted on both project management success and project success.

This finding leads to the point that, much emphasis should be placed on project planning of Agriculture sector projects. Particularly, the selection of the right project manager and his team for government projects is key to effective planning and management of the projects. Risk planning and management must be thoroughly undertaken for the projects and appropriate response measures planned before the projects are embarked upon. Monitoring and evaluation must be well planned and routinely undertaken for each project implementation to ensure that projects are been carried out in accordance to the design and plan.

Agriculture sector project failures had often been attributable to several factors including non-availability of resources in the past. This study has given us a new understanding/paradigm that management of projects including planning of the projects is the factor that really impact on project management success and project success or failures in this sector.

Keywords: Agriculture sector, Critical Success Factors, Project Management Success factor, Project Success factor

1.0 INTRODUCTION

1.1 Background of the Study

In the past two decades, project critical success factors and project success criteria have been vastly studied including, Cooke-Davies, T. (2002) who identified success factors in projects and distinguished between project management success and project success criteria. Project management literature continues to uncover the antecedents of project management success (e.g., Ika, 2009; Ika &

Donnelly, 2017; Joslin & Müller, 2016; Matta & Ashkenas, 2003) largely because of plethora of project failures. It has been observed that the proportion of successful projects among those undertaken by organizations, international development agencies, and governments around the world is disturbingly small and most of these projects do not meet expectations of their customers and stakeholders (Flyvbjerg, Garbuio, & Lovallo, 2009; Judgev & Muller, 2005). Project management success (PMS) is defined as achieving the project's defined scope, on-time and within the scheduled budget. However, the project success (PS) looks beyond scope, time and budget, and in addition to that, it covers the original intentions of the project which often include customer satisfaction, benefits to the performing organization and returns on investment (Cooke-Davis, T., 2002). In other words, project success (PS), on the other hand, focuses on the performance of the project over a longer time period and is related to the justification or the business case that is made for the project (Asiedu & Adaku, 2019; Meredith, Mantel, Shafer, & Sutton, 2014). Therefore, project management success is often measured at the summative stage of the project while the project success is measured over a period of time after the completion of the project (Amponsah & Darmoe, 2014).

Project management literature including Amponsah & Darmoe (2014) identified factors that contribute to PS and PMS. The factors include top management support, project planning, project leadership, involvement of the users or stakeholders, clear and shared goals, effective communication, and the availability of adequate resources, among others. The availability of resources is normally thought of in terms of skilled personnel, adequate funding, and the timely release of allocated funds (Basten & Pankratz, 2015; Nixon, Harrington, & Parker, 2012; Saade & Nijher, 2016).

1.2 Significance of the Study

Research has always meant to make impact not only for academic purposes but also the societal benefits. To achieve such benefits, it is important to be more specific in terms of sector and discipline as the intellectual and academic scopes are broadened. However, most studies on the identification of critical success factors for PMS and PS have been quite broadened, and not often specific to projects within a specific sector or discipline. After many studies of projects undertaken by organizations, international development agencies, and governments around the world (Flyvbjerg, Garbuio, & Lovallo, 2009; Judgev & Muller, 2005), on the PMS and PS factors, there are still significant project failures (Asiedu & Adaku, 2019; Judgev & Muller, 2005; Moser, Narayanamurthy, Kusaba, & Kaiser, 2018). It is increasingly becoming imperative to isolate these factors in respect of sectors and disciplines. For example, with PMS and PS factors, it should have the focal point, like agriculture sector alone, construction industry, or banking projects alone instead of, for example, covering the entire public sector projects (Amponsah & Darmoe, 2014). That is what this study sought to achieve, by looking at the agriculture sector projects alone, and delineating those critical success factors that influence PMS and PS. A couple of these factors spanning across several project disciplines were initially identified from literature and further subjected to critiquing for the study to obtain the results.

The study was conducted in Ghana, West Africa, where the agriculture sector is largely operated by the private sector. The Ministry of Food & Agriculture, acting as an agency of government, has been deeply involved in promoting and enhancing agricultural activities in the country. Agriculture plays important roles in the socio-economic development of countries in the sub-saharan Africa. It contributes to ensuring food security, provides raw materials for local industries, generates foreign exchange, and provides employment and incomes for most of the population (especially those living in the rural areas), thereby contributing to poverty reduction. For example, Agriculture contributes 36% of Ghana's total Gross Domestic Product (GDP), 35% of its total export earnings, and 60% of employment. Agriculture, in this respect, is critical in controlling inflation. (Statistic Research and Information Directorate (SRID), 2020). This study examines how four groups of critical success factors influence project management success (PMS) and project success (PS) in the Agriculture Sector (AS) of the Ghanaian economy. These four groups of critical success factors with some respective indicator variables were drawn from literature.

The strategic role of AS in the development of Ghana and countries in the sub-region of the African continent demands reliable and efficient research information for decision making. The government of Ghana has in the last 6 years shown priority towards the agriculture sector by the introduction of strategic program such as Planting for Food and Jobs, which was virtually a flagship program for the government.

This program had several projects to make the country a bread basket within the subregion of Africa. However, the impact is not reflective of the activities and objectives that were lined up (Asante, F. A., & Bawakyillenuo, S. (2021). Lack of consistent well-defined project critical success factors within the specific sector often result in duplication of efforts that could impact the bottom line of the organization's development goals; this results in additional costs, increases the risks and reduces the trusts donors and stakeholders have in the organization. The importance of this study would help the AS to overcome these challenges through the continued application of, and adherence to the use of critical success factors in the following ways:

- Adherence to the factors that enhances PMS and PS to enable AS to prevent the poor project management, maintain donor confidence and assistance and prevent undue mistrust in the management of the economy.
- It will offer specific practical recommendations on areas to explore to further enhance project success, minimize project failures and help boost stakeholder's confidence in future projects.
- To make the entire AS, such as government, non-government institutions, that are not using project management methodology with its success factors in the execution of their projects to benefit from this research and follow the recommendations to develop and manage their Critical Success Factors.

Beyond these, the study would contribute to available literature in the field of project management in the AS sector of developing nations. The practical realities would be laid bare and other researchers interested in the subject matter could further explore the details.

1.3 Objectives of the Research

The broad objective of this research is to develop an understanding of the factors influencing PMS and PS in the Agriculture Sector (AS) of the Ghanaian economy, with the following specific objectives:

- Assess the relationship between these critical success factors (based on Pinto and Slevin, 1987; Cooke-Davis, 2002; Project Implementation)
- Present the Profile Critical Success Factors (CSFs) for the AS for PMS and PS.
- Provide recommendations that would ensure continuous success of project implementation in the AS in Ghana.

The ultimate aim of the study is to provide a model to help improve project success rates in Ghana and developing countries with similar conditions.

1.4 Research Questions

The following research questions guided the proposed study:

- Are there certain specific critical factor(s) perceived by Project Management Practitioners (PMPS) as having most significant relationship on PMS in the Agriculture sector?
- Are there certain specific critical factor(s) perceived by Project Management Practitioners (PMPS) as having most significant relationship on PS in the Agriculture sector?
- Are there certain specific critical factor(s) perceived by Project Management Practitioners (PMPS) as having most significant relationship on PMS and PS in the Agriculture sector?

1.5 Hypotheses

H₁: Project Management Practitioners perceive there are certain specific critical factor(s) that are consistent, and most significantly impact on PMS of Projects in the Agriculture Sector.

H₂: Project Management Practitioners perceive there are certain specific critical factor(s) that are consistent, and most significantly impact on PS of Projects in the Agriculture Sector.

H₃: Project Management Practitioners perceive there are certain specific critical factor(s) that are consistent, and most significantly impact on PMS and PS of Projects in the Agriculture Sector.

2.0 LITERATURE REVIEW

The concepts and principles of project management have become the key factor for organizations in the achievement of strategic imperatives including organizational goals and objectives. Today, organizations are managing their operations by leveraging project management tools and techniques known as management -by-project. Factors leading to the increased use of project management include:

- Compression of the product life cycle
- Global competition (cost, time, quality)
- Knowledge explosion
- Corporate downsizing/rightsizing (get rid of middle management)
- Increased customer focus
- Rapid development of Third World and closed economies (PMI, 2008)

According to Stevenson W. J. (2009), project is a unique, one- time operations designed to accomplish specific set of objectives in a limited time frame. The project management institute (2008) further observed the characteristics of project to include: (a) A temporary endeavor; (b) Creation of a unique product; (c) Definite beginning and end; (d) Limited budget and performance constraint. Cleland and Ireland (2007) noted that projects are embarked on to implement organizational strategy, achieve enterprise goals and objectives, and contribute to the recognition of the organization's mission. Peter (2004) have proclaimed that "Project Management is the wave of the future" and added that project management provides "people with a powerful set of tools to improve their ability to plan, implement, and manage activities in an attempt to accomplish specific organizational objectives".

2.1 Specific Critical Factor(s) of Projects

The specific critical factors of a sector's projects are those factors perceived by project practitioners of the sector to most significantly impact on the success/failure of the project and unique to the sector.

2.1.1 Project Management Success (PMS)

The definition of project management suggests shorter term and more specific context for success. It would include the obvious indicators in the completion of budget, satisfying the project schedule, adequate quality standards, and meeting the project goal (Munns and Bjeirmi, 1996). Successful project management can then be defined as having achieved the project objectives: within time, within cost, at the desirable performance/technology level, while utilizing the assigned resources effectively and efficiently and accepted by the customer (kerzner 1998) and key influential stakeholders.

2.1.2 Project Success (PS)

Based on the literature and the author's own observations, project success is perceived as a multidimensional concept, and the objective is to see how the specific dimensions make sense for different kinds of projects that exists. Three major dimensions have been considered in the study. The first is related to meeting specified project goals such as time, budget, performance and other requirements. The second is related to customer benefits, such as satisfaction, impact, and loyalty. And the third is related to the benefits derived by the organization performing the project, such as profits, market share, or growth indicators. The challenge in this respect is to be sure of the reliability of these dimensions of it actually defining the project successes. Shenhar et. al. (2001) study tested these dimensions and identified the specific measures that assesses each of these. Suffice to say that the framework developed by Shenhar et. al. (2001) was adopted for the study. Thoughts have been developed to depict how each dimension would be affected by a different time frame and by different project types.

2.1.3 Project Success/Failure Criteria

These are the measures by which success or failure of a project or business was judged. Baker et al. (1988) and Pinto and Slevin (1988) also only asked the opinions of project managers. Conceivably it

is widely believed that project managers are too modest to consider themselves as a success or failure factor. Table I shows success factors of Pinto and Slevin (1988).

No	Success Factor	Description
1	Project Mission	Clearly defined goals and direction
2	Top Management Support	Resource, authority and power for implementation
3	Schedule and Plans	Detailed specification of the implementation
4	Client Consultation	Communication with and consultation with all stakeholders
5	Personnel	Recruitment, selection and training of competent personnel
6	Technical Task	Abilities of the required technology and expertise
7	Client Acceptance	Selling of the final product to end user
8	Monitoring & Feedback	Timely and comprehensive control
9	Communication	Provision of timely data to key players
10	Troubleshooting	Ability to handle unexpected problem

Table I-Success Factors, Pinto and Slevin (1988).

2.1.4 Success Measure Criteria

This study relates project success/failure factors with success measures (what constitutes project success). Following on from the previous discussions to this point shows that project success is multi-dimensional as various stakeholders are involved. Each of these groups have varying needs and interests. What may be a success to one may not necessarily be to the other. This section attempts to look at various dimensions of success of project management and finds out the relationship from the perspective of different authors. The conceptual understanding of project success was still in its early days—project success has not been typically linked to competitive advantage and winning in the market-place and different people still perceive project success in different ways (Shenhar et. al., 2001).

Shenhar et. al. (2001) conducted a study to develop a multidimensional framework for assessing project success. This study aimed to show how different dimensions mean different things to different stakeholders at different times and for different projects. The analysis identified four major distinct success dimensions: (1) project efficiency, (2) impact on the customers, (3) direct business and organizational success, and (4) preparing for the future. The importance of the dimensions varies according to time and the level of technological uncertainty involved in the project. Shenhar et.al (2001) started with three major dimensions in mind:

- The first was related to meeting specified project goals such as time, budget and performance and other requirements.
- The second was related to customer benefits such as satisfaction, impact and loyalty.
- The third was related to the benefits derived by the organization in implementing the project, such as profits, market share, or growth.

Success Dimension	Description
1. Project efficiency	Meeting the scheduled goal Meeting the budgeted goal Meeting the functional performance Meeting the technical specifications
2. Impact on the customer	Fulfilling customer needs Solving a customer's problem The customer is using the product Customer satisfaction
3. Business success	Commercial success Creating a large market share
4. Preparing for the future	Creating a new market Creating a new product line

	Developing a new technology
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Table II-shows the Project Success criteria or dimensions.

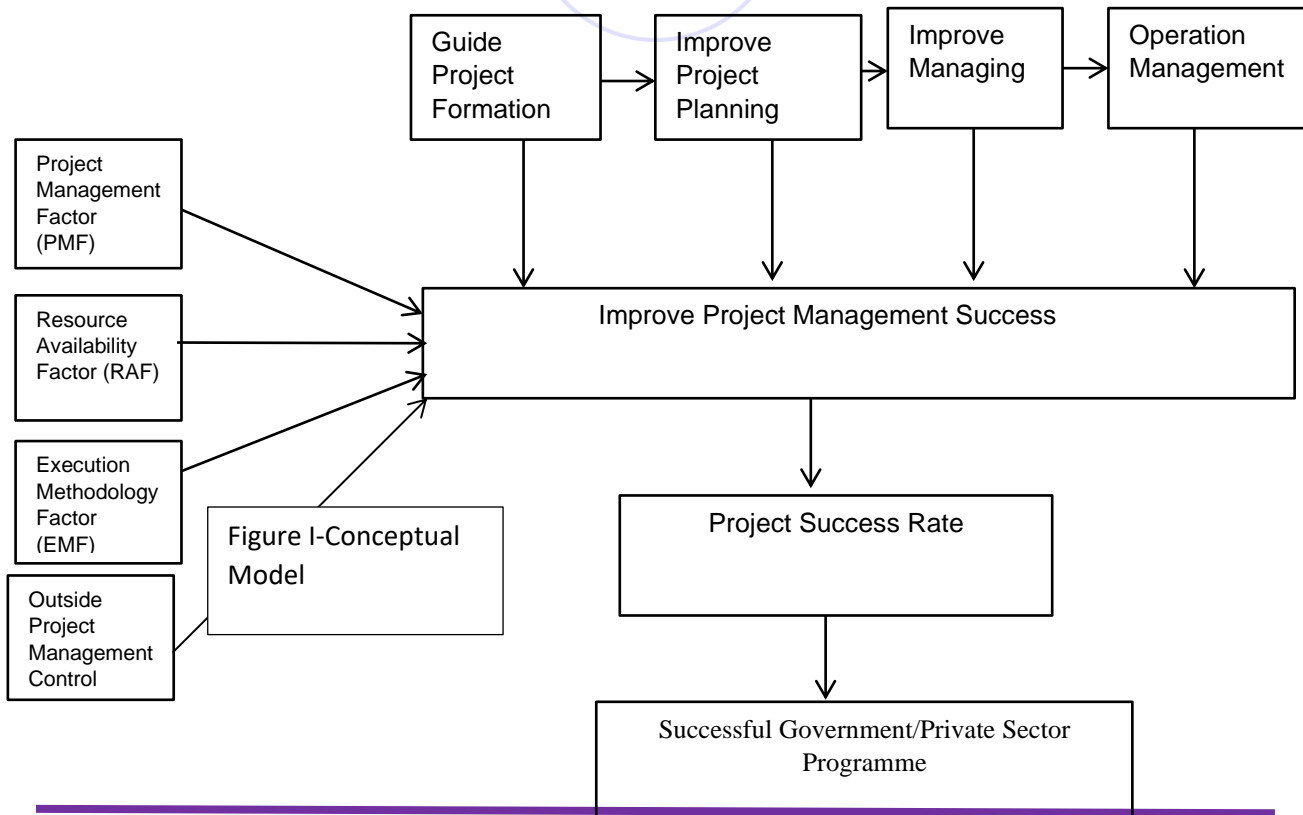
2.1.5 Distinguishing between Project and PM Successes/ Failures

To appreciate the root causes of project success and/or failure, it is important to distinguish between project success (measured against the overall objectives of the project) and project management success (determined by measures of performance, such as cost, schedule, and product or service performance). A second distinction is the difference between success criteria (measures by which success or failure will be judged), and success factors - inputs that lead directly or indirectly to the success of the project.

Research conducted by Cooke-Davies (2002) revealed a significant correlation between the adequacy of certain project management practices and performance, and on that basis advocate that project management success is not the same as project success; "... although it is fast becoming accepted wisdom that it is people who deliver projects, not processes and systems." Brown and Duguid (2000) support this premise by stating: "The importance of people as creators and carriers of knowledge is forcing organizations to realize that knowledge lies less in its databases than in its people." While processes and systems are important tools for getting things done, people with the right skills must manage those processes and systems in order to achieve success.

2.2 Conceptual (Predictive) Model

This research was carried out on the premise that an understanding of factors critical to project success and failure in the agriculture sectors of Ghana was regarded as a good step forward to reduce project failure rates. It would inform project planners at the project formulation stage, provide guidance at the planning stage, with necessary direction at the implementation phase to improve project implementation efficiency by avoiding certain types of losses. Such improvements could lead to a reduction in the number of delayed projects, reduction in cost and ultimately failed projects. Below is a model that is predicted for the study. The known factors which are combination of research and practice from, Baker et al. (1988), Pinto and Slevin (1988). Shenhar et. al., (2001), Amponsah & Darmoe, (2014).



2.3 Project Success Factor Groupings with Indicators

The Table III is the grouping of project critical factors with indicator variables.

Project Success Factor	Indicator Variables
1. Management of Project Factor	1. Lack of detailed Realistic Plan
	2. Poor Analysis of Risk
	3. Ineffective Monitoring and Evaluation
	4. Poorly estimated cost of activities and budget
2. Resource Availability on the Project	1. Lack of Adequate Resources
	2. Delay in Release of Funds
	3. Lack of User Involvement
	4. Demand on Project Resource
3. Execution Methodology	1. Lack of effective implementation Techniques
	2. Poor Feedback and control mechanism
	3. Lack of engagement of users during implementation
4. Outside Project Management Control	1. Wrong Selection of project manager
	2. Bureaucratic procurement and administrative processes
	3. Improper feasibility studies
	4. Top Management Unsupportive

Table III- Project Factor Success Groupings with Indicator Variables

3.0 RESEARCH METHODOLOGY

This study employed structured questionnaire built on the research methods of Baker et al. (1988), Pinto and Slevin (1988), Shenhar et. al., (2001), Amponsah & Darmoe, (2014). Project Implementation Profile (CSFs) model was the main research instrument used. The four (4) grouped Project Critical Success factors showed in Table III, were used as the moderating variable for the study on how the critical success factors, in practice, directly affect PMS and PS in the AS of Ghana.

3.1 Data Collection

This study was carried out in Ghana using a survey of practitioners in the agriculture sector who have had some involvement with some aspect of project planning, execution, monitoring and controlling, evaluation, closing etc. The participants were drawn from two of the country's Universities. These are students who study project management. They have a good appreciation of the structured questionnaire and how to provide the needed responses to respondents.

These respondents were from private, public, non-governmental organizations etc. Some of them had been members of project teams and/or participated in various project management activities. Others have played roles such as project sponsors, project managers, project supervisors, project technical officers, team leaders, and thus were deemed as appropriate respondents for the study.

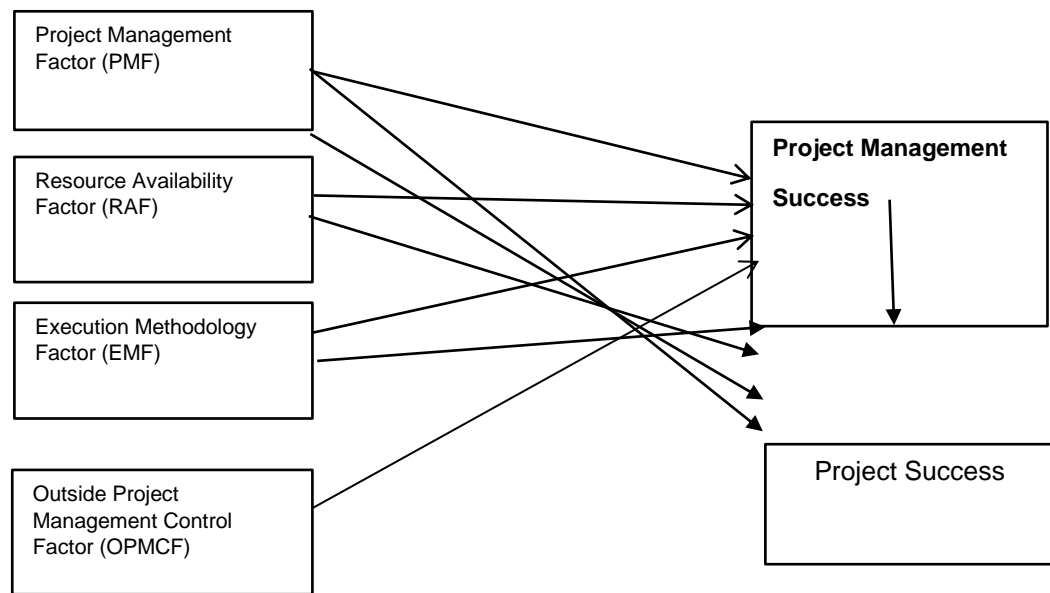


Figure II- Research Model

Role in Project

Respondents	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Manager of Project Managers	19	15.8	15.8	15.8
Project Manager	35	29.2	29.2	45.0
Subordinate Manager	38	31.7	31.7	76.7
Functional Manager	26	21.7	21.7	98.3
Any Other	2	1.7	1.7	100.0
Total	120	100.0	100.0	

Table IV-Role of Respondents on Project

Table V-Duration of Project

Duration of Project

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Up to 6 months	18	15.0	15.0	15.0
6 to 12 months	41	34.2	34.2	49.2
1 to 5 years	42	35.0	35.0	84.2
Above 6 years	19	15.8	15.8	100.0
Total	120	100.0	100.0	

Largest Dollar Value

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 6 months	57	47.5	47.5	47.5
	6 to 12 months	36	30.0	30.0	77.5
	1-5years	22	18.3	18.3	95.8
	Above 6 years	5	4.2	4.2	100.0
	Total	120	100.0	100.0	

Table VI-Largest Dollar Value

One hundred and fifty-five (155) questionnaires were distributed, and we received 120 properly completed representing a response rate of 77%. This response rate was achieved out of an approximate total population of 750 respondents. During collection of data anonymity of respondents was assured. The Table IV shows roles of respondents.

The unit of analysis is the individual and his/her experiences within a project management context and his/her assessment of the success of those project engagements. We checked for non-response bias by testing the gender and role of early respondents against late respondents and found no statistical differences on those measures (Lambert & Harrington, 1990; Malhotra & Grover, 1998). More than sixty-five percent of the respondents played the roles such as Manager of the Project Managers, Functional Manager or a Project manager. This gives a good indication of the categories of respondents as suitable for the study.

3.2 Measurement of Variable

The four main constructs in this study were all measured with multiple items. The items and their sources are shown in Table III. Likert-type scales with responses ranging from 1 (not important) to 5 (most important) were used for the critical factors. The PMS and PS also used a likert-type scale with responses ranging from 1 (failed to achieve any of the objective) to 5 (achieve all performance goals). The first constructs measured in this study was: Management of Project factor with the following indicator variables: Lack of detailed Realistic Plan; Poor Analysis of Risk; Ineffective Monitoring and Evaluation; Poorly estimated cost of activities and budget.

The second construct was Resource Availability factor with the following indicator variables: Lack of Adequate Resources; Delay in Release of Funds; Lack of User Involvement; Demand on Project Resource. The third was Execution Methodology with its indicator variables as Lack of effective implementation Techniques; Poor Feedback and control mechanism; Lack of engagement of users during implementation. The fourth is Out of Project Management Control factor with indicator variables as Wrong Selection of project manager; Bureaucratic procurement and administrative processes; Improper feasibility studies; Top Management Unsupportive.

In assessing the measurable elements of the hypothesis; that is to ascertain whether there are significant relationship between project critical success factors outlines above (was based on Baker et al. (1988), Pinto and Slevin (1988). Citing Shenhar et. al., (2001), Amponsah & Darmoe, (2014) and PMS and PS for the Agriculture sector projects data set were collected from survey and analyzed using the computer software Statistical Package for Social Science and structural equation model of AMOS for interpretation of results.

4.0 DATA ANALYSIS AND DISCUSSION OF RESULTS

A structural equation model generated through AMOS was used to test the relationships. A good fitting model is accepted if the value of the CMN/df < 5, the incremental-fit-index (IFI) indices (Hair, et., al. 2014); the Tucker and Lewis (1973) index (TLI); the Confirmatory-fit-Index (CFI) (Bentler, 1990) is >0.90 (Hair, et., al. 2014). In addition, an adequate fitting model was accepted if the AMOS computed value of the

standardized root mean square residual (RMR) < 5, and the root mean square approximation (RMSEA) is between 0.05 and 0.08) (Hair, et., al. 2014). The fit indices of the model shown in the Table 3, fell within the acceptable range.

CMN/df =1.313; IFI=.960 TLI= .950; CFI= .960;RMR=.0481; RMSEA=.051. Construct reliabilities and validity were also assessed. To view the complete list of items, loadings, and reliabilities, see Table VII. The squared multiple correlation for project management success and project success were approximately .30 and .60. This shows that 30% variation in project management success and 60% variation in project success are accounted for by management of projects, resource availability, execution methodology and out of project control factors.

The impact of management of project factor on project management success alone was positive and significant (b= 1.554, t= 2.360 p =.018). However, it's impact with respect to project success was positive and insignificant (b=.689, t=1.445, p=.148). The impact of resource availability factor on project management success was positive and insignificant (b= 1.038, t=-1.408, p=.159 and with respect to project success negative and not significant (b=-.637, t=-1.294, p=.196). The impact of execution methodology factor on project management success was negative and insignificant (b=-.011, t=-.034, p =.973) and with respect to its impact on project success was positive and insignificant (b=.124 t=-.034, p=.522). The impact of out of project control factor on project management success was negative and insignificant (b=-.471, t=-1.517, p =.129) and with respect to its impact on project success it was positive and insignificant (b=.148, t= -.741, p=.459). Model fit indices and Hypotheses are presented in the Table VII.

Hypothesized Relationship	Outcome Variable	Standardized Estimates	t-value	p-value	Decision
Management of Project	Project Management Success	1.554	2.360	.018	Supports H1
	Project Success	.689	1.445	.148	Does not support H2
Resource Availability	Project Management Success	-1.038	-1.408	.159	Does not support H1
	Project Success	-.637	-1.294	.196	Does not Support H2
Execution Methodology	Project Management Success	-.011	-.034	.973	Does not support H1
	Project Success	.124	.641	.522	Does not support H2
Out of Project Control	Project Management Success	-.471	-1.517	.129	Does not Support H1
	Project Success	.148	-.741	.459	Does not support H2
Correlation between PM Success and Project Success		.323	3.122	.002	Positive Correlation
R-square					
PM Success (PMS)	.28				
Project Success (PS)	.58				
Model Fit					
CMN/df =1.313; IFI=.960 TLI= .950; CFI= .960; RMR=.0481; RMSEA=.051					

Table VII: Model Fit Indices and Hypotheses

4.1 Direct Hypothesis Test

The hypothesis H1, which states that project management practitioners perceive there are certain specific critical factor(s) that are consistent, and most significantly impact on PMS of projects in the Agriculture Sector is supported. Although it does not support for all the factors, Agriculture practitioners have supported that lack of effective planning, ineffective monitoring and evaluation, poor analysis of project risk and poor estimation of cost of activities, which were the indicator variables used to describe the management of project factor were impactful to project management success (PMS). The other factors showed that they did not have significant impact on either project management success and project success demonstrated in the Table VII. It thus presupposes that the 30% variation on project management success observed from the construct can be termed as largely attributable to management of project factor. The impact of project management success on project success was positive and significant ($b=0.324$, $t=3.323$, $p=.002$). This is highly understandable in the sense that the achievement of project success which has to do with customer satisfaction and loyalty and profitability is highly dependent on how well the project management performs. A project management failure will certainly have a direct impact on project success.

H2 which states that project management practitioners perceive there are certain specific critical factor(s) that are consistent, and most significantly impact on PS of Projects in the Agriculture Sector cannot be supported. Although the squared multiple correlation for PS was 0.57, it was not necessarily from the factors but rather the project management success correlation with project success. H₃ which states that Project Management Practitioners perceive there are certain specific critical factor(s) that are consistent, and most significantly impact on PMS and PS of Projects in the Agriculture Sector cannot be supported. This leaves only H1 supported which implies that management of project is critical for Agriculture sector projects.

4.2 Implication to Theory and Practice

The findings of the study contribute to project critical factors, project management success and project success in three significant ways. While previous studies have examined the relationship among critical success factors and project management success and project success in a broader and sector-wide context (Pinto and Slevin, 1987; Baker et al., 1988; Shenhar et. al., 2001; Cooke-Davies, T. 2002; Matta & Ashkenas, 2003; Judgev & Muller, 2005; Ika, 2009; Amponsah & Darmoe, 2014; Joslin & Müller, 2016; Ika & Donnelly, 2017; Moser, Narayanamurthy, Kusaba, & Kaiser, 2018; Asiedu & Adaku, 2019; this study is agriculture sector specific. The study has isolated clearly factors that are critical to Agriculture sector projects in this part of the world. Key to this is the management of the project which had factors including lack of effective planning, ineffective monitoring and evaluation, poor analysis of project risk, poor estimated cost of activities and budget. These factors were perceived to have significantly affected outcomes of Agriculture sector projects.

4.2.1 Lack of Effective Planning

Gittinger, J.P., (1982) and Tisdell, (1985) identified two key factors as causes of agricultural projects failures which were lack of local ownership and responsibility in terms participative planning and development and project design and implementation. Effective planning as an antecedent to project success seems to be prevalent. Moreover, it can also be observed from the available literature that effective planning is not only one of the key factors for managing projects, but it is vital for the successful delivery of the project. Additionally, it is firmly believed by the majority of the researchers that extensive and thorough preliminary effective planning results in the successful management of projects (Belassi, W.; Tukul, O.I., 1996; Dvir, D., 2005). Furthermore, a good project plan does not guarantee project success, yet poor project planning would surely cause projects to fail (Dvir, D.; Lechler, T., 2004). Similarly, the planning and scheduling of projects plays a vital role in the implementation of successful infrastructure projects (De Snoo, C.; Van Wezel, W.; Jorna, R.J., 2011). Likewise, it is suggested that project managers need to make proper inceptive planning to achieve project goals (Ika, L.A.; Saint-Macary, J., 2012).

4.2.2 Ineffective Monitoring and Evaluation (M&E)

Monitoring and evaluation (M&E) is important for the successful management of projects (Nyonje et al., 2012). In the modern era, M&E practices are regarded as a requirement for success rather than a management tool used for project appraisals, identifying and correcting problems in planning and implementation of projects (Armstrong and Baron, 2013). Shapiro (2007) defined M&E as a systematic collection and an analysis of information and the processes to determine the extent to which goals and milestones are being met and analyzed for any discrepancies. According to Kusek and Rist (2004), M&E is one of the most relevant tools that influence the performance and successful completion of projects.

Shapiro (2007) further iterated that M&E always aims at improving the efficiency and effectiveness of a project. M&E is discrete, yet complementary, and is closely linked to functions in projects (Crawford and Bryce, 2003). According to Action Centre la Faim (ACF, 2011), M&E is described as an activity to support evidence-based decision-making processes for the achievement of project objectives. As a management function, the main task of M&E should be to make available information on programs in the right form, order and at the right time to contribute toward effective decision-making process (Connelly, 2004). M&E also supports project managers by providing them with accurate evidence-based information from data gathered from the field and stakeholders (IFRC, 2011). According to Shapiro (2006), the insights obtained from the information generated from M&E practices ensure the development of policies. This assertion was later confirmed by The ACF (2011), which indicated that undertaking effective M&E on projects provides a system that helps the project managers to achieve internal and external requirements by producing evidence-based results.

According to Jones (2012), establishing M&E systems in project management provides opportunities for the project implementing organization/agency to meet requirements of donors/financiers. This is so because it provides evidence on the project accomplishments. From the view of Herrero et al. (2012), undertaking continuous monitoring of projects ensures that the implementing staff should keep the project activities on schedule, they should review and update the project plan and costs as necessary and they should review timelines and deliverables, which will help clarify any differences that are not in line with the original project plan. Thus, M&E provides the managers with early warning signs in relation to delays and cost of variances and provides them with evidence.

4.2.3 Poor Analysis of Risk

Several literatures read, together with the PMBOK (2000, 2004, 2008, 2012) give a picture of project risk as any uncertain event which when it occurs on a project has either a negative or positive effect on project objectives of cost, scope, time, quality etc. Nicholas (2004:307) proposes that the notion of project risk involves two concepts; the likelihood that some problematic event will occur and the impact of the event if it does occur. He further explains that risk is a joint function of the two; that is, Risk = f (likelihood, impact). Knipe, Van der Walldt, Van Niekerk, Burger, Nell (2002:332) also concurs with Nicholas as he defines the word risk as the expected losses (economic, time, infrastructure or resources) that a particular phenomenon might cause. Zwikael, O., Ahn, M. (2011) found out that risk management moderates the relationship between risk level and project success. Specifically, their study found that even moderate levels of risk management planning are sufficient to reduce the negative effect risk levels have on project success. Also, it was found out that risk management provides effective processes to reduce uncertainty and improve project success rates.

4.2.4 Poor Estimated Cost of Activities and Budget

Project budgets are funds estimated during the planning phase based on what the project is expected to cost at completion. The estimated cost of each activity has to be carefully determined. The study found out that poor estimated cost of activities and budget impacted on project management success and project success. In reality, project cost overruns and scope creep are normal phenomena in infrastructure and construction projects carried out in both developed and developing countries (Bhargava, Anastrasopoulous, Labi, Shiha, & Mannering, 2010; Doloi, 2013; Enshassi, Al-Najjar, &

Kumaraswamy, 2009; Frimpong, Oluwoye, & Crawford, 2003; Sambasivan & Soon, 2007; Smith, 2014). Flyvbjerg, Holm, and Buhl (2002) found that 90% of construction projects underestimated costs, which resulted in cost overruns of between 50% and 100%. Project cost overruns are significant problems in government project management as well. In government project management, projects are complex and larger. Thus, many large-scale, complex systems development projects also experience persistent cost and schedule overruns (U.S. Government Accountability Office [GAO], 2013).

5.0 CONCLUSION

To improve PM practices in the Agriculture sector in Ghana and by extension developing countries, this study firstly, posited that “there certain specific critical factor(s) perceived by Project Management Practitioners (PMPS) as having most significant impact on the PMS (successes/failures) of Projects in the Agriculture sector only”? and that “there certain critical success factor(s) perceived by Project Management Practitioners (PMP) as having significantly impact on PS (successes/failures) of Projects in the Agriculture. And thirdly, “there certain specific critical factor(s) perceived by Project Management Practitioners (PMPS) as having significant impact on both PMS and PS (successes/failures) of Projects in the Agriculture sector only. In conclusion, Agriculture practitioners have supported the hypotheses, that lack of effective planning, ineffective monitoring and evaluation, poor analysis of project risk and poor estimation of cost of activities significantly impact PMS only, PS only and both PMS and PS.

5.1 Policy Implication

What do these finding mean for the practice of project management in developing countries and those whose conditions are similar to Ghana? First, in view of the sheer number of agriculture projects undertaken by the government sector and private organizations, it is important for both to focus on addressing the general problems of project management. A perception of critical factors by Project practitioners means that these factors are a challenge to effective and efficient management of projects. This section addresses the policy implications regarding education & training; certification of Project Management Practitioners; Public sector & donor projects and Private sector projects. Distinguishing between training and education, training is targeted short-term process to develop specific skills in a certain technical area, whereas education can be seen as an institutionalized long-term process using conceptual models resulting in development of a culture.

This section is a call to action, identifying issues and proposing a strategy in order to support and make progress in Project Management education and training in Ghana. Inevitably, it is neither complete nor definitive. The intention is that it will seed much greater efforts to further develop the understanding of requirements, to better characterize challenges and to propose specific strategies, curricula and collaborative efforts for Government of Ghana and Educational Institutions’ adoption. Government Agencies will continue to deliver projects. In other words, project will continue to be used in the delivery of Government’s policy agendas. Those officials implementing government projects merit particular consideration in education and training. As a means of confronting and correcting the skills and knowledge deficit apparent in Project Management, this study argues for investment in PM education and training; it envisions the embedding of education and training into normal academic training throughout tertiary Institutions. There are specific training needs like those emerged from this study. These could be seen as gaps that ought to be filled by intervention by appropriate stakeholders.

An investment in training public officials in project management, then, is an investment that will strengthen economy and societies. Education and training that target public officials, private businesspeople in projects and students in tertiary Institutions without which Ghana will flounder in its attempt to becoming a middle-income nation. The perceptions of the Project Management Practitioners should be recognized as current challenges for PM education and training and present opportunities for education and training as a starting point for further work.

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