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Research Article

Enhancing Monitoring and Evaluation through Individual Project Management Disciplines in the Agriculture Sector in the Developing Countries

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Abstract: Agriculture is the mainstay of many households in developing countries. The sector faces a myriad of challenges which prompted the investigation through literature review and observation on the embedment of project management disciplines guidance in the monitoring and evaluation of the agriculture processes and projects. Project management disciplines provide guidance and clear benchmarks of monitoring hence enhance the general agricultural performance. Policy makers, practitioners and managers of agriculture projects need to consider at all times the utility of the knowledge areas.

Keywords: Agriculture, Food Security, Management, Monitoring & Evaluation.

INTRODUCTION

Project management body of knowledge identifies ten knowledge areas as key areas that planning and management of projects should focus on, in order to achieve Project goals (Project Management Institute, 2017). This means that monitoring and evaluation in the agriculture sector should focus on the ten knowledge areas in order to identify the gaps, shortcomings and areas to modify in order to achieve agricultural project goals in a sustainable manner. Agriculture sector entails many processes in the respective value chain stages for different enterprises which require proper planning and assessment in order to determine whether it is adding value to the community its depends on or not. The knowledge areas are; project integration, risk, cost estimation, scheduling, resource, quality, value earning, scope, communication and stakeholder management.

Project integration management

Project integration management entails linkage of all the activities that lead to the crop or animal production and improved income and environmental sustainability to the farmer. This therefore calls for identification of all the activities, players in the farming enterprise, cost required both direct and indirect and linking all of them towards successful completion. All the activities, resources and inputs need to be managed well while weighing and deciding on the competing interests of inputs and stakeholders that are utilized in the agricultural production (Sariola and Martinsuo, 2015; Momeni and Martinsuo, 2019).

All agriculture enterprises therefore require an in depth assessment of what is needed and the stage of need in order to enhance production activities and timeliness of the delivery of products to the market. This further leads to the improved prices and income to the farmer hence economic improvement of the farm households. The Evaluator need therefore to understand the dynamics of specific agriculture production and specific produce intricacies for delivery to the market, a situation that needs an understanding of consumer demands too.

Risk Management

Enterprise choice including the magnitude of the enterprise needs a critical consideration of the risks that comes along with it. The agriculture sector encounters various risks that may be production, pricing, financial, institutional/family/individual or personal in nature.

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Production risk affects the production cycle of the enterprise that has been chosen by the farmer and may be caused by various aspects including; weather, disease and pests, unforeseen technological change or any other mechanism that directly influence the level of production in terms of quantity and quality. Price risk involves and rotates about the uncertainty in the marketing of the enterprise output or product. Price risks are basically influenced by the uncertain changes in the price of various production inputs and in the unpredictable sale price of the products including the by-products of the production or processing process (Alberto, 2018). This is felt through increased cost of production or reduced profit margin of the enterprise chosen. Every agricultural enterprise requires a capital to establish or run the process of the production hence causing financial risk. This is therefore a possibility of the farmer or the farm business to offset the financial obligation without strain or affecting further business schedules. Policies guiding the operations in the agriculture sector may change from time to time from global demand or political interest. This necessitates legal guiding changes and the standardized alignment posing institutional risk in the agricultural production. While undertaking agricultural business there is bound to be personal risk, which emanates from death, divorce or injury to the farmer or the farm operators, which may influence the rate or level of the production in terms of quantity and quality (Walker, Davis and Stevenson, 2017; Caniëls, *et al.,* 2019).

Evaluation in the agriculture sector focusing on the risk knowledge should ensure that risk evasion, risk transfer, reduction and facing are considered. This include the process of establishment of enterprise diversification in order to reduce the risk occurrence level and rate. This can be done by planting several crops at a time or having various herd type or herd and crops in same piece of land at same season. This will cushion the production challenge as well as marketing challenges. The farmer may further engage an insurance provider to take care of the eventuality occurrence that can injure the performance of the agriculture business of the income to the farmer. Contract farming is another way to be assured of agriculture income especially through pricing, it is a motivator to the farmer to undertake the enterprise since there is a surety of the market to be delivered. It is prudent for the evaluation in the agriculture sector to consider checking on the level of technology knowledge, availability and uptake by the farmer in tandem with the time and area of operation that can boost the production, processing, marketing an consumption of the products including by-products.

Cost Estimation

An agricultural endeavor attracts a cost in the production and processing activities before it is delivered to the market for sale. Cost estimation is a project management tool that enables a business and farm enterprise managers to establish what is the total amount of cash both directly and indirectly that will be utilized in order to get to the final stage of the product to be delivered to the market for conversion to monetary value. Agricultural cost may be categorized into either financial cost, which implies to the cash used to run the farm activities and inputs acquisition, or economic costs, which implies the foregone value upon undertaking the enterprise chosen by the farmer. In the classification based on the origin as either internal or external, the external cost include environmental costs and resource costs. Environmental cost include the damage created by the farm enterprise settled upon towards the environment including the soil, water, space, trees and biodiversity. Resource cost is basically the cost of foregone income from the choice of the farm enterprise and the cost of depletion of the existing resources for example the soil fertility reduction cost (Sharma, 2011; Montes, *et al.,* 2014; Moore, *et al.,* 2018).

Cost estimation provides a scientific opportunity to approximate the expenditure of agricultural processes or project for the establishment to delivery to the market. Estimation normally happens before real execution work starts. This provides the project implementor an opportunity to establish how much it is needed to conclude the project and probably where the source of funds could be found. It provides a basis for evaluation of the expenditure whether it was done correctly as per the activities as well as timely which is unique in agriculture projects unlike other projects. Cost estimation is derived from the plan and does not represent the exact value of implementation. The project manager should have sufficient knowledge of procedures, items required and good understanding of the agriculture industry for it to provide a probable costing that is almost similar to actual cost and if any deviation should not exceed or be below about ten percent of the estimation

Scheduling

Scheduling is a clear determination of what activity should be carried out at a specific time of the crop or animal season. Agriculture enterprises are systemic and calls for specific activity at a specific time. This therefore emphasizes on the timely acquisition and supply of inputs in order to enhance the quantity and quality of production. A complete list of activities and the correct timings of implementing based on the biological, human and climatic constraints to the operations (Ståhle, *et al.,* 2019.

It is prudent therefore that the project team leader and evaluators should focus on the activities chronology and the intervention being made that are supposed to lead to better production in quantity and quality of the agricultural production. The two teams should highlight on the possible challenges that came

up along the value chain that could have interfered with production level.

Resource management

According to Nnadi and Ezemerihe (2018), Farmers operate in a dilemma of feeding the world population, which is increasing very fast and sustaining the environment, which is being depleted or deteriorated at a high speed. The population is fast growing while arable land is decreasing faster, this puts pressure on the farmers to increase production in an ever-decreasing resources. This provides for a reason and demand for prudent resource utilization that is accompanied by proper management both in use and out of use in order to ensure sustainability of agricultural production. The critical resources that are essential in agricultural production include water, soil and air.

The project management and evaluators therefore require an understanding on the prudent use of resources and how well it can be utilized for a longer period of time in ensuring the world population is fed. The focus should entail aspects of water and soil management, timely input use and delivery of product to the market, furthermore the labor utility in the farms should be optimal as well as understanding how the production, processing and marketing environment operates.

Quality management

Quality management provides an avenue of tracking and maintaining standards of process and products hence enhancing the marketing power between the farmer and the consumer. The confidence between the stakeholders in the agriculture sector enhances profitability and motivation to carry out the various enterprise of interest by the farmer or consumer accessibility. The quality management entails all elements that may be physical, chemical or timely. The quality management system therefore entail, customer focus orient, leadership should be considerate, should be participatory, must be process approach oriented, system approach to management should be considered, must consider continual improvement of processes and products, decision making should base on factual and benefits of relationships should be mutual in nature (Talib, *et al.*, 2012; Maistry, *et al.*,2017).

The agriculture sector in its operations ought to follow the quality standards that focus on food safety, environmental protection and optimal food production. The quality of produce should be able to sustain the needs in terms of food security while considering the less harm it can cause to the environment and its biodiversity.

Value earned management

Farming business occurs within scarce resources hence choice of activities undertaken should guarantee that within a given time and cost, a product that will satisfy the consumer will be produced and supplied in the specifications required. Value earned management strategy enables the consumer to be satisfied and hence ensure positive feed back to the producer in terms of financial, economic and environmental sustainability (Lehtinen, *et al.*, 2019).

While identifying the value earning areas one has to focus on the performance of the choice of the enterprise to ensure that business chosen will pay back within a short time and in profit and its input will be easily and consistently available and within reach. The value of the product has to be considered too since this is what causes the pricing and consistency of market. The quantity of production and the inputs should be of a level that is economical to transport and manage, this ensures that the discount of input can be an advantage to the farmer and the buyer can be comfortable of sufficient supply. The produce from the farming should have opportunity of well stored and delivered to the market in good condition with a contact that is consistent and who keeps to the customer discipline of buying the goods as agreed. Since agriculture venture may require excess finance to the capacity of the farmer, the farmer need to identify an agreeable source of financing with well documentation of the service and the quantity and quality of produce. A farmer should further have followed possible regulatory measures of production with technical competency to explain what the product of input for use entail. This will ensure there is consistent and factual information that can harmonize the relationship between the farmer and the market.

Scope management

Agriculture venture is a process of utilization of natural entities that include, land, soil energy, water and air as key inputs towards production of crop and animal yields that are used by human for survival. This critical entities need to be protected and guarded to the extent that its sustainability is maintained for a length of time. The quantity and quality of agricultural production should be in tandem with the satisfaction of the stakeholders both in amounts and taste (Reddy, 2019).

The focus for the project manager and evaluator is to establish the intent of the utilization of the farm resource in achieving the goals of food production, environmental sustainability and community development as a whole, without agriculture which agriculture may be consider nonfunctional.

Project communication management

Communication in the agricultural sector include passing of information on the technology necessary for the improvement of the production quantity and quality and the information of the results of the technology in terms of outputs or products to be

delivered to the market. It is worth understating the environment of operations and the policies that guide the operations hence communication is vital in passing the information from one stakeholder to another. The farmer or the farmer organization need to prepare and determine the approach towards the passing/seeking of information or engaging the relevant stakeholder at any given time of the crop or animal production cycle. It is important also to provide structure for proper storage and retrieval of the relevant information hence guide the proper operations of the farm or firm in the agricultural value chain.

The farmers and providers of service and goods in the agricultural value chain should be focused and have constant communication in a harmonized manner through the government, regional and global policies. Constant communication sharing enhances confidence of the sector players and joined message approach. The evaluation therefore should investigate whether the communication carried out through storage, sharing or archived can be used in future for learning and modification of approaches. This calls for the farmers also to have proper record keeping and farm family involvement in its activities.

Project stakeholder management

Project stakeholder management is a process that is important in identifying the individuals, groups, organizations or agencies that play a role in the performance of the agricultural sector and basically the choice of enterprise that the farmer is undertaking (Derakhshan, *et al.,* 2019). These are entities that are affected or their presence affects the operations of the project choice in a given area. It therefore calls for proper planning and management of identification of the stakeholders, engagement with stakeholders to ensure they understand the objective of the project, there should be proper management of the stakeholders' role consistently and mechanism for monitoring the relationship between and among the stakeholder with possibility of modification, change or upholding the terms of engagement (Oliveira and Rabechini, 2019).

Agricultural production has various phases, which calls for different players at different levels within the cycle. The list and timing of each stakeholders' role together with when and how to be reached is key in ensuring that time, scope and quality of products are maintained in a consistent manner. This are clear points that the management team and evaluators in the agriculture sector farms/firms need to understand and analyze to ensure a well-coordinated interaction among stakeholders for optimal output.

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