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FACTORS INFLUENCING LOGISTICS MANAGEMENT IN HUMANITARIAN ORGANIZATIONS: A CASE STUDY OF KENYA RED CROSS SOCIETY IN THE SOUTH RIFT REGION

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Abstract

It is desirable for humanitarian organizations to plan their response to disasters and other emergencies in a meticulous, timely and effective manner in order to alleviate human suffering and save lives. For decades, many researchers have studied logistics management extensively in the commercial sector with only a few focusing on humanitarian organizations. However, factors that affect logistics management in humanitarian organizations have not been brought to the fore. This study is an attempt to examine the factors that influencehumanitarian logistics management. It specifically seeks to establish the influence of local suppliers, resource mobilization and supporting infrastructure on humanitarian logistics management. The study is based on Hegelian dialectic theory and the theory of planned behavior. The study uses descriptive survey research design and targeted four branches of the Kenya Red Cross Society in the South Rift region. The study samples 90 staff out of the 240 staff from the four branches which are sampled using simple random sampling. Both qualitative and quantitative data collection methods areused and data is analyzed using descriptive and inferential analyses. The study concludes that presence of local suppliers has a significant positive influence on logistics management at Kenya Red Cross Society in the South Rift region. However, lack of supportive infrastructure and lack of resource mobilization have a significant negative influence on logistics management in the organization. This study recommends; Humanitarian organizations should engage local suppliers in order to cut done on costs, reduce lead-time and manage quality if they are to improve the logistics management in their organizations. They should also embark on proactive resource mobilization to improve logistics management. This should be measured in terms of financial, physical, technological and human resource mobilization. Finally, humanitarian organizations should acquire technological innovativeness coupled with strategic alignments to access accommodating transport and communication infrastructure in order to reach disaster sites in good time thereby improving logistics management.

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Keywords: Logistics management, local suppliers, resource mobilization, supporting infrastructure

I. INTRODUCTION

1.1. Background of the Study

The number of people who require humanitarian assistance has consistently risen in the last decade because of the rise in the number and enormity of disasters (Walter, 2013). Based on the Global Humanitarian Assistance Report (2018), ongoing and new crises left an estimated 201.5 million people in 134 countries in need of international humanitarian assistance in 2017. Most countries needing international assistance were affected by multiple crises types, with many conflict-affected countries also hosting refugees and facing disasters that result from natural courses. The number of people forced into displacement by conflict or violence reached an estimated 68.5 million by the end of 2017, the highest recorded total to date. Based on the Global Report on Internal Displacement 2018, approximately 61% (18.8 million) from the 30.6 million recently internal displaced persons in 2017 were because of disasters.

According to the World Bank,the rising need for humanitarian assistance is attributed to rapid changes in demographic and economic trends of the affected countries (KreimerandMunasinghe, 1991). Over the last decade, 474 IFRC operations, or 42.8% of the total, were targeted in the Sub-Saharan region. In the same report, Kenya was identified as a top-three location of disasters resulting in IFRC/internationally funded operations over the last 10 years representing 3.3% of the total. For a long time, Kenya has been identified as being prone to disasters such as drought, floods, terrorism, landslides, etc. that have caused many deaths and serious economic ramifications. Disasters course enormous social problems that can only be alleviated through well planned and coordinated response.

Logistics management is defined as the process of planning, implementing and controlling the movement and storage of goods, services and information within and outside the organization (Fisher, 1997). In humanitarian logistics, this movement of goods, services and related information is from distribution centers, warehouses or directly from suppliers to disaster sites where they can be used to alleviate suffering of the affected people (Thomas &Kopczak, 2005). Logistics management therefore comprises many activities such as disaster preparedness, response planning, procurement or sourcing, packaging, transport, warehousing, tracking and tracing, and custom clearances (Kwon & Kim, 2018).

According to Thomas andKopczak, (2005), logistics management is very important in humanitarian assistance. Effectiveness is important for humanitarian organizations because

they have to overcome several challenges and barriers before delivering the required goods, materials and services to disaster sites. For humanitarian organizations, effectiveness refers to providing the required humanitarian assistance (goods, materials, services, etc.) according to specifications and the required quality within a specified time. Because the primary objective of humanitarian organizations is saving and sustaining lives of the vulnerable people, effectiveness takes precedence over efficiency. Therefore, in most cases humanitarian organizations will take all possible steps, including allocating disproportionate resources such as using expensive air transport to deliver small packets of medicines or evacuating the sick (Mc Guire, 2011).

The Government of Kenya has a National Management Policy whose goal is to establish and maintain an efficient, effective and coordinated system for managing disasters, in order to minimize losses and resulting disruptions of the population, economy and the environment (GoK 2010). When a disaster strikes, the National Government is primarily responsible for response. In most cases, the Government partners with KRCS and other humanitarian organizations to ensure that victims of disasters are assisted and return to normalcy in the shortest time possible.

1.2. Statement of the Problem

It is desirable for humanitarian organizations to respond to disasters and other emergencies in an organized, effective and timely manner in order to alleviate human suffering and save lives. However, many humanitarian organizations seem to face logistical challenges in disaster response. This is made clearer by the number of complaints among humanitarian players and stakeholders like the government, donors and beneficiaries as to the lapses they have witnessed in the logistics aspect within humanitarian organizations. Some reports from Humanitarian Situational Report (2017) capture many complaints as to the logistics management challengesfaced by many humanitarian organizations, Kenya Red Cross Society included.Kenya has been identified as a top-three location of disasters resulting in IFRC/internationally funded operations over the last ten years representing 3.3% of the total (IFRC, 2017). This shows that Kenya is prone to many disasters that prompt humanitarian response from KRCS and other stakeholders. The problems inherent in humanitarian logistics management comprise ofincomplete availability of resources and infrastructure to take care of needs of the victims, unwarranted uncertainty and earnestness characterizing efforts of response to emergency (Ergun *et al*, 2009). These issues pose a great challenge to humanitarian organizations in planning and coordinating humanitarian response. It is thus necessary to examine the factors that affect logistics management in humanitarian organizations, taking special focus of the Kenya Red Cross Society.

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From the literature, previous studies investigating the factors that affect humanitarian logistics management were not found. This research gap needs to be addressed so that management of humanitarian logistics processes is improved on the basis of informed evidence. This study was an effort to investigate these factors and bridge this gap. In many cases, logistics management is given more attention in the commercial sector, yet it is even more important in humanitarian response because effective logistics management can be a matter of life and death. While it may be argued that there are many similarities between logistics management in the commercial sector and the humanitarian sector, there are fundamental differences because of varying contexts, objectives and emergency instigated parameters. This study was proposed in this context taking into account the fact that humanitarian logistics processes are unstable, unpredictable, and require flexibility in order to respond to humanitarian crises as soon as possible.

1.3. Research Objectives

The general objective of the study was to investigate the factors that influence logistics management in humanitarian organizations with a focus on theKenya Red Cross Society, South Rift Region.

1.3.1.Specific Objectives

The study sought to achieve the following specific objectives:

i. To establish the influence of local suppliers on humanitarian logistics management at KRCS;
ii. To establish the influence of resource mobilization on humanitarian logistics management at KRCS;
iii. To establish the influence of availability of supportive infrastructure on humanitarian logistics management at KRCS.

II. LITERATURE REVIEW

2.1. Theoretical and Conceptual Framework

The study was based on the two theories discussed in the following sections.

2.1.1 Hegelian Dialectic Theory

According to the Hegelian dialectic theory, the organizational entity exists in a pluralistic world of colliding events, forces, or contradictory values that compete with each other for domination and control. Oppositions may be internal or external to an entity with several conflicting goals or interest groups competing for priority(Maybee, 2016).The theory explains that change in

organizations occurs when opposing values, forces or events gain sufficient power to confront and engage the status quo. Opposing forces are termed thesis (status-quo) and antithesis (new situation). Logistics management, procurement procedures, information and communication technology and emerging knowledge in procurement and supply chain management in general face several challenges to overcome the obtaining status-quo. Dialogue and consensus-building are primary tools. Agency theory can be applied to employer-employee and buyer-supplier relationships, facilitated by ICT and legal framework. Procurement involves several parties with different competing goals. Internal stakeholders, such as departments exist; with conflicting goals, adding complexity to the logistics performance.

2.1.2 Theory of Planned Behaviour

This study was also based on the theory of planned behavior as propagated by Ajzen (2011). Ajzen (2011) exemplified the Theory of Planned Behavior to be the attitude on that createsbehavior, norms that are subjective together with professed control, that together outline an individual's behavioral intentions and behaviors. TRA is therefore a model for the prediction of behavioral meaning, spanning predictions of attitude and predictions of behavior.If the humanitarian organizations in Kenya are assumed to be individuals using logistics processes and management in the market, then the TPB can accurately show why they choose to practice it instead of the traditional supply chain practices. This theory is therefore applied here to explain the conscious decisions to engage in logistics processes and management.

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2.2. Conceptual Framework

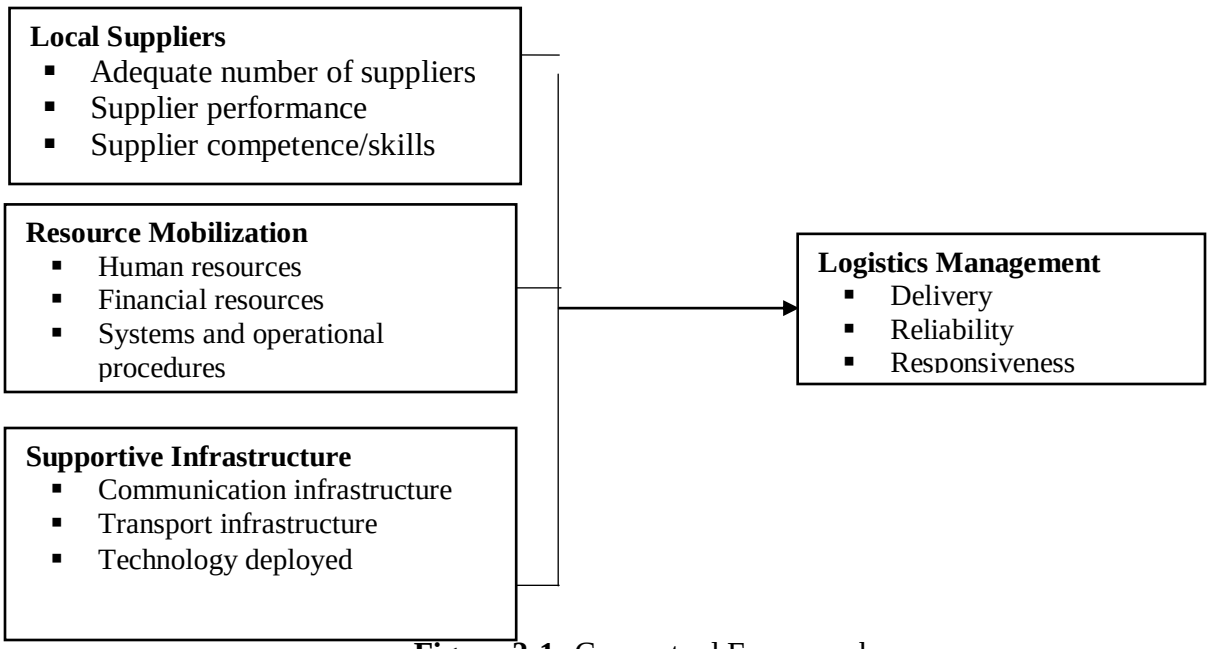

Figure 2-1: Conceptual Framework.

2.3 Empirical Review

Srinivasan (2011) defined logistics management for a firm as the performance of the various processes included within the firm's logistics process function. Examples of measures specifically used to assess logistics management of a firm include supplier performance (Davis, 2013), customer satisfaction (Christopher, 1994), inventory costs, number of on-time deliveries, product availability performance and customer response time (Beamon, 1999). There exist several other performance measures that have been widely used in logistics management evaluation models for cost minimization (Cohen & Moon,1990; Lee &Feitzinger,2015),sales maximization (Hammel & Laura,2013),profitmaximization(Cohen & Lee,1989), inventory investment minimization(Lee&Billington,2013), return on investment maximization(Christopher,1994), stock-out probability minimization(Ishii, 1988), buyer-supplier benefit maximization(Christy & Grout, 1994). The several metrics of logistics management enable firms to have a benchmark to assess their logistics management including internal and external firm. The application of internal linkage performance metrics results in elimination of non-value added activities, reduction in order variation, faster product flows, more efficient use

of time, material and human resources, and reduction of the bullwhip influence (Frohlich & Westbrook, 2011). Benefits of usage of external linkage performance metrics include the creation of end-customer value through closer integration.
Presence of local suppliers is a socio-economic factor that can greatly affect the performance of humanitarian logistics (Dowty and Wallace, 2010). Depending on the location of the disasters, some basic relief items can be sourced from suppliers within that localitywhile temporary or contractual staff can also be hired locally for the duration of the humanitarian relief activities. In cases where relief items are unavailable locally, they are usually sourced externally or imported from other countries while most of the relief activities will be managed by external staff or expatriates if the relief operations are complex.

Supportive infrastructure such as the availability of good roads, railways, airports, and electricity, play an important role in the effectiveness of humanitarian logistics (Chakravarty, 2011). The existence of a well-developed road infrastructure will, for example, facilitate the logistical operations, while a poor road network tends to disrupt or slow down the distribution of relief items. The presence of an airport close to the disaster location will facilitate the delivery of relief aid and evaluation of the injured and the sick faster.

Another study conducted by Munguti (2013) on supply chain management practices in disaster response among international humanitarian organizations in Kenya identified logistics management practices as including needs assessment, material and service ordering, optimal donations management, best warehousing practices, documentation, cataloguing, consolidation and recording practicesand, transportation and delivery practices.

III. RESEARCH METHODOLOGY

3.1. Research Design

The study useddescriptive survey research design in an effort to generate pertinent information and supplement what is known about factors influencinghumanitarian logistics management. The study was guided by the conceptual framework adapted, which views humanitarian logistics effectiveness as an outcome of interaction between a number of underlying operating environmental situational factors and proximate organizational factors.

3.2. Target Population

The study targeted four branches of the Kenya Red Cross Society South Rift Region whose regional offices are in Nakuru town. The branches were Nakuru, Kericho, Bomet and Narok. From the branches, respondents from each, engaged or fully informed in logistics

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processwastargeted for interview. The number of staff and volunteers in each of the branches was estimated at 60, resulting in a total estimate of 240. Majority of the humanitarian operations engaged in by these branches is conflict management, especially at the borders of Nyamira-Sotik, and Kericho-Muhoroni-Nandi Hills. They also engage in climate disaster related operations which include drought, famine, flooding and landslide relief operations. Other humanitarian relief operations that are common in this region include road accidents and fires. The study targeted these humanitarian operations particularly those that included a significant logistics process component.

3.3. Sampling

The targeted subjects of the study arethe staff and volunteers of KRCS in the south rift to whom questionnaires were administered to. The study sampled90 staff out of the 240 staff from the four branches which was sampled using simple random sampling. Due to the small population size, the study did not undertake rigorous statistical sample size calculation. The allocation of the sample wasdone through stratified random sampling, whereby each branch wasallocated proportionally in respect to their number of the entire sample frame. The sample size was flexible enough to allow statistical analysis of data in line with objectives and research questions for the study. Further considerations weremade to vary humanitarian operations by geographical scope to minimize homogeneity of responses.

3.4. Data Collection

In respect to the information needed, both qualitative and quantitative data collection methods wereused in the study. For quantitative data collection a questionnaire wasdeveloped reflecting how the independent variables (factors) influenced the dependent variable considering various aspects of logistics effectiveness and background information vital for data aggregation and analysis. The questionnaire wasadministered to logistics process staff and volunteers in each of the branches in a face to face manner. At the regional level, sampling wasdone to identify the best respondent preferably logistics process heads who have been in the organization at least one year preceding the study and who have consistently provided oversight to logistics process in humanitarian operations.

3.5. Data Analysis

Before embarking on analysis, the data collected wascleaned for completeness and consistency. After this a variable definition file, template for data entry wasdeveloped in SPSS in which data wasentered. After data entry and cleaning, univariate analysis wasundertaken to generate summaries of various variables in terms of descriptive statistics, tables and measures of central tendency. After this, cross tabulations weregenerated to establish associations between various

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factors as independent variables and logistics management as dependent variable. The dependent variable which constitutes logistics managementwasmeasured in terms of reliability, responsiveness and flexibility. Various independent variables werecross-tabulated against each of measures and Pearson Correlation tests with accompanying p values weregenerated to establish associations. Multiple linear regression model wasused to establish the influence of various factors on humanitarian logistics management. Considering that the outcome variables was dichotomous in nature, logistics regression wasused in which co-efficient (b) of various independent variables and odd ratios (exp b) wasinterpreted to determine the influence of various factors on humanitarian logistics effectiveness. Due to limitations of sample size bivariate logistic regression wasconsidered.

Where: logit $Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + + \varepsilon$

Where Y = Logistics management

X_1, X_2, X_3 = Independent variables

β_0 = Intercept

β_1, β_2, β_3 = Co-efficient of independent variables

IV. RESULTS ANDDISCUSSION

4.1. Correlation Analysis

All the independent variables had a positive correlation with the dependent variable with resource mobilization having the highest correlation of ($r=0.712$, $p< 0.01$) followed by presence of local suppliers with a correlation of ($r=0.635$ $p< 0.01$), supportive infrastructure has the least correlation of ($r= 0.578$ $p< 0.01$). This indicates that all the variables are statistically significant at the 99% confidence interval level 2-tailed. This shows that all the variables under consideration have a positive relationship on the dependent variable.

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Variable		Logistics management	Local suppliers	Supportive infrastructure	Resource mobilization
Logistics management	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	60			
Local suppliers	Pearson Correlation	.635**	1		
	Sig. (2-tailed)	.000			
	N	60	60		
Supportive infrastructure	Pearson Correlation	.578	.127**	1	
	Sig. (2-tailed)	.000	.002		
	N	60	60	60	
Resource mobilization	Pearson Correlation	.712**	.038	.557**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	60	60	60	60

Table 1: Correlation Analyses

4.2. Regression Analysis

As part of the study regression analyses was done to ascertain the degree to which the independent variables predicted the dependent variable. The results are as seen in Table 4-8 below. The F-statistics produced (F = 114.491.) was significant at 5 per cent level (Sig. F< 0.05), thus confirming the fitness of the model and therefore, there is statistically significant relationship between local supplier, resource mobilization, availability of supportive infrastructure, and logistics management. Further, the coefficient of determination R^2 value was 0.841. This shows that 84.1 per cent of the variance in dependent variable (logistics management) was explained and predicted by independent variables (presence of local supplier, resource mobilization and availability of supportive infrastructure).

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Model		Unstandardized Coefficients		Standardized Coefficients	F-Statistic	R Square R^2	Adjusted R Square	t	Sig.
		B	Std. Error	β					
1	(Constant)	2.767	.361	.287	114.491	.848	.841	7.668	.000
	Resource mobilization	.168	.065	.193				2.593	.004
	Presence of local supplier	.385	.078	.393				5.968	.000
	Supportive infrastructure	.329	.064	.352				5.129	.000

a. Dependent Variable: Logistics management

Table 2: Regression Coefficients

Further, the t-value of constant produced (t = 7.668) was significant at .000 per cent level (Sig. F< 0.05), thus confirming the fitness of the model. Therefore, there is statistically significant relationship between presence of local supplier, resource mobilization, and availability of supportive infrastructure and logistics management.

From: Regression Model

$y_{od} = \alpha + \beta_1 (X_1) + \beta_2 (X_2) + \beta_3 (X_3) + \varepsilon$

Thus;$y_{od} = 2.767 + 0 .393 (X_1) + 0.193 (X_2) + 0.352 (X_3)$

Thus the research questions:Does local suppliers influence humanitarian logistics management; does resource mobilization influence humanitarian logistics management; does availability of supportive infrastructure influence humanitarian logistics management; all have been answered in the affirmative.

V. CONCLUSIONS AND RECOMMENDATIONS

Based on the objectives and findings of the study, the following are the conclusions: Regarding the first objective, it was found that local suppliers had a significant positive influence on logistics management at KRCS in South Rift region.It is therefore an important factor that should always be taken into consideration in humanitarian relief operations.Based on the

second objective, it was found that lack of resource mobilization had a significant negative influence on logistics management at KRCS in South Rift region. It is imperative therefore that adequate resources, be it financial, human resources or technological resources, are sourced and deployed appropriately and optimally depending on the magnitude of humanitarian assistance that is required. Based on the third objective, it was found that lack of supportive infrastructure had a significant negative influence on logistics management at KRCS in South Rift region. It can therefore be concluded that supportive infrastructure is an important consideration to be taken into account in any humanitarian relief operation.

Based on the objectives and findings of the research, this study recommends that: Humanitarian organizations should engage local suppliers in order to cut done on costs, reduce lead-time and manage quality if they are to improve the logistics management in their organizations. However, the suppliers should be vetted in order to confirm their capacity to deliver and be closely monitored in order to ensure their continued performance. Also, adequate number of suppliers should be maintained so as to promote competition thus reducing the cost of goods and services while increasing their quality.Humanitarian organizations should embark on proactive resource mobilization in order to ensure that requirements for relief activities are met in good time. These include adequate number of human resources and adequate amount of human resources so as to reduce duration which relief operations might take. Humanitarian organizations should also develop and sensitize their staff on standard operating procedures so that there is consistency in response planning and coordination.

Humanitarian organizations should also try to find alternative for supportive infrastructure such as physical infrastructure which determine accessibility and speed to which humanitarian assistance is availed to victims of disasters. If the disaster site is inaccessible, roads are impassable, or means of communication are unavailable, it will present logistical nightmares to relief operations. They should also invest in technologies that can be deployed appropriately as need arises.

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