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Sustainable Supply Chain Management Practices and Performance of Humanitarian Organizations in Nairobi County, Kenya

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Abstract:
Humanitarian supply chain disaster response is core to alleviating communities economically, socially and in the environmental dimension. Stakeholders including donors, governmental and non-governmental organization, and supply aid beneficiaries in the past decade have witnessed a transformation in the humanitarian sector, despite the increased frequency and magnitude of disasters. These have been evident through the increased scholarly works together with collaboration of international agencies to respond to the needs and develop the sub-Saharan Africa region. Humanitarian supply chain sustainability, therefore, is at the forefront of effective and efficient disaster response. Studies done on impact of sustainable supply chain measures in Kenya have put the humanitarian organizations under strict scrutiny for accountability of donor aid and need for improved performance. These situations formed the foundation of the research study. The main objective of research was to determine sustainable chain management practices and the performance of humanitarian organizations in Nairobi County Kenya. The specific objectives adopted were to assess the effect of green procurement, green inventory management, green logistics and corporate social responsibility on the performance of humanitarian organizations in Nairobi County Kenya. Theories relevant to the study were reviewed and included supply chain operations reference model (SCOR), contingency theory, resource-based view theory and social network theory. The target population was employees of the 30 selected humanitarian organizations within Nairobi County Kenya. The study employed stratified random sampling and sample size was 162 respondents. The study employed the use of questionnaires for data collection which were self-administered by research assistants. Quantitative and qualitative data was sorted, coded and entered in Statistical Package for Social Sciences for analysis. Descriptive statistics were generated with tables and graphs used to present the outcomes. Correlation analysis was applied to test the relationship between variables where all the independent variables were positively correlated and significant association with the dependent variable. The study established that green procurement, green inventory management, green logistics, corporate social responsibility had a significant and positive effect on performance of humanitarian organizations in Nairobi County Kenya. The study recommends environmental policy should be a criterion during supplier selection and monitoring of the procurement processes; smart pre-selection of suppliers that are reliable to make supplier engagement manageable; organization put emphasis on adoption of sustainable logistical practices such as consolidation, fleet and fuel management. Finally, the study recommends setting of CSR policy and channels to communicate the policy on corporate social responsibility activities of the organization.

Keywords: *Corporate social responsibility, green procurement, green logistics, green inventory management*

1. Introduction

1.1. Background of the Study

According to the 2020 Global humanitarian outlook, across the world humanitarian crises have been on a steady rise. Consequently, humanitarian supply chains that are sustainable emerge to be a critical component during disaster response (Rosario, 2020). These humanitarian sustainable supply chains comprise multiple networks of sourcing and supply among entities with focus on the people, planet and profits (Herrmann, 2017). Seuring and Miller (2013) define sustainable humanitarian supply chain practices as managing material, information, and capital flows and cooperation among humanitarian entities along their supply chain while upholding goals from the three dimensions aspect of triple bottom line approach to sustainability. The approach encompasses economic, environmental, and social goals which are derived from organization, beneficiary and stakeholder requirements (Klumpp, 2018).

According to Talib and Hamid (2014) humanitarian supply chain during relief operations comprise activities such as strategic planning, distribution of aid and management of supply efforts for the purpose of facilitating efficient and effective disaster responses. The success of relief operations depends on the existence of productive supply management

initiatives adopted relative to the other important activities of humanitarian entities such as procurement, warehousing, transportation and distribution (Tatham and Pettit, 2010). Achieving supply chain efficacy during humanitarian operations through supply chain sustainability approach minimizes the extent of suffering of the affected populations and alleviating them to better living conditions socially, economically and environmentally (Howden, 2009).

1.1.1. Global Perspective of Sustainable SCM Practices in Humanitarian Organizations

Humanitarian supply chain systems globally are receiving recognition due to their efforts in disaster response (ALNAP, 2015). Disaster aid beneficiaries with inclusion of other major members such as international NGOS, UN humanitarian agencies, the International Red Cross, national NGOs, host governments and donors are considered to be at the heart of the global humanitarian supply chain system. The supply chain has seen growth in size, operations and the humanitarian organizations efforts have become an essential part of the global disaster relief. Humanitarian supply chain embraces the responsibility of improving the operations through provision of relief aid and simultaneously understanding effectiveness of the supply chains.

According to the US AID the United States, for instance, is the largest donor of supplies aid globally accounting for 50 percent in the global supply distributed aid (Tappis *et al.,* 2013). The European Union, United Kingdom, Russia, China, and Australia are also major donors to humanitarian disaster response actions. Consequently, global supply chains are left with responsibility of shipping and delivery of commodities to strategic pre-positioned distribution centers worldwide (Foran and Williams, 2014). At the same time, organizations engaging in humanitarian operations around the world are expected to be aware of environmental and social issues faced by communities either affecting positively or negatively their supply chains (Lee and Rammohan, 2017).

Over the past decade, Asia and South-East Asia region has become increasingly prone to natural disasters (Lane, 2016). Countries such as Nepal and India experience disasters each year in the form of drought, earthquakes, or floods. Indonesia is another example where the population's vulnerability is high, characterized by disasters such as tsunamis, landslides, volcanic eruptions, and flooding (Howden, 2009). In this region their humanitarian operations response is less efficient compared to developed countries such as China and Japan. According to Ding and Liu (2016) this is because of the large population in India, Indonesia, Nepal and ineffective supply chain systems in place associated with the levels of humanitarian literacy among citizens.

In research of Costa *et al.* (2012) analysis of four major natural disasters (Asian tsunami, 2004; Pakistan earthquake, 2005; tsunami and earthquake in Japan, 2011; and massive landslides in Brazil, 2011. The research revealed importance and magnitude of humanitarian supply chain planning efforts needed for successful disaster relief operations, assured adequate funds and with certain supply and demand maintained throughout. Sustainability as an objective in supply chain led to program effectiveness, whereas, unsustainability has an opposite effect on the program outcome. Neglecting sustainability in the supply chain can cause harm to the communities where operations are being undertaken. For instance, in Afghanistan (IRC, 2012) where water was distributed in small bottles, for society without proper disposal system, led to a new problem of empty bottle collection as waste.

1.1.2. Regional Perspective of Sustainable SCM Practices in Humanitarian Organizations

In 2020 the advent of global Covid-19 pandemic led to the International Monetary fund forecasting a 3.3 percent decline in sub-Saharan Africa disaster response (Chen *et al.* 2020). These shed clear view on the status of Africa supply and value chains with fears of reversing progress on sustainable development goals. Navigating supply chains in a more sustainable direction is now viewed as a requirement for long-term sustainability among entities involved in the humanitarian sector. Incorporating aspects of sustainability in supply chain finance provide incentives to suppliers down the value chain, hence utilizing the regional local economy and collaborate with stakeholders that embrace socially responsible humanitarian aid distribution.

Humanitarian organizations in sub-Saharan Africa region are recognizing the benefits of humanitarian supply sustainability. This is possible through setting up of regional supply hubs. The phrase hub in humanitarian supply chain refers to locations that provide consolidation and deconsolidation functions to allow efficient aid shipments (Stauffer *et al.* 2016). In Africa, building supplies hubs is core as the destination accounts for around 90 percent distributed aid. In addition, building hubs in high-demand and disaster-prone regions in Africa protect entities against demand fluctuation at regional level and cushion disturbance reaching suppliers' production through holding prepositioned stocks. In the region Chopra and Meindl (2013) observed majority of the aid shipments were sent to both eastern and western Africa countries. Therefore, building hubs near seaports in East and West Africa was considered as a suitable sustainable supply option.

Humanitarian relief organizations according to Devi (2016) are receiving cut budgets as donors are reducing their humanitarian spending. Nonetheless, humanitarian crises in the sub-Saharan Africa are on the rise instigated by climate change, natural disasters, conflict and insecurity and issues of unequitable distribution of resources. Apte *et al.* (2010) ability to predict disasters enable humanitarian intervention to be planned. However, in the Somali food crisis of 2011-2012, emergency interventions strategies had to be employed to mitigate preparation and action disaster response despite the crisis being predicted far in advance. This is because humanitarian assistance was needed in a country where some states experience insecurity issues, administration practices are inefficient, and the infrastructure was not well developed or has been destroyed (Vallencourt & Haavisto, 2015).

According to ICRC East Africa consideration for appropriate infrastructure is essential in distribution of supply aid to affected communities (Kwana *et al.* 2012). For instance, ICRC uses its trucks to ensure shipments are distributed safely. Improving the roads, harbor, and airports gives an overall better infrastructure performance. Local authorities in African countries can threaten humanitarian supply aid if they hold back shipments either for inspection, tax exemption approval,

or other general delays in the system. For instance, in Ethiopia there are claims of low working morale. In Sudan, the state does not want United Nations to assist states that are failing to follow the governing authority, for example, in the Darfur region (Traditional Tribal Conflicts in Darfur Reasons and Seasons, 2019).

In Uganda research from Jahre (2017) in collaboration with UNICEF, produced a paper about reducing complexity in drug supply chains in developing countries. The researcher proposed that reducing complexity of the supply chains overcomes uncertainty, shortage of products, lower costs, and better lead times. To reduce bottlenecks in the supply chain, better integration of information and goods flow is a necessity. The research also outlines some of the problems and proposes a framework of strategies that would improve performance of the HOs supply chain in Uganda. For example, holding stock in a central warehouse close to the demand rather than decentralizing stock ensures better inventory and forecasting control.

1.1.3. Local Perspective of Sustainable SCM Practices in Humanitarian Organizations

Humanitarian supply practices in Kenya have grown in importance and more often supply chain management initiatives are at the forefront towards sustainable development in the region. Concurrently, the institutions are struggling with issues of supplier management sustainability since the relationship should be based on supplier development, supply capacity building for the purpose of improving humanitarian service delivery (Omondi *et al.* 2013). Also, there has been concern by the supply chain stakeholder's, professionals and the public about the performance of the relief supply chains of organizations. Issues have been that there are no definite measures to ascertain the performance levels and monitoring of the supply practices adopted hence stakeholders' expectations are not realized (Kimani, 2013).

In Kenya supply chain sustainability is being championed and pushed by several humanitarian organizations and similarly researched by different scholars. According to Kabetu *et al.* (2018) this emphasis is because of their ability to achieve impacts effectively compared to the government efforts. Increased supply chain operations require the aspect of humanitarian supply chain sustainability to be handled with outmost profession through following laid down procurement and supply procedures as set in grant agreements. Supply chain sustainability practices adoption within the humanitarian sector are desirable as it ensures supply critical activities and operational costs are reduced to ensure efficiencies (Mohammed, 2018).

Local humanitarian entities embracing supply chain sustainability end up developing superior supply chain systems that have the ability to counteract the magnitude of disasters through effective and efficient supply response (Abdallah and Nabass, 2018). In Kenya focus has shifted towards supply chain collaboration and coordination amongst relief stakeholders such as the government, humanitarian entities, and supply chain beneficiaries.

1.1.4. Humanitarian Organizations in Kenya

In Kenya, there are a number of humanitarian organizations that currently in operations both at national and international levels. The humanitarian organizations are active in sectors including education, agriculture, human rights advocacy, children's rights, poverty alleviation and peace. These organizations support government efforts to improve the population's living standards by implementing diverse donor-funded projects (Miriti, 2020). Vulnerable conditions that arise due to food insecurity, community conflicts and informal settlements likely pose shelter challenges leading to greater impacts on the lives and livelihoods of the population. The NGO coordination board is responsible for registration, licensing and regulating the operations of the Hos in Kenya.

Humanitarian entities in operations in Kenya can be classified into four clusters. First category of classification falls under government sponsored humanitarian entities, for example the Kenya Red Cross Society formulated through an act of parliament. Secondly, there exist the private sponsored humanitarian firms which comprise both national and international non-governmental organization, for instance, Ford foundation and Oxfam. The third classification of humanitarian entities are those funded and operationalized by religious groups. For instance, World Vision Kenya and Mission for Essential Drugs Supplies. The fourth category of HOs are those affiliated with the United Nations. According to Kwena *et al.* (2019) the UN agencies include addressing issues of food security (WFP) that handle issues to do with health (WHO), dealing with children's rights (UNICEF), concerns of development projects in developing countries (UNDP), and dealing with refugees' problems resettlement (UNHCR).

1.2. Statement of Problem

Sustainability in the humanitarian supply chain has emerged to be a strategic component in humanitarian disaster response. According to Haavisto and Goentzel (2015) there are insufficient proven supply chain measures to ascertain the sustainability of the supply chain systems and processes incorporated by entities in different sectors. In research of Koori (2017) humanitarian supply chains in Kenya are continuously exposed to the problem of unpredictability and uncertainty of supply and demand occurrences relative to timing of disaster situations, geographic location and magnitude of disaster. Relief responses and population needs assessment for donor aid both provision of materials, services and cash-based transfers end up relying on forecast as there is little or no availability of real-time information necessary before, during or post disaster occurrence (Wainaina and Kamau, 2013).

Concurrently, humanitarian entities supply chain function have the responsibility to utilize local suppliers with capability to sustain varying levels of disaster demand. Timely delivery and effective management of inventories in the warehouse facilities whilst adhering the sustainability dimension of social, economic and environmental consideration in the organization operations. These issues arises because 80 percent of disaster and relief operations involve procuring and supplies, hence sustaining supply strategy approach gives possibilities to increase efficiency and effectiveness of humanitarian supply operations during disaster response in host governments (Kuria, 2014)

According to Kovacs and Spens (2014) humanitarian supply chains are responsible for coordinating the logistics operations, managing distribution channels and strategically pre-positioning warehouse facilities in a sustainable manner, manage the cost of operations, and mitigate associated supply risks. Doufour *et al.,* (2018), however, argue that majority of humanitarian disaster operations are under-funded and there exist stiff competition for access to donors' aids and supply chain grants, prompting humanitarian organizations not to prioritize adoption of best supply practices such as sustainable logistics operations. For instance, the use of non-renewable fuel sources, and failure to take into consideration emissions from the fleet of transport vehicles impact the environment conditions of the locality during and after disaster response (Mohammed, 2018).

In the humanitarian sector supply chain sustainability practices not only enhances the improvement of HSC processes but also the anticipation of the impact of future actions on disaster response and resultant performance outcomes (Day *et al.* 2012). In review of these, several authors are proposing for more research to integrate supply chain sustainability into humanitarian strategic decision-making process and SCM (Haavisto and Kovacs 2014; Klumpp *et al.* 2015; Kunz and Gold 2017).

Studies have been carried on best supply chain practices adopted and their impact either positive or negative on performance of firms. In Mushanyuri and Ngcamu (2018) research it was established supply chain innovation is essential to improving performance, noting challenges arose from employee resistance to change and financial limitation. The study focused holistically on developing countries humanitarian supply chains. Mulwa (2015) in his study found out INGOs based in Kenya are adopting strategies such as capacity building, community empowerment, partnerships, and collaboration to maintain relevance to organization values. Against the backdrop of studies done, there is limited research on supply chain sustainability among relief organizations based in Nairobi County Kenya despite the sector being crucial to disaster response and management, thus formulating the basis of these research study.

1.3. Objectives of the Study

1.3.1. General Objective of the Study

To determine sustainable supply chain management practices and performance of humanitarian organizations in Nairobi County, Kenya.

1.3.2. Specific Objectives of the Study

- To evaluate the effect of green procurement on performance of humanitarian organizations in Nairobi County, Kenya.
- To assess the effect of green inventory management on performance of humanitarian organizations in Nairobi County Kenya.
- To assess the effect of green logistics on performance of humanitarian organizations in Nairobi County, Kenya.
- To evaluate the effect of corporate social responsibility on performance of humanitarian organizations in Nairobi County, Kenya.

1.4. Research Questions

- What is the effect of green procurement on performance of humanitarian organizations in Nairobi County, Kenya?
- How does green inventory management affect the performance of humanitarian organizations in Nairobi, County Kenya?
- What is the effect of green logistics on performance of humanitarian organizations in Nairobi, County Kenya?
- How does corporate social responsibility affect the performance of humanitarian organizations in Nairobi, County Kenya?

1.5. Significance of the Study

Firstly, research students and other relevant academicians in tertiary institution can access the information and insights on the issue of implementation of best supply practices in humanitarian field. The literature in the research study will be an addition to the existing body of knowledge on sustainable development. Areas recommended for further research will draw vital conclusions to supply chain practitioners and students.

Humanitarian aid is a partnership of many humanitarian organizations such as USAID, Kenya Red Cross and the Kenyan government. This research will assist in establishing governance structures, and policies that boost the service provision of humanitarian organizations. The organizations will understand best supply practices and adopt them in the managing of supply chains to get improved performance. For the community-based organizations commencing their humanitarian operations they will have access to possible supply chain sustainability measures, challenges they might encounter and the mitigation measures that could be applied.

The community will also understand their role in humanitarian aid, the suppliers and transporters will be aware of their requirements during disaster response. Local institutions such as health and school centers will be equipped to maintain sustained living conditions on disaster occurrence. Adopting sustainable humanitarian supply practices will be a step forward towards achieving a sustainable development agenda in the Sub-Saharan Africa region, with the humanitarian sector positioning itself as a critical element.

1.6. Scope of the Study

The study focused on thirty (30) humanitarian organizations in Kenya with their Country Head offices of operation in Nairobi County (and within a 40 Km radius), Kenya, as registered by the Non-Governmental Organization Coordination Board of Kenya. The selection of entities for the study was based on the case that at least 65 percent of the organizations are situated within Nairobi County (NGO, 2020). The main emphasis for the study was on sustainable supply chain management practices and performance of relief organizations in Nairobi County Kenya. Further, the scope of study was limited to green procurement, green inventory management, green logistics and corporate social responsibility as specific objectives of the study.

2. Literature Review

2.1. Introduction

This chapter provide the theoretical framework of which various theories relevant to the study were reviewed, conceptual framework and discussion of study variables, empirical review, critique of existing literature, research gaps, and summary of literature reviewed.

2.2. Theoretical Framework

According to (Denzin, 2017) a theoretical framework is a broad explanation of the phenomenon based on conceptual analysis, previous studies and theories that occur in the literature that has been observed and modified over time.

2.2.1. Supply Chain Operations Reference Model (SCOR)

The supply chain operation reference model was developed in the year 1997 by the supply chain council (SCC, 2008). The SCOR according to Huan *et al.,* (2004) is a structure that forms the processes and metrics to an integrated structure. Under SCOR there are four levels of supply chain processes. Level 1 is the strategic level for an organization to establish the competitive objectives, level 2 is the tactical level, level 3 divides into the operational level, and level 4 is industry-specific for an organization to customize the measures for operational improvement.

SCOR model is governed by attributes such as reliability, responsiveness, agility, and cost management at each level of the supply chain process. Blecken (2010) applied supply chain process modelling to measure humanitarian relief operation performance using procurement, warehousing and transport as critical processes that developed the key performance indicators. However, the model was limited to the strategic level with insufficiency of indicators to measure attributes such as reliability and cost. Therefore, the SCOR model will be applied in this research because of the comprehensive nature of the model covering multiple supply chain operations and utilizing known vital performance indicators generated from commercial supply chains. The SCOR has been successfully implemented in large humanitarian organizations such as the World Food Program (Blecken, 2010). Adopting the SCOR model agrees with the ideology that it is the first initiative for a unified reference source for humanitarian entities in the sector.

The SCOR model developed is integrated as a green supplies chain management tool that allows organizations to manage their supply chain's environmental impact, leading to efficient operations that have minimal impact on the environment. Sustainable supply chains are gaining importance as organizations focus on the resource consequences of the operations they carry out. The three P's of sustainability listed as People, Profits and Planet concepts can be easily applied to supply chain operations of an organization. The supply chain operation reference model provides a framework assess the performance, determines best supply practices and communication among supply stakeholders in order to improve supply chain functions.

2.2.2. Contingency Theory

Sustainability expectations are categorized into four perspectives: societal, beneficiary, supply chain and program perspectives (Haavisto and Kovacs, 2013). The four perspectives can be approached through contingency theory, which expounds that context and organization structure and strategy influence performance. Contingency theory is used in management and organization research where uncertainty in the business environment plays a significant role. Similarly, the humanitarian sector operates in uncertain settings, and humanitarian operations cannot be predicted in nature. Contingency theory is embedded in the construct of fit, where improving the fit between an organization and its environment leads to improved performance (Tosi and Slocum, 1984). In sustainability, the fit between societal perspectives is emphasized to understand internal perspectives. For instance, organization program objectives of efficiency relate to contextual objectives of improving livelihoods.

Contingency theory incorporates the supply chain which is seen as an organization subsystem. In humanitarian context supply chains are considered as a combination of internal networks involved in the relief operations of a disaster with a complex end-to-end supply chain (Tatham et al., 2010). In either option, emphasis is on the support of HOs programs, hence supply chain can included in the organization subsystem. According to Choi and Hong (2002) supply chain can be considered an internal contingency factor. Societal expectations are external contingency factors beyond contextual change. For example, climate change risk is a vital aspect of demand uncertainty.

Contingency theory outlines how the organizational process should be structured to suit the environment in which they operate (Lawrence & Lorsch, 1967). When applying this theory to sustainability in SCM, individual processes of the supply chain should be organized in manner the organization realizes improved humanitarian operations. For contingency theory application to be effective in relief operations the supply chain should be designed in a way that best

fits the population's needs and expectations in the environment. To satisfy the ever-changing market demands, organizations are restructuring to form supplies network an extension of the organization (Christopher & Holweg, 2011).

2.2.3. Resource-Based View Theory

The Resource-based view theory on supply sustainability suggests that organization competitive advantage is gained through unique sustainability-related competencies in their supply chains. With the outsourcing of non-core components and competencies, organizations' resources are combined through interaction (Gold *et al.,* 2010). The resources generated through integrating the supply chain are of higher value compared to individual firm's resources. Sustainability has shifted from organizational to supply chain level, thus need for cooperation among partnering firms is needed to realize sustainability in supply chain management.

The organization resources are categorized into physical, human and organization capital resources. Physical capital resources consist of assets, technology equipment, geographic location and access to raw materials. Human capital resources include the capabilities of employees in terms of experience, training and skill acquisition. Organization capital resources include a firm's plans, coordination processes and inter-intra organizational relationships (Barney, 1991). Consistent with previous studies, supply chain integration has been found to have a significant positive effect on firm performance. RBV has expanded to focus on how organizations use value-oriented strategies to mobilize and utilize resources to maximize their competitive potential. The management and decision-making capability of the firms is the key player in developing and allocating resources to enhance sustained competitive advantage (Sirmon *et al.,* 2011).

The Resource-based view theory can be applied as the basis for developing the supply chain strategy structure (McKone-Sweet and Lee, 2009). Supply chain integration requires a collaborative effort among the organization, its suppliers and customers. Valuable resources are often provided by supply chain partners and structuring the inter-organizational resources is critical to achieving outstanding performance. According to Sirmon et al. (2011), the external resources must be effectively managed and integrated with the firm's internal resources to achieve superior performance. Sustainability of the competitive advantage is maintained where the firm's resources are difficult to imitate and non-substitutable. However, it is also essential for the organization to leverage its internal and external resources to enhance its competitive advantage.

2.2.4. Social Network Theory

Social network theory proposes that interdependent aspects such as environmental, social and economic form a complex whole in the supply chain system (Ashby and Hudson, 2012). Supply chains that link the triple-bottom line concept in their processes have chance to experience growth, restructuring of firm structures. In addition, the social network view is based on the assumption that all supply processes can be interpreted as a web of relationships amongst different elements (Seuring *et al*. 2010). Secondly, the networks possess patterns and behaviors that once understood can be applied to develop greater view into the behavioral attributes of a complex concept.

Sustainability can be expounded using the network theory, whereby the increased pressure due to the globe ecosystem. Social network theory is composed of human and natural elements that interact with each other in different ways. Focusing on local interactions, networks are simplified representations among elements that include entities and linked stakeholders. Network analysis studies in the humanitarian context in social sciences is anchored towards understanding the composition of communities and how best to respond on needs basis such as supplies management (Baranyi *et al.* 2011).

To tackle sustainability in a more comprehensive way there is an acknowledgement of interconnectedness of humans and their environment in performance of supply operations (Liu *et al,* 2007; Stevenson, 2011). Additionally, the economic, social and environmental components are interrelated the same manner of the complex nature of various complex global humanitarian supply chain systems (Cumming *et al.* 2010).

2.3. Conceptual Framework

A conceptual framework is a hypothesized model that identifies the model under study and the correlation among variables (Cooper and Schindler, 2014). A conceptual framework aims to categorize and describe concepts relevant to the study and map relationships among them. Independent variables involve the extent of variance in another variable, while the dependent variable is affected by a particular variable. The independent study variables will be green procurement, green inventory management, green logistics and corporate social responsibility with the dependent variable being performance of humanitarian organizations in Nairobi County Kenya.

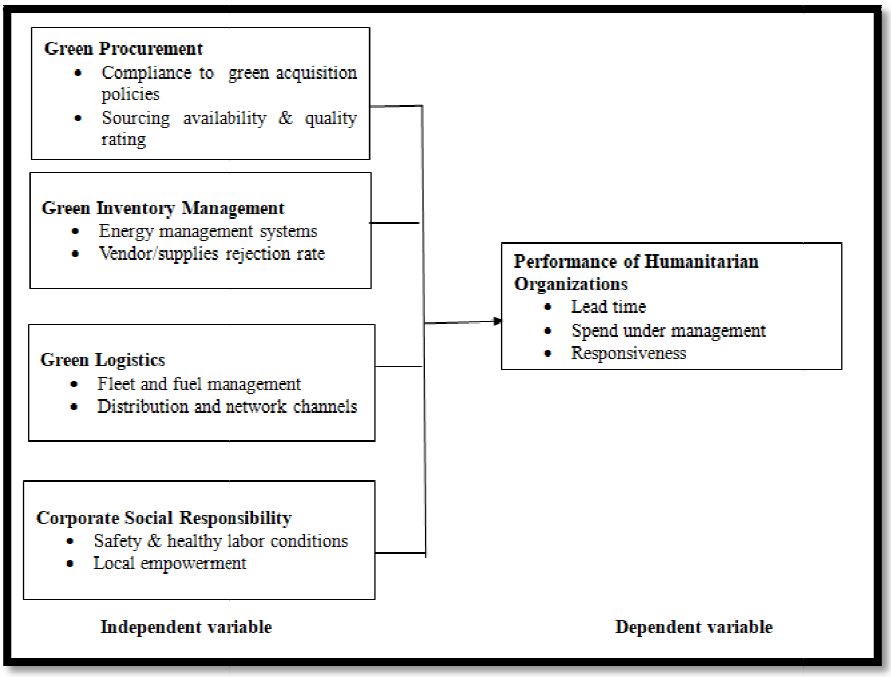

Figure 1: Conceptual Framework

2.3.1. Green Procurement

Green procurement also referred as sustainable procurement means meeting needs of supply beneficiaries in terms of goods, services and works in a manner that achieves value of funds to the organization, society, and economy whilst minimizing damage to the environment (Nasiche and Ngugi, 2014). Emphasis is placed on humanitarian organizations to purchase materials from suppliers who satisfy environmental quality standards and pass the audit process for environment-related substances. As procurement professionals are becoming more aware of environmental regulations, they perform environmental compliance audits to review applicable regulations, identify new restrictions, and evaluate how the initiatives assist organizations in changing regulatory guidelines in supplier selection (Okemba, 2014).

Procurement can reduce the purchase volume of difficult items to dispose of or are harmful to the environment. According to Neto *et al*., (2008) waste and emissions caused in the supply chain led to environmental problems, for instance, global warming. To tackle these environmental problems, humanitarian organization can focus on waste control and prevention at source through green purchasing. Formulating a green purchasing strategy is a challenging aspect. It may result in increased material cost, and qualified suppliers may be limited because of the need for non-traditional materials and parts (CIPS, 2007). Purchasing professionals need to rethink purchasing strategies that have previously neglected environmental impacts.

Over the years repeat of disaster events and prevailing supply demands is leading to diminishing sources of materials hence focus has changed to conservation and use of recycled materials. Green procurement holistic approach is involving waste generation, energy usage along with purchase of recyclable and reusable materials to reduce costs (Kiereini, 2011). Basis of green procurement is that organizations can simultaneously benefit from elements of economics, environment and society. However, utilization of green acquisition has been quite limited on the humanitarian sector with majority of firms in the manufacturing sector being at the forefront championing for green purchasing adoption in all organization required materials either for both internal and external market beneficiaries.

2.3.2. Green Inventory Management

Managing inventories throughout the supply chain is an essential element for superior supply chain performance. Additionally, managing the inventory/material movement is of critical importance towards achievement of effective and efficient sustainable supply chain processes. The dimension of greening the processes involved in management of stock is characterized with focus on environmental considerations rather than the traditional approach of cost focus. Decision of time and quantity of inventory to be ordered is directly linked to the issue of how the ordered materials should be produced and transported. Generally, more inventories indicate increased costs and likelihood tradeoffs to sustaining the management of inventories in the warehouses.

Sustainable inventory management, compared to traditional cost-based inventory models purpose is to quantify the environmental consequences and establish optimal decisions with regards adopted up-to date inventory models. Warehousing future looks bright with consideration of impact of eco-friendly warehouses in national and regional hubs of humanitarian entities. For instance, the adoption of telematics software to monitor fuel costs allow the organization to cut on fuel expenses (Reddon, 2018). In addition, lighting sustainability in the facilities provide an alternative resourceful sustainable rate towards an organization. Environment on the locality is considered through the reduce usage and consumption rates of energy in the holding facilities (Zailani *et al.* 2012). More so, the energy management systems and policies in place oversee all the utilities facilities uses without much human intervention required.

Smartly located inventory in the humanitarian supply chain has proven to bolster efficiency and productivity since it reduces complexity of workers to operate in warehouse on instances of disaster response. For example, use of electric forklifts is a better option comparative to gas and oil, safer towards the employees and suitable for the environment (Marshall, 2015). In this practice the significant importance is the ability to reduce the level of incidents related to hazardous materials handling, which in turn, drives up the supply chain sustainability aspect (Motevali *et al*. 2016).

2.3.3. Green Logistics

Green logistics is described as the measurement, analysis, and mitigation of the environmental impact of logistics activities (Blanco and Sheffi, 2016). These efforts include transportation providers expected to reduce greenhouse gas emissions from their vehicles, warehouse managers focusing on waste and energy reduction strategies and products redesigned to increase recyclability and reuse. Humanitarian organization in their supply chains may adopt practices such as replacing vehicle fleets from diesel to hybrid, and replacing cardboard boxes with returnable package materials. Other strategies that may adopted by the firms is increasing utilization of trucks while maintaining inventory levels in check and usage of modes of transportation that has a lower impact towards environmental considerations (Bektas and Laporte, 2011).

Logistics network design is a strategic decision of humanitarian entities directly impacting green logistics on the aspect of distance reduction, load planning, and mode shift (Velazquez and Fransoo, 2017). It involves decisions related to location sources of supply, warehouse facilities, and decision on how products flow through the network from suppliers to beneficiaries in the supply chain. Humanitarian entities are also mandated with the responsibility of evaluating network design with a view of incorporating facilities alongside intermodal terminals. In other instances, for the entities to justify the modal shift of their design networks they allow development and utilization of multi-modal third-party logistics providers (Melo *et al.,* 2009).

Humanitarian entities employ improved greener logistics systems through procuring and utilization of their vehicle fleets for disaster response. Transport in a critical aspect in distribution and the humanitarian entity supply chain has mandate to address the modal, capacity utilization, scheduling and maintenance in such situations (Spens *et al.,* 2014). There exist a range of distribution channels streamlining and consolidating distribution reduces transportation needs and ultimately improve warehousing and distribution efficiency. For instance, transporting materials in bulk, repackaging the items at port of for distribution is an opportunity for waste reduction while ensuring recipients receive appropriate amounts of commodities.

2.3.4. Corporate Social Responsibility

According to Brandenburg *et al.* (2014) the social dimension is the least developed in the sustainability, triple-bottom line framework. In humanitarian supply chain operations internal social factors are related to labor conditions and external factors with community empowerment. The criteria build the social sustainability performance. In research of Baumann (2011) labor conditions objective for the HSC seek to ensure good conditions of work and uphold health and security of employees. Empowering local communities' also falls as one of the pillars of humanitarian's organization strategy. Community empowerment can be seen as an external influence that contributes to employment and creation of wealth.

In the study of Vachon and Mao (2008) indicate a significant positive association between social involvement and supply chain strength. Community inclusive practices enhance the organization reputation in the eyes of the donors, gaining a competitive advantage when seeking grants and aid. Social inclusive practices for employees include providing fair wages, safe, healthy and positive working environment (Hutchins and Sutherland, 2008). The existing literature hardly distinguishes among inclusive social practices for employees and the community. Employee-centered social performance is exhibited in terms of reduced employee inequity in salaries and wages, improved health, working conditions, and living conditions that improve performance capabilities.

Humanitarian entities engage in local empowerment through investing humanitarian funds in the local market. Developing the local economy is a strategic objective among humanitarian organizations. This practice strengthens the resilience of the communities to recover and mitigate future disasters (IFRC, 2010). To promote this initiative humanitarian organizations have developed cash-based transfers to beneficiaries with a view of boosting the local market (WFP, 2017). The decision to source locally or have a choice of local suppliers ultimately contributes to sustainable development among population of a region.

2.3.5. Performance

Success of supply chain function lies in selecting appropriate key performance measures using the best-suited supply framework. Monitoring and controlling the performance of supply chains requires humanitarian entities to understand the impact of a supply chain in optimizing its efficiency and effectiveness. According to Van Wassenhove (2006) performance measures are the process of quantifying and controlling the outcomes obtained from an organization supply process. Performance measurement compares organizations goals and objectives, standards, past results and also anticipate the impact of supply decisions during disaster response.

Sustainable supply chain performance measures happen threefold, economic, environmental and societal performance. For humanitarian organizations, donors are majorly interested in the programs they support and their impact on society. The indicators used in performance measurement and improvement should capture the purpose of organizational supply performance. For effective performance measurement, measurement goals must represent

organizational goals. The measures selected should reflect a balance between financial and non-financial measures related to social, economic and environmental aspects.

Timely humanitarian response is a critical factor in a humanitarian supply chain. Responsiveness can be employed as a suitable strategy to manage supply chains' risks because of the speed, flexibility, increased diversity, and unpredictability of circumstances. An agile and reliable humanitarian supply chain concept refers to a readiness to respond to humanitarian organizations and beneficiary demand changes rapidly. To manage disasters, humanitarian aid focuses on the quick response aimed at sustaining or saving lives and restoring self-sufficiency within the populace.

2.4. Empirical Review

In the previous research studies Nyamu (2012) sought to assess the magnitude of supply chain challenges associated with humanitarian practices in Kenya. The research focused on challenges and enabler practices in the supply function. The outcome of the findings stated examples of supply chain challenges included lack of recognition of the strategic importance of proper warehouse management practices and coordination of existing practices. Delays in responses was linked with inadequate transport infrastructure.

Awino and Wainaina (2009) Kenya studied supply best practices in SCM practices of large manufacturing firms. The study found out that operating policies linked with supply chain firms improved performance. Supplier evaluation, information technology systems, alliances and performance measures are essential to supply practices. Kimani (2013) studied the supply chain management issues related to the oil sector in Kenya. It was noted supply chain design and collaboration with people positively impact the implementation to be a responsive supply chain system. These studies, however, focus on multiple industry sectors. Whereas, the humanitarian sector is a broad field with various supply chain management issues should be vastly covered.

In Southern Africa, Mbohwa (2010) conducted a study within focus being on the challenges associated in adoption of logistics practices in Zimbabwe. The platform of study were international humanitarian entities in operations at the host country. Some of the challenges derived from the study were there existed insufficient access to humanitarian logistics information. Other difficulties also included personnel did not possess experience working in a humanitarian supply chain setup. However, the study emphasis were countries in the Southern Africa region, Zimbabwe and its neighboring countries.

Humanitarian logistics literature argue supply integration is a vital requirement in disaster relief operations. For instance, Charles *et al*., (2010) propose that flexibility, responsiveness and effectiveness are essential components of supply integration that enable organizations to respond to uncertainties existing in relief supply chains. Relevant and timely information supports the adequate flow of goods, inter-organizational coordination and appropriate decision making (Altay and Pal, 2014). Information management and exchange is key to successful humanitarian responses. Equally, technology plays a critical role to achieve network integration that enhances agility towards disaster response.

Andebe (2013) did a study to investigate sustainable supply management practices in the textile industry in Kenya. The research study established that there was the implementation of sustaining supply practices in the sector to a certain extent; however, it did not list some of the adopted practices. The industry also faces high competition from the low cost of imports of items they produce, such as clothes. Mukanga (2011), in his study, also states that adopting sustainable practices concerning employee welfare, health and safety organizations can create conducive working environments for their employees. In the community-based context, supply chain management as a service influences transformation by including end-beneficiaries in the supply's operations.

2.5. Critique of the Existing Literature

Research of sustainable supply chain practices, Andebe (2013) in the textile industry in Kenya indicate the sector has adopted green SCM practices to a minimal extent. The study, however, fails to establish the specific supply practices that are present in the sector. In addition, the textile industry is influenced by external factors such as high competition from the low cost of imports of customized product items. Hence, the supply practices may not be suitable in cases of humanitarian organizations in Kenya.

Awino and Wainaina (2009) Kenya conducted a study on large manufacturing firms' supply chain management best practices. The study found that operating policies linked with supply chain firms improve performance. Supplier evaluation, information technology systems, alliances and performance measures are essential to supply practices. Kimani (2013) conducted a study on the supply chain management issues encountered in the oil industry Kenya. The supply chain design and collaboration with people positively impact the implementation of effective supply chain management. There are no conclusive outcomes of SCM practices of international organizations of all sectors in Kenya from these studies. Therefore, this study will seek to determine the effect of sustainable SCM practices among humanitarian organizations in Kenya.

2.6. Research Gap

Based on the development of humanitarian supply chains in the country there exist little research describing critical supply chain practices and the application of sustainable humanitarian services beyond the post-disaster response concerning global humanitarian aid frameworks (Liu, 2014). Kovacs and Spens (2011) opine there are a gap in identifying new societal challenges within the community based on supply chain design and address of urbanization trends. Gaps in the literature indicate humanitarian supply chains are still evolving, and there exist opportunities for new contributions. Hence, this research proposes the importance of understanding the best practices that may be adopted to realize improved humanitarian organizations operations.

2.7. Summary

Supply chain sustainability dimension is major determinant on the performance of supply systems in organizations today. To understand sustainable supply chain practices the proposed conceptual framework elaborate the relationship of the variables diagrammatically. The variables have been discussed in detail including dependent variable; the performance of humanitarian organizations and the independent variables which comprised of green procurement, green inventory management, green logistics and corporate social responsibility. Critique of existing literature has highlighted different studies done in relation to sustainable supply practices globally, regionally and local perspective.

3. Research Methodology

3.1. Introduction

The chapter provide the research design, target population, sample and sampling technique, data collection instrument, data collection procedure, pilot study, data processing and analysis.

3.2. Research Design

Research design is defined as a structure, plan, layout and strategy of investigation that conceptualizes so as to obtain answers to research questions or problem (Kumar, 2011). The study adopted a cross-sectional survey design using both quantitative and qualitative approaches. Cross sectional survey is described as a technique that involves analyzing data obtained from a study population, within a given point in time (Zikmund *et al*. 2013). For this research, cross sectional survey design provided a clear picture of the trends and was important in documenting existing study population attributes and their opinions within constrained time frame (Sekeran & Bougie, 2016). The choice of the research design was suitable for the study because it allowed and made use of the questionnaire (quantitative and qualitative) as a data collection tool. In addition, the research design would thoroughly test the relationship analysis among variables.

3.3. Target Population

According to Kothari (2004) target population is a universal set of people, events, or objects that the researcher desires to generalize. Fowler (2013) supports defining the target population as the entire group that a researcher is interested in studying. This means the target population should fit a particular set of specification which the researcher studies and should have similar characteristics. The target population of this study was 30 selected humanitarian organizations with their country offices operations in Nairobi, Kenya. Targeting the selected humanitarian organizations was informed due to their active engagement in disaster and development initiatives in the country. In addition, they publish annual reports and sustainability reports fundamental in collection of data.

3.4. Sampling Frame

A sample frame is the list of sample elements in the entire population where the sample is obtained (Setia, 2016). The sample frame for the study was a list of the selected humanitarian organizations in Kenya that have their country head offices in Nairobi and have been on operations within the last three years for which the total number was approximately 30 both in disaster and development humanitarian entities (www.ngo.co.ke, 2020). (Appendix III). The sampling was within Nairobi County in the 4 subsectors of the humanitarian sector in Kenya. These subsectors were: UN agencies, Faith-based sponsored entities, Private national and international NGOs and Government sponsored humanitarian organizations. The sampling frame was obtained from the directory of NGO board of Kenya (NGO, 2020).

3.5. Sample and Sampling Technique

3.5.1. Sample Size

The sample size is the number of measured observations taken from a population through which statistical inferences for the whole population are made (Hennik *et al.,* 2020). Kothari and Garg (2004) argue that the sample size should be adequate and representative enough. When conducting a statistical analysis on data, the minimum sample for any one category of data should not be below 30. This may not offer a reasonable chance of normal distribution. The sample size was picked using the formulae adopted from Kothari (2004) at the confidence level of 95%. The margin of error should be 5 per cent.

$$n=\frac{Z^2pq}{e^2}=\frac{1.96^2*0.5*0.5}{0.05^2}=384$$

N is known (<1,000)

$$\text{Minimum Sample Size} = \frac{nN}{n+N}=\frac{384*276}{384+276}=162$$

Where;
n = sample size required
N = total population
e = margin error.

Sector	Number of Firms	Percentage in Sector	Number of Respondents
UN Agencies	8	26.67	42
Faith-based sponsored Hos	6	20	40
Private national & international NGOs	10	33.33	40
Government sponsored Hos	6	20	40
Total	30	100	162

Table 1: Sample Size

3.5.2. Sampling Technique

Sampling technique is the selection of a subset of individuals from within a given population to estimate attributes of the whole population. The study adopted stratified random sampling technique where the subjects were selected in a manner that existing subgroups in the population were replicated in the sample (Mugenda & Mugenda, 2012). Stratified random sampling technique guarantee each stratum was represented in the sample. Using the sampling frame, it was established existence of 4 subsectors of the 30 listed humanitarian entities with each subsector forming a stratum. A simple random sampling was applied to obtain the sample size that comprised of procurement, logistics and human resources personnel of the humanitarian entities across Nairobi County, Kenya.

3.6. Data Collection Instruments

A questionnaire is a study instrument that collects a sample of data to turn study objectives into specific questions (Wilson, 2014). Questionnaires are best used where respondents can be reached and willing to cooperate. They also provide cost-effective means of gathering feedback from respondents. For this study, questionnaires were used to collect primary data. The questionnaire had both quantitative and qualitative questions. The qualitative questions were open-ended to capture the actual facts about the subject matter. Likert scale was adopted for the quantitative questions of which 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

3.7. Data Collection Procedure

The researcher first sought an authorization letter from the university purposefully to assist in data collection. Once the permission granted the questionnaires were hand delivered to respective respondents with the assistance of research assistant and others researcher-administered. The research assistants were first briefed on the structure of questionnaires with the view of them to be in a position to make clarifications to respondents if need arises. In some organizations the response was immediate while in other organizations the questionnaires were dropped and picked after they had been filled.

3.8. Pilot Test

According to Cooper and Schindler (2014) pilot study is essential to detect ambiguity, evaluate the type of responses given and determine whether the research instruments have any weaknesses if any. The method used in piloting was identical to that which was applied during the actual collection of the whole data. 16 respondents representing 10 percent of the sample size of targeted population were used for the pilot study. The respondents were drawn from 4 selected humanitarian entities within Nairobi County; through simple random sampling with each organization receiving 4 questionnaires directed to procurement, warehouse, logistics, and human resource managers.

3.8.1. Validity of Data Collection Instrument

Validity determines whether the research instrument correctly measure that which it was intended to measure. Purposefully, so that any inferences made from the finding would be accurate and meaningful to users. The study adopted face validity and content validity. Face validity is determined through the expert judgement, that is, two experts give an opinion regarding the study area. In this case researchers' supervisors' opinion was used. Content validity described as the extent to which the measuring instrument would deliver comprehensive coverage of the topic under study (Cooper and Schindler, 2014). Criterion related validity according to (Bryman, 2012) relates to the researcher capability to predict some outcome or estimate the existence of current state or condition.

3.8.2. Reliability of Data Collection Instrument

According to Kothari and Gaurav (2014), reliability is the process of determination of the consistency of study measurement. Reliability of a measure can be described as the ability to produce similar results when repeated measurements are made in identical situations. The more variability observed, indicates less reliable is the measure (Kothari and Gaurav, 2014). Reliability of research instrument can be controlled through the use of test re-test method. In the test re-test method, the researcher administers the same instrument twice to the same group at different points in time. Internal consistency is the magnitude to which the items that make up the scale are all measuring the same underlying attribute (Julie, 2011). The researcher applied Cronbach's alpha to measure the internal consistency of which a minimum of 0.7 would be accepted. Internal consistency is the degree to which items that make up the scale are all measuring the same underlying attribute (Ochieng, 2014). Cronbach alpha coefficient was denoted 'r', with a range of 0-1.

The statistic shows the mean association among all the things that make up the scale. A Cronbach alpha of greater than 0.7 indicates that the research instrument was reliable (Zikmund et al., 2013).

3.9. Data Processing and Analysis

Data processing involves coding, editing, sorting, and tabulating data before analysis (Kothari & Garg 2004). According to Zikmund *et al.* (2013) analysis implies the computing of certain measures along with such for patterns of relationship that exist among data category. Statistical analysis is a component of data analytics that involves collecting and scrutinizing every single data sample in asset items from which samples can be drawn (Cooper and Schindler, 2014). For this study, data was collected, sorted and edited, coding of quantifiable and qualitative data and fed into the Statistical Package for Social Sciences (SPSS) version 21. Descriptive statistics was first generated for quantitative data whereas computer aided content analysis was done for qualitative data. Inferential statistics using multiple linear regression and correlation analysis was carried out to test the relationship between independent and dependent variables. The results were presented in form of percentages, mean, standard deviation and frequency tables. For this study, multiple linear regression model was used to find out the percentage of change on dependent variables influenced by independent variables, and the equation used was as follows:

$Yi = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$,

Where, Yi= Performance

β0= constant (coefficient of intercept)

X1= Green procurement

X2= Green inventory management

X3= Green logistics

X4= Corporate social responsibility

ε = Error term

β1…β4= regression coefficient of four variables.

4. Research Findings and Discussion

4.1. Introduction

The section comprises data analysis, findings and discussion. The findings on the tables are shown in the form of percentages, means and standard deviation for each research objective. The section also comprises descriptive statistics and reliability statistics of the study variables, correlation and regression results of the study variables.

4.2. Response Rate

The researcher administered a total of 162 questionnaires, with 128 of the items completely filled and retuned. According to Mugenda (2008) the response rate was good and representative enough as the overall rate stood at 79% as indicated on Table 4.1. The reason is a response rate of 50%, 60%, or above 70% is considered adequate, good and excellent respectively for analysis.

	Category	Frequency		Percent
	Completed and returned	128		79
	Not returned	34		21
	Total	162		100

Table 2: Response Rate

4.3. Reliability Analysis

To test for scale reliability or content validity, the study applied the Cronbach's Alpha which is widely used measure of reliability. According to DeVellis (2003) Cronbach Alpha is defined as the proportion of a scale's total variance that is attributable to a common source, for instance, the true score of a latent variable underlying the items. It assesses the association among each item in every construct with every other item in the same construct and runs from 0 to 1. The higher the score the higher the internal consistency of the set items. The following alpha levels are recommended by DeVellis when assessing the internal consistency of a scale: below .60 is unacceptable; between .60 and .65 is undesirable; between .65 and .70 is minimally acceptable; between 0.70 and 0.80 is acceptable; between 0.80 and 0.90 is very good and above 0.90 indicate the scale needs fewer items. Low reliability possess severe implications on entire research instrument as the instrument may fail to correlate with the standard instrument. The findings indicated that green procurement had a coefficient of 0.868; green inventory management had a coefficient of 0.872; green logistics had a coefficient of 0.880; corporate social responsibility had a coefficient of 0.884; performance of humanitarian organizations had a coefficient of 0.878. All variables indicated the value of Cronbach's Alpha were above value of 0.7, this represented a high level of reliability, and thus the scales used in the study were reliable to capture the variables (Castillio, 2009).

S/NO	Objectives	No of Items	Cronbach Alpha	Comment
	Green procurement	4	.868	Reliable
	Green inventory management	4	.872	Reliable
	Green logistics	4	.880	Reliable
	Corporate social responsibility	4	.884	Reliable
	Performance	4	.878	Reliable

Table 3: Reliability Coefficient

4.4. Demographic Information

4.4.1. Respondent's Level of Education

The results in Table 4 indicated that 46.1% of respondents were graduates, 19.5% and 15.6% of respondents respectively had a diploma and other qualifications such as completion of secondary education, 19.1 of respondents possessed post-graduate qualifications. The results imply that the respondents were knowledgeable and the employees were capable to understand the supply chain operations of the firm.

Education level		Frequency	Percent
	Diploma	25	19.5
	Bachelors	59	46.1
	Master's degree	16	12.5
	Doctorate	8	6.6
	Others	20	15.6
	Total	128	100

Table 4: Level of Education

4.4.2. Respondent's Years of Experience

Majority of respondents 43.8% had an experience working for their respective firms 5-7 years, 20.3% indicated 2-4 years, 18% indicated 8-10 years, 10.2% indicated above 10 years while 7.8% indicated less than one year. The results imply that majority of the respondents have worked for the organization long enough, hence possess understanding and skills of the supply chain processes. Additionally, the employees have the capability to influence performance of operations of their firms.

Years of Experience		Frequency	Percent
	Less than 1 year	10	7.8
	Between 2 - 4 years	26	20.3
	Between 5 -7 years	56	43.8
	Between 8 – 10 years	23	18
	Above 10 years	13	10.2
	Total	128	100

Table 5: Years of Experience

4.4.3. Attendance to Professional Trainings

The respondents were asked whether they had been attending to professional trainings in their areas of specialization. The results in Table 6 indicated that majority 65.6% had attended professional trainings in their area of specialization whereas 34.4% were yet to attend professional trainings. The results imply that attendance of professional trainings by employees is necessary to equip them with relevant skills and improve on performance of organization operations.

Attended Professional Trainings		Frequency	Percent
	Yes	84	65.6
	No	44	34.4
	Total	128	100

Table 6: Professional Trainings

4.5. Descriptive Analysis of the Study Variables

Descriptive statistics enables the researcher to meaningfully describe a distribution of measurements with use of indices or statistics. The type of statistics used usually depends on the type of variables in study and the scale of measurements. The study applied percentages, mean average and deviations to present the study findings.

4.5.1. Green Procurement

From the findings shown in Table 7 below; 68% (Mean=3.69, SD=1.266) of the respondents disagreed that procurement purchases are compliant to set environmental policy consideration during supplier selection. However, 55.4% (Mean=2.76, SD=1.385) of the respondents agreed that sourcing availability of suppliers is key to sustainable response despite existence of supply disruptions. Additionally, 75% (Mean=2.00, SD=1.310) of the respondents indicated that their organization has set plan for achievement of procurement environmental targets and objectives. Finally, 76.6% (Mean=1.97, SD=1.163) of the respondents noted that sustainable approach in procuring of relief goods, works and services possess a significant overall impact on the overall operations of the organizations.

Using a five-point scale Likert mean, the overall mean of the responses was 2.605 which indicates that majority of the respondents agreed with the statements about green procurement. Additionally, the standard deviation of 1.281 indicates that the responses were varied. Summary of the rest of the results is as indicated in the table below.

These findings agree with the findings of Mohammed *et al.,* (2013) that green acquisition of relief materials has a significant impact on the resultant outcomes of firm operations in a given sector for instance in the humanitarian field. He highlighted that giving emphasis on practices such as conducting due diligence on ISO 14001 certification to suppliers, innovation capabilities benefit the firm towards attainment of cost savings achievement of sustainable supply processes.

Statement	SA	A	N	D	SD	Mean	Std Dev
Procurement purchases are compliant to set organization environmental policy consideration during supplier selection	7%	16.4%	8.6%	36.7%	31.3%	3.69	1.266
Sourcing availability of suppliers is key to sustainable response in spite of existence of supply disruptions	19.5%	35.9%	9.4%	19.5%	15.6%	2.76	1.385
Organization has a plan set for achievement of procurement environmental conservation targets and objectives	50%	25%	10.2%	4.7%	10.2%	2.00	1.310
Sustainable procurement of relief goods, works and services has a significant impact on the overall operations of the organization	45.3%	31.3%	9.4%	9.4%	4.7%	1.97	1.163
Average						2.605	1.281

Table 7: Green Procurement

4.5.2. Green Inventory Management

The respondents were asked to indicate their level of agreement on the various aspects of green inventory management. From the findings shown in Table 8 below; 76.6% (Mean=1.93, SD= 1.299) of respondents agreed implementation of best practices in warehouse management impacts on operations costs. The organizations were also embracing smart inventory management techniques such as digitization in the warehouse facilities. However, 70.3% (Mean=3.77, SD= 1.207) of the respondents disagreed that there is consideration of the packaging, and storage materials whether they can be reused, recycled or disposable after completion of purpose. Using a five-point scale Likert mean, the overall mean of the responses was 2.5325 which indicates that majority of the respondents agreed with the statements about green inventory management. Additionally, the standard deviation of 1.316 indicate that the response was varied. The rest of the results are as summarized below in Table 4.7. The findings mirror those of Kitheka *et al.,* (2011), who observed that adopting best inventory management practices such as use of inventory models to determine the re-order levels and indicate when there is insufficient stock in relation to forecasted demand plays a huge rule in ensuring continuity and availability of supplies when need arises.

Statement	SA	A	N	D	SD	Mean	Std Dev
Energy management systems adopted in the warehouse facilities reduces the cost of operations	55.5%	21.1%	5.5%	10.9%	7%	1.93	1.299
Minimization of vendor/supplies rejection maximizes the utilization of inventories by internal and external customers	46.9%	18%	18.8%	3.9%	12.5%	2.17	1.387
Organization is implementing smart inventory management techniques such as digitization in warehouse facilities	39.1%	28.9%	10.9%	9.4%	11.7%	2.26	1.370
Consideration of the packaging, and storage materials whether they can be reused, recycled or disposable after completion of purpose	5.5%	14.8%	9.4%	38.3%	32%	3.77	1.207
Average						2.533	1.316

Table 8: Green Inventory Management

4.5.3. Green Logistics

The respondents were asked to indicate their level of agreement on the various aspects of green logistics. From the findings shown in Table 9 below; 56.3% (Mean=2.41, SD=1.428) of the respondents disagreed that the organization manages its own fleet and fuel with the aim of being able to service other firm programs. However, 69.5% (Mean=2.19, SD=1.121) of the respondents agree that the distribution networks and channels are characterized with leagility for purpose of fulfilling unpredictable supply response. Further, 76% (Mean=1.83, SD=1.102) of the respondents noted that proper vehicle scheduling and routing has overall significant influence on the operations of the organization. However, 53.1% (Mean=2.59 SD=1.252) of the respondents disagreed that shipment and distribution of aid considers sustainability perspective in implementation of logistics practices during disaster response.

These findings reflect the findings of Musienga and Shiati (2014) who observed in their study that adoption of logistical practices in the firms' operations has a significant impact on the outcome of the overall operations. The study also emphasized that examples of those practices such as route planning, transport management can be adopted by firms in all industry sectors with assurances that a positive impact would be realized on organizations operations.

Statement	SA	A	N	D	SD	Mean	Std Dev
Organization manages its own fleet and fuel with aim of being of service to other organization programs	20.3%	10.9%	12.5%	39.1%	17.2%	2.41	1.428
Distribution and network channels are characterized with leagile to meet unpredictable supply response	29.7%	39.8%	19.5%	3.9%	7%	2.19	1.121
Proper vehicle scheduling and routing has significant impact on the overall organization operations	47.7%	28.3%	3.9%	13.9%	6.3%	1.83	1.102
Distribution and shipment of aid considers sustainability approach in implementation of logistical practices during operations	18.8%	21.1%	7%	29.7%	23.4.%	2.59	1.252
Average						2.255	1.226

Table 9: Green Logistics

4.5.4. Corporate Social Responsibility

From the findings shown in Table 10 below; 68.8% (Mean=2.15, SD=1.305) of the responses indicated that the organization focuses on sourcing from local suppliers with aim of empowering local community to sustained living. Also 66.4% (Mean=2.20, SD=1.305) of the respondents agreed that organization conducts periodical training of employees on occupational safety health and administration. In addition, 64% (Mean=2.29, SD=1.237) of the respondents noted that the organization has corporate social responsibility policy such as a good environmental policy. Finally, 57% (Mean=2.77, SD=1.421) of the respondents had observed that corporate social responsibility activities are communicated to internal and external stakeholders through mediums such as annual CSR and sustainability reports.

The overall mean of the responses was 2.353 indicating majority of the respondents agreed on issues of corporate social responsibility. Additionally, the standard deviation of 1.303 indicate that the responses were varied. The rest of the results are as summarized in the table 4.9 below. The findings agree with those of Rogers and Vertout (2012) who emphasized that organization have a social obligation to respond to the community needs as part of empowering the locality of their operations. Further, there is emphasis of social obligation as a measure of how well the firm is operating currently and probability of future survival due to the integration of all the relevant stakeholders in their core operations.

Statement	SA	A	N	D	SD	Mean	Std Dev
Organization focuses on sourcing from local suppliers with aim of empowering local communities to sustained living	42.2%	26.6%	15.6%	5.5%	10.2%	2.15	1.305
Organization performs training of employees on occupational workplace health and safety administration	39.1%	27.3%	14.1%	14.1%	5.5%	2.20	1.249
Organization possesses a corporate social responsibility policy such as a good environmental policy	32%	32%	19.5%	7.8%	8.6%	2.29	1.237
CSR activities are communicated to internal and external stakeholders through mediums such as annual CSR reports	20.3%	36.7%	4.7%	21.9%	16.4%	2.77	1.421
Average						2.353	1.303

Table 10: Corporate Social Responsibility

4.5.5. Performance

The respondents were asked to indicate their level of agreement on the various aspects of performance of humanitarian entities. From the findings shown in Table 11 below 78.1% (Mean=1.75, SD=1.057) of the respondents agreed that timely disaster response improves the overall organization performance. In addition, 62.5% (Mean=2.27, SD=1.331) of the respondents noted that adoption of sustainable supply chain practices controls spends under management of aid allocated to the organization. Also, the findings noted that 60.2% (Mean=2.56, SD=1.440) of the respondents agreed that supply chain flexibility and responsiveness has significant impact on the performance of their respective organizations. Finally, 59.4% (Mean=2.28, SD=1.351) of the respondents observed that supply chain visibility and transparency in organization operations positively influence on the supply operations of the firm. The rest of the results are as summarized in the table below.

Statement	SA	A	N	D	SD	Mean	Std Dev
Timely disaster response improves the overall organization performance	57%	21.1%	15.6%	2.3%	3.9%	1.75	1.057
Implementation of sustainable practices controls the spend under management of aid allocated to the organization	41.4%	21.1%	13.3%	18%	6.3%	2.27	1.331
Supply chain flexibility and responsiveness possess a significant impact on the performance of the organization	31.3%	28.9%	3.9%	24.2%	11.7%	2.56	1.440
Supply chain visibility and transparency has a positive influence on the supply chain operations of the firm	41.4%	18%	12.5%	21.1%	7%	2.28	1.351

Table 11: Performance

4.6. Correlation Analysis

According to Saunders et al. (2009) correlation refers to the strength of association between two variables. It is the measure of the degree of relatedness of variables. A strong or high correlation means that the variables have a strong relationship with each other, whereas a weak or low, correlation means the variables are hardly related. Correlation coefficients offer a numerical summary of the direction and strength of the linear relationship between two variables. Pearson correlation coefficients (r) range from -1 to +1. The value of -1.00 represent a perfect negative correlation and a value of +1.00 represent a perfect positive correlation. A value of 0 indicate that the variables are perfectly independent that is no relationship exists. The size of the absolute value provides information on the strength of the relationship where (r= .1 to .29 Small; r= .30 to .49 Medium; r= .5 to 1.0 Large (Saunders et al., 2009). For the determination of the strength and direction of the linear relationship between independent and dependent variables for the study, Pearson Product Moment Correlation was applied and the results obtained are summarized below;

		Performance	Green procurement	Green Inventory Management	Green Logistics	Corporate Social Responsibility
Performance	Pearson Correlation	1	.616**	.418**	.623**	.482**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	128	128	128	128	128
Green procurement	Pearson Correlation	.616**	1	.454**	.553**	.579**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	128	128	128	128	128
Green inventory management	Pearson Correlation	.418**	.454**	1	.529**	.634**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	128	128	128	128	128
Green logistics	Pearson Correlation	.623**	.553**	.529**	1	.555**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	128	128	128	128	128
Corporate social responsibility	Pearson Correlation	.482**	.579**	.634**	.555**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	128	128	128	128	128
**. Correlation is significant at the 0.01 level (2-tailed).						

Table 12: Correlation Matrix

The correlation analysis results in Table 12revealed that there was a positive and a strong significant association between green procurement and performance of humanitarian organizations as supported by (r=0.616, p= 0.000). This implied that both green procurement and performance of humanitarian organizations change in the same direction. Table 12also revealed that there was a positive and a strong significant association between green inventory management and performance of humanitarian organizations as supported by (r= 0.418, p=0.000). This meant that both green inventory management and performance of humanitarian organizations change in the same direction. The correlation analysis in Table 12also revealed that there was a positive and a strong significant association between green logistics and performance of humanitarian organizations as supported by (r=0.623, p=0.000). This implied that both green logistics and performance of humanitarian organizations change in the same direction. Table 12also revealed that there was a positive and a strong significant association between corporate social responsibility and performance of humanitarian organizations as supported by (r=0.482, p=0.000). This implied that both corporate social responsibility and performance of humanitarian organizations change in the same direction.

The correlation between sustainable supply chain management practices and performance of humanitarian organizations was investigated using Pearson product-moment correlation coefficient. There was a positive correlation between the dependent and the set of independent variables (r>0.2, p<.001 in all cases). The strength of the relationship between the independent variables and the dependent variable (performance of humanitarian organizations) varied from small to large. Green procurement (r=0.616, large), Green inventory management (r=0.418, medium), Green logistics (r=0.623, large), Corporate social responsibility (r=0.482, medium). This revealed there was a positive and a strong significant association among the independent and dependent variables implying the variables change in the same direction.

4.7. Regression Results

Regression analysis refers to a statistical tool for investigating of the relationship between more than one independent variable and one dependent variable (Paul and Zhang, 2010). The intention of regression analysis is for prediction. The goal of regression is arrived at the set of regression coefficients (B values), for the independent variables that bring the Y values predicted from the equation as close as possible to the Y values obtained by measurement. The regression coefficients that are computed minimize the sum of the squared deviations between the predicted and obtained Y values for the data set (Barbara and Linda, 2007). In addition, according to Julie (2011) in regression the researcher seeks to maintain the causal effect of one variable upon another. For this study an ordinary least square regression model, analysis of variance (ANOVA), regression of coefficients was used to establish the relationship between the independent variables and dependent variable.

4.7.1. Regression Analysis Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.970[a]	.941	.937	.33379
a. Predictors: (Constant), Green procurement, Green inventory management, Green logistics, Corporate social responsibility				

Table 13: Model Summary

The study sought to establish the relationship between the independent variables and dependent variable of humanitarian organizations. An ordinary least square regression model was used. The results of the model summary are as indicated in Table 13. The findings revealed that the independent variables (green procurement, green inventory management, green logistics and corporate social responsibility) explained 94.1% of the total variations in performance of humanitarian organizations in Kenya.

4.7.2. Analysis of Variance of the Regression (ANOVA)

The regression output in Table 14 presents the source of variance, mean of variances and the F value. The results showed that the overall model was statistically significant supported (f value = 230.691; p=0.000 which was less than the conventional probability of 0.05 significance level) and could provide important results. This indicated that the model would provide some predictive significance and was a good fit.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	102.808	4	25.702	230.691	.000[b]
	Residual	6.462	58	.111		
	Total	109.270	62			
a. Dependent Variable: Performance of humanitarian organizations						
b. Predictors: (Constant): Green procurement, Green inventory management, green logistics, Corporate social responsibility						

Table 14: Analysis of Variance of Regression (ANOVA)

4.7.3. Regression Coefficients

The regression output on significance of the independent variable is as presented in Table 15

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.308	.114		2.707	.000
	Green procurement	.885	.052	.909	17.087	.000
	Green inventory management	.911	.040	.946	22.802	.002
	Green logistics	.926	.034	.962	27.409	.003
	Corporate social responsibility	.923	.043	.939	21.269	.004
a. Dependent Variable: performance of humanitarian organizations						

Table 15: Significance of Independent Variables

The optimal regression model was:

$Y=0.308+0.885\,X_1+0.911X_2+0.926X_3+0.923X_{4+}\varepsilon$

The regression equation above established that taking all the independent variables into account (green procurement, green inventory management, green logistics and corporate social responsibility) constant at zero, performance of humanitarian organizations will be 0.308. The findings presented also indicate that taking all other independent variables at zero, a unit increase in green procurement would lead to a 0.885 increase in the scores of performances of humanitarian organizations and a unit increase in green inventory management would lead to a 0.911 increase in the scores of performances of humanitarian organizations. Further, unit increase in the green logistics would lead to a 0.926 increase in the scores of performances of humanitarian organizations. Finally, the findings show that a unit increases in corporate social responsibility would lead to a 0.923 increase in the scores of performances of humanitarian organizations.

5. Summary of Findings, Conclusion and Recommendations

5.1. Introduction

The chapter comprises of summary of findings, conclusions, recommendations and areas of further research have been suggested.

5.2. Summary of the Findings

5.2.1. Green Procurement

The findings showed procurement purchase environmental policy was not a criterion during supplier selection for emergency disaster response. The results revealed sourcing availability of suppliers was critical in response to supply disruptions. Additionally, the findings showed organization has set plans to monitor procuring targets and objectives whilst having environmental considerations. This implied sustainable procurement of relief goods, services and work had a significant impact on the supply operations of the firms. In correlation Pearson Product Moment was used. The results showed that green procurement was positively correlated with the performance of humanitarian organizations. The strength of the relationship between green procurement and performance of humanitarian organizations was (strong) large. Regression analysis indicated that green procurement had a positive and significant influence on performance of humanitarian organizations.

5.2.2. Green Inventory Management

From the results obtained implementation of energy management practices such as efficient lighting in warehouse facilities contribute to significant reduction on cost of supply operations. Minimizing supplies rejection rate ensured effective utilization of inventories and fulfillment of internal and external customer's demand. The findings also revealed the organization embrace smart inventory management techniques such as digitization tools in managing warehouse facilities. However, organization did not put a lot of emphasis on whether materials used for packaging and storage would undergo the supply circular loop of reuse, recycle, or disposal mechanism once purpose is completed. The findings, in correlation analysis show that green inventory management was positively correlated with the performance of humanitarian organizations. The strength of relation between green inventory management and performance of humanitarian organizations was medium (moderate). Regression analysis showed that green inventory management had a positive and a significant impact on performance of humanitarian organizations.

5.2.3. Green Logistics

The study established that organization does not manage its own fleet and fuel it depends on outsourcing to serve other firm program activities. The findings also established shipment and distribution of aid does not consider the sustainability dimension of economic, environmental, social consideration during disaster response. However, it was established that the distribution networks and channels were characterized with leagilty to meet unpredictable supply demand. In addition, the study also established that proper vehicle scheduling and routing had effect on the manner and effectiveness of disaster response operations. In correlation the results showed that green inventory management was positively correlated with the performance of humanitarian organizations. The strength of the relationship between green logistics and performance of humanitarian organizations was (strong) large. Regression analysis indicated that green logistics had a positive and significant influence on performance of humanitarian organizations.

5.2.4. Corporate Social Responsibility

Organizations focus on procuring from local suppliers for purpose of empowering communities economically and promoted sustained living. The study also established that employees were subjected to trainings on occupational safety and health administration. Moreover, it was also established that there was existence of corporate social responsibility policy such as environmental policy. Finally, the study established corporate social responsibility activities are communicated through tools such as annual reports and sustainability reports. In correlation analysis the results showed that corporate social responsibility was positively correlated with the performance of humanitarian organizations. The strength of the relationship between corporate social responsibility medium (moderate). Regression analysis indicated that corporate social responsibility had a positive and significant influence on performance of humanitarian organizations.

5.3. Conclusion

In conclusion regarding green procurement, it possessed significant and positive effect on performance of humanitarian organizations in Nairobi County Kenya. During procurement purchase in disaster emergency response, environmental consideration was not a criterion for supplier selection. Sourcing availability of suppliers was critical on occurrence of supply disruptions. The organization had set plans to monitor procurement processes and objectives whilst environmental consideration. Further, sustainable procurement of relief aid had significant impact on the supply operations of an organization.

The study established green inventory management had a significant and positive effect on performance of humanitarian organizations in Nairobi County Kenya. The study concludes adoption of energy management systems such as efficient lighting in the warehouse contribute to reduction on cost of operation. Reducing the supplies/vendor rejection rate meant that there would be effective utilization of inventories and fulfillment of internal and external customer demands. Further, it concluded that there was implementation of smart inventory techniques such as digitization tools in warehouse facilities, however, there was lack of a lot of emphasis on consideration of the package and storage materials reuse, recycling and disposable mechanisms after completion of purpose.

The study established that corporate social responsibility had significant and positive effect on performance of humanitarian organizations in Nairobi County Kenya. Based on the findings the study concluded organizations procure from local suppliers to empower communities economically and promote sustained living. Employees have trainings on occupational safety and health administration. There exists corporate social responsibility policy such as the environmental policy. Further, the findings conclude there is communication of CSR activities through tools such as annual and sustainability reports.

5.4. Recommendations

Firstly, green procurement is paramount to improved overall performance of humanitarian entities, therefore the study recommends that, environmental policy should be adopted as a criterion for supplier selection when conducting procurement process. Monitoring of procurement targets and objectives plans should come in place after adoption of environmental policy as a criterion for supplier selection and procuring of relief goods, works and services.

Secondly, Green inventory management practices were found to be adopted in most organization warehouse facilities. These implied labor and financial resources were allocated to manage the storage facilities. The study recommends that inventory can be managed through smart pre-selection of suppliers that are reliable and make supplier engagement manageable. The resources can then be re-channeled to other activities such as supply risk management and supplier relationship management.

Thirdly, the study established that green logistics has influence on performance of humanitarian organizations. The study recommends that firms should embrace the implementation of sustainable logistical practices such as consolidation of aid during transit, managing its own fleet and fuel because of the capability to analyze and detect cost-cutting measures such as proper vehicle scheduling and routing.

Finally, the study established corporate social responsibility has influence on performance of humanitarian organizations. The study recommends that corporate social responsibility policy should be in existence and in consideration on supply operations of the organization. The corporate social responsibility activities should be communicated in annual reports and sustainability reports in order to boost the recognition and reputation of the organization.

5.5. Suggestions for Further Research

The study looked at sustainable supply chain management practices and performance of humanitarian organizations in Nairobi County Kenya, but there can be a variety of other sustainable supply chain management practices that can be evaluated for instance supply chain resilience and supplier collaboration. The study recommends a study operationalizing such variables as supply chain resilience and the scope can be wider for instance a survey of humanitarian organizations in Kenya or East Africa region holistically.

The study also recommends a similar study in different sectors such as manufacturing sector, agricultural sector and state corporations to be done for purposes of comparison of the research study outcomes since this study was performed in the humanitarian sector.

6. List of Acronyms

CSR	Corporate Social Responsibility
HO	Humanitarian Organization
HSC	Humanitarian Supply Chains
ICRC	International Committee of the Red Cross Society
MSF	Medecins sans Frontieres
SCOR	Supply Chain Operations Reference (SCOR) model
SSCM	Sustainable Supply Chain Management
SPSS	Statistical Package for Social Sciences
RBV	Resource-based View Theory
NGO	Non-governmental Organization
USAID	United States Agency for International Development

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Appendix

Letter of Introduction

Introduction Letter
Dear respondents,
Ref: Collection Of Research Data
I am a bona fide student at Jomo Kenyatta University of Agriculture & Technology (JKUAT) pursuing a master's program in Procurement and Logistics. I am carrying out a research on "Sustainable supply chain management practices and performance of humanitarian organizations in Nairobi Kenya". I am collecting data for the purpose of this study. You have been identified as a key respondent in this study and would kindly like to invite your participation in this research. I write to request you valuable assistance towards making this study a success by allocating time from your busy schedule to respond to the attached questionnaire.
The data collected and used in the research work will remain strictly confidential and you will be anonymous throughout the processing and analysis of data. Thank you in advance for your time, consideration and responses.
Yours sincerely,
Dennis Sagini
Masters' Student, JKUAT
Email: Dennissagini@gmail.com

Questionnaire
Note
(i) All responses will be treated with the strictest confidence
Part A: Background Information
1. What is your highest level of education (Tick where appropriate)
a) Diploma [ ]
b) Bachelor degree [ ]

c) Master degree [ ]
d) PHD [ ]
e) Other (s) [ ]

2. Number of years of professional experience in humanitarian entities (Tick where appropriate)

a) Less than 1 year [ ] c) 5 – 7 years [ ] e) More than 10 years [ ]
b) 2 – 4 years [ ] d) 8 - 10 years [ ]

3. Have you ever attended any professional training on humanitarian supply chain sustainability? (Tick where appropriate)

a) Yes [ ]
b) No [ ]

Part B: Green Procurement

Please indicate to what extent you agree with the following statements concerning the effect green procurement has on the performance of humanitarian organizations in Kenya. Where SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree. Tick where appropriate.

S/N	Statement	SA	A	N	D	SD
1.	Procurement purchases are compliant to set organization environmental policy consideration during supplier selection					
2	Sourcing availability of suppliers enhance the sustainable disaster response despite the reality of supply disruptions					
3	Suppliers supply chain reliability is a criteria considered during procurement of disaster relief aid					
4	Sustainable procurement of relief goods, services and works impacts the overall performance of an organization					

Table 16

Describe the factors influencing choice of green procurement during acquisition of relevant materials, services and works for the organization.

……

Part C: Green Inventory Management

S/N	Statement	SA	A	N	D	SD
1	Energy management systems such as lighting sustainability in the warehouse facilities has a significant the overall operations of the organization					
2	Organization focuses on minimization of vendor/supplies rejection rate in order to maximize utilization of inventories by internal and external customers					
3	Smart inventory management such as digitization approaches in warehouse reduces to the cost of organization operations					
4	Packaging material of materials used during storage and distribution can be reused, recycled or easily disposable after completion of purpose					

Table 17

List inventory management practices that organization has adopted to improve its supply chain performance ……..

Part D: Green Logistics

S/N	Statement	SA	A	N	D	SD
1.	Organization manages its own fleet and fuel with the aim to include service to other organization programs					
2.	Distribution and network channels are characterized with flexibility to meet unpredictable disaster response schedule					
3.	Vehicle scheduling, routing and other logistical practices have a significant impact on overall performance of the organization					
4.	Distribution and shipment of aid considers sustainability approach in implementation of logistical practices such as consolidation during operations					

Table18

List some examples of logistics practices approaches that the organization applies in its supply chain operations

……

Part E: Corporate Social Responsibility

S/N	Statement	SA	A	N	D	SD
1.	Organization focuses on sourcing from local suppliers to empower local communities to be sustainable on recovery after disaster					
2.	Organization does training of employees on occupational workplace health and safety on needs basis					
3.	Organization has corporate social responsibility policy in place such as good environmental policy					
4.	Corporate social responsibility activities of the organization are communicated to internal and external stakeholders through tools such as annual CSR reports					

Table 19

In what areas do you the organization can implement a CSR strategy?

……

Part F: Performance

S/N	Statement	SA	A	N	D	SD
1.	Timely disaster response increases the likelihood of improved organization overall performance					
2.	Implementing sustainable supply chain practices controls the spend under management accountable to the donor aid from the organization					
3.	Supply chain flexibility and responsiveness has a significant impact on the performance of the organizations					
4.	Supply chain visibility and transparency has a significant positive impact on the supply chain operations of the organization					

Table 20

In your opinion, how can supply chain performance be enhanced to improve the humanitarian operations in the host country of operations?

……

No	Humanitarian Organizations
1	Kenya Red Cross Society
2	Action Against Hunger
3	Volunteering Services Overseas Kenya (VSO)
4	World Vision Kenya
5	International Committee of the Red Cross
6	Mission for Essential Drugs and Supplies
7	United Nations
8	United Nations World Food Programme
9	United States Agency for International Development
10	Danish Refugee Council
11	Norwegian Refugee Council
12	United Nations Environment Programme
13	Save the Children
14	Plan International
15	Oxfam
16	International Organization for Migration
17	Amref Health Africa
18	Shining Hope for Communities (Shofco)
19	Mercy Corps
20	Food and Agriculture Organization
21	Rural Agency for Community Development and Assistance (RACIDA)
22	One-Acre Fund
23	Humanitarian Agency for Community Initiative (HACI)
24	Carolina for Kibera
25	Asante Africa Foundation
26	Better Living International
27	United Nations development Programme
28	United Nations Office for the Coordination of Humanitarian Affairs
29	United Nations Office for Project Services
30	United Nations High Commissioner for Refugees

Table 21: Sampling Frame

Work Plan

The first stage of activities will include concept development, proposal development, review and approval. The second phase will include refining of the data collection instrument, selection and training research assistants. The third phase will be data collection, entry, analysis and reporting. The final phase will entail dissertation writing, presentation and final submission.

Details	Jan-Feb 2021	Feb-March 2021	March-April 2021	June-July 2021	July-Aug 2021	Aug-Sep 2021	Oct-Nov 2021
Problem Identification							
Literature review							
Questionnaire development							
Proposal writing							
Proposal submission and presentation							
Pilot study							
Data collection and compilation							
Data analysis							
Zero draft project report							
Complete project submission and defense							
Publishing							

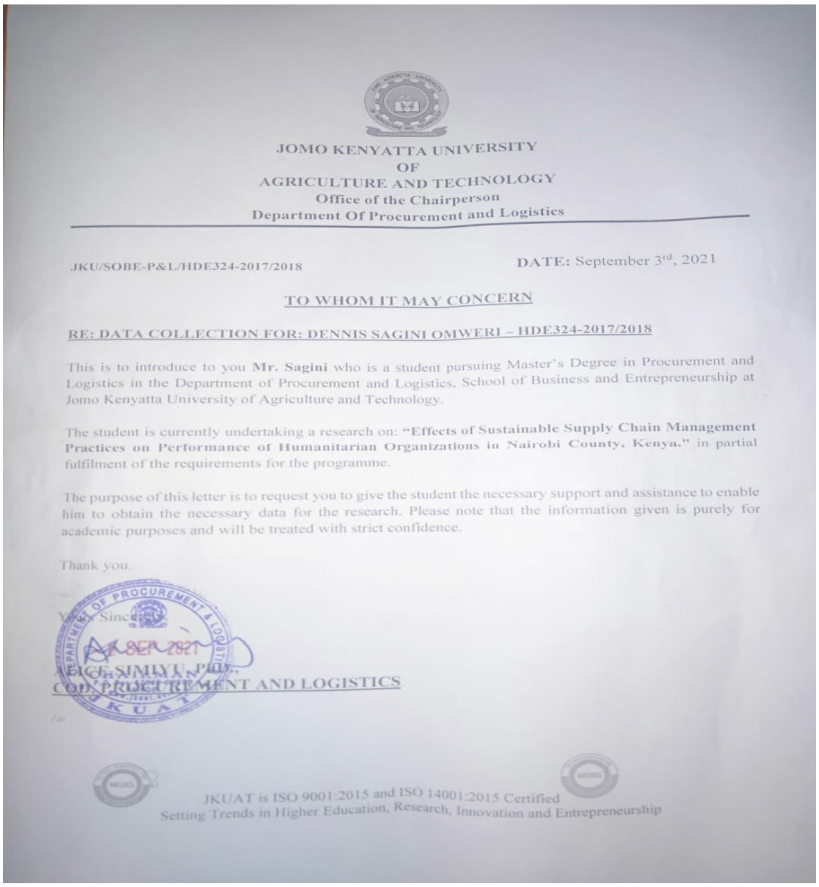
Table 22: Schedule of Activities

Budget

The estimated budget for the study is Kenya Shilling 222,300.00(Two hundred and twenty two thousand, and three hundred shillings only. Budget summary is presented in Table 3

No.	Category	Amount (KSh)
1	Proposal Development	15,500.00
2	Research Materials	22,100.00
3	Enumerator Recruitment and Training	20,000.00
4	Enumerator allowances	35,800.00
5	Data Collection	26,400.00
6	Data entry, analysis and reporting	14,500.00
7	Thesis writing, presentation and defence	8,000.00
8	Stationary printing and binding	10,000.00
9	Dissemination	70,000.00
	Total	222,300.00

Table 23: Summary Budget



JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
Office of the Chairperson
Department Of Procurement and Logistics

JKU/SOBE-P&L/HDE324-2017/2018 DATE: September 3rd, 2021

TO WHOM IT MAY CONCERN

RE: DATA COLLECTION FOR: DENNIS SAGINI OMWERI – HDE324-2017/2018

This is to introduce to you **Mr. Sagini** who is a student pursuing Master's Degree in Procurement and Logistics in the Department of Procurement and Logistics, School of Business and Entrepreneurship at Jomo Kenyatta University of Agriculture and Technology.

The student is currently undertaking a research on: **"Effects of Sustainable Supply Chain Management Practices on Performance of Humanitarian Organizations in Nairobi County, Kenya."** in partial fulfilment of the requirements for the programme.

The purpose of this letter is to request you to give the student the necessary support and assistance to enable him to obtain the necessary data for the research. Please note that the information given is purely for academic purposes and will be treated with strict confidence.

Thank you.

Yours Sincerely,

DEPARTMENT OF PROCUREMENT & LOGISTICS
K U A T

06 SEP 2021

PROF. SIMLY U, PHD.
CHAIRPERSON, PROCUREMENT AND LOGISTICS

JKUAT is ISO 9001:2015 and ISO 14001:2015 Certified
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Figure 2: Letter of Data Collection