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Research Article

The Effect of Humanitarian Logistics Practices on Performance: An Evidence from People in Need at West Guji and Guji Zone Offices, Ethiopia

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Abstract

The purpose of this study is to examine the effect of humanitarian logistics practice on performance, in disaster management. As far as the researcher's information is concerned there is limited researches in the field of humanitarian logistics. The study aimed to bridge gap in literature and knowledge of humanitarian logistics management practice. The study employed an explanatory research design and applies quantitative research design. Data for the study was gathered from both primary and secondary data source. The study adopted probability sampling specifically simple random sampling. Additionally the study applied census sampling technique. Target population of the study was composed of employee of the organization and beneficiary from the organization. Sample size comprise 282 respondents. Data for the study were collected using semi structured questionnaire aided by five point likert scale. Data analysis was primarily based on primary data. Data was analyzed using multiple linear regression in SPSS analysis. The independent variables explained (70.3%) of variations in the dependent variable as shown by the R-square (0.703). The study found humanitarian logistics practice determine the improvement of the organization performance.

Keywords

Disaster, Disaster Management, Relief Chain, Emergency Management

1. Introduction

Over the past ten years, the number of natural disasters such as floods, droughts, and famines as well as man-made disasters such as conflicts and refugee crises has skyrocketed. According to [37] there were 385 natural disasters in 2010 that killed over 297,000 people, affected over 217 million more, and caused economic losses of USD 123.9 billion. Since 1960, the frequency of natural disasters has been continuously rising [15]. The severity of the injuries or fatalities as well as the magnitude of the financial impact of these incidents are both rising along with their frequency [32].

The humanitarian supply chain, according to [18], is the network formed by the exchange of goods, services, money, and information between donors, recipients, suppliers, and other humanitarian organization units in order to deliver tangible aid to recipients. Delivering the appropriate materials in the appropriate quantities to the appropriate location at the appropriate time is the aim of the supply chain [39]. In order to save victims, disaster relief groups must transport relief supplies more swiftly and efficiently.

Furthermore, in order to meet the needs of aid recipients,

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Humanitarian Supply Chain Management (HSCM) necessitates the process of efficient and economical plans, implementations, and controls for aid flows (i.e., materials, goods, services, financial resources, information, etc.) from the point of origin to the point of consumption [17]. Humanitarian supply chain management (HSCM) is a subset of supply chain management that encompasses nearly every functional process carried out by commercial supply chain management (CSCM), including sourcing, procurement, inventory management, logistics and distribution, information management, and more [18]. However, in contrast to the "financial" goals of CSCM, the main objective of HSCM is to reduce human suffering, specifically to stop additional deaths and injuries to people and to treat those who are ill or injured right [23]. Both academics and practitioners are now interested in this field [37].

2. Review of Related Literature

2.1. Humanitarian Logistics

The process of organizing, carrying out, and managing the effective, economical movement and storage of products and materials, along with associated data, from the point of origin to the point of consumption in order to lessen the suffering of vulnerable individuals is known as humanitarian relief logistics [15]. Logistics does, in fact, act as a link between catastrophe preparedness and response [11] hence humanitarian logistics is essential to the efficiency and promptness of reaction for large-scale humanitarian initiatives.

Large-scale operations, erratic demand, and peculiar limitations are characteristics of humanitarian logistics [22]. Lack of electricity sources, inadequate transportation infrastructure, and a "controlled" environment with some little fluctuation (such as traffic congestion) are only a few of the issues [22]. Donors are the primary source of funding for humanitarian groups [22]. In humanitarian logistics, "true demand" is not generated because the clients (aid recipients) truly have no option [39]. For humanitarians, logistics essentially refers to the methods and procedures used to mobilize people, resources, expertise, and knowledge in order to assist disaster-affected vulnerable individuals [27]. Relief supplies, such as food, medication, shelter, water, and other necessities, are in high demand following disasters. Increasing the provision of relief supplies requires effective emergency operations. Profit is not as crucial in humanitarian operations as prompt reaction and meeting need. To put it another way, the appropriate products should get to the right people in the shortest amount of time [1].

2.2. Theoretical Review

2.2.1. Resource-Based View (RBV) Theory

The Resource-Based View (RBV) suggests that a firm's valuable, rare, inimitable, and non substitutable resources and capabilities are crucial for achieving sustainable competitive advantage, shaping its marketing mix strategies and adapting to external uncertainties [38]. According to the Resource-Based View [38] a firm's innovative product development, pricing strategy, distribution channel management, and marketing strategies are all influenced by its technological capabilities, R&D resources, intellectual property, cost structure, logistics, supply chain infrastructure, brand value, customer data, and promotional resources.

2.2.2. Network Theory

Network theory is one of the few theoretical and methodological advances in the social sciences that allows for a multilevel analysis, from small groups to large systems, via organizations, movements, or national and international systems [7]. Fo The collection of organizations that deliver humanitarian assistance can be understood as a complex open system, consisting of specialized units that are loosely coupled, socially connected, and highly dependent on external resources [7]. It is applicable to various types of networks, including social, egocentric, and organizational networks. In this regard, it enables an examination of the structure of relationships between various entities and actors involved in humanitarian assistance, ranging from aid recipients and their personal ties to the organizations involved in providing protection or the nations in which these processes take place [7].

Table 1. *Summary of Key Theories Relevant to the Study.*

Theory	Author and year	Focusing areas	Relevance
Resource-Based View (RBV)	[38]	Focuses on internal resources and capabilities as sources of competitive advantage.	Helps assess how internal logistics capabilities (procurement, distribution, etc.) contribute to boost operational performance
Network Theory	[7]	Studies organizational performance through the structure and strength of inter-organizational ties.	Highlights the importance of organizations connections with partners, suppliers, and agencies in ensuring coordinated humanitarian logistics operations.

Theory	Author and year	Focusing areas	Relevance
Contingency Theory	[7]	Suggests that effective management depends on the fit between practices and environmental conditions.	Supports context-based evaluation of organizational logistics strategies across diverse, unpredictable regions in Ethiopia, emphasizing the need for adaptability.
Social Exchange Theory	[19]	Emphasizes trust, reciprocity, and mutual benefit in social and organizational relationships.	Explains how collaboration, trust, and communication within the organizations and with partners influence logistics effectiveness and aid delivery.

Source: literature review 2026.

2.3. Humanitarian Supply Chain Versus Commercial Supply Chain

Delivering the appropriate supplies in the appropriate amounts to the appropriate locations at the appropriate times is the ultimate objective of every supply chain. All actions and procedures related to the movement and transformation of goods from the raw material stage through the end user are included in supply chains [36]. Supplies move through the relief chain via a sequence of long-haul and short-haul shipments, much like a commercial supply chain. Pre-positioned stockpiles in warehouses, goods purchased from vendors, and in-kind donations make up the majority of the resources moving through the relief chain. Supplies are transported from different parts of the world to a main warehouse, which is typically situated close to an airport or the sea. Supplies are then transported to a secondary hub, which is usually a big, permanent warehouse in a bigger city. Supplies are kept, sorted, and moved to tertiary hubs (local distribution centers) at this secondary hub. Despite their similarities, scholars have pointed out that commercial supply chains and HSC networks are not the same. While the goal of the business supply chain network is to maximize supply chain surplus, the goal of the HSC network is to minimize the potential loss of infrastructure and people (prior to the disaster), provide the greatest amount of relief, and guarantee a speedy recovery during the post-disaster phase [36].

Table 2. *Summary of previous literature.*

Author and year	Focusing area	HSC	CSC
[6]	Purpose & Stakeholders	Aims to deliver aid to beneficiaries during emergencies, often involving multiple stakeholders (NGOs, governments, donors).	Aims to maximize profit and customer satisfaction; stakeholders are mainly shareholders and customers.
[5]	Environment & Context	Operates in unstable, high risk environments (e.g., disasters, conflicts, poor infrastructure).	Operates in stable, predictable environments with well-developed infrastructure and data.
[2]	Supply Chain Characteristics	Involves uncertain demand, donor-driven supply, and rapid response needs.	Involves demand-driven supply chains with stable forecasting and planning.
[6]	Performance Measurement	Focuses on effectiveness, speed, coverage, and accountability to beneficiaries.	Focuses on efficiency, cost reduction, and profit margins.
[5]	Flexibility & Responsiveness	Require high flexibility to adapt to changing needs and conditions.	Focuses on process optimization and standardization.
[37]	Resource Flow & Drivers	Driven by donor funding, volunteers, and urgent response mandates.	Driven by market demand, revenues, and customer orders

Source: Review of literature 2026.

2.4. Actors in Humanitarian Relief Operations

A typical humanitarian relief operation involves actors such as international relief organizations, host governments, the military, local relief organizations, and private companies, all of which may have different interests, capacities, mandates, and logistics expertise [19]. In order to deliver the required humanitarian assistance during disasters, these actors must be coordinated. According to [25], each of these actors lacks the resources necessary to respond to significant calamities. Donors, non-governmental organizations, governments, the military, logistics companies, and other third-party service providers are all regarded as actors involved in helping the impacted individuals.

2.5. Measuring Performance of Humanitarian Logistics Operations

Giving catastrophe victims assistance in the form of food, housing, clothing, medications, water, etc. is the ultimate purpose of humanitarian logistics. Humanitarian logistics, like their commercial counterparts, require a performance measurement system to determine whether the operations are successful or unsuccessful. Performance measurement and metrics are essential for firms in establishing goals and future strategies, according to [24] Performance measures are quantitative, objective indicators of many areas of performance.

2.6. Principles in Humanitarian Logistics

Humanitarian principles define humanitarian aid as providing life-saving support to individuals in need without discrimination. They set humanitarian help apart from other endeavors, such as those that are military, political, religious, or ideological. Respecting the humanitarian values makes it easier for people to get in and be accepted, which makes it easier for humanitarian workers to do their jobs. Four guiding principles are used in the execution of humanitarian missions. Humanity, neutrality, fairness, and independence are these tenets [35]. The 1949 Geneva Conventions, which uphold international humanitarian law, serve as the foundation for the four guiding humanitarian principles. The four guiding principles are described as follows by the United Nations Office for the Coordination of Humanitarian Affairs [29].

Humanity: Wherever human misery occurs, it ought to be addressed. The goal of humanitarian action is to uphold human dignity and safeguard life and health.

Neutrality: Humanitarian actors are prohibited from taking sides in conflicts or participating in political, racial, religious, or ideological disputes.

Impartiality: Humanitarian efforts must be conducted solely on the basis of need, prioritizing the most critical cases of distress and avoiding discrimination based on nationality, ethnicity, gender, religion, class, or political beliefs.

Independence: Humanitarian efforts must be independent of any actor's political, economic, military, or other goals concerning the regions in which they are carried out.

2.7. Components of Humanitarian Logistics Management Practices

Emergency logistics, according to [33], is a dynamic, highly complicated process that involves numerous interconnected tasks with intricate goals and limitations. Following a disaster, gathering and distributing emergency supplies to the affected areas is the main task. However, a number of interrelated tasks also arise, such as who has the supplies, where they can be obtained, who delivers them to the affected areas, when transportation vehicles are available, etc.

The four logistics activities—procurement management, transportation management, warehouse management, and distribution management practices—are the main areas of attention for the proposed study.

2.7.1. Procurement Management

When communities are at risk due to natural or man-made disasters, quick action and quick outcomes are required. The efficiency of the procurement procedures put in place to address the immediate needs of the impacted communities, start the process of recovery and reconstruction, and foster confidence in governing bodies all depend directly on how well emergency responses work [27]. Relief supplies are mobilized if donors reply and the plea is funded. The logistician then makes an effort to obtain the supplies from nearby vendors, and if the aid organization has a central warehouse, the logistician inspects the materials that are accessible there.

Competitive bidding is used to purchase goods from international vendors that cannot be fulfilled locally or from central warehouses. For any relief endeavor, a single relief agency typically receives supplies from several [40]. Enabling orders to be placed and fulfilled on time at a reasonable cost is the aim of procurement in relief operations. To save delays and support the local economy, governments and organizations prefer to purchase locally whenever feasible. To ensure the quality and consistency of their supplies or to obtain better rates, some businesses, however, choose to work with their regular suppliers [36].

The early humanitarian response following a disaster is accelerated by the pre-positioning and prior purchase of relief materials. This strategic choice necessitates a large investment in both inventory and infrastructure. With a quicker response time, it removes the challenges and drawbacks of purchasing after a tragedy [13].

2.7.2. Transportation Management

Humanitarian relief services could be greatly increased by increasing the effectiveness of transportation and logistics systems, which are crucial to the operations of relief groups

[20]. Humanitarian organizations frequently have major challenges in the immediate aftermath of a disaster when trying to move huge quantities of various commodities, such as food, clothing, medical supplies, equipment, and personnel, from several origins to multiple destinations inside the disaster area. To increase the survival probability of the impacted population and reduce operating costs, relief workers and supplies must be transported swiftly and effectively [20].

Transportation infrastructures are typically disrupted during catastrophes, which places numerous restrictions on last-mile emergency logistics and reduces the viability of emergency relief operations [24]. Transportation infrastructure is therefore extremely important, particularly in locations that are vulnerable to disasters [9]. The majority of transportation infrastructure is built to function normally, and unanticipated events have received minimal consideration. This suggests that infrastructure will sustain more extensive damage in the event of a calamity. A disaster-affected area's ability to survive and recover depends on its transportation infrastructure [10].

2.7.3. Warehouse Management

Delivering the right goods in the right amount to the right customer at the right location, at the right time, in the right condition, and at the right price is the supply chain's job. Accurate warehouse picking and dispatching operations are essential to delivering the correct goods in the right amount. The product must be properly tagged and loaded onto the appropriate vehicle with enough time to fulfill the delivery deadline in order to be delivered to the right customer at the right location on time [4]. Additionally, the warehouse must guarantee that the goods is clean and undamaged when it leaves. A cost-effective business that offers value for money is necessary to guarantee the appropriate price. In order to deliver the ideal order, the warehouse is essential [28].

2.7.4. Distribution Management

In disaster response operations, distribution actions are crucial. The efficient delivery of diverse relief resources to impacted areas is the focus of resource distribution [26]. Through coordinated transportation nodes and modes, distribution operations allow the relief supply chain to efficiently and quickly distribute products and services [8]. The ability of a supply chain to adapt to demand or changes in demand while fulfilling mission objectives depends on a number of factors, including capacity, capability, speed, cost, resilience, reliability, and robustness of transportation [22]. Distribution sites should be positioned in already-established community centers and gathering spaces in order to decrease the distance to the beneficiaries. Information regarding the products provided and the individuals impacted is necessary for an effective distribution campaign. The humanitarian mission is facilitated by the utilization of military operations for access road clearance and cargo management. identifying the resources that can be mobilized in the shortest amount of time in the event of a natural disaster and mapping the danger areas. Therefore, it is crucial to conduct a survey of transportation service providers and governmental or private organizations that have fleets that can support humanitarian operations by determining their capacities [23].

2.8. Empirical Literature Review

The procedures, difficulties, and effectiveness of humanitarian logistics management have been extensively studied in the context of wealthy nations, and their applicability in developing nations like Ethiopia has not yet been investigated, according to a review of the literature. [18]. Studies on the difficulties and effectiveness of humanitarian logistics management have been conducted in developing Asian nations, while studies in Ethiopia have concentrated on the analysis and mitigation of logistics gaps and placed a strong emphasis on commercial logistics. As a result, it is essential to evaluate the operations, difficulties, and effectiveness of humanitarian logistics management in case organizations.

In their study titled "Impact of supply chain management challenges on humanitarian organizations in Kenya," [39] found that the primary issues affecting humanitarian logistics were: a lack of understanding of the role of supply chain management in humanitarian operations; delays in humanitarian operations due to domestic barriers; demand uncertainty; difficulties in reaching affected populations due to inadequate transportation modes; high costs impeding accessibility of the affected areas; and an inability to foresee disaster.

Van Wassenhove, L. N. [40], investigated Goal Ethiopia's use of humanitarian logistics in disaster response operations. The procurement process reveals difficulties because of inexperienced procurement personnel, a lack of possible suppliers in the operation area, inadequate organizational policies, the inability to prepare specifications on time, and issues with effective plan management during emergency procurement. The outcome of the warehousing and distribution practice reveals difficulties that were brought on by inadequate warehouse facilities, delays in the delivery of commodities, issues with receipt, and an improper distribution method. The outcome of the transportation practice shows difficulties brought on by the annual transportation management plan's inefficiency, the lack of sufficient infrastructure, and the difficulty of rental car management.

The correlation result indicated a strong and positive relationship between the humanitarian logistics practices and disaster response.

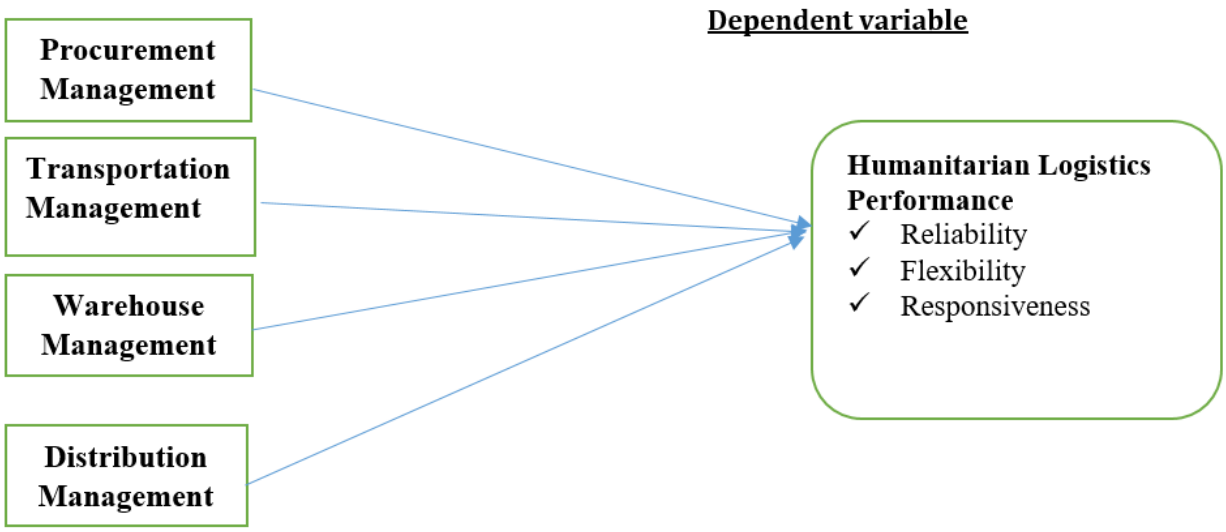

Figure 1. *Conceptual framework: Source adopted from [37]) with modification.*

3. Research Design and Methodology

3.1. The Research Design and Approach

The aim of this study is to examine the activities, and performance of humanitarian logistics management practice. So as to answer the research questions and meet the objectives of the paper the research adopted both explanatory and descriptive design. Explanatory studies establish causal relationships between variables and focuses on studying a situation or a problem in order to explain the relationships between variables [34]. Descriptive researches are those studies for which the purpose is to produce an accurate representation of persons, events or situations [14]. The main focus of descriptive research studies is to describe the characteristics of a particular individuals or group. This study was conducted by using mixed research approach; quantitative research method is best suited for looking at cause and effect between and among variables, and testing of theories and hypothesis [30]. The method used to explain relationships or phenomena by collecting numerical data and analyzing based on mathematical method. The objective of the study is to examine the causal relationship between the logistics activities and performance of humanitarian actors in rendering service, quantitative research approach was applied to this study since it is an appropriate method to create quantifiable cause and effect relationship between the variables of the study. In addition to this the study applied descriptive technique through direct quotation of response and facts.

3.2. Sampling Technique

In determining the sample size the study applied probability sampling technique. From probability sampling technique, simple random sampling. Additionally the study used census sampling techniques. Simple random sampling means that when every case of the population has an equal probability of inclusion in sample [16]. Since the number of employee of the organization is less to collect data from these employee census sampling technique was applied. Simple random sampling was used to randomly select respondents from beneficiary under investigation.

3.3. Sample Size

Determining sample size is very complex as it depends on other factors such as margins for errors, degree of certainty and statistical technique [21]. A general rule, one can say that the sample must be of an optimum size i.e., it should neither be excessively large nor too small [21]. it needs to be emphasized that when the universe is a small one, it is no use resorting to a sample survey. When all items are covered, no element of chance is left and highest accuracy is obtained. [21] the researcher was taken sampling technique by determining the sample proportion success and failure based on the experience from previous survey research and response rate. According to [21]) the rate of return or success rate of 50%, is adequate, rate of return 60% is good and if it is 70% and above is very good. For the study the researcher assumed 75% response rate which is very good and remaining 25% non-response rate, and sample size will be determine at 95% confidence level and 5% margin of error. Based on the above condition, to determine the sample size of the respondents the researchers used the following formula [21].

$$n = \frac{z^2(p*q)N}{e^2(N-1)+z^2(p*q)}$$

Where: n- sample size, z- confidence interval, p- proportion of success, q- proportion of failure, N-number of target population, e- standard error. Thus:

$$n = \frac{1.96^2(0.75*0.25)30,637}{(0.05)^2(30,637-1)+1.96^2(0.75*0.25)}$$

n= 242+40=282

4. Findings

The section discussed and presented the descriptive statistics and inferential statistics. Data analysis was conducted through correlation and multiple regression. Multiple linear regression assumptions are tested to check the reliability and validity of data fitness of the model Cronbach's alpha and correlation among independent variable were applied. Convergent validity and discriminant validity test were performed to check validity of the data.

Table 3. KMO and Bartlett's test for HL practices and performance.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.850
Bartlett's Test of Sphericity	Approx. Chi-Square	734.526
	Df	10
	Sig.	.000

Additionally, communalities of constructions are computed to verify data reliability. Communities show how much of each variable's volatility is taken into consideration. Initial and extraction communalities are the two types of communalities. Estimates of the variance in each variable explained by all elements or variables are known as initial communalities. Since principal component analysis operates under the premise that all variance is common, the communalities are all 1 prior to extraction. Some information is lost as a result of the elements being ignored. The communalities after extraction show how much of each variable's variance can be accounted for by the retained factors. Variables that do not match well with the factor solution are indicated by small values (average <0.60 at cases >250) and may be removed from the study. After extraction, communality is added and divided by the total number of communalities to determine average communality. When the sample size exceeds 250 cases and the averaged extracted communalities are equal to or greater than.60, or when the averaged extracted communalities are at least greater than.70 and there are less than 30 variables, the Kaiser Criterion is considered reliable [16].

The average extracted communalities test values of the elements in the current study were 0.708, which is higher than the suggested value of 0.70 as indicated in Table 4 below. This suggests that the data were appropriate for factor analysis.

Table 4. Communality test for HL practices, and organization performance.

Communalities		
	Initial	Extraction
PROCUREMENTPRACTICE	1.000	.580
TRANSPORTATION	1.000	.707
WAREHOUSING	1.000	.753
DISTRIBUTION	1.000	.695
PERORMANCE	1.000	.808

Extraction Method: Principal Component Analysis.

4.1. Convergent Validity Test

The study selected nineteen items from six factors—procurement, transportation, warehousing, distribution, and performance—in order to determine the total variation explained. Using an eigenvalue of 1.0 as the cutoff point, principal components analysis was investigated to verify the unidimensionality of each scale [16]. For the present investigation, as shown in Table 5 The table below shows that these factors collectively account for 57.4% of the variance.

Table 5. Summary of Total Variance Explained.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.566	35.220	35.220	10.566	35.220	35.220	4.342	14.472	14.472

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
2	1.900	6.334	41.554	1.900	6.334	41.554	4.084	13.614	28.086
3	1.565	5.216	46.770	1.565	5.216	46.770	3.093	10.309	38.395
4	1.125	3.750	50.520	1.125	3.750	50.520	2.960	9.866	48.261
5	1.073	3.578	54.098	1.073	3.578	54.098	1.400	4.666	52.927
6	1.021	3.402	57.499	1.021	3.402	57.499	1.372	4.572	57.499
7	.908	3.028	60.527						
8	.827	2.757	63.285						
9	.792	2.639	65.924						
10	.755	2.515	68.439						
11	.749	2.495	70.935						
12	.706	2.354	73.289						
13	.684	2.279	75.568						
14	.646	2.154	77.722						
15	.601	2.003	79.725						
16	.554	1.846	81.571						
17	.540	1.800	83.372						
18	.521	1.737	85.108						
19	.490	1.633	86.741						
20	.470	1.567	88.308						
21	.460	1.533	89.840						
22	.432	1.442	91.282						
23	.401	1.338	92.620						
24	.367	1.223	93.843						
25	.351	1.171	95.014						
26	.345	1.149	96.163						
27	.329	1.096	97.259						
28	.308	1.027	98.286						
29	.281	.935	99.221						
30	.234	.779	100.000						

Extraction Method: Principal Component Analysis.

Multicollinerity Test

When two or more predictors in a regression model have a high correlation, this is known as multicollinearity. When at least one predictor is a perfect linear combination of the others, there is perfect multicollinearity [3]. According to him, when

at least one predictor is a perfect linear combination of the others, perfect collinearity is present. Because there are countless combinations of coefficients that would function equally well, it becomes difficult to obtain unique estimates of regression coefficients if there is perfect collinearity between the predictors. As the degree of correlation between the independent variables rises, the regression coefficients become less trustworthy. Multicollinearity is an issue when there is a high level of correlation between independent variables. According to [3] a multicollenearity issue arises when the Variance Inflated Factor (VIF) number is greater than 10 and the tolerance value is less than 0.10. The confirmatory factor analysis was used to examine the inter-item correlation for each scale item in order to determine the unidimensionality of the constructs; all item to total correlation values were greater than 0. In this case, factor analysis is acceptable since the items have a strong inter-item correlation with their constructs [12]. For the current study the correlation result indicated in Table 6 below indicated that there is no perfect correlation among independent variables. This indicates that there isn't a multicollinerity issue.

Table 6. *Summary of correlation matrix.*

Correlation Matrix[a]						
		PROCUREMENT PRACTICE	**TRANSPOR-TATION**	**WARE-HOUSING**	**DISTRI-BUTION**	**PERORM ANCE**
Correlation	PROCUREMEN TPRACTICE	1.000				
	TRANSPORTATION	.547	1.000			
	WAREHOUSING	.529	.702	1.000		
	DISTRIBUTION	.475	.623	.689	1.000	
	PERORMANCE	.690	.659	.711	.706	1.000
Sig. (1-tailed)			.000	.000	.000	.000
		.000		.000	.000	.000
		.000	.000		.000	.000
		.000	.000	.000		.000
		.000	.000	.000	.000	

a. Determinant = .048

Additionally, as Table 7 below shows, the VIF Value ranges from 1.53 to 2.55. The tolerance value falls between 0.460 and 0.65. These values (tolerance level and VIF) show that there is no multicollinearity issue for this analysis.

Table 7. *Multi collinearity test.*

Coefficients[a]			
Model		**Collinearity Statistics**	
		Tolerance	**VIF**
1	(Constant)		
	PROCUREMEN TPRACTICE	.651	1.535
	TRANSPORTATION	.439	2.276
	WAREHOUSING	.392	2.553
	DISTRIBUTION	.481	2.081

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF

a. Dependent Variable: PERORMANCE

4.2. Multiple Linear Regression Model

A statistical method for examining and quantifying a link between two or more variables is multiple regression analysis [34]. The link between the independent and dependent variables was expressed using regression analysis. In order to determine which HL management construct is the best predictor of organization performance and how much of the variance in the organization performance variable can be explained by all humanitarian logistics practices, this study employs a technique to investigate the interrelationship and impact between and among variables. R-square was used to gauge how well independent variables could account for changes in the dependent variable, as Table 8, below illustrates.

Table 8. *Model fit summary.*

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.838[a]	.703	.698	.42175

Predictors: (Constant), DISTRIBUTION, PROCUREMENT PRACTICE, TRANSPORTATION, WAREHOUSING

b. Dependent Variable: PERORMANCE

Table 8, above makes it evident that the independent variables accounted for 70.3% of the fluctuations in the dependent variable, as indicated by the R-square (0.703). Consequently, other factors not included in the model accounted for 29.7% of the changes in the dependent variable. Table 9 below illustrates how an ANOVA test was used to further establish the significance of overall model fitness. It was demonstrated unequivocally that the regression's variables differ statistically considerably, giving it distinct characteristics. Less than (0.05) is the p-value (=.000). As a result, the researchers verified that the model fitness was statistically significant at 95% confidence levels.

Table 9. *Summary of ANOVA result.*

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	100.960	4	25.240	141.899	.000[b]
	Residual	42.689	240	.178		
	Total	143.649	244			

a. Dependent Variable: PERORMANCE

b. Predictors: (Constant), DISTRIBUTION, PROCUREMENTPRACTICE, TRANSPORTATION, WAREHOUSING

4.3. Regression Coefficients of Humanitarian Logistics

Table 10. *Summary of Coefficients of HL constructs.*

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	-.073	.153		-.480	.632
	PROCUREMENT PRACTICE	.396	.047	.364	8.337	.000
	TRANSPORTATION	.110	.055	.105	1.984	.048
	WAREHOUSING	.212	.051	.232	4.134	.000
	DISTRIBUTION	.316	.052	.308	6.060	.000

a. Dependent Variable: PERORMANCE

A summary of the regression coefficient was shown in Table 10 above. Standardized beta coefficients for procurement (β=.364, p=.000), transportation (β=.105, p=.048), warehousing (β=.232, p=.000), and distribution (β=.308, P=.000) are as follows. This leads to the conclusion that all HL constructs have a statistically significant and favorable impact on performance based on sample results.

4.4. Discussions

This paper aims to investigate how humanitarian logistics practices affect organizational performance. The findings showed that the performance of the organization is significantly impacted by HL practices. These results make it crucial to recognize how important it is for businesses to have efficient procurement, transportation, warehouse, and distribution channels in order to improve performance. Consequently, the performance of the organization will be improved. The literature has extensively documented each construct's contribution to enhancing an organization's performance.

Regression weight analysis of the results showed that performance increases by 0.364 standard deviations for every standard deviation increase in procurement, this findings can be supported by previous research [31].

Similarly, performance increases by 0.105 standard deviations for every standard deviation increase in transportation this study supported by previous study by [31]. Performance increases by 0.232 standard deviations for every standard deviation increase in warehousing management.

Finally, performance increases by 0.308 standard deviation when distribution channel management increases by 1 standard deviation, this study is in the same line with previous study by [33].

The contributions of the variables were verified in order to verify the hypothesis that procurement practices had a major impact on performance. The performance of the company was positively and significantly impacted by all other metrics.

4.5. Conclusion

This study comes to the conclusion that improving humanitarian organizations' overall success depends heavily on humanitarian logistics. Effective logistics planning, coordination, and execution greatly enhance the prompt delivery of relief supplies, maximize the use of scarce resources, and improve organizations' capacity to react to emergencies and disasters. Reduced lead times, lower operating costs, and greater service quality are all benefits of well-managed humanitarian logistics, and these factors eventually promote beneficiary satisfaction and boost organizational legitimacy. Additionally, the results show that logistics skills like inventory control, transportation management, information sharing, and stakeholder coordination have a significant impact on humanitarian operations performance. Businesses that make investments to improve their logistics systems are better positioned to attain accountability, transparency, and operational efficiency. On the other hand, poor logistics procedures may cause delays, waste of resources, and a diminished influence on relief operations. To sum up, fulfilling humanitarian goals and boosting organizational performance depend on better humanitarian logistics. To enable an efficient and long-lasting humanitarian response, policymakers and humanitarian management should place a high priority on developing logistics capacity, embracing contemporary technologies, and forming cooperative alliances. Enhancing humanitarian logistics helps save lives and lessen suffering during emergencies in addition to improving operational effectiveness.

4.6. Improvement for Future Research

Future research in the area of humanitarian supply chain management practices and performance can explore several areas to build upon the findings of this study. Sector-Specific Studies: Expanding the research to include various sectors within the humanitarian supply chain actors, on operational performance. This could help identify unique challenges and opportunities across different contexts. Longitudinal Studies: Conducting longitudinal studies to assess the long-term impacts of HSCM practices on performance would provide deeper insights into the evolution of these relationships over time. Such studies could help track changes in practices and performance as markets and technologies evolve.

Abbreviations

HSCM	Humanitarian Supply Chain Management
SCM	Supply Chain Management
UNOCHA	United Nation Office for Coordination of Humanitarian Affairs
WHO	World Health Organization
UNICEF	United Nation International Children's Emergency Fund
NGO	Non-Governmental Organization

Author Contributions

Gezew Megersa Alemu: Conceptualization, Data curation, Resource, Software, Supervision, Validation, Visualization, Writing – original draft

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Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Abazari, S. R., Aghsami, A., & Rabbani, M. (2021). Prepositioning and distributing relief items in humanitarian logistics with uncertain parameters. Socio-Economic Planning Sciences, 74. https://doi.org/10.1016/j.seps.2020.100933

[2] Anjomshoae, A., Banomyong, R., Hossein Azadnia, A., Kunz, N., & Blome, C. (2025). Sustainable humanitarian supply chains: a systematic literature review and research propositions. Production Planning and Control, 36(3), 357-377. https://doi.org/10.1080/09537287.2023.2273451

[3] Bessler, D. A., McCarl, B. A., Wu, X., & Alan Love, H. (2014). Quantitative Methods in Agricultural Economics. Encyclopedia of Agriculture and Food Systems, 1-10. https://doi.org/10.1016/B978-0-444-52512-3.00126-1

[4] Benning, S. D., Patrick, C. J., Hicks, B. M., Blonigen, D. M., & Krueger, R. F. (2003). Factor Structure of the Psychopathic Personality Inventory: Validity and Implications for Clinical Assessment. Psychological Assessment, 15, 340-350. http://dx.doi.org/10.1037/1040-3590.15.3.340

[5] Balcik, B., & Beamon, B. M. (2008). Facility location in humanitarian relief. International Journal of Logistics Research and Applications, 11(2), 101-121. https://doi.org/10.1080/13675560701561789

[6] Baldasso, R. P., Ortiz, A. G., Rosa, G. C. da, Soares, G. H., Crosato, E. M., & Oliveira, R. N. de. (2019). The Role of the Humanitarian Logistics in the Kiss Nightclub Case. Journal of Service Science and Management, 12(07), 859-871. https://doi.org/10.4236/jssm.2019.127058

[7] Borgatti, S. P., & Halgin, D. S. (2011). On network theory. Organization Science, 22(5), 1168-1181. https://doi.org/10.1287/orsc.1100.0641

[8] Cao, C., Liu, Y., Tang, O., & Gao, X. (2021). A fuzzy bi-level optimization model for multi-period post-disaster relief distribution in sustainable humanitarian supply chains. International Journal of Production Economics, 235. https://doi.org/10.1016/j.ijpe.2021.108081

[9] Carrabs, F., Cerulli, R., D'Ambrosio, C., Della Croce, F., & Gentili, M. (2021). An improved heuristic approach for the interval immune transportation problem. Omega (United Kingdom), 104. https://doi.org/10.1016/j.omega.2021.102492

[10] Cropanzano, R., & Mitchell, M. S. (2005). Social Exchange Theory: An Interdisciplinary Review. Journal of Management, 31(6), 874-900. https://doi.org/10.1177/0149206305279602 (Original work published 2005).

[11] Corbett, C. J., Pedraza-Martinez, A. J., & Van Wassenhove, L. N. (2022). Sustainable humanitarian operations: An integrated perspective. Production and Operations Management, 31(12), 4393-4406. https://doi.org/10.1111/POMS.13848

[12] Corbetta, P. (2003) Social Research: Theory Methods and Techniques. SAGE Publications Ltd., London.

[13] Daoud, J. I. (2018). Multicollinearity and Regression Analysis. Journal of Physics: Conference Series, 949(1). https://doi.org/10.1088/1742-6596/949/1/012009

[14] Delforge, D., Wathelet, V., Below, R., Sofia, C. L., Tonnelier, M., van Loenhout, J. A. F., & Speybroeck, N. (2025). EM-DAT: the Emergency Events Database. International Journal of Disaster Risk Reduction, 124. https://doi.org/10.1016/j.ijdrr.2025.105509

[15] Ghauri, P. N., & Grønhaug, K. (2005). Research Methods in Business Studies: A Practical Guide. London: Pearson Education.

[16] Gonzalez-Feliu, J., Chong, M., Vargas-Florez, J., de Brito, I., Osorio-Ramirez, C., Piatyszek, E., & Altamirano, R. Q. (2020). The maturity of humanitarian logistics against recurrent crises. Social Sciences, 9(6). https://doi.org/10.3390/SOCSCI9060090

[17] Hezam, I. M., & Nayeem, M. K. (2021). A systematic literature review on mathematical models of humanitarian logistics. In Symmetry (Vol. 13, Issue 1, pp. 1-38). Multidisciplinary Digital Publishing Institute (MDPI). https://doi.org/10.3390/sym13010011

[18] Humanitarian Logistics and Service Delivery in Turkana County, Kenya. (2024). International Research Journal of Economics and Management Studies, 3(10). https://doi.org/10.56472/25835238/irjems-v3i10p120

[19] Jamali, A., Ranjbar, A., Heydari, J., & Nayeri, S. (2022). A multi-objective stochastic programming model to configure a sustainable humanitarian logistics considering deprivation cost and patient severity. Annals of Operations Research, 319(1), 1265-1300. https://doi.org/10.1007/S10479-021-04014-2

[20] Khalili-Fard, A., Hashemi, M., Bakhshi, A., Yazdani, M., Jolai, F., & Aghsami, A. (2024). Integrated relief pre-positioning and procurement planning considering non-governmental organizations support and perishable relief items in a humanitarian supply chain network. Omega (United Kingdom), 127. https://doi.org/10.1016/j.omega.2024.103111

[21] Kim, J. J., Jang, H., & Roh, S. (2022). A systematic literature review on humanitarian logistics using network analysis and topic modeling. Asian Journal of Shipping and Logistics, 38(4), 263-278. https://doi.org/10.1016/j.ajsl.2022.10.003

[22] Kumar, P., & Singh, R. K. (2022). Application of Industry 4.0 technologies for effective coordination in humanitarian supply chains: a strategic approach. Annals of Operations Research, 319(1), 379-411. https://doi.org/10.1007/S10479-020-03898-W

[23] Leelapriyadharsini, S., & Sivakumar, V. (2021). LEVERAGING DISASTER MANAGEMENT: ROLE OF LOGISTICS IN PREPAREDNESS, RESPONSE & MITIGATION STAGES. In Dogo Rangsang Research Journal UGC Care Group I Journal (Vol. 11, Issue 02).

[24] Liao, H., Holguín-Veras, J., & Calderón, O. (2023). Comparative analysis of the performance of humanitarian logistic structures using agent-based simulation. Socio-Economic Planning Sciences, 90, 101751. https://doi.org/10.1016/J.SEPS.2023.101751

[25] Liu, T., Shao, J., & Wang, X. (2022). Funding allocations for disaster preparation considering catastrophe insurance. Socio-Economic Planning Sciences, 84. https://doi.org/10.1016/j.seps.2022.101413

[26] Luo, X., Liu, Y., & Wu, J. (2026). Dynamic Location-Allocation-Routing scheduling for long-range maritime rescue operations using shipboard helicopters: A Q-learning-based hyper-heuristic approach. Computers and Industrial Engineering, 212. https://doi.org/10.1016/j.cie.2025.111722

[27] Masudin, I., Safitri, N. T., Restuputri, D. P., Wardana, R. W., & Amallynda, I. (2020). The effect of humanitarian logistics service quality to customer loyalty using Kansei engineering: Evidence from Indonesian logistics service providers. Cogent Business and Management, 7(1). https://doi.org/10.1080/23311975.2020.1826718

[28] Muijs, D. (2010) Doing Quantitative Research in Education with SPSS. 2nd Edition, SAGE Publications, London. https://doi.org/10.4135/9781849203241

[29] Mebrate, Y., & Shumet, K. (2024). Assessing the impact of procurement practice on organizational performance. Cogent Business and Management, 11(1). https://doi.org/10.1080/23311975.2024.2315687

[30] Pascucci, E. (2021). More logistics, less aid: Humanitarian-business partnerships and sustainability in the refugee camp. World Development, 142, 105424. https://doi.org/10.1016/J.WORLDDEV.2021.105424

[31] Praja, A. K. A., Septiawan, R. A., Syah, T. Y. R., Sari, E. M., Dewi, M. P., Katijan, P. S., Cionita, T., & Lai, Y. L. (2023). Sustainable Development Strategy of Low-Cost Airlines: Empirical Evidence for Indonesia Based on Analysis of Passenger Loyalty. Sustainability (Switzerland), 15(3). https://doi.org/10.3390/su15032093

[32] Saunders, M., Lewis, P. and Thornhill, A. (2009) Research Methods for Business Students. Pearson, New York.

[33] Shao, J., Liang, C., Liu, Y., Xu, J., & Zhao, S. (2021). Relief demand forecasting based on intuitionistic fuzzy case-based reasoning. Socio-Economic Planning Sciences, 74. https://doi.org/10.1016/j.seps.2020.100932

[34] Shao, J., Wang, X., Liang, C., & Holguín-Veras, J. (2020). Research progress on deprivation costs in humanitarian logistics. International Journal of Disaster Risk Reduction, 42, 101343. https://doi.org/10.1016/J.IJDRR.2019.101343

[35] Stienen, V. F., Wagenaar, J. C., den Hertog, D., & Fleuren, H. A. (2021). Optimal depot locations for humanitarian logistics service providers using robust optimization. Omega, 104, 102494. https://doi.org/10.1016/J.OMEGA.2021.102494

[36] Su, Y., Liu, B., & Li, D. (2018). What Causes the Differences in Management Practices between US and UK? An Application of Decomposition Analysis on Firms across Countries. Theoretical Economics Letters, 08(10), 1684-1700. https://doi.org/10.4236/tel.2018.810109

[37] Tofighi, S., Torabi, S. A., & Mansouri, S. A. (2016). Humanitarian logistics network design under mixed uncertainty. European Journal of Operational Research, 250(1), 239-250. https://doi.org/10.1016/j.ejor.2015.08.059

[38] Van Wassenhove, L. N. (2006). Humanitarian aid logistics: supply chain management in high gear. Journal of the Operational Research Society, 57(5), 475-489. https://doi.org/10.1057/palgrave.jors.2602125

[39] Wang, W., Yang, K., Yang, L., & Gao, Z. (2023). Distributionally robust chance-constrained programming for multi-period emergency resource allocation and vehicle routing in disaster response operations. Omega (United Kingdom), 120. https://doi.org/10.1016/j.omega.2023.102915

[40] Zhang, L., & Cui, N. (2021). Pre-positioning facility location and resource allocation in humanitarian relief operations considering deprivation costs. Sustainability (Switzerland), 13(8). https://doi.org/10.3390/SU13084141