

The External Factors that Affect the Performance of Humanitarian Logistics in Amhara National Regional State, Ethiopia

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Abstract

The overriding aim of this study was to examine external predictive factors that affect the performance of humanitarian logistics in Amhara National Regional State humanitarian aid organizations and compare humanitarian aid organizations' performance of humanitarian logistics. To this study purpose, mixed methods design (both quantitative and qualitative) particularly embedded design was employed. Three humanitarian aid organizations working in Amhara National Regional State were target population of the study. Sample participants were selected through census sampling method. To collect data from participants, a questionnaire comprised 39 Likert scale items and semi-structured interview questions were developed and used. The reliability coefficients of questionnaire item scales were greater than Cronbach's Alpha (α) of .75. To analyze quantitative data frequency, stepwise multiple regression and one-way ANOVA were computed via SPSS version 20. This study found government situational factors and donor funding as external factors that significantly predict the performance of humanitarian logistics. It is concluded that some determinant factors have had much more effect on performance of humanitarian logistics than other variables. To this end, the need to identify the external or situational success factors of humanitarian logistics performance is recommended.

Keywords: External factors; Logistics performance; Humanitarian aids; Relief response

1. Introduction

Nowadays the inevitableness of disaster seems troublesome to deal with. In line to this, the International Red Cross and the Red Crescent Movement defines disaster as a danger of harming person's lives, serious disruption of the functioning of society, causing widespread human, material or environmental losses which exceed the ability of those to cope with the situation using only by using their own resources (IFRC, 2008).

Accordingly, the study by Sapir (2011 cited in Scarpin & Silva, 2014) indicates that 207 million people had been affected by a natural disaster in 2010, and 296,800 of them have lost their lives and about \$ 109 billion dollar destruction in assets was registered worldwide. This clearly implicates that many countries and their people are highly affected by natural disasters (such as floods, droughts, earthquakes, hurricanes, famine) or man-made disasters (such as wars, conflicts, and refugee crisis) around the world in recent decades (EM-DAT, 2011). This severity of the problem caused by both natural and man-made disaster seems call for sustainable humanitarian aid services and relief operations.

In the same vein, Ethiopia experienced one of its worst droughts in decades, two years back, due to El Niño weather system (USAID, 2016). The impact of this phenomenon in Ethiopia is still ongoing, and the East Africa Report (2015) indicates that 10.2 million people have been exposed to drought and need for relief and this report confirms that among those 2.5 million people have been exposed to the disaster in the Amhara national regional state. Still now unmentionable number of people in Ethiopia is under food insecurity. In line to this, USAID (2016) underlines that the nature of humanitarian crises in Ethiopia suggests the need for concerted disaster risk reduction and disaster mitigation. This situation calls for humanitarian aids to be the prime agenda of the government, humanitarian organizations, international NGOs, and local NGOs. Regarding the environmental factor, the impact of El Niño climatic event has forced northeastern and central Ethiopia to have minimal rainfall for consecutive seasons which in turn caused deteriorating agricultural, livestock, food security, and nutrition conditions (USAID, 2016). According to field report from employees, Afar, northeastern Amhara, Oromiya's East Hararghe and West Hararghe zones, and southeastern Tigray have received delayed and intermittent kiremt rainfall which caused chronic food-insecurity and severe negative effect by the 2015/2016 El Niño climatic event (USAID, 2016).

Cognizant of natural and man-made disasters occurring more frequently, the humanitarian aid organizations strive to save the lives of disaster affected people throughout the world (Fritz Institute, 2005; EM-DAT, 2008). In this regard, humanitarian logistics plays an important role in the distribution process among field officers, local institutions, and disaster victims (Usman & Wismadi, n.d). Likewise, logistics operation is an important factor in humanitarian aid operations, to the extent that logistics efforts account for 80 percent of disaster relief (Trunick, 2005 cited in Overstreet et al., 2011). Moreover, Kent (2004 cited in Overstreet et al., 2011) claims that the issue of humanitarian logistics could be a huge international commercial issue and a center of attention

for the next four decades.

However, Thomas and Kopeczak (2005) confirmed the existence of many problems with emergency relief and life saving process of disaster affected people that stemmed from logistics related problems in humanitarian aid organizations. In this regard, great emphasis was not given to humanitarian logistics and logistics skills remained less developed (Van Wassenhove, 2006).

A large body of research evidence has revealed that the humanitarian logistics has faced certain challenges which may need serious attention of stakeholders. For instance, a study by Kovacs and Spens (2009) on the challenges in humanitarian logistics of Ghana has found the inappropriate donations, delays, lack of funding, limits in use of funding, lack of transport infrastructure, lack of vehicles, and lack of warehouse as major external factors that affect the performance of humanitarian logistics. Similarly, a study by Kunz and Reiner (2012) identified four external factors affecting the performance of humanitarian logistics, namely, environmental situational factors, governmental situational factors, socio-economic situational factors, and infrastructural situational factors. However, the authors did not study the predictive effect of those factors on the performance of humanitarian logistics. This gap initiated the present study.

Similarly, in the case of Ethiopia, slow offloading of supplies and limited availability of trucks hinder timely dispatch of newly arrived goods from ports to regional warehouses which in turn affects humanitarian logistics performance (USAID, 2016). Poor infrastructure and distance have reduced water-trucking access to some drought-affected areas in Amhara (USAID, 2016), as a result population in much of eastern Amhara has continued to experience humanitarian crisis that result from severe food insecurity. USAID (2016) further pointed out that weather-related access constraints continue to affect the timely dispatch and distribution of relief food assistance in Amhara region because of the fact that heavy kiremt(summer) rains have affected key roads and bridges, rendering them impassable for larger vehicles. It is, therefore, extremely important and necessary that a distribution center towards environmental disasters cases must take into account a couple of aspects, such as location, access to large vehicles, platforms to unload the goods, size sufficient to store donations and preference for a site held by the government (Scarpin & Silva, 2014).

However, the state of the aforementioned challenges varies across humanitarian organizations (Kovacs & Spens, 2009 cited in Demeke, 2016). Likewise, Usman and Wismadi (n.d.) found out that the humanitarian logistics is not directly related to the interaction process with the donors and does not have contact with authorities who plan and implement policies related to the flow of materials, information, and funds from donors to beneficiaries. They further investigated that the humanitarian logistics does not include the capacity management process of field officers and local institutions as well as the identification process on situation and location of disaster affected. USAID (2016) also found that lack of funding as a challenge to respond to humanitarian crisis in Ethiopia. Moreover, slow offloading of supplies at the Port of Djibouti, lack of vehicles, and weather condition were the bottlenecks of humanitarian logistics in Ethiopia (USAID, 2016). Therefore, it is clear that to mitigate disaster caused humanitarian crisis, effective and efficient humanitarian logistics system need to be established. In doing so, the aforementioned challenges should be transformed to opportunities. This necessitates profound inquiry which will be able to determine the extent to which the determinant factors influence humanitarian logistics performance among humanitarian aid organizations.

Nonetheless, very few studies have been conducted on the state of humanitarian logistics in Ethiopia. From these studies, some were surveys commissioned by UN and other humanitarian aid organizations (Mowjee, 2008; USAID, 2016), while others were conducted to fulfill the requirement for masters degree (Girma, 2016; Demeke, 2016; Endale, 2016; Mebrahtom, 2016). However, there is no fairly recent and sufficient study that examined the external factors which significantly predict the performance of humanitarian logistics in Amhara National Regional State (ANRS). Therefore, this study uniquely examined the external or situational predictive factors that influence humanitarian logistics performance among three humanitarian organizations working in ANRS. Likewise, this study investigated the difference between humanitarian aid organizations in relation to performance of humanitarian logistics. To this end, the present study sought to address the following two basic questions.

- To what extent do the external or situational factors affect the performance of humanitarian logistics among humanitarian organizations in Amhara National Regional State?
- Is there a significant difference in performance of humanitarian logistics among humanitarian aid organizations?

2. Review of Related Literature

A large body of literature has documented five major situational or external factors that could affect the performance of humanitarian logistics, namely, governmental factors, environmental factors, socio-economic factors, infrastructural factors, and donor funding. The details of these external factors are discussed hereunder.

- **Government situational factors:** Kunz and Reiner (2012) depicted that type of regime, the national regulations towards relief organizations, the efficiency of the state, the level of corruption are among many other

government factors affecting performance of humanitarian logistics. Thus, it is possible to say the government related challenges category has subcategories associated to political, collaboration, security, earmarking fund, interferences and customs clearances challenges.

According to Kunz and Reiner (2012), ineffective and illegitimate regime imposes restrictions on relief supply chains. Furthermore, political instability in East Africa has slow down the relief effort in the region (Cho et al., 2010 as cited in Kunz and Reiner, 2012). Therefore, the host governments have the responsibility to put into place protocols and take action to reduce the probability of reducing the harmful effect of disasters (Mingli Liu, 2013 cited in Mebrahtom, 2016).

- **Infrastructural situational factor:** An effective and timely humanitarian relief operation has the capacity to save thousands of lives. However, humanitarian logistics operates in such areas where difficult to reach under normal circumstances because roads are often inadequate (Kunz & Reiner, 2012). The degraded infrastructure concerns on road network, railway, airports, power supply, warehouses, communications lines, etc. that are damaged in the disaster or were non-existent to begin within the affected region become a great obstacle for the performance of humanitarian logistics (Tomasini & Van Wassenhove, 2009). They further argue that the existence of a well- developed road infrastructure will facilitate the logistical operations, while a poor road network tends to disrupt and slow down the distribution of relief items.

- **Socio-economic situational factor:** Ramsden (2014 as cited in Demeke, 2016) described the socio-economic challenges as: uncertainty in demand and supply; uncompetitive of market economy; the absences of local suppliers; availability stiff competition; absences of financial donors; the culture and language of the host country; high inventory and transportation cost, and lack of trust among the supply chain partners. Therefore, availability of local suppliers, literacy level of the society, type of market economy, the local culture and religion, are among other Socio-economic situational factors which affect the performance of humanitarian logistics (Altay et al., 2009 cited in Demeke, 2016; Dowty & Wallace, 2010; Kandiyoti, 2007; Leon et al., 2009; Maon et al., 2009).

- **Environmental situational factors:** A significant proportion of the world's population has suffered in recent years as a result of disasters both natural and manmade. Humanitarian responses to the 2004 Tsunami in the Indian Ocean, the 2005 earthquake in Pakistan, various Hurricanes in the United States, the conflict in Sudan, and the spread of HIV/AIDS in Africa have largely been neither effective nor efficient (Altay et al., 2009 cited in Demeke, 2016). A recent example of this is the 2010 earthquake in Haiti and the devastation after that. The reasons are many, but are partly attributable to the sheer size and scope of such disasters. In 2007 alone, 106 natural disasters killed 17,000 people and affected 201 million more. Between May and September 2007, the Red Cross responded to natural disasters in 18 countries in Africa, 16 in the Americas, 13 in Asia, and 10 in European Nations (Nollet et al. 1994 cited in Demeke, 2016). The resent phenomena which is caused by El Nino effect is worst of the past decades for the number of people in need of relief assistance in Ethiopia had increased to 8.2 million (Horn affairs report, 2015).

- **Lack of donors funding:** A study by Van Wassenhove (2006) attested that the most of humanitarian organizations have problem on availability of funds in order to train and improve the capacity of logisticians. As result logistics operation would not be better prepared and effective. Thomas and Kopczak (2005) further ascertained this fact that the huge amount of funds are mostly allocated for direct relief but insufficient amount of funds are allotted for logistic strategic preparedness and investment on infrastructures and systems development. In the same vein, Maon, Lindgreen and Vanhamme (2009) argued that the aid organizations obtain short term relief funds from the donors, and they cannot flexibly use the obtained fund. Therefore, organizations are obliged to engage from specific field projects and usually suffer from adopting and using the available a strategic position. Moreover, according to Tomasini and Wassenhove (2009) not only lack of funding, but also unsolicited donations is also the other major causes of operation bottlenecks in disasters.

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3. Research Methodology

- **Target Population:** According to Creswell (2012), a target population (or the sampling frame) is a group of individuals (or a group of organizations) with some common defining characteristic that the researcher can identify and study. Accordingly, Organization for Rehabilitation and Development Agency (ORDA), Amhara National Regional State Disaster Prevention and Food Security Agency (ANRS DPFSA), and Save the Children were target population of this study.

- **Sample and Sampling Techniques:** In this study, employees that have been working in the above mentioned humanitarian aid organizations were selected through census sampling technique. As a result, all employees working in these selected organizations were involved in this study.

Table 1. Sample distribution across sex and organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Sex	Male	49	80.3	80.3	80.3
	Female	12	19.7	19.7	100.0
	Total	61	100.0	100.0	
Organization	Save the Children	21	34.4	34.4	34.4
	ORDA	21	34.4	34.4	68.9
	ANRS DPFSA	19	31.1	31.1	100.0
	Total	61	100.0	100.0	

As can be seen from the above table, from the sample participants involved in the study 49(80.3%) were male, while 12(19.7%) were female. Table 1 delineated that from the total of 61 participants, 21(34.4 %) were from Save the Children, and similarly 21(34.4%) were from Organization for Rehabilitation and Development Agency (ORDA). Likewise, the sample participants from Amhara National Regional State Disaster Prevention and Food Security Agency were 19 (31.1%). This result attests that the number of participants involved in this study was almost equal across humanitarian aid organizations.

• **Data Collection Instruments**

Questionnaire: The external predictor variables were government situational factor, infrastructural situational factor, socio-economic situational factor, environmental situational factor, and donors funding. To collect data on these external factors, 39 Likert scale items with five points ranging from very small effect (1) to very large effect (5) were used. Likewise, Cronbach's alpha coefficient was used to check the reliability of instruments developed to measure the external situational factors as predictors of logistics performance. Accordingly, the reliability of instruments developed to measure government situational factors (10 items), infrastructural factors (8 items), environmental factors (5 items), socio-economic factors (8 items) and donor funding (8 items) was coefficient alpha of .80, .85, .85, .87, and .89, respectively. These results showed acceptable reliability of instruments as long as a coefficient alpha of greater than or equal to .75 is considered as highly acceptable reliability measure.

Key informant interview: To triangulate the data gathered through questionnaire and to get in-depth information, semi-structured interview items were prepared and key informant interview was conducted on five informants. The discussion took place in Amharic language with the key informants to make the communication understandable, to collect relevant data and to make the results reliable.

• **Data analysis techniques:** The data gathered through questionnaire were coded, entered into computer, cleaned and then analyzed using SPSS version 20. Hence, descriptive statistics, one-way ANOVA analysis, and stepwise multiple regression analysis techniques were employed. To triangulate quantitative results, qualitative data were analyzed thematically.

• **Stepwise Multiple Regression Model**

$$PeHuLo = 3.339 - 0.874 * (GoFa) + 0.39 * (DoFu) \dots \dots \dots \text{Equation(1)}$$

Where,

PeHuLo - Performance of Humanitarian Logistics;

GoFa - Governmental Situational Factors; and

DoFu - Donor Funding.

4. Results

4.1 Results on Demographic Characteristics

Table 2. Descriptive statistics result for demographic characteristics

Variable	Humanitarian aid organization			Total	
	Save the Children	ORDA	ANRS DPFSA		
Work experience	1-3 year	3(14.3)	8(38.1)	4(21.1)	15(24.6)
	4-6 years	9(42.9)	2(9.5)	6(31.6)	17(27.9)
	7-10 years	0(0.0)	9(42.9)	0(0.0)	9(14.8)
	> 10 years	9(42.9)	2(9.5)	9(47.4)	20(32.8)
Total	21(100.0)	21(100.0)	9(100.0)	61(100.0)	
Participants' work position	Head of logistics	2(9.5)	11(52.4)	5(26.3)	18(29.5)
	Logistics officer	16(76.2)	8(38.1)	12(63.2)	36(59.0)
	Emergency relief store officer	3(14.3)	2 (9.5)	2(10.5)	7 (11.5)
Total	21(100.0)	21(100.0)	19(100.0)	61(100.0)	
Educational background	Degree	14(66.7)	10(47.6)	12(63.2)	36(59.0)
	Masters	7(33.3)	11(52.4)	7(36.8)	25(41.0)
Total	21(100.0)	21(100.0)	19(100.0)	61(100.0)	

As portrayed in Table 2 above, 32 (52.5%) participants of the study had less than seven years of work experience, while 30 (47.5%) had above seven years of work experience in humanitarian aid organizations. However, 15(24.6%) participants had a maximum of three year work experience. Results depicted that 12(57%) participants from Save the Children had less than seven years of work experience while 9(42.9%) had more than ten years of work experience in the organization. On the other hand, 11 (52.4%) participants from ORDA had more than seven years of work experience while 10 (47.6%) had less than seven years of experience of which 8 (38.1%) had a maximum of three year work experience. As delineated in Table 2 above, 10(52.7%) participants from ANRS Disaster Prevention and Food Security Agency had less than seven year of experience whereas 9(47.4%) had more than ten year of work experience in the organization.

Table 2 delineated that from the total participants 18 (29.5%) were heads of logistics department, 36 (59.0%) were logistics officers, and 7 (11.5%) were emergency relief store officer. Regarding educational background of participants, 36(59.0%) were first degree holders while 25(41.0%) were masters degree holders.

4.2 Stepwise Multiple Regression Analysis

Table 3. Correlation matrix of external (situational) factors, N=61

Variables	1	2	3	4	5	6
Logistics Performance	1.000					
Governmental factors	-.378**	1.000				
Infrastructural factors	.212*	-.189	1.000			
Socio-economic factors	-.029	-.180	.141	1.000		
Environmental factors	.151	-.204	.371**	.183	1.000	
Donor Funding	.234*	.197	.184	.138	.343**	1.000

- * $p < .05$; ** $p < .01$

Table 3 above portrays a moderate negative correlation between humanitarian logistics performance and governmental situational factors ($r = -.378, p = .001$); a weak positive correlation between humanitarian logistics performance and infrastructural situational factors ($r = .212, p = .050$); a weak positive correlation between humanitarian logistics performance and donor funding ($r = .234, p = .035$); a moderate correlation between environmental situational factors and infrastructural situational factors ($r = .371, p = .002$), and a moderate positive correlation between donor funding and environmental factors ($r = .343, p = .003$).

Table 4. Stepwise multiple regression model summary for external (situational) predictors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.378 ^a	.143	.128	.55529	.143	9.824	1	59	.003
2	.492 ^b	.242	.216	.52675	.099	7.565	1	58	.008

- a. Predictors: (Constant), Government situational factors
 b. Predictors: (Constant), Government situational factors, Donor Funding
 c. Dependent Variable: Performance of Humanitarian Logistics

The coefficient of determination (R^2) tells us the proportion of the variance in the dependent variable (performance of humanitarian logistics) that can be explained by variation in the predictor variables (government situational factors and donor funding, in this particular case). Thus, 24.2 percent of variance in performance of humanitarian logistics can be explained by the differences in government situational factors and donor funding (the higher the number of governmental factors, the lower performance of humanitarian logistics, while an increase in donor funding leads to high performance of humanitarian logistics). Moreover, the R^2 change value of .143 and .099 respectively implied that 14.3 percent of variance in performance of humanitarian logistics was due to governmental situational factors, while 9.9 percent variance in performance was due to donor funding.

Table 5. Stepwise multiple regression model significance test result for external predictors

Model		ANOVA ^a				
		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.029	1	3.029	9.824	.003 ^b
	Residual	18.192	59	.308		
	Total	21.221	60			
2	Regression	5.128	2	2.564	9.241	.000 ^c
	Residual	16.093	58	.277		
	Total	21.221	60			

- a. Dependent Variable: Performance of Humanitarian Logistics
 b. Predictors: (Constant), Government situational factors
 c. Predictors: (Constant), Government situational factors, Donor Funding

Table 5 depicts that the multiple regression model for external (situational) variables was found to be statistically significant predictor of the performance of humanitarian logistics ($F(2, 58) = 9.241, p < .001$). Thus, the model was considered as a good predictor of performance of humanitarian logistics based on government situational factors and donor funding.

Table 6. Summary of stepwise multiple regression analysis coefficients explained by external predictors

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Correlations		
		B	Std. Error				Zero-order	Partial	Part
1	(Constant)	3.469	.227		15.301	.000			
	Government situational factors	-.748	.239	-.378	-3.134	.003	-.378	-.378	-.378
2	(Constant)	3.339	.220		15.162	.000			
	Government situational factors	-.874	.231	-.441	-3.782	.000	-.378	-.445	-.432
	Donor Funding	.390	.142	.321	2.750	.008	.234	.340	.315

- a. Dependent Variable: Performance of Humanitarian Logistics

As Table 6 depicts, the predicted performance of humanitarian logistics when there is no governmental situational factor and no donor funding is 3.339. As indicated in the above table, the slope of governmental situational factor was -.874. This means that for every one unit increase in governmental situational factor, performance of humanitarian logistics decreases by .874, after controlling for donor funding. This result was statistically significant ($t = -3.782, p < .001$).

On the other hand, the slope of donor funding was .390. This means that for every one unit increase in donor funding, the performance of humanitarian logistics increases by .390, after controlling governmental situational factors. This result was statistically significantly greater than zero ($t = 2.750, p = .008$). Furthermore, Table 6 delineated that governmental situational factors had relatively higher contribution (standardized $\beta = -.441$) in predicting the performance of humanitarian logistics compared to donor funding (standardized $\beta = .321$). In spite of this, both governmental situational factors and donor funding were statistically significant predictors of

humanitarian logistics performance.

However, some of external or situational determinants that were not significant predictors of humanitarian logistics performance were removed from the model. In this regard, infrastructural situational factors, socio-economic situational factors, and environmental situational factors were discarded from the model because of non significant contribution in predicting performance of humanitarian logistics ($p=.528$, $p=.168$ & $p=.637$, respectively). Infrastructural situational factor was removed from the model even though it had statistically significant association with performance of humanitarian logistics. This shows that the existence of association between independent variable and outcome variable may not be a guarantee for independent variable to be taken as predictor variable.

4.3 One-Way ANOVA Analysis

Table 7. Descriptive statistics for performance of humanitarian logistics

	N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
Save the Children	20	3.225	.528	.118	2.977	3.472	2.56	3.81
ORDA	20	2.650	.357	.080	2.482	2.817	2.00	3.31
ANRS DPFSA	21	2.458	.125	.027	2.401	2.515	2.25	2.63
Total	61	2.772	.492	.063	2.646	2.898	2.00	3.81

Table 8. ANOVA result for performance of humanitarian logistics

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.468	2	3.234	23.262	.000
Within Groups	8.064	58	.139		
Total	14.532	60			

Table 9. Post Hoc Tests result

Multiple Comparisons

Dependent Variable: Performance of Humanitarian Logistics

LSD

(I) Humanitarian aid organization	(J) Humanitarian aid organization	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Save the Children	ORDA	.57500*	.11791	.000	.3390	.8110
	ANRS DPFSA	.76667*	.11650	.000	.5335	.9999
ORDA	Save the Children	-.57500*	.11791	.000	-.8110	-.3390
	ANRS DPFSA	.19167	.11650	.105	-.0415	.4249
ANRS DPFSA	Save the Children	-.76667*	.11650	.000	-.9999	-.5335
	ORDA	-.19167	.11650	.105	-.4249	.0415

*. The mean difference is significant at the 0.05 level.

The ANOVA's *F*-test result showed that a statistically significant difference in performance of humanitarian logistics between Save the Children, ANRS Disaster Prevention and Food Security Agency, and Organization for Rehabilitation and Development Agency ($F(2, 56)= 23.262$, $p<.001$). ANOVA post hoc test results also showed that Save the Children has significantly high performance of humanitarian logistics compared to ORDA and ANRS Disaster Prevention and Food Security Agency ($p<.001$). However, ORDA and ANRS Disaster Prevention and Food Security Agency had no statistically significant difference in performance of humanitarian logistics ($p=.105$).

5. Discussion

In order to improve performance of humanitarian logistics, developing possible strategies (Usman & Wismadi, n.d.) and identifying critical success factors of humanitarian logistics (Pettit, & Beresford, 2009) are found to be an important preliminary step. Hence, as to Pettit and Beresford (2009), within humanitarian aid organizations there should be identifiable critical success factors (CSFs) for their logistics performance. Due to this fact, examining the basic external factors which are both critical for success and common to most humanitarian aid organizations could provide humanitarian aid organizations with ways of increasing the effectiveness of their logistics activity.

The present study reveals that 24.2 % of variance in performance of humanitarian logistics can be explained by the differences in government situational factors and donor funding (the higher the number of governmental factors, the lower performance of humanitarian logistics, while an increase in donor funding leads to high

performance of humanitarian logistics). Hence, the multiple regression model for these two external (situational) variables was found to be statistically significant predictor of the performance of humanitarian logistics ($F(2, 58) = 9.241, p < .001$). This two variables model is considered as a good predictor of performance of humanitarian logistics based on government situational factors and donor funding. Therefore, it is clear that government situational factors and donor funding are statistically significant predictors of the performance of humanitarian logistics.

The result of this study also indicates that 14.3 % of variance in performance of humanitarian logistics is due to government situational factors. As a result, for every one unit increase in governmental factors, performance of humanitarian logistics decreases by .874, after controlling for donor funding, which is statistically significant ($t = -3.782, p < .001$). Congruent to this result, a study by Mebrahtom (2016) attested that the government related variables explained 31.5% of the performances of humanitarian aid organizations and the model predicts that an additional unit of government challenges will decrease the performance by 0.381. Mebrahtom further found that the government related challenges negatively affects for responsiveness, collaboration, flexibility, and cost performances. These include; government bureaucracy, stuck national regulations toward relief organizations, registration processes, customs, and clearance delays, tax exemption processes were among others (Mebrahtom, 2016). This implicates the need, from government side, to eliminate government related hindering factors of humanitarian logistics performance through refining rules and regulations related with humanitarian aid process as long as the government is the prime responsible body to protect its people from disaster. Hence, the government should alertly work to eliminate the delays and costs during loading and unloading.

The present study also found that 9.9 % variance in performance of humanitarian logistics is explained by donor funding and every one unit increase in donor funding also increases performance of humanitarian logistics by .390, keeping other factors constant. This result is statistically significantly greater than zero ($t = 2.750, p = .008$). Consistent to this finding, a study by Demeke (2016) attested that a unit change in donors' funds for logistics infrastructures and capabilities as well as for long term disaster preparedness leads to an increase in performance of humanitarian logistics by 0.191, holding other factors constant. Furthermore, Usman and Wismadi (n.d.) delineated that humanitarian logistics interwoven with humanitarian supply chain management which controls the process of material, information and financial flows and link donors with the beneficiaries. Hence, humanitarian logistics units ought to understand the stand of donors and provide timely financial report to donors to build trust and sustain their funding. This seems to show that the availability of sufficient funds is essential to ensure effective and efficient humanitarian logistics performance. It further implicates that the humanitarian aid organizations need to understand the plan and interest of donors to sustain and rise their funding.

However, some of external or situational determinants that are not significant predictors of humanitarian logistics performance are removed from the model. In this regard, infrastructural situational factors, socio-economic situational factors, and environmental situational factors are discarded from the model because of non significant contribution in predicting performance of humanitarian logistics ($p = .528, p = .168$ & $p = .637$, respectively). Infrastructural situational factor was removed from the model even though it had statistically significant association with performance of humanitarian logistics. This shows that the existence of association between independent variable and outcome variable may not be a guarantee for independent variable to be taken as predictor variable.

To substantiate quantitative results, key informant interview was carried out. Accordingly, key informants have reported unplanned political meetings, shortage of water, absence of road, distance, logistics delay, waiting weak-ends and other holidays to take provisions, distribution center problems, low budget for warehouse maintenance, high loading and unloading cost, increased number of needy people, people's poor work culture, lack of budget, security problem, and lack of education as external factors that impacted the performance of humanitarian logistics. Interviewees on the other hand reported lack of collaborative work, absence of sufficient training, and inadequate use of technology as organizational factors that affect the performance of humanitarian logistics. However, this result clashes with quantitative results which determine that the environmental factors, socioeconomic factors, and infrastructural factors have non-significant predictive effect on humanitarian logistics performance. This conflicting result indicates that it may be misleading to conclude that these factors do not have any effect on the performance of humanitarian logistics.

Unlike Demeke's study which reported positive effect of infrastructural situational factors, a study by Mebrahtom (2016) revealed that an additional unit of infrastructure challenges will decrease performance by 0.205 units. He further attested that the infrastructure challenges have negative effects on responsiveness, collaboration, flexibility, and cost performances of humanitarian aid organizations. Moreover, his study indicated that an additional unit of socio-economic challenges will decrease the performance by 0.348. Disagreements between these findings seem to imply that the extent to which one variable affects the performance of humanitarian logistic differs from one organization to another as long as the studies were

conducted in different humanitarian aid organizations.

To this end, humanitarian aid organizations involved in this study differ in performance of humanitarian logistics. Hence, the performance of humanitarian logistics in Save the Children was significantly greater than that of ORDA and ANRS Disaster Prevention. However, ORDA and ANRS Disaster Prevention had no significant difference in performance of humanitarian logistics. Congruent to this finding, the international experience shows that the level of performance in humanitarian logistics varies with organizations (Usman and Wismadi, n.d.). This study result seems to imply that INGOs have relatively good performance compared to local NGOs.

6. Conclusion

The present study provides bewitching perceptivities of the external or situational factors that significantly predict the performance of logistics in humanitarian aid organizations. Based on the aforementioned findings and discussion, it is concluded that the governmental situational factors and donor funding are the significant predictors of the performance of humanitarian logistics compared to other hypothesized external or situational factors. Accordingly, government situational factors negative affect the performance of humanitarian logistics, while donor funding has positive effect on the performance of humanitarian logistics. However, some of the preliminary hypothesized external factors; namely, infrastructural factors, socioeconomic factors, and environmental situational factor seem to have fragile predictive effect on the performance of humanitarian logistics. This does not mean that these variables totally do not have any effect on the performance of humanitarian logistics but rather these variables seem to impact the performance of humanitarian logistics minimally. Substantially, qualitative results have delineated unplanned political meetings, shortage of water, absence of road, logistics delay, distribution center problems, high loading and unloading cost, lack of budget, security problem, and suchlike as external (situational) factors that negatively affect the performance of humanitarian logistics. Moreover, it is deduced that INGOs seem to have relatively high performance of humanitarian logistics than local NGOs. To this end, every stakeholder should proactively note the external challenging factors and device a mechanism ahead so as resolve these challenges as long as logistics operations shoulder the huge part of aid organization's activities.

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