



Transport Operational Challenges of Relief Organisations in Nigeria

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ABSTRACT

The importance of transport operations in relief aid distribution to internally displaced persons (IDPs), especially in Jigawa State, cannot be overemphasized as it determines the success, effectiveness and efficiency of any relief organization. Transportation is an essential element of logistics system as it cuts down time wasting and supports spatial economic utility of products and services from point to point in a supply chain. This paper examines relief organizations' transport operational challenges in Nigeria with a view to emphasizing the overall impact of transport in managing the logistics of welfare of internally displaced persons (IDPs). Descriptive and inferential survey designs are used to analyse both primary and secondary data obtained for this study. The findings in this study reveals that bad roads, lack of professionals, corrupt practices and bad distribution methods are some of the challenges that form the clog in the wheel of relief organisations' bids for providing temporary emergency response services to internally displaced persons (IDPs). This paper therefore, recommends that the Federal Government should set up a feedback system at strategic points during deliveries to ensure transparency and employment of logistics professionals as well as usage of IT real time gadgets, as this will ensure efficient last mile aid distribution.

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INTRODUCTION

In the context of Relief Organisations (ROs), transportation is defined as the activities involving movement of supplies from point of origin to internal end users or beneficiaries (Blecken, 2010). Transport basically could be defined as the movement of people, animals and goods from one location to the other through a medium. Several modes of transport existed among which are: air, rail, road, water, pipeline and cable (Button & Pearman, 1981). Unlike the early days of man, much later then transportation systems were significantly challenged by problems such as globalization, government budget constraints, population increase and increased demand from special interest groups such as senior citizens, infrastructure challenges, sustainability issues, and energy costs.

More than any other factor, trade had helped to drive transportation requirements and had brought quickly, more complex systems of transport practices and operations, logistics, technology, infrastructures, resource and management dynamism such as the Supply Chain Management system (Rodrigue, Comtois & Slack, 2016). Supply Chain Management (SCM) is the management of the flow of goods and services which involved movement

and storage of raw materials, work in progress inventory and of finished goods right from point of origin to point of consumption. In other words, SCM was mainly concerned with movement (transportation), adding value, monitoring and delivery/distribution (Ballou, 2007). Transportation is a key component of relief organisations' logistics that if properly integrated with other Supply Chain (SC) activities such as customer service, procurement, warehousing, inventory management and order processing, could lead to improved process flows and reduce costs in relief operations chain (Gunasekaran, & Ngai, 2005).

Transportation plays a connecting role among several steps of organisations; and its quest for minimizing cost, maximizing resources at the shortest time possible constituted logistics (Perret, & Jaffeux, 2007). In Nigeria, as of the third quarter of 2014, it was estimated that there were about 1,538,982 IDPs and most of whom were from the northeastern Nigeria due to the insurgent attacks in the region (IDMC, 2015) in different camps and communities within the Northeastern and Northwestern regions of Nigeria. With the numbers of displaced persons increasing in Nigeria especially in the North East/West (IDMC, 2015), and coupled with



public agitations and outcries against relief organisations (Kiraga, 2014; Bisau, 2011; Siabour, 2008), this research focuses on NEMA and JISEMA transport and logistics operations in Jigawa State of Nigeria to investigate if their organisational goals are met. Increasing numbers of displaced persons is exerting more pressures on humanitarian relief organizations whose focus are on quick, effective and efficient deliveries of relief materials to persons in need in regions of disaster attacks (Maon, Lindgreen & Vanhamme, 2009); and about 80% of relief operations costs centres on logistics in which transportation is dominant (Borney & Trunik, 2005). This is the reason why transportation is a key and vital single element when it comes to logistics costs, of most organisations (Dornier, Ernst, fender & Kouvelis, 2008). Therefore, in order to achieve their organisational aim, be efficient and remain effective, relief organisations, just like profit driven organisations, are constantly seeking responsive ways of developing very good transport management skills. This also can help them reduce costs to the barest minimum and cut delays (Balchik, Beamon, Krejci, Miramatsu & Ramirez, 2010).

Various global studies though have revealed that, just as displaced persons are on the increase, so are complaints against relief organisations especially in the areas of delays and missing aid materials in transit (Balcik et al., 2008), inefficiency and usage of poor/old vehicles, (Barbarosoğlu & Arda, 2004), and lack of effectiveness, lateness and wrong mode of transport (Beamon & Balcik, 2008).

From the forgoing, coupled with research gaps in assessments of relief organisations in areas of transport, logistics and relief aid distributions, the need for a study focusing on relief organisations in Nigeria is necessary as the nation is still saddled with growing numbers of IDPs from the northeastern insurgent attacks. This research will assess extant operational transport logistics practices and challenges of IDPs' relief organisations in Nigeria.

REVIEW OF RELATED LITERATURE

A disaster is a catastrophic event that overwhelms available resources and necessitates supports or assistance from external sources (Koenig, Dinerman & Kuehl, 1996). According to the American Red Cross (2008), there are two main types of disasters namely natural and man-made. Natural disasters include meteorological, such as hurricanes and tornadoes; topological, which include avalanches and floods; underground disasters; and biological

disasters like communicable disease epidemics (Kovács & Spens, 2009). Man-made disasters include warfare (nuclear, chemical, and biological), civil, criminal/terrorist, and accidents. Whether man-made or natural, the fact remains that disasters are economically significant, with a direct insured cost of about \$8 billion per year (Swiss Report, 2005); and it is worthy to know that the costs of disasters extend beyond their immediate impacts, and affect man's value and that of his environments' (Pretty & Knight, 1997).

As at 2016 an estimated 31.1 million people were internally displaced due to conflicts and natural disasters. This figure is equivalent to one displaced person per second. In total, approximately 6.9 million new internal displacements by conflict and violence were recorded in 2016 (IDMC, global report 2016); with Sub-Saharan Africa overtaking the Middle East as the region most affected, with almost one million new displacements in the Democratic Republic of Congo alone as a result of violent clashes in the provinces of North Kivu, South Kivu and Kasai. Significant levels of displacement have also continued in the Middle East, with Syria, Iraq and Yemen experiencing close to two million new displacements in total during 2016. The 2016 IDMC with World Bank data on New IDPs displacements showed Sub-Saharan Africa 2.6 million (38.0%), Middle East and North Africa 2.1 million (30.7%), South Asia 1.1 million (15.9%), Latin America and the Caribbean 0.4 million (6.3%), East Asia and The Pacific 0.3 million (4.6%), and Europe and Central Asia 0.3 million (4.5%). Globally now as at the first quarter of 2017, over 40.3 million people are internally displaced as a result of conflict and violence (IDMC 2017 Global Report Grid); while 22.5 million are refugees and 2.8 million asylum-seekers (UNHCR 2016 Global Trends Report). At the end of 2011, around 25 million people around the world were internally displaced by armed conflict, generalized violence and human rights violations. In contrast, the number of refugees was approximately 16 million.

In Africa, according to the IDMC (2016), Nigeria has the highest numbers of IDPs in Africa with Three Million Three Hundred Thousand (3,300,000) IDPs and is third only to Syria with Six Million Two Hundred Thousand (6,200,000) and Colombia Five Million Seven Hundred Thousand (5,700,000) globally. The total populations of internally displaced persons (IDPs) in Africa are a lot more than those of refugees; only as at late 2010, while refugees totaled about two (2) million, the corresponding figure for



IDPs was nearly five times as many showing around eleven million (11,000,000) in sub-Saharan Africa alone (Ferris, 2012). Till date, there is no dedicated United Nations (UN) agency to address the needs of IDPs (Ferris, 2012).

The northeastern Nigeria has been witnessing helpless battles of insurgency perpetrated by a terrorist group for some number of years (Akinola, 2015). According to the Internal Displacement Monitoring Centre (IDMC, 2016), a total of 2, 152, 000 IDPs were identified in the six (6) Northeastern States of Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe. In his works (Sani, 2015) while studying the nature and management of Internally Displaced Persons (IDPs) in northern Nigeria from 2012-2015, and employing a survey approach and focusing on the North Eastern States, observed that in Borno State alone, 24.2% of her total population was displaced in 2015 following increased insurgent violence with bulk of the IDPs being women and children. However, 62% of the IDP populations from northwestern Nigeria are females while 38% are males.

Transportation can be termed as the key to success of any organization as it plays a connective role among several steps that result in the conversion of resources into useful goods especially in the business world so that consumers receive their need as fast as possible and in the fairest price possible (Daniela & Ovidiu, 2014). In transport, relief aid organisations physically move supplies in a reliable and safe manner, on time, cost effectively and efficiently to its destination. According to Tseng, Yue, and Taylor (2005), transportation is an essential component of logistics system as it reduces time wasting and aids spatial economic utility of products and services from point to point in a supply chain. Since around one third to two thirds of the expenses of enterprises' logistics costs are spent on transportation (Grzelakowski, 2011), it therefore means that good transportation systems will make assets to organisations. But, just as are assets, they could equally be costly especially where the organisational transport systems are not well managed and are challenged continually. Since transport has one of the greatest share among logistics elements organisations (Xiao, 2011), it is best that it has a good system to manage it so that its supposed effectiveness is felt all through. Humanitarian relief organisations need to be readily prepared and respond swiftly when delivering relief

aid materials to affected populations especially when disaster strikes.

According to Oloruntoba (2005), relief aid supply chains must be fast, agile and have strong relationships with their numerous partners especially in their transport department. Today, several challenges confront logistics managers and in one way or the other greatly influence their transport operations management. These challenges include insufficient funds, bad roads/lack of basic infrastructures, international growth (Christopher, 2016); economies of scale and scope, non-logistics experts, security concerns, environmental and energy use concerns; (Meixell & Norbis, 2008); and capacity shortage (Kiraga, 2014). Therefore, the ability of individual carriers to overcome challenges/limitations helps differentiate them from others (Maloni & Jackson, 2005)

While investigating Supply Chain Management (SCM) challenges and Supply Chain (SC) performance of humanitarian organisations in Nairobi, Kenya using selected key performance indicators of cost, supply chain reliability, improvement, collaboration and timeliness, Peter (2014) found that Supply Chain Management (SCM) challenges greatly contribute to SC inefficiencies especially in relief aid delivery. This, the study said, leads to delay, cost increments due to unwarranted expenses, failure to deliver humanitarian aid materials timely, and lack of reliability and efficiency in the humanitarian supply chain.

MATERIALS AND METHODS

This study adopted a survey method with respect to inferential statistics. The Ordinary Least Square (OLS) technique was used to estimate the relationship between transport operations' practices and challenges of relief organisations as regards last mile aid delivery, whose data (primary and secondary) spanned across a range of time. The sampling technique used for this study is purposive sampling. A sampling procedure is a purposive sampling that is a selection of professional people who have experience in various contexts in big data sets because they can purposefully inform an understanding of the research problem in the exploratory approach, and were chosen randomly based on deliberate criteria such as their knowledge, understanding, and experience on the subject of the study (Gall, Borg & Gall, 2013). Purposive sampling entails deliberate selection of individuals or



respondents by the researcher based on predefined criteria.

According to NEMA and JISEMA (2015), there were 15, 217 IDPs in Jigawa state. In order to have a wide geospatial coverage and in-depth qualitative academic research, this study used the Yamane (1967) simplified formula for proportions to calculate sample sizes for NEMA and JISEMA logistics staff, as well as the IDPs in the selected IDPs' community with huge logistics presence. The total sample of this study was 2259 IDPs and 25 ROs' staff as respondents. To determine the sample size for each selected IDP location, Yamane (1967) formula for determining number of respondents was employed using the formula $n = \frac{N}{1+N(e)^2}$ where n = was the sample size

N = was the population size, and
 e = was the level of precision (0.05).

Therefore, to elicit empirical findings and analyses, this study adopted the use of Statistical Package for Social Sciences (SPSS) software to analyse

Multiple Regression Analysis

Table 1: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .998 ^a | .997 | .996 | .52166 |

Source: Field Survey: 2019

The table above gives us summary statistics. Reading across, the second box tells us the Correlation (0.998 – a very strong, positive, linear relationships). This is also the coefficient of determination (R) which determines the strength and direction of relationships among the variables (both dependent and independent) under consideration in this study. The next box gives a measure of effect R²: 99.7% revealing the variance of relief organizations' logistics measurement is accounted for by transport measurement challenges (i.e tiny/small size

the data relevant in this study. The hypothetical statements were tested using the simple linear Regression test of significance as a tool for parametric test. This was done in order to identify whether the test results as well as the opinion of the respondents were significant or insignificant in order to make inferences.

RESULTS AND DISCUSSIONS

The objective of this study examines relief organisations' operational challenges especially in the area of transport, and the results presented accordingly. The critical challenges that confronted transport operations of relief organisations in the study area were enormous based on the findings elicited from this study.

Hypothesis Test:

H₀: There is no significant impact of transport challenges on relief organizations' logistics operations in the study area.

vehicles/roads, lack of logistics/security personnel and lack of tracking devices, poor transport management, bad roads and insufficient vehicles, as well as use of old and bad vehicles). Conversely, other factors not captured in this study were responsible for only 0.3% of the variations in Relief organisations' logistics measurement. Adjusted R² (99.6%) adjusts for the fact that we are using a sample to make inferences about a population. Then, we see the standard error of the estimate: 0.52166 (This is the standard deviation around the regression line).

Table 2: ANOVA

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|----------|-------------------|
| 1 | Regression | 1536.590 | 5 | 307.318 | 1129.846 | .000 ^b |
| | Residual | 5.170 | 19 | .272 | | |
| | Total | 1541.760 | 24 | | | |

Source: Field Survey: 2019



A multiple regression analysis, predicting transport measurement challenges (i.e tiny/small size vehicles/roads, lack of logistics/security personnel and lack of tracking devices, poor transport management, bad roads and insufficient vehicles, as well as use of old and bad vehicles) on relief organisations logistics measurement was statistically significant. Conversely, the multiple regression result revealed the impact or influence each of these challenges had on the dependent variable (relief organisations' logistics measurement). On a combined Analysis, F statistics is significant at .05. In a nutshell, the model is statistically significant in

predicting or explaining how transport measurement challenges (i.e tiny/small size vehicles/roads, lack of logistics/security personnel and lack of tracking devices, poor transport management, bad roads and insufficient vehicles, as well as use of old and bad vehicles) affect or influence relief organisations logistics measurement. The results of the findings do not support the null hypotheses, therefore we reject them. Conversely, the challenges faced by relief organisations in transport operation undermine their logistics measurement and ultimately their last mile distributions capabilities.

Table 3: Regression Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|-------|---|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 7.493 | .4311 | | 21.832 | .000 |
| | Lack of logistics/security personnel and lack of tracking devices | .753 | .195 | .514 | 3.860 | .001 |
| | Poor transport management | 1.261 | .267 | .995 | 4.726 | .000 |
| | Bad roads and insufficient vehicles | .372 | .085 | .293 | 4.396 | .000 |
| | Tiny/small size vehicles/roads | .513 | .189 | .404 | 2.707 | .014 |
| | Use of old and bad vehicles | .656 | .201 | .448 | 3.271 | .004 |

Source: Field Survey: 2019

From the estimated equation above, it is a clearly established fact that holding all independent variables (i.e Tiny/small size vehicles/roads, Lack of logistics/security personnel and lack of tracking devices, Poor transport management, Bad roads and insufficient vehicles, as well as Use of old and bad vehicles) constant at zero, the dependent variable (relief organisations logistics measurement) will vary by an alpha value (α) represented as constant. From the findings in this study, if all other independent variables are held constant while varying only one, a unit increase in Lack of logistics/security personnel and lack of tracking devices will lead to a 0.753 increase in Relief organisations' logistics measurement; a unit increase in Poor transport management will lead to a 1.261 increase in Relief organisations' logistics measurement; a unit increase in Bad roads and insufficient vehicles will lead to a 0.372 increase in Relief organisations' logistics measurement; a unit increase in Tiny/small size vehicles/roads will lead to a 0.513 increase in Relief organisations' logistics measurement; a unit increase in Use of old and bad vehicles will lead to a 0.656 increase in Relief organisations' logistics

measurement. Conversely, from the results of the multiple regression analysis in this study, this infers that Poor transport management had the most impact (or the most challenge) on Relief organisations' logistics measurement, followed by Bad roads and insufficient vehicles, then by Lack of logistics/security personnel and lack of tracking devices; and then by Use of old and bad vehicles while Tiny/small size vehicles/roads had the least impact (or the least challenge) on Relief organisations' logistics measurement in this study.

The summary test of the hypothesis revealed a statistically significant impact ($F = 29.846$, $p = 0.000$, or $p < 0.05$) of transport measurement challenges on relief organisations logistics measurement in this study. On a combined analysis, F statistic was significant at 0.05 level of significance. Consequently, the regression test of significance prompted the rejection of the null hypothesis since by implication, transport challenges of relief organisations affected their last mile distribution (LMD). According to Vitoriano, Ortuño, Tirado and Montero (2011), and Beamon and Balcik (2008) in



various similar studies concurred that transport challenges of relief organisations did affect their LMD.

RECOMMENDATIONS

Having assessed the two Federal and State funded relief organisations' operations and putting into consideration their challenges, the study provides the following recommendations.

1. Based on the findings in this study's revelation that though relief organisations considered the carrier to move inbound and outbound cargo in order to minimize costs of movement, yet they did not put in place adequate measures for evaluation transportation performance when choosing the carrier. Therefore, to be effective, relevant and dependable, the onus lies on relief aid organisations to choose their carriers in line with global best practices for transport operations.
2. The result of the findings revealed that relief organisations' transport operational challenges had negative effects on transport operations vis-à-vis their last mile distribution capabilities in the study area. Conversely, the transport operational challenges faced by relief organisations in transport operation limit their last mile distribution capabilities. Therefore, more concerted efforts are needed by the Federal Government to seek ways that improve relief organisations' last mile distribution capacities if they are to be relevant as far as delivery of need based relief materials to internally displaced persons are concerned.
3. Based on this study's findings that relief organisations never weighed up transit time in selecting carriers to outsource to and that vehicles run by "Hisbah", a religious organization delivers relief aid materials to IDPs' camps, it shows that the handling and security of relief aid materials is extremely downplayed. Therefore, to achieve any laudable objective, relief organisations must, of a necessity, source for Third Party Logistics Providers (3PLs) to partner with if they cannot transport themselves and they should also initiate security measures that can safe guard relief aid materials in transit.
4. The findings in this study revealed that relief organisations explored diverse consolidation options in order to reduce costs connected to moving relief aid materials to IDP camps and at the same time weighed up delivery capacity of transportation organisations so as to maximize

economies of scale using containerized 20 Feet truck mainly for their local distribution. Consequently, trucks delayed, hindered by bad roads and broke down in remote areas due to non-compliance with loading regulations and weight limits and therefore, the relief aid materials exposed to theft and diversion. Therefore, the Federal Government must enforce strict loading regulations and weight limits in order to forestall vehicular breakdowns in remote areas.

5. Based on the findings in this study, it was revealed that the LMD performance of the relief organisations was poor and no way near satisfactory level. This was underpinned on wrong methods adopted, bad vehicles used as well as unprofessional handlers of the operations during their LMDs. More so, the responsive rate was extremely low which gave rise to delays and constant diversion of goods in transit. All these were attributable to lack of expertise on the part of the relief organisations' staff. Therefore, the Federal Government should have set up a feedback system at strategic points during deliveries to IDPs' camps as this will serve as a monitoring mechanism, and where relief organisations fail to improve, penalty will have to apply.

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