

Humanitarian Logistics in Zimbabwe: A taxonomic literature review

Tatenda T Chingono, and C Mbohwa, *University of Johannesburg*

Abstract— This paper aims to provide an overview of the key problems and perspectives to-ward a sustainable supply chain of HIV/AIDS related commodities. It is based on an extensive literature study, taking into account recent major reviews, and considering a wide range of different views from eminent experts worldwide. Most research has focused on trying to implement and introduce humanitarian logistics and supply chain management to Humanitarian organizations in trying to make their efforts quicker, efficient and cost effective such researchers include, Clark and Culkin (2007), Thomas (2003), Van Wassenhove (2006), Kleindorfer and Van Wassenhove (2004), Thomas and Mizushima (2005), Tomasini and Van Wassenhove (2004), Qiang and Nagurney (2008), Thompson (2008). Some even further suggest Supply Chain Analytics for Humanitarian Logistics Transformation (Nyaguthie, 2008) focuses on the important role of humanitarian logistics, Networks for Africa in support for the implementation of the Millennium Development Goals. Some research has also focused on comparing the lessons learnt from both humanitarian and private sector logistics and supply chain management. Rolando M. Tomasini and Luk N. Van Wassenhove (2005; 2006) explore the way one such odd couple operates.

Index Terms—Humanitarian Logistics, taxonomic literature review, HIV/AIDS.

I. INTRODUCTION

The number of scientific publications devoted to logistics and humanitarian supply chains is growing exponentially, and the number of reviews is increasing rapidly as well. For decision makers it has become difficult to find robust referenced material and solid guidance, this study intends to make it easier. Numerous studies were reviewed and critically studied, and those that directly or indirectly considered humanitarian supply chains of HIV/AIDS commodities in Zimbabwe were recorded. A taxonomy of literature is presented. The taxonomy categorizes literature according to: (a) focus; (b) goal; (c) perspective; (d) coverage; (e) organization; and (f) audience. (Cooper 1988)

This paper aims to provide an overview of the key points and perspectives to-ward a sustainable supply chain of HIV/AIDS related commodities in Zimbabwe. It is based on an extensive literature study, taking into account recent major reviews, and considering a wide range of different views from eminent experts worldwide. This study will critically assess the most relevant existing humanitarian logistics studies in the area of HIV/AIDS, particularly those relating to procurement, distribution and storage. This was complimented by structured interviews that were conducted at various government and non-governmental institutions and organizations respectively.

1.4 Methodology

In total, 27 studies were reviewed. Literatures that were available at the time of the study via library, internet search and suggestions from the experts in the field of humanitarian logistics and supply chain management were used in this study. The articles reviewed are listed in Table 1. The initial screening process took into account over 50 different types of documents including technical reports, scientific articles and publicly available executive summaries of proprietary reports. Only those that were found to be directly indicating or related to the Zimbabwean situation were used.

Manuscript received June XX, 20XX; revised July 29, 2015.

T. T. Chingono is with the University of Johannesburg, South Africa (telephone, 0027115591169, e-mail: ttchingono@uj.ac.za).

C. Mbohwa is with the University of Johannesburg, South Africa (e-mail: cmbohwa@uj.ac.za).

TITLE	FOCUS	GOAL	COVER AGE	ORGANISATION	AUDIENCE
Beamon, B.M. and Balcik, B. (2008)	Research outcomes	Identification of central issues	Representative	Conceptual	General scholars Practitioners or policymakers
BRYMAN, A. AND BELL, E. (2011),	Research outcomes	Identification of central issues Generalization and linguistic bridge building	Representative exhaustive	Conceptual	General scholars
Clark, A. and Culkin, B. (2007)	Research outcomes Methods	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
Crawford, I. M. (1990)	Practices or applications	Identification of central issues	Representative	Conceptual	General scholars
Davidson, L. S. (2006)	Research outcomes	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
Ellram, L.M. (1996),	Research outcomes	Identification of central issues	Representative	Conceptual	General scholars
Global AIDS Responds Progress Report (2012)	Research outcomes	Identification of central issues	Representative	Conceptual. Historical	General scholars, Practitioners or policymakers
Gray, R and Oloruntoba, R (2006) Humanitarian	Research outcomes	Identification of central issues	Representative	Conceptual	General scholars
Kerina, D., Stray-Pedersen, B. and Muller, F. (2013)	Research outcomes	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
Kleindorfer, P. R., L. N. Van Wassenhove. 2004.	Research outcomes	Identification of central issues	Representative	Conceptual	General scholars
Kovács, Gyöngyi & Spens, Karen M. 2007	Research outcomes	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
Mentzer, J.T., DeWitt, W., Keebler, J.S., Min, S., Nix, N. W. Smith, C.D. and Zacharia, Z.G. (2001)	Research outcomes	Identification of central issues	Representative	Conceptual	General scholars
Mbohwa, C. (2008)	Research outcomes	Identification of central issues Generalization and linguistic bridge building	Representative	Conceptual	Practitioners or policymakers
Na'slund, D. (2002),	Research outcomes	Identification of central issues	Representative	Conceptual	General scholars
Na'slund, D. and Williamson, S.A. (2008)	Research outcomes	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
Noguera, Ms. Marilyn, Mr. David Alt, Dr. Lisa Hirschhorn, Dr. Chiedza Maponga, Dr. Patrick Osewe, and Dr. Amos Sam-Abbenyi. (2003).	Research outcomes	Identification of central issues. Generalization and linguistic bridge building	Representative	Conceptual	General scholars
Nyaguthie, (2008).	Research outcomes	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
Rickard, J. (2006)	Research outcomes	Identification of central issues	Representative	Conceptual	General scholars
Takang, Erick, Dragana, Veskov, Celestine, Kumire, and Jabulani Nyeriwa. May. (2006)	Research outcomes	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
Thomas, A. (2003)	Research outcomes	Identification of central issues	Representative	Conceptual	General scholars
Thomas, A. and Kopczak, L. (2005)	Research outcomes	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
Thompson (2008)	Research outcomes	Identification of central issues	Representative	Conceptual	General scholars
Tomasini, R., Van Wassenhove, L.N. (2004)	Research outcomes	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
UNIDO (2011)	Research outcomes	Identification of central issues	Representative	Conceptual Historical	General scholars And policy makers
Van Wassenhove, L. N. (2006)	Research outcomes	Identification of central issues	Representative	Conceptual	Practitioners or policymakers
Zimbabwe National HIV and AIDS strategic Plan 2011-15 (2011)	Research outcomes	Identification of central issues	Representative	Conceptual Historical	General scholars and policy makers

Table 1. Taxonomic literature review.

II. RESULTS AND CONCLUSION

Most research that has been done has focused on Research outcomes, the main common goal was identification of central issues and resolving them. Coverage was mostly representative but in some cases it was exhaustive and most content was conceptual with a historical background also shown in some cases. The literature mostly attracted and is of interest mostly to General scholars and Practitioners or policy makers.

Most research has focused on trying to implement and introduce humanitarian logistics and supply chain management to Humanitarian organizations in trying to make their efforts quicker, efficient and cost effective such researchers include, Clark and Culkin (2007), Thomas (2003), Van Wassenhove (2006), Kleindorfer and Van Wassenhove (2004), Thomas and Mizushima (2005), Tomasini and Van Wassenhove (2004), Qiang and Nagurney (2008), Thompson (2008). Some even further suggest Supply Chain Analytics for Humanitarian Logistics Transformation (Nyaguthie, 2008) focuses on the important role of humanitarian logistics, Networks for Africa in support for the implementation of the Millennium Development Goals.

Some research has also focused on comparing the lessons learnt from both humanitarian and private sector logistics and supply chain management. Rolando M. Tomasini and Luk N. Van Wassenhove (2005; 2006) explore the way one such odd couple operates. Learning from each other. Moving

the World, a unique partnership between TNT, a global corporation specializing in transportation and logistics, and the U.N. World Food Program shows how two organizations can combine their core strengths to make a life-saving difference and increase a company's competitiveness and reputation. Mbohwa (2008), focuses his study on Zimbabwe, discussing the challenges, difficulties and problems faced by humanitarian organizations in running logistic systems. Case studies of humanitarian organizations were conducted. Logistics Performance measurements were also done for the World Food Program, the International Red Cross Society and the Zimbabwe Red Cross Society, the World Health Organization, the United Nations Children's Fund and the Zimbabwean Civil Protection Organization in Zimbabwe are discussed.

DEFINING MAJOR TERMS AND CONCEPTS

Humanitarian logistics can be distinguished into these main categories; continuous aid work and disaster relief (Kovacs & Spens, 2007). Usually, the term disaster relief covers natural disasters and some man-made disasters such as

terrorist attacks or nuclear attacks. Generally, disaster relief includes three distinguished phases, which are the preparation phase, the immediate response phase and the reconstruction phase (Kovacs & Spens, 2007). The first phase includes preparing to the possible disaster, such as having an evacuation plan for possible volcano eruption in Iceland. As stated in the report written by Kovacs and Spens (2007), most material about humanitarian logistics concentrate on the first phase of preparedness often assuming particular scenarios and the fact that there is only demand for particular goods. Reconstruction phase includes the rebuilding and long-term recovery of the disaster.

There are a few key characteristics that are distinctive to humanitarian logistics as opposed to commercial operations (Tomasini & Wassenhove, 2009): Non-profit operations, Equality and neutrality, Impartiality, Limited resources, Limited amount of skilled staff, Bias or restrictions, Donors, Unstable and unpredictable supply chain. All the above named are evident at NatPham. Humanitarian logistics is defined as the process of planning, implementing and controlling the efficient, cost effective flow and storage of goods and materials as well as related information from the point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people (Tomasini and Van Wassenhove, 2009). . The function encompasses a range of activities, including preparedness, planning, procurement, transport, warehousing, tracking and tracing, customs and clearance by Thomas (2003). Many humanitarian organizations have engaged in long term development activities as well as disaster management activities supporting people affected by disaster. (Thomas, 2003)

Humanitarian supply chain refers to the network created through the flow of supplies, services, finances and information between donors, beneficiaries, suppliers and different units of humanitarian organizations for the purpose of providing physical aid to beneficiaries (Mentzer et al. 2001). Humanitarian supply chains might include functionalities which may not typically fall into the field of humanitarian logistics. Managing relationships with donors, performing needs assessments, planning for supplies required and monitoring and evaluating the impact of distributed supplies, are usually the responsibility of non-logistics program units. According to Thomas and Kocczak (2005). Humanitarian supply chains include units implementing programs, managing grants with donors, controlling budgets and monitoring activities which must coordinate with logistics units. Humanitarian supply chains cannot be built by solely increasing the capacity or responsibility of individual units, but are formed by the creation of stronger links between units within the supply chain. Humanitarian logistics information systems can improve the flow of information with other units, in a

mutually constructive manner, improving the effectiveness of the humanitarian supply chain.

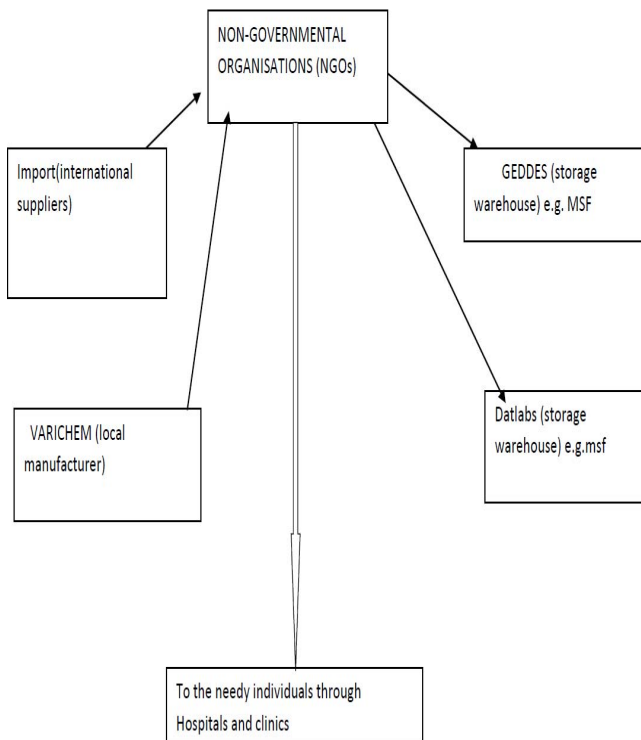


Fig 1. Overview of NGOs HIV/AIDS related commodities supply chain.

Information plays a significant role in humanitarian supply chains. In humanitarian supply chains the end recipient of aid (the beneficiary) is decoupled from the commercial transaction and has no direct influence over what supplies they receive (Gray and Oloruntob, 2006). The key decision makers within the humanitarian supply chain are the donors who are funding the operation and many non-governmental organizations (NGOs) regard the donor as the customer in the humanitarian supply chain (Beamon and Balcik, 2008). In commercial supply chains, the end recipient decides what supplies they require, and fulfillment can be easily evaluated by monitoring the receipt of these supplies. In humanitarian operations the supplies are determined by external assessments of the needs of the beneficiary. Evaluating fulfillment becomes more difficult, as additional analysis must be done to determine if these needs have been met by the supplies. Humanitarian logistics information systems can;

- Enhance needs assessments by ensuring that field staff knows what supplies are available for beneficiaries, either in local warehouses, pre-positioned emergency stocks or from local and international markets.
- Share lists of supplies available in both local and international markets, including prices and lead times, logisticians to empower program staff to better plan their procurement activities.

- Keep program staff informed of procurement activities will help to develop an understanding of the constraints within logistics and create trust.
- Provide budget holder more accurate financial information regarding funds which are committed within the procurement process, to avoid the over or under spending of budgets.
- Provide warehouse inventory reports to program staff to allow them to take more responsibility for their supplies, and ensure that they are utilized effectively.
- Share information on the distribution of supplies to allow program staff to better monitor and evaluate activities and avoid the need for duplicate record keeping between logistics and programs.
- More accurately divide logistics overhead costs such as warehouse rental, transportation and logistics staff wages into program budgets according to the activities logistics is supporting. (Mentzer, 2001).

The literature also shows that, the national antiretroviral therapy program is in an expanding, roll out phase with the number of people living with HIV/AIDS receiving antiretroviral therapy increasing exponentially (UNIDO, 2011), but also according to the UNIDO (2011) report the program has recently been experiencing short supply of antiretroviral and AIDS/HIV commodities. The supply chain management system is also not well defined (UNIDO, 2011) interruption of supply of antiretroviral is a major challenge to the national program. Supply interruption will increase the risk of treatment failure and development of ARV resistance, hence there is a need to strengthen the current supply chain and logistics so as to reduce the risk of stock outs and to also strengthen the capacity of the government of Zimbabwe to absorb the high volumes of HIV/ AIDS commodities from the global fund and other donors according to the UNIDO (2011) global project report. The main objective of this study was to identify challenges of the current (public sector) logistics for procurement, storage and distributions in Zimbabwe. The study mainly used primary data collection method including a survey and interview. Secondary data from the literature review, was also complimented by semi-structured interviews with management and personnel in the organizations studied. Solutions and recommendations were then identified in order to attend to the identified deficiencies, problems and challenges.

REFERNCES

- [1] BEAMON, B.M. AND BALCIK, B. (2008) PERFORMANCE MEASUREMENT IN HUMANITARIAN RELIEF CHAINS, *INTERNATIONAL JOURNAL OF PUBLIC SECTOR MANAGEMENT*, 21, 1, 4-25
- [2] BRYMAN, A. AND BELL, E. (2011), *BUSINESS RESEARCH METHODS*, 3RD ED., OXFORD UNIVERSITY PRESS, OXFORD

- [3] CLARK, A. AND CULKIN, B. (2007) *A NETWORK TRANSSHIPMENT MODEL FOR PLANNING HUMANITARIAN RELIEF OPERATIONS AFTER A NATURAL DISASTER*, PRESENTED AT EURO XXII - 22ND EUROPEAN CONFERENCE ON OPERATIONAL RESEARCH, PRAGUE
- [4] COOPER, H. M. (1988). ORGANIZING KNOWLEDGE SYNTHESIS: A TAXONOMY OF LITERATURE REVIEWS. *KNOWLEDGE IN SOCIETY*, 1, 104-126.
- [5] CRAWFORD, I. M. (1990) MARKETING RESEARCH CENTRE FOR AGRICULTURAL MARKETING TRAINING IN EASTERN AND SOUTHERN AFRICA. HARARE ZIMBABWE
- [6] DAVIDSON, L. S. (2006) KEY PERFORMANCE INDICATORS IN HUMANITARIAN LOGISTICS. ENGINEERING SYSTEMS DIVISION GBG
- [7] ELLRAM, L.M. (1996), "THE USE OF THE CASE STUDY METHOD IN LOGISTICS RESEARCH", *JOURNAL OF BUSINESS LOGISTICS*, VOL. 17 No. 2, pp. 93-137.
- [8] GLOBAL AIDS RESPONDS PROGRESS REPORT (2012) ZIMBABWE COUNTRY REPORT, REPORTING PERIOD: JANUARY 2010-DEC 2011
- [9] GRAY, R AND OLORUNTOBA, R (2006) HUMANITARIAN AID: AN AGILE SUPPLY CHAIN?, *SUPPLY CHAIN MANAGEMENT: AN INTERNATIONAL JOURNAL*, 11, 2, 115-120
- [10] KERINA, D., STRAY-PEDERSEN, B. AND MULLER, F. (2013). HIV/AIDS: *THE ZIMBABWEAN SITUATION AND TRENDS. AMERICAN JOURNAL OF CLINICAL MEDICINE RESEARCH*. VOL.1, No.1, 15-22
- [11] KLEINDORFER, P. R., L. N. VAN WASSENHOVE. 2004. *MANAGING RISK IN GLOBAL SUPPLY CHAINS IN STRATEGIES FOR BUILDING SUCCESSFUL GLOBAL BUSINESSES*, CHAPTER 12, H. GATIGNON, J. R. KIMBERLEY (EDS.), CAMBRIDGE UNIVERSITY PRESS, CAMBRIDGE, MASSACHUSETTS, PP. 288-305.
- [12] KOVÁCS, GYÖNGYI & SPENS, KAREN M. 2007. *HUMANITARIAN LOGISTICS IN DISASTER RELIEF OPERATIONS*. [PDF] EMERALD GROUP PUBLISHING LIMITED.
- [13] MALHOTRA, N.K. (1993). *MARKETING RESEARCH: AN APPLIED ORIENTATION*. ENGLEWOOD CLIFFS, NJ: PRENTICE HALL
- [14] MENTZER, J.T., DEWITT, W., KEEBLER, J.S., MIN, S., NIX, N. W. SMITH, C.D. AND ZACHARIA, Z.G. (2001) DEFINING SUPPLY CHAIN MANAGEMENT, *JOURNAL OF BUSINESS LOGISTICS* 22,2
- [15] MBOHWA, C. (2008) *IDENTIFYING CHALLENGES AND COLLABORATION AREAS IN HUMANITARIAN LOGISTICS: SOUTHERN AFRICAN PERSPECTIVE*. HUMANITARIAN LOGISTICS: NETWORK FOR AFRICA ROCKEFELLER FOUNDATION BELLAGIO CENTER CONFERENCE, BELLAGIO, LAKE COMO, ITALY.
- [16] NA'SLUND, D. (2002), "LOGISTICS NEEDS QUALITATIVE RESEARCH – ESPECIALLY ACTION RESEARCH", *INTERNATIONAL JOURNAL OF PHYSICAL DISTRIBUTION & LOGISTICS MANAGEMENT*, VOL. 32 No. 5, pp. 321-38.
- [17] NA'SLUND, D. AND WILLIAMSON, S.A. (2008), "SUPPLY CHAIN INTEGRATION: BARRIERS AND DRIVING FORCES IN AN ACTION RESEARCH-BASED INVENTORY INTERVENTION", *SUPPLY CHAIN FORUM: AN INTERNATIONAL JOURNAL*, VOL. 9 No. 1, pp. 70-80.
- [18] NOGUERA, MS. MARILYN, MR. DAVID ALT, DR. LISA HIRSCHHORN, DR. CHIEDZA MAPONGA, DR. PATRICK OSEWE, AND DR. AMOS SAM-ABBENYI. (2003). *ZIMBABWE: ANTIRETROVIRAL THERAPY PROGRAM—ISSUES AND OPPORTUNITIES FOR INITIATION AND EXPANSION*. ARLINGTON, VA.: DELIVER/JOHN SNOW, INC., FOR THE U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT.
- [19] NYAGUTHIE, (2008). THE IMPORTANT ROLE OF HUMANITARIAN LOGISTICS. OXFAM-GB, PRETORIA, SOUTH AFRICA.
- [20] RICKARD, J. (2006) HUMANITARIAN LOGISTICS: MUSING ALOUD, *MONDAY DEVELOPMENTS*, 24, 20, 6-7.
- [21] RANDOLPH, JUSTUS (2009). A GUIDE TO WRITING THE DISSERTATION LITERATURE REVIEW. *PRACTICAL ASSESSMENT, RESEARCH & EVALUATION*, 14(13). AVAILABLE ONLINE: [HTTP://PAREONLINE.NET/GETVN.ASP?V=14&N=13](http://pareonline.net/getvn.asp?v=14&n=13).
- [22] TAKANG, ERICK, DRAGANA, VESKOV, CELESTINE, KUMIRE, AND JABULANI NYERIWA. MAY. (2006). *MANAGEMENT OF HIV AND AIDS COMMODITIES IN ZIMBABWE- A CAPACITY ASSESSMENT OF NATPHARM AND MINISTRY OF HEALTH AND CHILD WELFARE*
- [23] THOMAS, A. (2003). HUMANITARIAN LOGISTICS: ENABLING DISASTER RESPONSE, THE FRITZ INSTITUTE.
- [24] THOMAS, A. AND KOPCZAK, L. (2005) FROM LOGISTICS TO SUPPLY CHAIN MANAGEMENT: THE PATH FORWARD IN THE HUMANITARIAN SECTOR, TECHNICAL REPORT, FRITZ INSTITUTE, SAN FRANCISCO, CA, USA.
- [25] THOMPSON (2008). *SUPPLY CHAIN ANALYTICS FOR HUMANITARIAN LOGISTICS TRANSFORMATION*. . HUMANITARIAN LOGISTICS: NETWORK FOR AFRICA ROCKEFELLER FOUNDATION BELLAGIO CENTER CONFERENCE, BELLAGIO, LAKE COMO, ITALY.
- [26] TOMASINI, R., VAN WASSENHOVE, L.N. (2004). GENETICALLY MODIFIED FOOD DONATIONS AND THE COST OF NEUTRALITY. LOGISTICS RESPONSE TO THE 2002 SOUTHERN AFRICA FOOD CRISIS. INSEAD CASE 03/2004-5169.
- [27] TOMASINI, R., VAN WASSENHOVE, L.N. (2009) FROM PREPAREDNESS TO PARTNERSHIPS: CASE STUDY RESEARCH ON HUMANITARIAN LOGISTICS, *INTERNATIONAL TRANSACTIONS IN OPERATIONS RESEARCH*, 16, 549- 559
- [28] TOMASINI, ROLANDO & LUK VAN WASSENHOVE. 2009. *HUMANITARIAN LOGISTICS*. CPI ANTONY ROWE. CHIPPENHAM AND EASTBOURNE
- [29] UNIDO (2011) *PHARMACEUTICAL SECTOR PROFILE; ZIMBABWE. GLOBAL UNIDO PROJECT: STRENGTHENING THE LOCAL PRODUCTION OF ESSENTIAL GENERIC DRUGS IN LEAST DEVELOPED AND DEVELOPING COUNTRIES*.
- [30] VAN WASSENHOVE, L. N. (2006) BLACKET MEMORIAL LECTURE. HUMANITARIAN AID LOGISTICS; SUPPLY CHAIN MANAGEMENT IN HIGH GEAR. *JOURNAL OF OPERATIONAL RESEARCH SOCIETY*, 57(5), 475-489.
- [31] ZIMBABWE NATIONAL HIV AND AIDS STRATEGIC PLAN 2011-15 (2011). NATIONAL AIDS COUNCIL ZIMBABWE