

Chapter 12

System Dynamics Base–Model of Humanitarian Supply Chain (HSCM) in Disaster Prone Eco–Communities of India: A Discussion on Simulation and Scenario Results

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ABSTRACT

Humanitarian Supply Chain is central to the capacity building in the eco-communities which are located in the disaster prone regions. In this study, an attempt has been made to develop a system dynamics model of humanitarian supply chain in order to capture causal dynamics and inter linkages within the system under investigation and suggest some critical intervention strategies for enhancing overall performance. An economic sub-sector base model for the Indian tribal communities has been calibrated and used for simulation analysis as a reference case-study. Conclusion & Results: It has been established through the simulation results that the success of short-term relief work lies in the long-term capacity building and, is critical to the performance of both current and future humanitarian operations and programs. The scenarios studied in this paper are with respect to those crucial decision environments and their underlying complexities which create an inherent endogenous dynamics perpetuated by various stakeholders giving functional response towards the humanitarian supply chain.

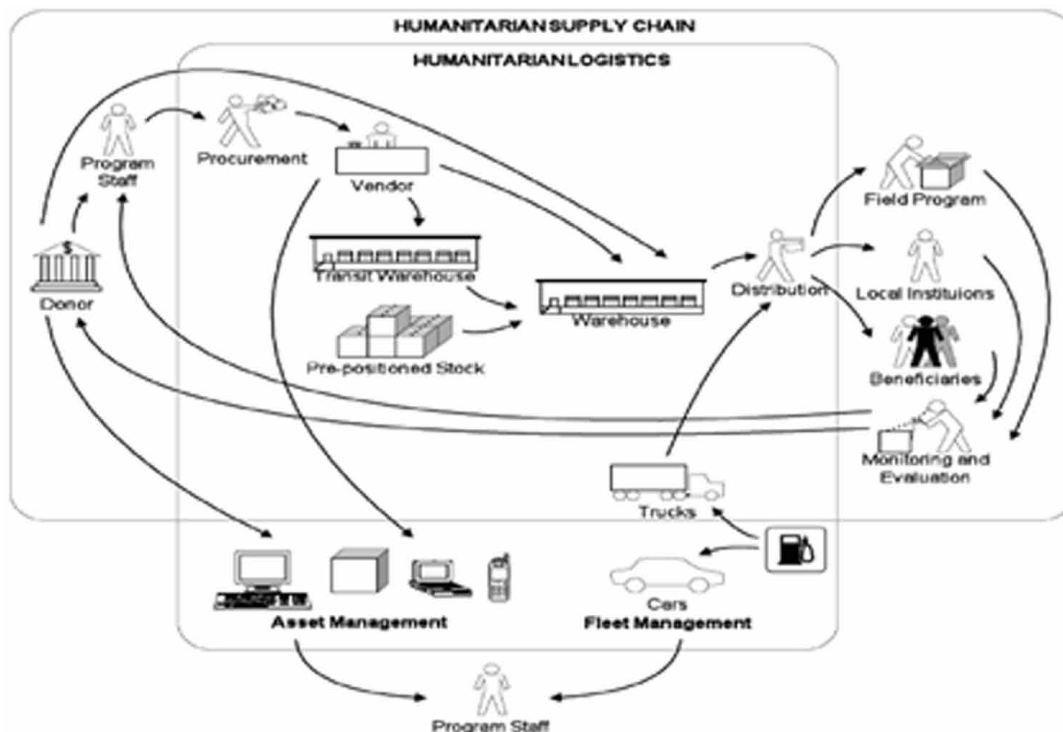
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1. INTRODUCTION

Eco-communities are human-scale, full-featured settlements in which human activities are harmlessly integrated into the natural world. It is potentially supportive of healthy human development, and can be successfully continued into the infinite future. Demographically, these can be urban or rural communities of people, who strive to integrate a supportive social environment with a low-impact way of life. The primary motivation for eco-communities is the choice and commitment to reverse the gradual disintegration of supportive social/cultural structures and the upsurge of destructive environmental practices on our planet. Although being environmentally rich, these people, particularly under the rural or tribal setting, are often devoid of supplies of rich Physical, Social, Economic, and Technological resources and they are forced to struggle on a daily basis to survive and are unable to cope with any additional stress factors like population growth and abject poverty. Limited livelihood alternatives, competition over scarce resources, weak educational-governance structures and lack of access to healthcare can compromise a community's ability to respond to a hazard event (Hewitt, 1983).

In this regard, sustainable humanitarian supply chain management and community based resource management can collectively promote more resilient communities through supporting sustainable livelihoods, conflict prevention and strengthening cooperation for good governance (Fritz Report, 2005). Moreover, sustainable HSCM is universally considered to promote social, economic and environmental equity and ethical imperatives for sustainable community development (see Figure 1).

Figure 1. Humanitarian Logistics and Humanitarian Supply Chain



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