ONCEPTUAL DESIGN OF SUPPLY CHAIN MANAGEMENT CODING SCHEME FOR FOODS AND BEVERAGES IN LARGE-SCALE DISASTERS BASED ON PPP(PUBLIC-PRIVATE PARTNERSHIP)

Based on the time-line gap analysis on demands and supplies in the Great East Japan Earthquake

Problem statement

In March 2011, the Great East Japan Earthquake caused large-area disruptions in distributing foods and beverages to the disaster-affected areas and also to the non-affected areas because of malfunctions in supply chain management systems in manufacturing, wholesale, and retail industries. Addition to the above situation, foods and beverages reserves of central and local governments had been delivered to evacuation shelters and reserve depositories in the disaster-affected areas without confirming and forecasting local demands and needs. This caused unnecessary deficiencies and excesses of foods and beverages in the areas.

Objectives

This research analyses the time-line gap analysis on demands and supplies of foods and beverages in the Great East Japan Earthquake in 2011 and tries to design conceptual code scheme for SCM (Supply Chain Management) that should be shared among stakeholders in the large-area disasters such as manufacturing, wholesale, retail, and logistics enterprises and central and local governments to establish an efficient foods and beverages delivery control framework in the future disasters.

	March, 16 [Day 6]		March, 24 [Day 14]	
	Demand	Supply	Demand	Supply
	vs. Normal	vs. Normal	vs. Normal	vs. Normal
Product A	630%	250%	150%	130%
Product B	540%	450%	70%	70%
Product C	210%	110%	80%	90%

Chart 1. Actual demand/supply gaps

Solution

The shared code scheme is used for situation awareness of stocks and manufacturing capacities, analysis of gap between demand and supply, distribution management, inventory control, and also demand forecasting based on the past disasters. Actual POS(point-of-sale) data structures in the private sectors are used as a baseline for the design and operational process model is proposed. The shared code scheme is positioned as an intermediate for information sharing and interoperability among wide-range of stakeholders in private and public sectors.

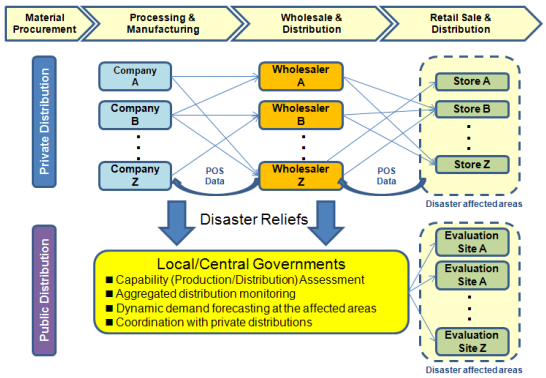

Figure 1. Integrated distribution with PPP

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