

SUPPLY-CHAIN MANAGEMENT AT W'UP BOTTLERY (A)

It was late August 2005, and the monsoons were in full swing in Northern India. At the W'Up Bottlery in Uttar Pradesh, India, Rajat Mehra, director of supply-chain management, listened to the din of huge raindrops drumming down incessantly on his office window as he mused over the W'Up plant's supply-chain performance over the peak summer period that had just ended. The W'Up Bottlery, which was a wholly owned subsidiary of Hindustan Coca-Cola Beverages Private Limited (HCCBPL), made Coca-Cola and other soft drinks for several regions within the Uttar Pradesh market. While inventories had gone down and fill rates had improved relative to the previous peak-sales season, Mehra was looking for ways to improve performance dramatically.

The size and highly granular nature of the W'Up plant's distribution network posed major challenges in supply-chain management. With six levels in the supply chain, the plant received, at best, third-hand information about actual retail demand. Mehra was familiar with the concept of vendor-managed inventory (VMI) that was gaining popularity in Western markets. In contrast to traditional supply chains—in which each supply-chain entity¹ placed orders to its immediate upstream supplier—in this approach, upstream entities received downstream demand information via electronic data interchange or Internet-based information exchange, and made order decisions for their customers so as to meet a customer-specified service level. Mehra wondered how this idea could work in a supply network where even phone lines, let alone computers, were scarce. To complicate matters, 70% of the W'Up plant's sales came from its returnable-glass-bottles business, which required forward as well as reverse logistics. Determined to find a way to implement VMI, Mehra decided to convene a meeting with his team to brainstorm this idea.

¹ Such as a retailer, wholesaler, or distributor.

This case was prepared by Kamalini Ramdas, Associate Professor of Business Administration. It was written as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation. Much of the information in this case has been disguised, including names of people, places and entities, numbers, and other content. Copyright © 2008 by the University of Virginia Darden School Foundation, Charlottesville, VA. All rights reserved. *To order copies, send an e-mail to sales@dardenbusinesspublishing.com. No part of this publication may be reproduced, stored in a retrieval system, used in a spreadsheet, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the permission of the Darden School Foundation.* ♦

The Product

The W'Up plant's revenues came from two sources: returnable glass bottles, or RGBs (70%), and one-way packs, or OWPs (30%). The shelf life for one-way packs varied by product, within an 8- to 12-week range; glass bottles had a shelf life of six months. Glass bottles and one-way packs each came in two sizes: 200 milliliters (ml) and 300 milliliters.

Aside from Coca-Cola, the W'Up plant made and sold five other flavors, summarized in **Exhibit 1**. HCCBPL had acquired several indigenous drinks: ThumsUp was a local cola, Limca was a lemon-based carbonated drink, and Maaza was a mango juice drink. Counting flavor and size variations, there were 12 different stock-keeping units (SKU) in the RGB business, and another 12 SKUs in the OWP business.

The W'Up plant's products were sold through a wide variety of retail channels and organized into six main categories (see **Exhibit 2**). "Eating and drinking" included bars, pubs, food courts, restaurants, and so on. "Groceries" included retailers ranging from tiny shops to supermarkets. "Other" included hair salons, lawyers' offices, and other operations that bought Coca-Cola products to offer to their own customers. Which SKUs to offer in each retail channel was an important marketing and logistics decision.

Distribution-related costs accrued at different levels. See **Exhibit 3** for a breakdown of costs for the 200 ml glass bottle, which retailed at (Indian rupees) INR7.

The Supply Network

The W'Up plant was one of four plants that served the Uttar Pradesh market. W'Up had its own plant depot, and in addition, there were two company-owned depots in Uttar Pradesh. Uttar Pradesh had 800 independent Coca-Cola distributors, and a staggering 250,000 independent retail outlets.

Large stores and supermarkets such as the recently established FoodWorld chain were labeled "modern" retail outlets. Such outlets accounted for only 3% to 4% of sales, although the growth rate of this segment was 30% to 40%. The typical retail outlet, in contrast, covered about 100 square feet, and carried about three cases² of RGB inventory, comprising a mix of 12 SKUs. Many of these smaller outlets were located in narrow, crowded gullies in larger cities, or in remote rural areas, which were often navigable only by tempos,³ scooters, or in some cases cycle-rickshaws. These outlets were typically owned by semiliterate shopkeepers who had no access to computers or the Internet.

In the direct distribution route, which comprised 20% of sales, product was shipped from the W'Up plant depot to retail outlets using W'Up's own fleet of trucks. This was done either

² A case consisted of 24 units.

³ A three-wheeled cargo vehicle seen in the Indian market.

directly, or via one of the two other company-owned depots. In the indirect distribution route, which accounted for the remaining 80% of sales, product was shipped from the W'Up plant depot to independent super-distributors, and then on to sub-distributors, who in turn supplied to retail dealers who supplied to retail outlets. A truck typically carried between 500 and 1,000 cases.

Ordering

In company jargon, sales from the W'Up plant to independent distributors were termed *primary* sales. Similarly, sales from distributors to retail outlets were termed *secondary* sales, and sales from retail outlets to consumers were termed *tertiary* sales. Ravi Rajan on Rajat Mehra's team felt that matching primary sales with secondary sales would result in a much more efficient supply chain.

Retailers and independent distributors alike ordered by instinct, with no formal forecasting. For example, if a distributor stocked out two days in a row, he might double his order quantity. Company-owned depots used a variant of a base stock policy. End-consumer demand varied greatly but much of the variation was predictable, with a high peak in the summer months and other predictable peaks around certain other times of the year, such as the Indian festival of Diwali in late October, and during a lull in the winter months.

Retail outlets typically carried about three days of total inventory, composed of about two days worth of *fulls*, or full bottles, and a day's worth of *empties*, or empty bottles. Retailers did not place orders in advance of purchase. Instead, they had an opportunity to buy stock daily, based on whatever was on the distributor's truck when the local distributor made the rounds. How much a retailer bought on any particular day varied systematically, based on season as well as weather. For example, on rainy days, sales diminished by about two-thirds.

A retailer who bought a greater amount than needed on one day in order to take advantage of a price discount would likely be unable to sell that much, and would accordingly buy less the next day. Thus, retail buying was generally *smart*, keeping close to actual demand. In contrast, distributors tended to go wrong in their ordering, in part due to Coca-Cola's sales-force behavior. Because sales-force incentives were based on volume, salespeople would try to push product down the supply chain by offering promotions that were to be passed down to the retailer. Because retailers ordered fairly close to actual demand, however, excess inventory tended to accumulate at the distributors. See **Exhibit 4** for information on total inventory levels of RGBs throughout the supply chain in May 2005.

Many distributorships were small operations with limited working capital. Smaller distributors often could not afford to place large orders that would tie up large sums of money in inventory. They tended to order every two-to-three days, in small order quantities. It was often uneconomical to provide small shipments from the plant warehouse, so larger distributors acted as intermediaries. In the recycled glass bottle business, each company-owned warehouse shipped