



Operation Management Analysis

Coca-Cola Beverages Pakistan

ABSTRACT

A over-view of the bottling plant of Coca-Cola Beverages in Pakistan and their operational strategy

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Operations Management

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Introduction

For the purpose of this report, we have chosen to analyse the operations of Coca-Cola Bottling that takes place in Lahore. Operations management is crucial to this company being a huge multinational that has assembly lines all over the world. We start by presenting a brief overview of the brand and then move on to the operational analysis of the unit in Lahore.

The Coca-Cola Company, which has its headquarters in Atlanta, Georgia, is an American multinational beverage corporation, and manufacturer, retailer, and marketer of non-alcoholic beverage concentrates and syrups. The company is popular for its flagship product Coca-Cola, a product originally invented in 1886 by pharmacist John Stith Pemberton in Columbus, Georgia. Today, the Coca-Cola Company has been in business for 125 years, employs 139,600 people, and sells 1.6 billion beverages each day in more than 200 countries. Coca Cola is a trademark of soft drink registered in the U.S in 1893. A pharmacist found it in 1886. The name Coca-Cola name comes from coca leaves and cola fruit, two components of the Coca-Cola drinks. This has to do with Coca Cola period because people tend to refer to Asa Candler as the man's drug world.

Coca-Cola started its operations in Pakistan in 1996; when it took over business operations in Pakistan & setup its first production plant in Karachi. Now there are 6 production units and 11 distribution units working in Pakistan providing employment to more than 6000 people.

Coca-Cola soon after the country's independence in 1947 stepped into Pakistan in 1953. Similar to how Coca-Cola operates in other countries, the Coca-Cola business in Pakistan is a local business. The beverages are manufactured domestically, providing employment to Pakistani citizens and the product range and marketing reflects Pakistani tastes and lifestyle. After the establishment of Coca-Cola, Fanta was introduced in 1965; correspondingly, Sprite in 1972; after a gap of 30 years Diet Coke and Fanta Lemon were introduced in 2001. Currently, Coca-Cola beverages are produced and sold in Pakistan via the company's own bottling plants that operate under Coca-Cola Beverages Pakistan Ltd. (CCBPL).



While many perceive the Company as merely "Coca-Cola," their system operates through multiple local channels. The Company produces and sells concentrates, beverage bases and syrups to bottling operations, owns the brands and is responsible for consumer brand marketing initiatives. Their bottling partners manufacture, package, merchandise and distribute the final branded beverages to their customers and vending partners, who then sell their products to consumers. All bottling partners work closely with customers -- grocery stores, restaurants, street vendors, convenience stores, movie theatres and amusement parks, among many others -- to execute localized strategies developed in partnership with our Company.

INSIDE COCA-COLA

DID YOU know?
The contour bottle design was inspired by the curves and grooves of a cocoa bean. It was designed to help Coca-Cola stand out from other drinks at the time, and the design brief was to ensure that the bottle was recognisable even in the dark, or if it was broken.

History
In 8 May 1886, John Styth Pemberton found a new drinking product called *Coca-Cola*.
At first time, *Coca-Cola* just sold for 5 cents. Then in 1892, Chandler founded *Coca-Cola* first company.

It has about **450** brands with more than **3,000** beverage products. With 13 other brands with annual retail sales exceeding **\$1 billion**.
Coca-Cola, Coca-Cola Zero, Diet Coke/Coca-Cola Light™, Sprite™, Fanta, Minute Maid, Dasani™, Aquarius™, Powerade, SoNebich™, Nestlé™, Georgia™ Coffee, glacial vitaminwater

2012
Coca-Cola launches the new 375ml pocket size bottle for Coke, Coke Zero and Diet Coke varieties, ideal for on-the-go refreshment. You told us you'd like an additional option between the much loved 330ml can and 500ml bottle, so we're delighted to launch the new 375ml on-the-go pack size.

The annual combined sales of **Coca-Cola, Diet Coke and Sprite** is about enough for every single person in the world to have a bottle each.

20,000,000 customer outlets (McDonalds, etc)
10,000,000 cooler and vending machines
900 plants
500,000 trucks
7 times the amount of Procter and Gamble
5 times the amount of UPS

SOURCES

<http://behance.vo.llnwd.net/>

<http://www.1stwebdesigner.com/>

Coca-Cola Vision Statement

“Our vision serves as the framework for our Roadmap and guides every aspect of our business by describing what we need to accomplish in order to continue achieving sustainable, quality growth.”

- **People:** Be a great place to work where people are inspired to be the best they can be.
- **Portfolio:** Bring to the world a portfolio of quality beverage brands that anticipate and satisfy people's desires and needs.
- **Partners:** Nurture a winning network of customers and suppliers, together we create mutual, enduring value.
- **Planet:** Be a responsible citizen that makes a difference by helping build and support sustainable communities.
- **Profit:** Maximize long-term return to shareowners while being mindful of our overall responsibilities.
- **Productivity:** Be a highly effective, lean and fast-moving organization.

Coca-Cola Mission Statement

“Our Roadmap starts with our mission, which is enduring. It declares our purpose as a company and serves as the standard against which we weigh our actions and decisions.”

- To refresh the world...
- To inspire moments of optimism and happiness...
- To create value and make a difference.

Coca-Cola Culture

Our Winning Culture defines the attitudes and behaviours that will be required of us to make our 2020 Vision a reality.

Coca-Cola Values

Our values serve as a compass for our actions and describe how we behave in the world.

- **Leadership:** The courage to shape a better future
- **Collaboration:** Leverage collective genius
- **Integrity:** Be real
- **Accountability:** If it is to be, it's up to me
- **Passion:** Committed in heart and mind
- **Diversity:** As inclusive as our brands
- **Quality:** What we do, we do well

Focus on the Market

- Focus on needs of our consumers, customers and franchise partners
- Get out into the market and listen, observe and learn
- Possess a world view
- Focus on execution in the marketplace every day
- Be insatiably curious

Work Smart

- Act with urgency
- Remain responsive to change
- Have the courage to change course when needed

- Remain constructively discontent
- Work efficiently

Act Like Owners

- Be accountable for our actions and inactions
- Steward system assets and focus on building value
- Reward our people for taking risks and finding better ways to solve problems
- Learn from our outcomes -- what worked and what didn't

Be the Brand

- Inspire creativity, passion, optimism and fun

Product Range

- Coke (250ml, 330ml, 500ml, 1.5l, 2.25l)
- Diet Coke
- Coke Zero
- Sprite
- Sprite Zero
- Fanta
- Fanta Apple
- Fanta Citrus
- Fanta Grape
- Kinley
- Rani Float (250ml)
- Rani Pulpy (350ml, 1l)

Management

Coca-Cola has production system and bottling facilities all around the world. This plays an important part in their business since they are one of the top of the soft drink industry. Outsourcing comes at the expense of improving in-house skills, which will eventually lead to reduced costs.

Coca Cola knows product and package quality is a key to ensure their products in the marketplace meet Company requirements and consumer demands. The global nature of their business requires that the Coca-Cola system have the highest standards and processes for ensuring consistent product safety. Coca Cola uses a system that is called Coca Cola management System (TCCMS) to manage their product quality. That will hold all of their operations in the same standards for production and distribution. It guarantees the highest standards in quality, the environment, safety and the health of customer. And they requires each business within the Coca-Cola system must establish, implement, document and maintain a safety and quality system in accordance with TCCMS requirements.

Process Flow Structure

The process structure can be broadly classified into five distinctions; project, job shop, batch process, assembly line, and continuous flow. Coca Cola bottling company uses continuous flow manufacturing (CFM). Continuous flow is defined as the process the materials, either dry bulk or fluids that are being processed are continuously in motion, undergoing chemical reactions or subject to mechanical or heat treatment. Industries that manufacture goods such as paper, oil, and electricity use this structure. Here, the products are made in a continuous fashion and tend to be highly standardized and automated with very high volumes of production. Continuous flow is called a continuous process or a continuous production process. Coca-Cola uses this process for optimization of throughput using minimum inventory.

The production flow of Coca Cola involves passing sub-assemblies/parts from one stage of production to another in a regular flow. Each stage adds to the products, this is typical among bottling plants. Coke used this method because the products being distributed by the company are in wide variation and is sold in bulk amounts. Products being distributed range from the bottled goods such as Coke, Diet Coke, an assorted amount of different flavoured soft drinks, to bottled water. Given that, Coca Cola has such a large range of production, continuous flow is the best way to produce the products.

The Coca-Cola production moto is:

We monitor our production processes with sophisticated control equipment and testing programmes in order to meet and exceed our customers' and consumers' expectations.



Technical expertise and R&D provided by international Coca Cola Head Office. In Pakistan CCBPL is licensed only to bottle the final syrup, package it with wrappers and distribute the product locally.

Preform and Coca-Cola syrup comes to Pakistan from the Coca-Cola Company to its Bottling and Distribution Partners. The bottled soda is then distributed all across Pakistan from the bottling plants by contracted distributors. The Company has strong logistic fleet and work force to ensure the distribution of its beverage product to each corner of the market place.

Manufacturing process

Coca-Cola Beverages Pakistan Ltd. (CCBPL) uses continuous flow for manufacturing its products and uses the product-focused strategy. It has set standards of its products that are produced in high volume with low variety. CCBPL currently has five plants operational. These plants use continuous planning for production. They forecast their sales for each week and then produce accordingly. Each line produces a maximum of 140000 cases of beverages in a day. ; For every change in beverage the equipment is cleaned which is time-consuming (4-6 hours) and costly.

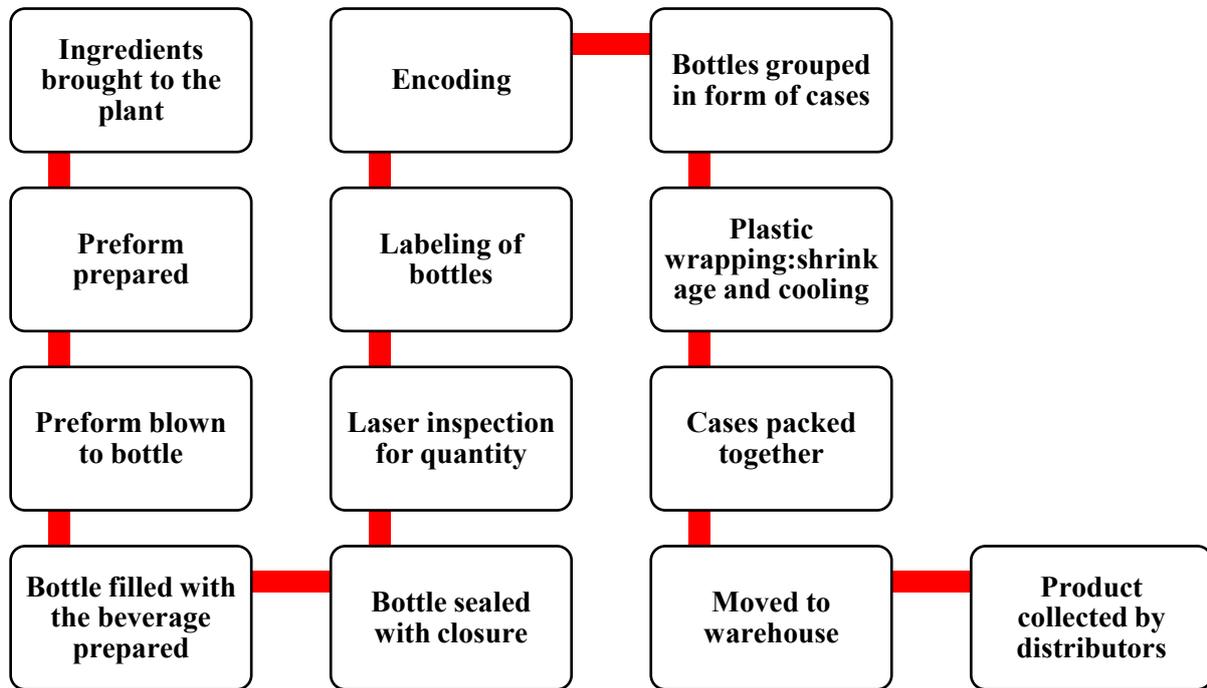
Once the Coca-Cola Company converts the ingredients into the syrup. The product concentrates are shipped to bottling plants across the globe. At the bottling plant, the process starts from manufacturing of bottle and preparation of final syrup. The treated and cooled water is mixed with the final syrup and, for sparkling drinks, with the carbon dioxide that gives the product its characteristic effervescence. CCBPL bulk buys raisins inventory of up to 2years in advance.

The manufacture of bottles starts from the preform tubes. The preform tubes are made of plastic and thrown into the equipment that blows these tubes into bottles in milliseconds. The bottling process, whether in glass or PET (plastic), is very similar except for the change in material from which preform is made and blowing equipment. These bottles are then filled by the drink and then forwarded to next line to be sealed by the closure. After being sealed, the bottles are labelled and then dated by a laser machine. The bottles are then ready for inspection. Surprisingly, even the quality check is automated: the machine rejects any bottle filled below or above the required level. Lastly, the bottles are put together in form of their cases: six bottles in a case of 1.5L bottles and 12 bottles in a case of 0.5L bottles. The cases are clinked individually with a plastic sheet and then wrapped together to be sent to the warehouse.

There are many plants of the Coca Cola Company in whole over Pakistan. The plants are in Karachi, Hyderabad, Multan, Gujranwala, Sialkot, Faisalabad, Rahim Yar Khan and Lahore. Location in Lahore Coca-Cola Beverages Pakistan Limited. 5-E-II, Gulberg III, Lahore 54660, Pakistan. In the Lahore factory, that we visited coke was prepared by adding fizz to the syrup and then they were bottled, labelled and packed.

Manufacturing Process Flow-Chart

As with each successful company, there needs to be some sort of structure. Coca cola's process flow for bottling coke is as follows;



1. Ingredients are delivered to the factory.
2. Small pieces of plastic known as 'resin' are converted into the preform of a bottle.
3. The preform is blown into the size of bottle needed.
4. Bottle is filled with the beverage.
5. Bottle is sealed with the closure.
6. Label is pasted.
7. Laser inspects for over or under filling of cola in bottle.
8. Bottle is encoded.
9. Bottles are grouped together in form of cases.
10. Plastic sheet is wrapped around the cases.
11. A bundle of cases is packed together.
12. Cases are moved to warehouse.
13. Distributors collect order from warehouse.

Business-level & Operations Strategy

CCBPL calls its business strategy “The Coca-Cola System”. It encompasses the production, marketing, sales and distribution of Coca-Cola beverages. The Coca-Cola Export Corporation (TCCEC) is responsible for the manufacturing and selling of the concentrates, beverage bases and syrups to CCBPL. It also owns the brands and heavily partakes in consumer brand marketing initiatives, besides having a comprehensive public affairs and communications responsibility.

CCBPL manufactures, packages, merchandises and distributes the produced branded beverages. As the bottling company, CCBPL is also responsible for developing local networks, so that the end product reaches the consumer in its best quality. This includes customer development, market investment, order collection, delivery and lastly cash collection.

Differentiation Strategy

CCBPL uses the differentiation strategy to make themselves unique and separated from other companies. By using differentiation strategy, Coke creates a product and service that entices their customers to stay loyal to their brand by continuing to purchase Coca-Cola products. Differentiation is found in each and every aspect of business operations. For example, it uses unique marketing campaigns, labelling, bottle shapes, and advanced plant and machineries to manufacture top quality beverage product. They also differentiate themselves as the leading socially responsible beverage company in Pakistan. By forging strong partnerships with local communities, NGOs and government agencies. Under Rizwan Ullah Khan’s leadership, the Company has carried out several successful interventions in the fields of education, environment preservation and water stewardship, livelihood creation, women empowerment and youth development.

They use state of art technology to enable them to produce most efficiently while maintain their image as an eco-friendly company. PlantBottle packaging is the latest breakthrough from the Coca-Cola Company designed to change the way the world thinks of plastic bottles. It is the first ever fully recyclable PET plastic beverage bottle made partially from plants.

Strategic Focus

1. Driving growth and profit revenue
2. Investing in brand and business
3. Continuously increase efficiency
4. Refocus on core business model

Operations Strategy

CCBPL is currently working on shifting to Just-in-Time inventory system with days based stocks to release cash flows freed in warehousing. The input buying is based on annual bottles produced. Co-ordination between different plants across Pakistan is necessary as they have to provide production buffer to each other like presently Lahore Bottling plant is covering Faisalabad’s production schedule too while the plant is undergoing renovation.

Inventory Management

Coca-Cola Pakistan is one of those organizations that cannot compromise on the essence of their item. They do have a proper inventory system in the facility but they make sure when the bottle is produced it is being dispatched to the respective retail outlets or to the distributors. 2 years back Inventory management was different as they were buying Raw material in bulk but they are now shifting their production to Just in Time. Just in time, production makes inventory cost less and demands significantly less space for inventory storage. They had reduced the number of warehouses. The work is coordinated in such a manner that operations are not affected. Coca-Cola only keeps reserve inventory of 2-3 days. Moreover, if they feel like that their plant is unable to meet the demand of the product in market, they can call for the finished goods from plants located in other cities and fulfil the demand, Like Lahore Plant is currently fulfilling the demand of Faisalabad Territory Also. The Production in Faisalabad has stopped due to the construction of new Plant

Supply Chain Management

Coca-Cola Pakistan focuses on this area, as they want their operation more efficient and effective. In every process of production, the role of supply chain is very important. In each assembly there is one supervisor and 6-7 workers working for 8 hours a day. From Pre-form of bottle to the plastic sheet which is wrapped around the crates. Again, Coca-Cola management team is responsible what amount of supply they should hold. According to Territory Operation Manager, they only hold stock (raw materials) for 2-3 days. Inventory is restocked every day. Coca-Cola does not hold large inventory of raw materials. If there is any type of problem, they can easily run their lines for one extra day and can assign worker for lines and pay them the double wages then normal work-hour. Their main raw material supply includes Sugar, CO₂ gas, plastic sheet, Resin, tags, crown, bottle cap (closure). Coca-Cola checks for quality of each supply every day before passing it onto the manufacturing department. The plant has 2-3 suppliers of every raw material they require. Other than supply of raw materials, Rani Juice is also being supplied from abroad, along with the cans for other beverages. As TOM has told that Coca-Cola has OE (operational Excellence) program Strategy for different problems occur in Supply chain management and Inventory management. OE is the combo of Mean, Six Sigma and Best practices.

Outsourcing

As this plant is more of capital intensive than labour intensive, Coca-Cola outsource their manufacturing. Coca-Cola provides third party plants with their Cola for filling. Coca-Cola Pakistan outsource its cans' filling, which also known as **Toll filling**. They are outsourcing 250 ml and 350 ml cans from third party and being filled in Sialkot and Karachi. This is because the total demand for cans is low and the machine that is used to fill these cans is very expensive. Coca-Cola has recently introduced a Juice named Cappy for which they are outsourcing a third Party in Karachi and promoting it in big cities.

Quality Management

Coca-Cola places immense emphasis on quality management. They have stringent regulations for their products, products conforming to those regulations are deemed marketable, the rest are wasted, and the plastic recycled. Their quality control department inspects the quality of incoming materials as well as the final product being sent out for distribution. It also conducts unannounced audits of the facilities to ensure effective product safety and quality standards are being followed at all times.

The quality control department consists of ten individuals who are responsible to check the quality of the raw materials brought to the plant. The materials brought into the manufacturing plant are thoroughly inspected and ensured they comply with Coke's standards. In case of any defect in the raw material from the suppliers, strict actions are taken and defected materials are disposed-off.

With Coke's new emphasis on optimizing its efficiency, they have reduced the number of scientists per line from two per line to one per two lines. The duty of these scientists is to test the cola and ensure that it is of the right pH and all the ingredients are in the perfect proportions. Coke has further increased their efficiency by instilling the duties of quality management on the line engineer. It is now the line engineer's duty to ensure that his/her line is producing the quality products that meet all the present criteria.

Coke Cola has also spent millions of rupees during the setup of their facilities and integrated quality management technology in their production lines. Each preform that is turned into a bottle passes through a series of lasers which tests its quality and the bottles that fail are immediately disposed-off and recycled. Furthermore, the bottles after being filled with the cola, once again, pass through a series of quality management tests. Any bottle that is either filled too much or too little as per the criteria is taken off the line, the cola is drained, and the bottle is crushed and recycled to be used in production of preform.

The Coca-Cola Company has kept ahead of emerging safety advances by developing rigorous quality, environment and occupational safety & health requirements. These requirements are developed to exceed ISO 9001, ISO 22000 standards. Furthermore, Coke has standardized operating and safety requirements program called KORE that define the policies, standards and requirements for managing safety and quality throughout their operations. To further strengthen quality and safety standards, KORE requires all Coke's manufacturing and distribution facilities strictly follow British Standard Occupational Health and Safety Assessment Series 18001; a world renowned framework for effective occupational health and safety management. Lastly, the factory hygiene is maintained according to the Pakistan Food Authority, ensuring no compromise in the standard of product taste, and maintenance of the equipment as most of the manufacturing process is capital intensive.

Recommendations

Coke Cola has vast array of decisions that have ensured its massive success not only in Pakistan but worldwide. Out of the ten critical decisions for operations management for Coca Cola, managing quality, layout strategy, supply chain management and inventory management are of pivotal importance.

As the production is heavily dependent on automated machinery equipment, it is of vital importance for the management to have a competent maintenance criterion and team to ensure that the machines are always working efficiently and without any fault. In case of any disruption in the production, any fault or defect in the machinery is fixed and catered to as quickly as possible. This is of even more importance since the Lahore plant is running 24 hours a day and 7 days a week to cater to demand locally and of neighbouring cities.

Since the plant produces one flavour of cola at a time, Coke, Spirit or Fanta, and requires 3-4 hours of cleaning and switching from one flavour to another, line efficiency is critically important. There is little room for time lags as whole production halts to ensure successful clean up and conformance with quality management benchmarks of Coca-Cola. Producing different flavours simultaneously on dedicated lines could reduce the lag time and ensure continuous production. This will also reduce the running time for the factory to produce all the required products as simultaneous production at multiple assembly lines rather than one after another on the same assembly line will save time.

Since the plant operates 24 hours a day and have outsourced many of its processes, supply chain management is the most critical part of their operations. As Coke operates its inventory management as per Just-In-Time and the production facility only holds raw materials for 4-5 days' worth of production so delivery of preform, raw materials for the preform and as well as the syrup and other ingredients has to be on time and without any disruption. This leaves little room for mistakes during forecasting, production and supply chain management. This calls for constantly updating its forecasts as per changing demands and ensuring that the forecasts are done timely and accurately. In Pakistan this movement to JIT system will be even more cumbersome due to instable political and law & order situations.