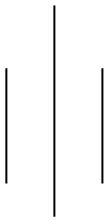
Analysis of Internal Logistics Management of Surya Nepal Private Limited



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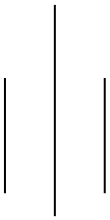

A Thesis Submitted to:

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RECOMMENDATION

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VIVA - VOCE SHEET

We have conducted the vice-voce examination of the thesis presented by

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and found the thesis to be the original work of the student and written according to prescribed format . We recommend the thesis to be accepted as partial fulfillment of the requirement of
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DECLARATION

I hereby declare that the work reported ion this thesis entitled Analysis of Internal Logistics Management of Surya Nepal Private Limited submitted to office of dean, Faculty of Management, Tribhuwan University, is my original work. It is done in the form of partial fulfillment of the requirement for the masters Degree in business Studies (M.B.S.) under the supervision & guidance of Prof Dr. Madhav Bahadur Shrestha

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CHAPTER 1: INTRODUCTION

1.1 Background

Nepal is a least developed land- locked country. It is largely a mountainous country. About 83% of the total land area of 1, 47,181 square kilometers is covered by rugged hills and mountains. More than 90% of total population is still in rural areas and most of them are still deprived of physical facilities that are necessary for every human being. However Nepalese economy is predominantly agriculture. In other words, agriculture is the backbone of Nepalese Economy. It provides employment to more than 80% of the labor force and contributes a major portion to the total GDP and also is major supply of raw materials to the industries. Agriculture accounts for about 40% of the GDP at factor cost and engages 76 % of economically active population.

Nepal had a late start in development. Its pace of Industrialization has been slow. The history of industrial growth in Nepal can be divided as the Era of Craft and Cottage Industry which witness the growth of creative skills of Nepalese artisans and craftsmanship. The same is reflected in ancient temples, stupas, palaces and works of arts and architectures. Likewise, the country also observe various kinds of other industries like that of cotton and wool textiles, paper products, rope and baskets, shoes and leather products, wood products, metal products based on iron, copper, gold, silver, brass, bronze and the like.

Similarly, the next phase is the era of Haphazard Industrial growth. The 105 years old Rana resign isolated the country from industrial revolution going on in Europe. It did not encourage the growth of modern industries. Economic development was no the goal of Rana rule. However, Biratnagar Jute Mill Limited, Raghupati Jute Mill Limited, Morang Cotton Mill Limited, Morang Sugar Mill Limited, were among the few industries established, in order to reap quick benefits from the shortage of consumer's goods created by Second World War.

During this period, the Industry Board was established. Likewise, the Company Act was enacted, Tribhuvan Highway was constructed and Trade and Transit Treaty with India was signed.

After this was the era of Planned Industrial growth. The Industrial Extension Board was set up, Balaju Industrial District was established, Nepal Industrial Development Corporation was established, Industrial Policy was announced, Factory and Factory Workers Act was enacted, Industrial Policy was amended to attract foreign investment, Government financial support was provided, import substitution and export promoting industries were prioritized. Efforts were made to increase the contribution of Industrial sector, to develop industrial sector to meet people's basic need and to diversify market with the cooperation of private sector.

The manufacturing sector in Nepal is small. It has a decreasing share in GDP. This sector contributed 9.3 % to GDP in 1995. However, its share decreased to 8.1 % in 2001. However, the sector has grown three- fold in terms of production over the last twenty five years. Public Sector manufacturing enterprises play an important role in Nepal. Their growth can be attributed to factors like lack of private sector development, mixed economic system, and Foreign aid. However, the capacity utilization by the manufacturing public enterprise has been uneven and it has very poor track record in terms of performance. Hence the government has adopted the policy of privatizing all the manufacturing industries.

On the other hand, Nepal has taken big strides in developing export oriented and import substitution industries. Various Agro based, Forest Based, Leather, Carpets including Readymade Garments are the major export oriented industries.

The garment industry in Nepal emerged during 1970's. Within a short span of time, it became one of the leading export oriented industries. USA is the major

market for Nepalese garment exports. It accounts for more than 80% of total garment exports. Other markets are Canada, Germany, UK and France. Exports to USA were subject to quota application till 2004. Nepal's membership of WTO has done away with quota system. Further, global garment market is highly competitive. Major Competitors of Nepal are Bangladesh, Pakistan, Sri Lanka, China, India, Vietnam, Thailand, Indonesia and Malaysia. World market for garments is moderately growing. The share of Nepali readymade garments in world market is 0.12%.

The export of garments from Nepal has been steadily growing. In 1978/79, garment exports were Rs. 8 million. It reached 13,942 million in 1999. The share of garments in total exports of Nepal increased from 35% in 1988/89 to 50% in 2002/03.

Garment industry's contribution to Nepalese economy has been significant. It contributed 2.7 % to GDP in 2002/03. The share of Garment Exports in total convertible foreign exchange earnings increased from 10% in 1988/89 to 21.7% in 1999/2000. But it declined to 12% in 2002/03. Garment has appeared as number one foreign exchange earner of Nepal. But it is declining rapidly.

But the Garment industry in Nepal faces various problems. As mentioned earlier, Garment exports were quota based and thus there is the likelihood of endanger in the survival of this study. Likewise, the cost of production of garments is higher in Nepal compared to India, Bangladesh and China. The main reason is high import content in the industry. Moreover, garment industry is highly dependent on foreign labor and the industry suffers from unforeseen labor problems. Further, this industry is heavily dependent on US market. Government policies too are not supportive for the growth of garment industry and R & D is lacking for design development, new product creation and market studies. Above of all, poor logistics is the major problem for the garment industry. Air Cargo capacity is limited in Nepal. Thefts are widespread in

transport by land. Physical facilities are limited at custom points. The procedures for custom clearance are cumbersome and time consuming.

As Surya Nepal Private Limited is a biggest Garment Industry operating in Nepal and Logistic being its core competency, this thesis report embraces the Logistic Management practices at Surya Nepal. I Pravin Agrawal have undergone a two month of intern experience with Surya Nepal Private Limited in its Logistic Department. I have reviewed the working process, analysed the internal records and undergone with the formal and informal conversation with the people over there and thus applied the knowledge, skills and judgements to find out the nature of problem existing over there and recommended some practical and feasible solutions.

1.2 Study Objective

The project report has been carried out with the following objectives:

- To gain insight into the real world situation of Garment industry.
- To learn and familiarize with SNPL's garment business, working procedures and methods and prepare the process map based on the learning.
- To enhance knowledge and skills necessary to be an effective Logistic Manager in the organization.
- To enable the manager for applying knowledge and skills in work setting.
- To recommend the ways of reducing trims shortfall.

1.3 Scope of the Study

The study was carried out at the Biratnagar Factory of SNPL, under the Planning and Logistics Department. This study is completely centered on internal management. The Biratnagar factory produces shirts only. The three brands of shirts are 'John Players', 'Wills' and 'SPRINGWOOD'. Whereas,

garments are classified into numerous types such as jackets, trousers, shorts, denims, and so forth, shirt is only one portion of the bigger garment industry. As such, all the analysis in the report is company-specific and reference to overall garment industry is minimal. However, the study can provide some insights into potential problem common for the entire garment industry.

The report also covers the study assigned by the LM. The first one includes developing the graphical presentation on physical flow of goods and Information Flow during the entire process. This flowchart will help understand the control areas of Logistics Department. In addition, a process mapping of the production process has been developed, which will prove helpful in controlling the waste in the shop floor by controlling the issue to different sections of production process.

The main problem discussed in this case – trims shortfall – is also addressed from internal point of view considering ordering and floor waste.
In short, though the study was done under the Planning and Logistics Department, the problem has been addressed from aspect of operation and production too.

1.4 Study Limitations

The limitations of the study are mentioned below:

- Study was done with only one season (The running season during the study)
- Only solid fabric was considered.
- Estimation based on work order ratio for unavailable data regarding the number of HSOC and FSOC garments
- The collected Data was not 100% accurate (For example, the tracker had conflicting output data on each section. Similarly, there were few mismatches between the GS and CWH data).

- Lack of time. The complexity of the garments business demanded a lot of time in understanding the problem rather than developing the solutions.
- Due to reason of privacy of the organization, this study could not obtain some valuable information.

1.5 Organization of the Report

The report starts with the background of the study – why was it carried out? What is its scope and what are the study limitations.

In the second part, the report talks about Company Profile stating the background of the Company, its major businesses, corporate social responsibility initiatives and activities and the organization/factory where the study was carried out.

It then includes a theoretical review on Logistics Management and its future. Since the study was done for Planning and Logistics Department a thorough knowledge on the area is must. It discusses the component of Integrated Logistics Management and it's Future. It touches the basics about the Supply Chain Management and also talks about Porters Five Forces, Industry Attractiveness, SWOT Analysis and PEST Analysis.

The forth chapter highlights about the Research Methodology, the Research Design, data sources and the collection methods including that of data analysis and presentation.

The fifth section explains in detail the production process of the factory. The process chart was made on the basis of observation and interviews. It demonstrates the vitality of the problem and explains why it is necessary to solve it. It also talks about the raw materials used in Garment production.

In the final section, the findings, recommendations and conclusion are listed. The overall conclusion and feeling of the author is presented after the recommendations section. The report ends with the works citation in the Bibliography and other annexure relevant for the report.

CHAPTER 2: THE COMPANY PROFILE

2.1 Company Background

Surya Nepal Private Limited (SNPL) is an Indo-Nepal-UK joint venture, which started operations in Nepal in 1986. SNPL is now the largest private sector enterprise in Nepal and a subsidiary of ITC Limited (59% ownership), India. The balance shares are held by 20 dispersed Nepalese shareholders and British American Tobacco, UK.

SNPL is engaged in manufacture and marketing of cigarettes and readymade garments as well as export of readymade garments with a total turnover of US $100 million. SNPL's commitment to its corporate vision enduring value for all stakeholders has been uncompromising through the years and is reflected in every product, process and service provided by the company.

The company is the winner of the prestigious FNCCI National Excellence Award given to the best-managed corporation in Nepal. It has also received the British Safety Council Awards, Monde Selection Award for Premium & Mid Segment Brands, and National Safety Council Award. With constant focus on systemic work processes, both the cigarette and garment factories are ISO-9001:2000 certified.

A company, in short, that is today Nepal's foremost blue- chip company. While no single fact can be pinpointed as the reason for SNPL's phenomenal growth, it is clear that SNPL's commitment to its credo- Growing through quality and excellence has been uncompromising throughout the years.

2.2 Vision

To be an internationally Benchmarked Multi-Business Corporation in Nepal, delighting Global and Domestic Customers with a proud 'Made in Nepal' label and accounting for 2% of country's GDP.

To be a partner in Nation-Building and create enduring value for all stakeholders

2.3 Core Values

Trusteeship

As professional managers, we are conscious that Surya Nepal has been given to us in "trust" by all our stakeholders. We will actualize stakeholder value and interest on a long-term sustainable basis.

Excellence

We do what is right, do it well and win. We go the extra mile and seek superiority in all that we undertake.

Customer Focus

We are always customer-focused and will always strive to surpass customer expectations in terms of value, product quality and satisfaction.

Respect for People

We are result-focused, setting high performance standards for ourselves as individuals and teams. We will always respect and value people and uphold human dignity. We acknowledge that every individual brings a different perspective and capability to the team and that a strong team is driven by the variety of perspectives within it.

Innovation

We will constantly pursue newer and better processes, products, services and management practices.

2.4 Corporate Governance

Corporate Governance is a systemic process by which companies are directed and controlled to enhance their wealth-generating capacity. The governance process should ensure that companies are managed within the applicable statutory parameters in a manner that meets stakeholders' aspirations and societal expectations. The operations of Surya Nepal Private Limited are governed by its Corporate Governance Policy.

Surya Nepal believes that any meaningful policy on corporate governance must provide empowerment to the executive management of the company, and simultaneously create a mechanism of checks and balances which ensures that the decision-making powers vested in the executive management are not only not misused, but are used with care and responsibility.

2.5 Corporate Social Responsibility Initiatives

Surya Nepal Private Limited has embraced the dual challenge of enhancing shareholder value together with adherence to the goal of sustainable development and has taken significant steps to match its objective of creating wealth with sustainable development practices for its employees, shareholders, the community at large and to contribute to Nepal's development challenges.
It has a separate CSR department, headed by the top management, with following objective:

- To support community activities which contribute to sustainable development and help in enhancing access to basic development needs and efforts.
- To explore public-private partnerships to enhance scale and scope of SNPL's engagement in community development initiatives.

- To enhance scale and scope enmesh with business model, wherever possible.
- To mobilize local resources by enhancing partnership and collaborations with local community groups and institutions.

2.6 Corporate Social Responsibility Activities

The four focus of CSR activities are as follows:

1. **Surya Nepal Suswasthya** – Surya Nepal has been supporting primary health services to deprived members of society by enhancing health awareness levels, and enabling access to use of quality health services and check-ups. Surya Nepal has also been constantly working on developing the capacity of local volunteers and women to increase health awareness and promote preventive measures for local health problems. Realizing the lack of health awareness in the society, Surya Nepal has been organizing various health-training events and counseling sessions, follow-ups and exposure visits for community people. Also Surya Nepal has provided two ambulances and has been helping make available anti-venom and oxygen cylinders that are essential for saving lives in times of medical emergency.
2. **Surya Nepal Asha -** Surya Nepal has been supporting educational Institutions to enhance the quality of primary education for deprived members of the society. In achieving this objective, Surya Nepal has been organizing educational awareness campaigns, providing educational materials support, constructing school infrastructure and facilities, providing scholarship and excellence awards and supplying library, games and computers to the schools.

   This has also been a major area of concern for Surya Nepal to support Self-help Groups (SHGs) of poor women and farmers, to create sustainable income-generating opportunities at the local level by developing market needs-based small and micro enterprises. The focus on providing financial

and technical support to enable small and micro enterprises to be run by SHG's themselves at individual and/or group level.

SNPL has been empowering needy women through vocational trainings as per the local market needs such as garments sewing, weaving, agarbatti, bindiya and candle-making, local handicrafts, dairy products etc.

Extensive training in sewing is provided for 120 women annually. Surya Nepal has been credited with having played a major role towards creating rural prosperity by helping to enhance agriculture and livestock productivity for sustainable livelihoods. To achieve this objective, the organization have been providing training on latest agriculture technology, vegetable farming, livestock rearing, poultry farming, kitchen gardening etc. Due to this the farmers have found a substantial improvement in their livelihoods in comparison to their regular traditional crop farming. Quality vegetable seeds to about 2,000 poor tobacco farmers were distributed for income-generation.

Moreover in the area of women empowerment, as part of its corporate social responsibility programs, Surya Nepal has signed a Memorandum of Understanding with the Chamber of Industries Morang (CIM) for imparting sewing training to underprivileged women from the nearby locations. With an objective of developing human resources and generating employment in the region, Surya Nepal is providing financial and technical support to the program.

In addition to continuing the training, Surya Nepal and CIM share the vision of extending this program to increase its reach and making it self-sustained.

Besides this training, as a part of the social commitment, SNPL is also giving high priority to women from poor socio-economic background for work in our garments factory as operators.

3. **Surya Nepal Prakriti -** Surya Nepal is actively involved in afforestation drives, providing free plants for a greener Nepal. Surya Nepal has been enhancing awareness in the local community and contributing in the beautification of roads as a model green road/green zone. Implemented activities include planting and safeguarding of trees on roadsides, maintenance and construction of bus stand, road lighting, roadside gardening and preserving trees and historical monuments at road junction/sides.

   Surya Nepal has also been enhancing awareness in the local community with the objective of achieving environmentally sustainable development through tree plantation. Preserving and enriching community and social forestry as a "model community asset for environmental preservation" by implementing activities such as planting and maintaining trees in schools and public places and organizing awareness sessions at users' group, student and youth group levels to promote plantation and environmental education at schools and households are Surya Nepal's other important activities.

   In order to scale up its activities, Surya Nepal seeks partners who will provide with suitable species of trees that are ideal for planting in schools and public places. Surya Nepal will take care of maintenance, support and protection. This has created awareness among more than 1,000 farmers from Bara, Parsa, Rautahat, Sarlahi and Dhanusha Districts and 10,000 students from 14 schools from Nijgadh (Bara), Jhabarah (Parsa), Rautahat, and Dhanusha Districts. Thus, Surya Nepal will continuously endeavor to enhance its engagement through specific public-private partnership.

4. **Surya Nepal Khel Paryatan -** Surya Nepal believes in creating value through its Surya Nepal Khelparyatan, sports and tourism initiative. The projects include nurturing Nepali talent, providing Nepali athletes with international exposure and a platform such as

the immensely popular Khukuri Cup to showcase their prowess, as well as to promote and support the tourism industry through restoration of heritage monuments and high-profile sporting events such as the Surya Nepal Masters, Nepal's only International Masters golf tournament.

5. **Others** - SNPL has always recognized its social responsibility, right from the beginning when it was established in Simara, Bara around 18 years ago. Organizations involvement with local community began when we donated around 3.5 bighas of land to Simara Village to establish the market (the present Simara bazaar). SNPL also supported VDC to repair the main road towards Simara Airport. Likewise, the Leaf Tobacco Development unit also supported the construction of rural roads and culverts in villages. With our support, more than 500 families are able to access the safe drinking water facilities in the Ramban cluster.

2.7 Line of Business

SNPL is engaged in two businesses:

1. **Tobacco Division -** Tobacco division has a history of 20 years and is the main business for SNPL. It is the profit/revenue center for SNPL is the reason for current financial health of the company. The market leader in the cigarette products, Superior internationally benchmarked quality, strategic and consistent positioning and one of the largest distribution networks in the country comprising over 60 distributors, over 5,000 wholesalers, and over 70,000 retailers contribute towards making SNPL one of the most efficient and effective marketing companies in Nepal.

   Five large and hugely successful brands in the last 18 years – *Surya Luxury Kings, Shikhar, Khukuri Filter, Bijuli and Chautari* is testimony to the fact that SNPL builds brands. These and other brands – Surya Classic, Surya

Lights, Shikhar Lights, cater to a wide spectrum of consumer tastes and preferences.

SNPL is also a key player in the cigarette tobacco production in the country. SNPL's share is 85% of cigarette tobacco grown annually (0.6 million kgs out of a total of 0.7 million kgs.) A tobacco farmer earns Rs. 50,000 gross per hectare, which makes tobacco the highest annual revenue-earning cash crop. Since tobacco cultivation remains a labor-intensive operation, unskilled laborers and women in rural areas, who otherwise would have little employment opportunities, now have a source of income.

2. **Garments Division**- The relative new division, and outcome of SNPL's diversification strategy, manufacture of garments started with leased capacities under the prestigious John Players label on 15th Jane, 2003 with a strategy to quickly overcome the learning curve, build sustainable competitive advantage and become a significant player globally.

   In the quest to achieve the above, SNPL had to invest substantial sums of money in upgrading infrastructure including plant and machinery. Considerable time and effort was also spent in the training of manpower, introducing work processes, work aids, and quality systems to enable production of international quality garments. Appropriate systems in the area of quality, logistics and finance had to be introduced to enable efficient monitoring and quick decision-making. Considerable effort was also undertaken in recruitment training and development of personnel into a well-knit team, which blended with the value culture and ethos of the company.

   The vision of Garments Division is – "To make the world wear our quality apparel." The company's mission is focused on "creating competitive advantage for its buyers by providing a superior sourcing solution".

Nepal, being a LDC, enjoys preferential access to numerous markets including duty-free access to the European Union, Canada, Australia and India. Within one year of commencing operations, the Garments Division has exported more than one million popular segment "John Players" branded formal shirts and semi-formal trousers to ITC Limited for sale in India. The garments have been ranked first in the Product Quality Rating System (ITC's internal quality evaluation methodology) as against high-end shirts and competitive products from Bangladesh and India.

John Players - Nepal Market

SNPL launched the fashionable and youthful men's apparel brand, John Players, in October 2004. John Player is designed keeping in mind the fashion preference of today's youth and the most contemporary trends. The brand is currently available in over 70 multi-brand outlets across the country. John Players now enjoys high recognition from both consumers and in the fashion industry, with highest aided and unaided recall among all branded apparel. The brand won the coveted 'Rising Star Brand of the year' award at the 5th Annual Images Fashion Awards 2005 in India recently.

John Players provides a complete wardrobe solution for the fashion and quality conscious male in Nepal. The range includes formal, casual and partywear shirts, formal and casual trousers, chinos, corduroy jackets and trousers, sweat shirts, trendy tees, jackets, 100% pure merino wool sweaters, blazers and suites also available are trendy denims reminiscent of the 70s rock fusion era.

SPRINGWOOD

After the success of the John Players range of branded men's wear, the company also introduces the SPRINGWOOD range of branded men's wear. The SPRINGWOOD range has now been introduced in the Kathmandu Valley, Butwal, Bhairwaha, Narayanghat, Hetauda, Birgunj , Biratnagar & other key markets across the country.

SPRINGWOOD addresses the needs of quality and price conscious readymade men's apparel consumers in the country, who currently have a limited choice in terms of low quality imported garments.

This is a huge opportunity area for the company, which is being tapped by offering consumers a proud "Made in Nepal" brand with a 100% quality guarantee and at prices that are surprisingly affordable. This strategy is in line with the Corporate Vision of delighting domestic and global customers with a proud "Made in Nepal" label.

This stems from our core values of customer focus, innovation and excellence. This initiative we believe will also contribute towards boosting economic activity in Nepal and in growing the Nepali garment industry by substituting low quality imports. The SPRINGWOOD brand proposition is to offer quality products with a wide range of vibrant colours in checks, stripes, solids and patterns inspired by the colours of nature, with good fits made from high quality fabrics.

SPRINGWOOD apparels conforms to the highest quality standard in the industry with fabrics imported from some of the finest mills abroad, its patterns and fits are generated by Surya Nepal's computerized design development cell taking special care to incorporate body shapes and sizes of Nepalese consumers. The manufacturing is done under close supervision of Surya Nepal's quality assurance team consisting of highly qualified and trained garment engineers and quality inspectors.

Biratnagar Factory

Encouraged by the initial success, the company has set up its own manufacturing facility at Biratnagar, Nepal. It is expected that such investment would significantly enhance the company’s competency to deliver world-class quality, reduce response time and showcase SNPL’s capabilities to prospective buyers from other countries. Accordingly, a facility with a capacity of 4,000 garments per day, using state of the art systems for cutting, sewing and

finishing is operational. This facility has product-focused lines using state-of-the-art technology, world-class manufacturing systems and people processes. The product range includes formal and casual shirts. In future, the factory is also expected to manufacture high- end fashion wear through a rapid response multi-skilled line.

An optimal mix of technology, people processes and shop-floor systems is required to deliver superior performance. The company also has a strategic tie-up with ITC's Technical Services Department based in Gurgaon, India. This department has, under one roof, facilities of design, CAD, pattern making, prototype development, and garments engineering, including digital textile printing and state-of-the-art washing facilities in addition to textile and garments performance testing laboratory. This assists SNPL in providing superior customer solutions as it is possible to work closely with the designers from concept to samples, thereby engineering the product for robust manufacture. The patterns can then be electronically transferred to SNPL's facilities in Nepal for execution.

CHAPTER 3: REVIEW OF LITERATURE

3. Overview of Logistic and Planning and the Future Ahead

3.1 Meaning of Logistics

'Logistics' was originally a military term used to describe the organization of moving, lodging and supplying troops and equipments (Christopher and Towill, 2001: 235). It was clearly somewhat broader in scope than transport, since it covered everything needed to deliver troops and equipment to the right place, at the right time and in the right condition.

Modern business logistics in based much on the same concept. It sets out to deliver exactly what the customer wants – at the right time, in the right place and at the right price. Very often transport is a major component of the supply chain which delivers to the customers the goods and services needed. Logistics is the process of designing, managing and improving such supply chain. It can include procurement, manufacture, distribution, and waste disposal together with associated transport, storage and information technology (Christopher and Towill, 2001: 244).

Logistics management is a process that plans, implements, and controls the efficient and effective "*forward and reverse"* flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements (Cooper and Gardner 1993: 14).

These are the boundaries and relationships of Logistics Management adopted by the Council of Logistics Management: "Logistics Management activities typically include inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfillment, logistics network design, inventory management of third party logistics services providers. To varying degrees, the logistics function also includes sourcing and procurement, production planning and scheduling, packaging and assembly, and customer service. It is involved in all levels of planning and execution -- strategic, operational and tactical. Logistics Management is an integrating function, which coordinates and optimizes all logistics activities, as well as

integrates logistics activities with other functions including marketing, sales manufacturing, finance and information technology." (Cooper and Gardner 1993: 25).

3.2 Logistics Management vs. Supply Chain Management

Logistics and Supply Chain Management functions can overlap. Different companies define them in their own ways. Logistics is generally concerned with strategy and coordination of flows between marketing and production (i.e. transportation and distribution). However, it cuts across many functions such as Supply Chain Management. Supply Chain Management tends to focus on purchasing and procurement, but not necessarily so. It can include materials, inventory, and production planning. There is also Demand Management which focuses on forecasting, but is sometimes included in either logistics or supply chain functions. (Bowersox & Closs, 2002).

There is no formal definition that fits all situations. Logistics can be thought of as the overall strategic glue that crosses multiple functions including demand chain and supply chain, physical flows, information flows and the systems that support them.
The figure below explains the element of Business Logistics

Figure-1: Elements of Business Logistics

3.3 Logistics Defined:

Some of the different but recognized definitions of logistics are as follows: (Cooper and Gardner 1993: 17).

1. "The process of planning, implementing, and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements." This definition was developed by the Council of Logistics Management (CLM) and addresses primarily the "business" aspects associated with the flow of materials from the source of supply to the consumer and is applied mostly to small components and consumables (Cooper and Gardner 1993:18).
2. Disciplined, unified, and iterative approach to the management and technical activities necessary to: (1) integrate support considerations into system and equipment design; (2) develop support requirements that are related consistently to readiness objectives, to design, and to each other; (3) acquire the required support; and (4) provide the required support during the operational phase at minimum cost. This definition primarily addresses the "Integrated Logistic Support (ILS)" concept practiced by the Department of Defense and applied to systems. It is life-cycle oriented (Cooper and Gardner 1993 :21).
3. A life-cycle approach to the acquisition, distribution, and sustaining maintenance and support of systems. It includes the planning and design of systems for supportability; the production and distribution of systems to the consumer; the sustaining maintenance and support of systems throughout their planned operational life cycle; and the support of

systems and components as they are being retired and/or recycled for other uses. This definition is preferred and attempts to deal with systems from an overall life-cycle perspective. It addresses the above definitions, with the activities of the second (and third) being included within the overall context of the first (Cooper and Gardner 1993 :25).

3.4 Components of Integrated Logistics System

1. **Physical Supply** - responsible for inbound material movement which links the suppliers with the operations process. The key issues addressed by physical supply are:
   - How much, when, and from whom should materials be ordered?
   - What criteria should be used to evaluate suppliers?
   - By what transportation mode and particular transport service should the material be transported?
   - Where should incoming material be stored?

2. **Internal Operations** - responsible for managing the in-process material flow within the material conversion process.

3. **Physical Distribution** - responsible for outbound material movement which links the customer with the operations process. The key issues addressed by physical distribution are:
   - What is expected level of customer service?
   - Is prescribed level of customer service provided at minimum cost?
   - What should be the mix of product stocked in each distribution facility?
   - Which transportation modes and services should be used?

3.5 Logistic - Future Ahead

Logistics management in Nepal has slowly become accepted by the local business community as a legitimate functional activity that can both enhance

customer service and improve the bottom line. The essence of integrated logistics management – the systems concept – has been given a new lease of life recently with the popularity of concepts such as process re-engineering, supply chain management, systems thinking and accurate response. (Bhavani and Tendulkar 2001: 68). For the concept of logistics management to work with maximum effectiveness, the entire management group of an organization must understand the nature of interrelationships between the functional areas of the organization, as well as the interrelationships between their organization and customer requirements, and their organization and suppliers, and third-party participants in the logistics channel. Recent changes in the commercial and economic environment, generated largely by changing customer needs and expectations, are affecting logistics operations.

In recent years many companies worldwide have been focusing on their core business, downsizing and outsourcing, in order to weather adverse economic conditions. In effect, their approach to improving performance has been essentially inward-looking. However, there is a developing consensus that this tactic may have run its course. Companies, in particular those within the supply chain, must now turn to more outward-looking approaches, such as providing higher added value to customers and developing better working relationships and ultimately partnerships, if they are really to improve their performance and that of industry in general.

The demands being placed on the supply chain have made its management a major issue, with the subsequent breaking of new ground in terms of performance requirements, working relationships and partnerships a crucial factor.

3.6 Critical Success Factor

For Logistic Manager to succeed, quality and delivery are, and will remain, the most important critical success factors for any organization. Both now and in

the future these are order qualifiers which supply chain companies know they must offer to win business. Although ongoing, regular price reduction is today one of the most important factors world wide, the general consensus is that it will become less important in coming years to come. However, while component suppliers feel that there are more important factors to focus on in the future, the whole issue of price will re main a major pressure which needs to be resolved. The notable factors, which are commonly seen as most rapidly gaining in importance, are those influencing the development of closer relationships and recycle ability (Malmborg and Richardson, 2000).

- Some of the greatest changes in the success factors over the next five years show a predominant theme of working more closely with customers and suppliers. This includes greater adoption of CAD.
- The fact that recycling ability is one of the fastest-growing factors for everyone reflects the increasing environmental pressures being imposed on the industry. Although this issue remains a low priority overall for suppliers, this view is in stark contrast to that of manufacturers.

How well companies can respond to these developing requirements will provide differentiation and order-winning capability in future. However, it is also vital that suppliers appreciate the potentially conflicting demands of the various manufacturers – which have significantly different needs, cultures and ways of doing business. Awareness of these differing priorities, and the ability to respond specifically, will give competitive advantage all the way down the supply chain.

For the future, the suppliers recognize that a key business advantage will most likely be the ability to work well with the customer, as will excellent working relationships both up and down the supply chain. The accepted way forward, therefore, is through more efficient collaboration and – closer partnerships, including more technical collaboration. As well as practicalities such as, CAD links and direct delivery to the line side, to help achieve this development of closer relationships many suppliers intend to deploy more people regularly or permanently in one another's plants up and down the supply chain. The

purposes are both "hard" issues of quality, delivery and cost improvements, and a soft agenda to improve understanding of processes and business strategy, and establish better communications. Also evident in this partnership and deployment theme is the issue of working together on product design. Suppliers not only wish to become involved in the process, but also to take on more value-adding work by introducing new technology as part of the price/cost battle. Unfortunately, although the issue of partnerships may have been on the agenda for some time and the theory well understood, progress has been slow. There are still many frustrations, and the links in the supply chain are often under strain (Gilmour, 1993).

In tomorrow's business environment, however, closer communications and better relationships will be at the heart of supply chain management. Essentially, the process revolves around trust, particularly given that customers are looking to their suppliers for more product innovation, faster prototype development times, and preassembly and other investment intensive technical support in the future. Developing partnerships and building this trust, will involve a great deal of pains taking work and long-term commitment from both sides (Lustgarten, 1975).

Hence by establishing a proper network with efficient relationship, all logistic managers can effectively achieve their professional objectives. The relationship may be in terms of the impact on structure, use of information and channel relationship. Other than relationship, those entering the field of logistics management should have strong computer-based analytical skills; middle managers operating in the field should have a mix of analytical and planning and communications skills; and, senior management should have a strategic focus based on planning and communications skills.

3.7 Future Direction of Logistic

The following issues discussed below are expected to be potentially important in future logistic direction. These issues will also affect the nature of logistic operation. (Malmborg and Richardson, 2000).

1. **Environmental Pressure**- Widespread corporate acceptance of the social and environmental responsibilities has had significant implications for logistics. Recycling packaging material is another area for better resource utilization and cost reduction. The reduction and recycling of waste and the marketing of goods with less deleterious environmental impact provides a great logistics challenges for the years to come.

2. **Shifting power in Logistic channel**- In general, organizations over recent years have given more serious attention to the desires of the customer, with resultant changes in performance expectations and product movement in the logistics channel.

3. **Technology**- Technology has had a significant impact on logistics operations over recent years. This has occurred most markedly in the order fulfillment process – improved communication and information-handling methods and advances in the associated facilities required to make this happen. Use of internet and emails facilitate the placement and receipt of an order; tracking of the materials, and finally use of barcode scanner to scan the product and deliver the order.

4. **Outsourcing Options**- The benefits of outsourcing logistics activities have been keenly debated over several decades. Contract operators have pointed out the benefits of lower capital requirements, greater flexibility, lower overheads, access to lower cost labor and better access to the latest technology. Advocates of in company operations points out the weakness of outsourcing like loss of control, loss of specific skills, lower barriers to entry and less reliable supply.

5. **Cycle Time to Market**- Reducing order cycle times is a way to meet economically the variable and increasing demands of customers. Many Australian companies – in both the manufacturing and the service sectors – have established just-in-time operations that are responsive to changing customer requirements. The organization, for example, traditionally produced its entire range of mains hot water heaters over a six-month cycle – now it produces the range every two and-a-half days. This not only affects the manufacturing operation; it also requires a different and more responsive logistics operation.

All these issues have affected the typical logistics operation over the last few years. But they may not have an equal impact. Technology and the environment can be perceived as the key future issues for logistics management. Both of these areas have had a recent high public profile. The technology of barcode scanner in the warehouse and route scheduling has generated much interest. Environmental issues have been highlighted by the safety codes for the transport of hazardous materials. The area which have been of great interest to academics and other commentators on logistics management, such as a global orientation and inter organizational relationships can also have prolonged impact. The organization may not have any effect on consumer responsiveness highly. Manufacturers may not focus on the potential of strategic alliances and thus changing relationships in the logistics channel. The focus is still on the internal operations of logistics within the organization. Certainly the domain of concern is no longer just within the elements of the logistics task – the strategic potential of logistics is recognized. But it is still housed within the walls of a corporate entity operating in the domestic market. Much scope still exits for widening the primary logistics focus to relationships with other organizations.

3.8 Creating Agile Supply Chains in the Fashion Industry

Fashion markets are synonymous with rapid change and, as a result, commercial success or failure in those markets is largely determined by the organization's flexibility and responsiveness. Responsiveness is characterized by short time-to-market, the ability to scale up (or down) quickly and the rapid incorporation of consumer preferences into the design process. It is often argued that conventional organizational structures and forecast-driven supply chains are not adequate to meet the challenges of volatile and turbulent demand which typify fashion markets today. Instead, the requirement is for the creation of an agile organization embedded within an agile supply chain. Fashion is a broad term which typically encompasses any product or market where there is an element of style which is likely to be short-lived. We have defined fashion markets as typically exhibiting the following characteristics (Audet & Denis, 2004:128).

1. Short life-cycles – the product is often ephemeral, designed to capture the mood of the moment: consequently, the period in which it will be saleable is likely to be very short and seasonal, measured in months or even weeks.
2. High volatility – demand for these products is rarely stable or linear. It may be influenced by the vagaries of weather, films, or even by pop stars and footballers.
3. Low predictability – because of the volatility of demand it is extremely difficult to forecast with any accuracy even total demand within a period, let alone week-by-week or item-by-item demand.
4. High impulse purchasing – many buying decisions by consumers for these products are made at the point of purchase. In other words, the shopper when confronted with the product is stimulated to buy it; hence the critical need for 'availability'.

The combined effect of these pressures clearly provides a challenge to logistics management. Traditional ways of responding to customer demand have been forecast-based, with the resultant risk of over-stocked or under stocked situations.

More recently there has emerged another trend that has added further complexity and difficulty to the management of fashion logistics. The growing tendency to source product and materials off-shore has led in many cases to significantly longer lead-times. While there is usually a substantial cost advantage to be gained, particularly in manufacturing, through sourcing in low labor cost areas, the effect on lead-times can be severe. It is not only distance that causes replenishment lead-times to lengthen in global sourcing. It is the delays and variability caused by internal processes at both ends of the chain as well as the import/export procedures in between. The end result is longer 'pipelines' with more inventories in them with the consequent risks of obsolescence that arise (Carman, 1966).

3.9 Managing the Fashion Logistics Pipeline

Conventional wisdom holds that the way to cope with uncertainty is to improve the quality of the forecast. Yet, by definition, the volatility of demand and the short life-cycles found in many fashion markets make it highly unlikely that forecasting methods will ever be developed that can consistently and accurately predict sales at the item level. Instead ways must be found of reducing the reliance that organizations place upon the forecast and instead to focus on lead-time reduction. Shorter lead-time means, by definition that the forecasting horizon is shorter, and hence the risk of error are lower.

There are three critical lead-times that must be managed by organizations that seek to compete successfully in fashion markets (Bowersox & Closs, 2002).

Time-to-Market - how long does it take the business to recognize a market opportunity and to translate this into a product or service and to bring it to the market?

Time-to-Serve - how long does it take to capture a customer's order and to deliver the product to the retail customer's satisfaction?
Time-to-React - how long does it take to adjust the output of the business in response to volatile demand? Can the 'tap' be turned on or off quickly?

The fundamental problem that faces many companies - not just those in fashion industries - is that the time it takes to source materials, convert them into products and move them into the market place is invariably longer than the time the customer is prepared to wait. This difference between what might be called the 'logistics pipeline' and the customers' order cycle time is termed the 'lead-time gap'. Conventionally, this gap was filled with a forecast-based inventory - there was no other way of attempting to ensure that there would be product available as and when customers demanded it (Carman, 1966).

The Agile Supply Chain

In recent years there has been a growing interest in the design and implementation of agile supply chain strategies. The idea of agility in the context of supply chain management focuses around 'responsiveness'. Conventional supply chains have been lengthy with long lead-times and hence, of necessity, have been forecast-driven. By contrast, agile supply chains are shorter and seek to be demand-driven. A further distinction is that because conventional supply chains are forecast-driven that implies that they are inventory-based. Agile supply chains are more likely to be information-based. By their very nature, fashion markets are volatile and difficult to predict (Christopher and Towill, 2001: 241).

Hence there is a need for agility and agile supply chain has a number of characteristics. Specifically the agile supply chain is:
Market sensitive – it is closely connected to end-user trends.
Virtual – it relies on shared information across all supply chain partners.
Network based- it gains flexibility by using the strength of specialist players.

Process Aligned- it has a high degree of process interconnectivity between the network members.

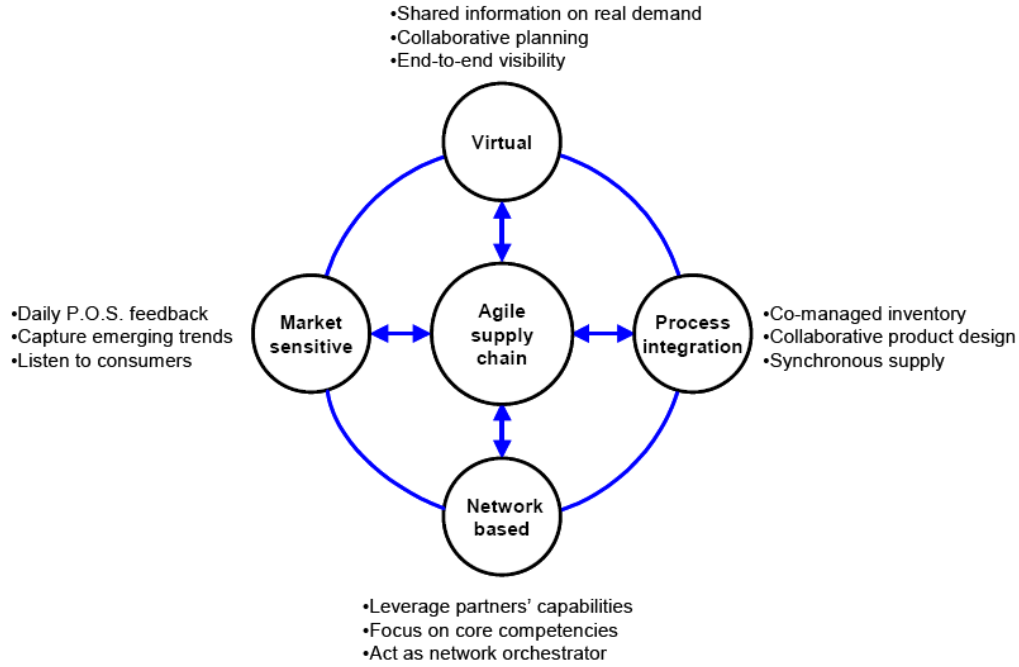


Figure 2 : The Foundation of Agility in Fashion Business

The Road to Quick Response (QR) in Fashion Industry

Today, QR is recognized as an operations strategy and as such, it attracts considerable interest for two additional, yet closely related reasons. First, the ability of this strategy to cope with the complexity of fashion logistics; and, second, as a method to combat the relentless shift toward offshore sourcing from low wage economies (Fisher, Hammond, Obermeyer & Raman, 1994).

In all fast moving industries, demand is now more fragmented and the consumer more discerning about quality and choice. There is also an increasing fashion influence; no single style or fashion has dominated for any length of time. For many consumer sectors, demand is approaching the chaotic in its insatiable appetite for diverse services and goods. 'Mass customization' and individualized products with shorter season lengths; micro merchandising and markets segmented at the individual level; large numbers of products chasing a

diminishing market share; are all evidence of the inexorable movement toward a 'sea change' and mark the folly of firms expecting to operate as they have in the past. One of the most fundamental Quick Response philosophy is the ability to compress time in the supply system (Malmborg and Richardson, 2000:88). If the pipeline is condensed to about one third of its traditional length, not only does the design of goods better reflect more accurate consumer information, it is possible for the retailer to re-assess the demand for products while the season is under way and receive small, frequent reorders from the supplier, provided reorder lead times are short enough.

Quick Response (QR) can be defined as: A state of responsiveness and flexibility in which an organization seeks to provide a highly diverse range of products and services to a customer/consumer in the exact quantity, variety and quality, and at the right time, place and price as dictated by real-time customer/consumer demand. QR provides the ability to make demand-information driven decisions at the last possible moment in time ensuring that diversity of offering is maximized and lead-times, expenditure, cost and inventory minimized. QR places an emphasis upon flexibility and product velocity in order to meet the changing requirements of a highly competitive, volatile and dynamic marketplace. QR encompasses an operations strategy, structure, culture and set of operational procedures aimed at integrating enterprises in a mutual network through rapid information transfer and profitable exchange of activity (Fisher, Hammond, Obermeyer & Raman, 1994).

QR has a number of strategic implications for the organization. There are some principles of QR, as discussed below.

- The alignment of organizational activity to demand- This is a fundamental principle of QR. All activities within an enterprise should be paced to demand and customer behavior. Products and services are produced and delivered in the variety and volume that match demand. The activity within a company moves to the beat of this drum.

- Linkages between demand and supply- Given the importance of the alignment activity above, a strategic understanding of the drivers of demand and its synchronized connection with supply is imperative for QR.
- Demand Relationships-QR recognizes that both customers/consumers and products are dynamic and place unique demands on the organization. Identical products will have unique product flows depending upon customer/consumer buying behavior and QR needs. Similarly, product attributes will vary by product type.
- Resource Configuration- In the QR world, this strategic architecture is inter-organizational. Strategy and strategic thinking are at a network level, encompassing many external interconnections. In addition, within this configuration must fit the mapping of customer/consumer values and perceived benefits onto operations, in order to underpin the link between demand and activity.
- Time- Time as a strategic weapon is vital to QR operation, but like any weapon its effectiveness depends upon the circumstances of its use. As with demand, time-based competition requires careful assessment as to where best it can serve customers/consumers. Fast and accurate adaptation to market change is perhaps the most important element of the QR strategy.
- Primacy of information- Data and information are the foundation of QR– every business is an information business. Timely and accurate flows will enable fast and accurate responses without waste and unnecessary cost.
- Partnerships and Alliances- Perhaps one of the most significant developments in recent management and business thinking has been externalization; the recognition that performance relies increasingly upon a series of alliances and relationships with other enterprises in the environment as the most effective way to deal with constantly changing market conditions.

Apart from the strategic implications, Quick Response also requires a number of operational building blocks that have to be integrated and aligned for efficient

and effective reaction to 'real'-time demand. Mere possession, however, of the various technologies, processes and activities will be insufficient for an agile response; close linkages are required across the whole supply system in order to provide a QR capability (Fisher, Hammond, Obermeyer & Raman, 1994).

From Environmental Analysis to Industry Analysis

The business environment of the firm consists of all the external influences that affect its decisions and performance. Given the vast number and range of external influences, it becomes difficult for managers alone to monitor and analyze the environmental conditions. The starting point is some kind of system or framework for organizing information (Gilmour, 1993).For example, environmental influences can be classified by source (e.g. into political, economic, social, and technological factors ("PEST analysis")) or by proximity (the "micro-environment" or "task environment" can be distinguished from the wider influences that form the "macro-environment"). Though systematic and continuous scanning of the whole range of external influences might seem desirable, such extensive environmental analysis is unlikely to be cost effective and creates information overload.

The prerequisite for effective environmental analysis is to distinguish the vital from the merely important. To do this, let's examine one by one. Firstly, for the firm to make profit it must create value for customers. Hence, it must understand its customers. Second, in creating value, the firm acquires goods and services from suppliers. Hence, it must understand its suppliers and how to form business relationships with them. Third, the ability to generate profitability from value-creating activity depends on the intensity of competition among firms that vie for the same value-creating opportunities .Hence, the firm must understand competition. Thus, the core of the firm's business environment is formed by its relationships with three sets of players: customers, suppliers, and competitors. This is its industry environment.

This is not to say that macro-level factors such as general economic trends, changes in demographic structure, or social and political trends are unimportant to strategy analysis. These factors may be critical determinants of the threats and opportunities a company will face in the future. The key issue is how these more general environmental factors affect the firm's industry environment.

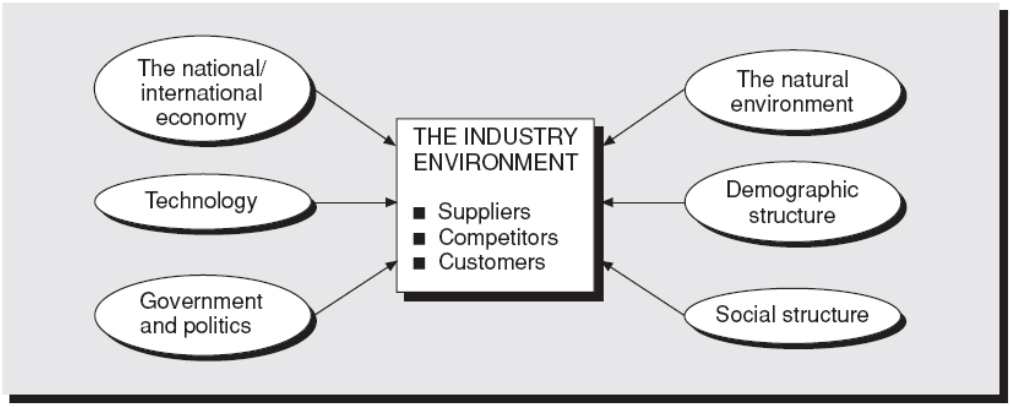


Figure 3: From Environmental Analysis to Industry Analysis

The Determinants of Industry Profit: Demand and Competition

If the purpose of strategy is to help a company to survive and make money, the starting point for industry analysis is a simple question: What determines the level of profit in an industry (Abernathy, Frederick , Dunlop, Hammond and Weil, 1999)?

As already mentioned, business is about the creation of value for the customer either by production (transforming inputs into outputs) or commerce (arbitrage). Value is created when the price the customer is willing to pay for a product exceeds the costs incurred by the firm. But value creation does not translate directly into profit. The surplus of value over cost is distributed between customers and producers by the forces of competition. The stronger is competition among producers, the more of the surplus is received by customers in consumer surplus (the difference between the price they actually pay and the maximum price they would have been willing to pay) and the less is the surplus received by producers (as producer surplus or economic rent). A single supplier

of bottled water at an all-night rave can charge a price that fully exploits the dancers' thirst. If there are many suppliers of bottled water, then, in the absence of collusion, competition causes the price of bottled water to fall toward the cost of supplying it (Bhavani and Tendulkar, 2001).The surplus earned by producers over and above the minimum costs of production is not entirely captured in profits. Where an industry has powerful suppliers –monopolistic suppliers of components or employees united by a strong labor union– a substantial part of the surplus may be appropriated by these suppliers (the profits of suppliers or premium wages of union members).The profits earned by the firms in an industry are thus determined by three factors:

- The value of the product to customers
- The intensity of competition
- The bargaining power of the producers relative to their suppliers

Industry analysis brings all three factors into a single analytic framework.

Analyzing Industry Attractiveness

Some industries (such as tobacco, pharmaceuticals, and medical equipment) consistently earn high rates of profit; others (such as iron and steel, nonferrous metals, airlines, and basic building materials) have failed to cover their cost of capital. The basic premise that underlies industry analysis is that the level of industry profitability is neither random nor the result of entirely industry-specific influences – it is determined by the systematic influences of the industry's structure. The pharmaceutical industry and the steel industry not only supply very different products; they also have very different structures, which make one highly profitable and the other a nightmare of price competition and weak margins. The pharmaceutical industry produces highly differentiated products with price-insensitive consumers and each new product receives monopoly privileges in the form of 17-year patents. The steel industry produces a commodity product with declining demand, strong substitute competition, massive overcapacity, and is squeezed on one side by powerful customers and on the other by strong labor unions. Conversely, the steel

industry and the airline industry supply very different products, but they share a number of similarities of industry structure which result in both earning dismal rates of profit. Some of the most attractive industries are those which supply a niche product – the limited markets for such products often mean dominance by just one or two companies (Bhavani and Tendulkar ,2001).

The underlying theory of how industry structure drives competitive behavior and determines industry profitability is provided by industrial organization (IO) economics. The two reference points are the theory of monopoly and the theory of perfect competition, which form two ends of the spectrum of industry structures. A single firm protected by barriers to the entry of new firms forms a monopoly in which it can appropriate in profit the full amount of the value it creates. By contrast, many firms supplying an identical product with no restrictions on entry or exit constitute perfect competition: the rate of profit falls to a level that just covers firms' cost of capital. In the real world, industries fall between these two extremes. The market for chewing tobacco is close to being a monopoly; the noodles markets are close to being perfectly competitive. Most manufacturing industries and many service industries tend to be oligopolies: they are dominated by a small number of major companies. By examining the principal structural features and their interactions for any particular industry, it is possible to predict the type of competitive behavior likely to emerge and there sulting level of profitability (Bain, 1956).

Porter's Five Forces of Competition Framework

There are four structural variables influencing competition and profitability. In practice, there are many features of an industry that determine the intensity of competition and the level of profitability. A helpful, widely used framework for classifying and analyzing these factors is the one developed by Michael Porter of Harvard Business School.

Porter's Five Forces of Competition framework views the profitability of an industry (as indicated by its rate of return on capital relative to its cost of capital) as determined by five sources of competitive pressure. These five forces of competition include three sources of "horizontal" competition: competition from substitutes, competition from entrants, and competition from established rivals; and two sources of "vertical" competition: the bargaining power of suppliers and buyers (Porter, 1985).

The strength of each of these competitive forces is determined by a number of key structural variables, as shown in

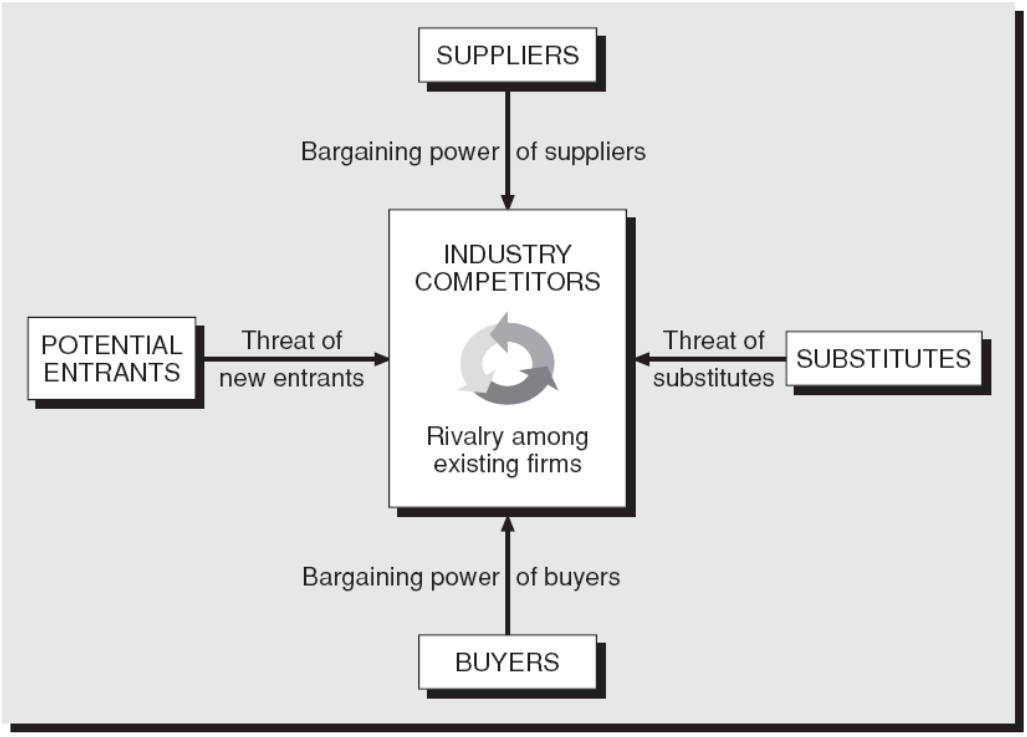


Figure.

Figure 4: Porter's Five Forces of Competition Framework

Threat of Substitutes

The price customers are willing to pay for a product depends, in part, on the availability of substitute products. The absence of close substitutes for a product, as in the case of gasoline or cigarettes, means that consumers are comparatively insensitive to price (i.e., demand is inelastic with respect to

price). The existence of close substitutes means that customers will switch to substitutes in response to price increases for the product (i.e., demand is elastic with respect to price).The extent to which substitutes limit prices and profits depends on the propensity of buyers to substitute between alternatives. In case of Garment industry in Nepal, the market is flooded by cheap Chinese product which occupies more than 70% of the market share. Hence there are enough close substitutes for branded John Players and SPRINGWOOD garment. Although the quality of these apparel is far more better than the Chinese products, majority of the consumers are unaware about the price–performance characteristics.

Threat of new entrants

If an industry earns a return on capital in excess of its cost of capital, that industry acts as a magnet to firms outside the industry. Unless the entry of new firms is barred, the rate of profit will fall toward its competitive level. The threat of entry rather than actual entry may be sufficient to ensure that established firms constrain their prices to the competitive level. An industry where no barriers to entry or exit exist is contestable: prices and profits towards the competitive level, regardless of the number of firms within the industry. Contestability depends on the absence of sunk costs. Sunk costs exist where entry requires investment in industry-specific assets whose value cannot be recovered on exit. An absence of sunk costs makes an industry vulnerable to "hit and-run" entry whenever established firms raise their prices above the competitive level.

In most industries, however, new entrants cannot enter on equal terms with those of established firms. Once SNPL had established its Garment division in Biratnagar, the local garment factories have been disappeared from the market and those existed have started working as the vendor of the organization. Hence the threat of new entrants is quite low for the recognized blue-chip company as SNPL. The size of the advantage of established over entrant firms (in terms of unit costs) measures the height of barriers to entry, which

determines the extent to which the industry can, in the long run, enjoy profit above the competitive level. The principal sources of barriers to entry are capital requirements, economies of scale, cost advantages, product differentiation, and access to channels of distribution, governmental and legal barriers, and retaliation.

Rivalry Among Existing Firms

For most industries, the major determinant of the overall state of competition and the general level of profitability is competition among the firms within the industry. In some industries, firms compete aggressively – sometimes to the extent that prices are pushed below the level of costs and industry-wide losses are incurred. In others, price competition is muted and rivalry focuses on advertising, innovation, and other non price dimensions. The rivalry is quite low for SNPL, as there are no any apparel producer in the country and its only rival are third country exporter. Six factors play an important role in determining the nature and intensity of competition between established firms: concentration, the diversity of competitors, product differentiation, excess capacity, exit barriers, and cost conditions.

Bargaining Power of Buyers

In the markets for outputs firms sell their goods and services to customers (who may be distributors, consumers, or other manufacturers). The transactions create value for both buyers and sellers. How this value is shared between them in terms of profitability depends on their relative economic power. The strength of buying power that firms face from their customers depends on two sets of factors: buyers' price sensitivity and relative bargaining power. The Nepalese customers are more sensitive to price and hence the bargaining power is quite high as they shift to other low price brands. The relative bargaining power depends upon size and concentration of buyers relative to supplier, buyers information and ability to integrate vertically.

Bargaining Power of Suppliers

Analysis of the determinants of relative power between the producers in an industry and their suppliers is precisely analogous to analysis of the relationship between producers and their buyers. The only difference is that it is now the firms in the industry that are the buyers and the producers of inputs that are the suppliers. The key issues are the ease with which the firms in the industry can switch between different input suppliers and the relative bargaining power of each party. Because raw materials, semi-finished products, and components are often commodities supplied by small companies to large manufacturing companies, their supplier usually lacks bargaining power and so is true for SNPL.

From Industry Attractiveness to Competitive Advantage: Identifying Key Success Factors

The Five Forces framework allows us to determine an industry's potential for profit. But how is industry profit shared between the different firms competing in that industry? As we have noted, competition between industry participants is ultimately a battle for competitive advantage in which firms rival one another to attract customers and maneuver for positional advantage. The purpose of this section is to look explicitly at the sources of competitive advantage within an industry. Our goal here is to identify those factors within the firm's market environment that determine its ability to survive and prosper – its key success factors. Our approach to identifying key success factors is straightforward. To survive and prosper in an industry, a firm must meet two criteria: first, it must supply what customers want to buy; second, it must survive competition. Hence, we may start by asking two questions:

- What do our customers want?
- What does the firm need to do to survive competition?

To answer the first question we need to look more closely at customers of the industry and to view them not so much as a source of bargaining power and hence as a threat to profitability, but more as the basic rationale for the

existence of the industry and as the underlying source of profit. This implies that the firm must identify who its customers are, what are their needs, and how they choose between competing offerings. Once we have identified the basis of customers' preference, this is merely the starting point for a chain of analysis (Porter, 1985)

A basic framework for identifying key success factors is presented in below figure (Mann, 1966)

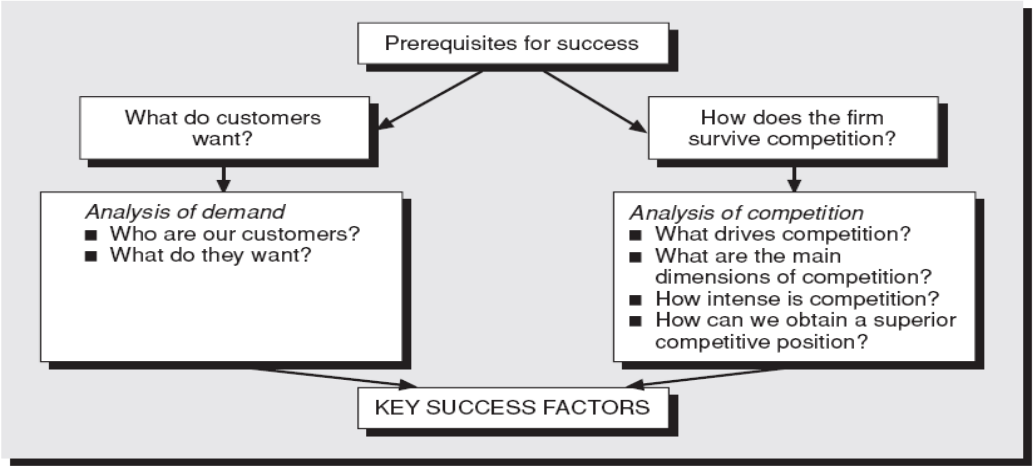


Figure 5: Identifying Key Success Factors

Table 1 : Identifying Key Success Factors in Fashion Clothing

	WHAT DO CUSTOMERS WANT? (Analysis of demand)	HOW DO FIRMS SURVIVE COMPETITION? (Analysis of competition)	KEY SUCCESS FACTORS
Fashion clothing	■ Wide variety of customer preferences relating to garment type, style, quality, color. ■ Customers willing to pay price premium for brand, stylishness, exclusivity, and quality. ■ Mass market highly price sensitive.	■ Low barriers to entry and exit, low seller concentration, and buying power of retail chains imply intense competition. ■ Differentiation can yield substantial price premium, but imitation is rapid.	■ Need to combine effective differentiation with low costs. ■ Key differentiation variables are speed of response to changing high fashions, style, reputation and quality. ■ Cost efficiency requires manufacture in low wage countries.

Key success factors can also be identified through the direct modeling of profitability. In the same way that our Five Forces analysis models the

determinants of industry-level profitability, we can also attempt to model firm-level profitability in terms of identifying the key factors that drive a firm's relative profitability within an industry (Mann, 1966).

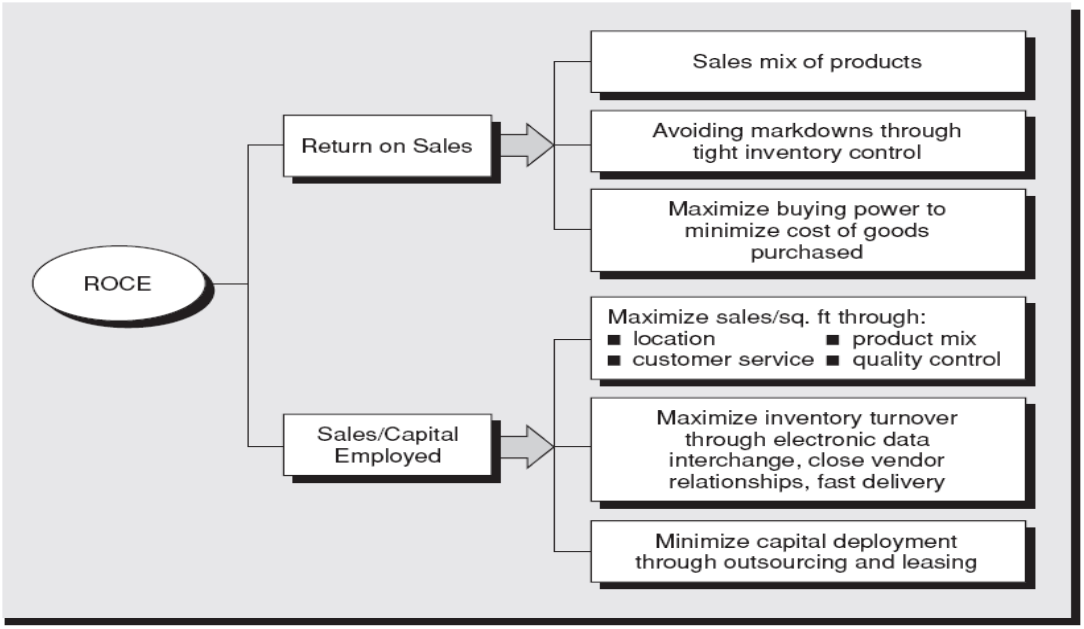


Figure 6: Identifying key success factors through analyzing profit drivers

SWOT Analysis

SWOT is an acronym used to describe the particular Strength, Weakness, Opportunities and Threats that are strategic factors for a specific company. SWOT analysis should not only result in the identification of a corporations distinctive competencies, but also finds out the particular capabilities that the organization is currently not able to take advantage of due to lack of appropriate resources. The SWOT analysis for SNPL is as under.

Strength

- SNPL is a subsidiary company of ITC, which is an independent and self reliant industry.
- The brand portfolio, the company owes.

- Availability of low cost manpower provides competitive advantage to the organization.
- Organization provides wide variety of products each with different design and style.
- Organization has manufacturing flexibility that helps to increase the productivity.
- Highly experienced top management.

Weakness

- Organization is highly dependent on ITC.
- Textile industry is highly fragmented industry.
- Lower productivity in various segments.
- Lack of technological development that affects the productivity and other activities in entire value chain.
- Unfavorable labor laws.
- Lack of trade membership, which restricts to tap other potential markets.
- Lacking to general economies of scale.
- Infrastructural bottlenecks and efficiency such as transaction time at ports and transportation time.
- Higher indirect tax, power and interest rates.

Opportunities

- Large potential domestic and international market.
- Product development and diversification to carter global needs.
- Eliminations of quota restriction lead to greater market development.
- Market is gradually shifting towards branded readymade garments.
- Increased disposable income and purchasing power of people opens new market development.
- Due to positive upcoming political trend, greater investment and FDI opportunities are available.

Threats

- Competition from other developing countries, especially China.
- Continuous quality improvement is need of the hour as there are different demand pattern.
- Eliminations of quota system will lead to fluctuations in export demand.
- Geographical disadvantage.
- International labor and environmental law.
- To balance demand and supply.
- To make balance between price and quantity.

PEST Analysis

PEST analysis of any industry sector investigates the important factors that are affecting the industry and influencing the companies operating in that sector. PEST is an acronym for political, economic, social and managers and policy makers; helping them in analyzing the forces that are driving their industry and how these factors will influence their businesses and the whole industry in general. Our product also presents a brief profile of the industry comprising of current market, competition in it and future prospects of that sector.

Political and Legal Forces:

Trend in political and legal part of the societal environment have a significant impact on any kind of business firm. Our country's regulation and political environment has been frequently changing. This unstable political environment has its effect on the export of the company, its new product launching, sales volume of the product and ultimately the expected profit of the company. Some of the political factors that may affect the company are tax laws, laws on promotion, antitrust regulations and foreign trade regulation.

Economic Forces:

Economic forces are those forces that regulate the exchange of materials, money, energy and information. The economy of the company rises or falls based on the sale of its products. The GDP of the country is in the falling trend. The interest rate is declining and there is high inflation rate. It is becoming difficult for the government to control the price level. Hence the companies are finding difficulty in maintaining the economic environment of the industry as a whole.

Socio-cultural Forces:

Socio-cultural forces are those that regulate the values, morals and customs of the society. The company is continuously focusing on socio-cultural activities to eliminate the negative perception. The company is involved in organizing various events like Musical Concert, Football and Golf Tournaments and the like. The initiative towards other fields like agricultural seeds, match sticks business and these have helped the company to successfully capture the needs and want of the target people and achieve them. This has helped people to change their lifestyle and expectation about the company.

Technological Forces:

Technological forces are those forces that generate problem solving inventions. The company has set up different plants in the country. The spending on R&D is above the average. The organization is always trying to achieve efficiency in its capacity and thus continuously focus on technological efforts. Further, the company is always striving to protect its brand and trademark.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 The Research Design

This study has followed the descriptive cum exploratory research design to systematize the research methodology and to fulfill the objective of this study. Exploratory Research Design.

4.2 Sources of Data

The base of the study is Primary and Secondary data of Surya Nepal Private Limited. The major sources of data are the internal records collected from the office records. Thus, the base of the study is primary data itself. The Primary data were obtained from the records of Central Warehouse, the records of the Logistic Department and the records of Shop Floor of Surya Nepal Private Limited. Likewise the secondary data have been obtained from different vendors of Surya Nepal Private Limited. These data are useful in developing the costing of different designs of Shirts and Trousers.

4.3 Data Collection Procedure

So as to achieve the objective of the study and to fulfill the requirement of descriptive cum exploratory research design, this thesis has used both the Primary and Secondary data. These data were collected by following ways.

***Observation*:** Direct observation in the factory site was made to know about the method of working procedure of various departments. In this stage, the detail workflow of Logistics, Garment Store, CWH and Production Process were observed. Further, the level of the wastage of various trims like thread and buttons were also taken into account.

***Desk Data*:** The Secondary data were based on desk data.The desk data were obtained from various departments like Logistics, Garment Stores, CWH, Cutting Section, Shifts Managers, Quality Managers and through various other vendors of SNPL. In addition to this, other desk data were also available on Company's Press Release, Publications, on Internet and the like.

4.4 Data Presentation

Data collected through observation and other secondary sources were sorted, organized and ordered in tabular form and infiltrated to make the analysis easy and to comment to the conclusion. As far as possible, the numerical data had been revealed in respective suitable diagrams such as pie charts, bar diagrams etc.

4.5 Data Analysis

The data obtained from internal and external records as well as observation were analyzed by using Correlations, charts and diagrams, after tabulation. So far as computation is concerned, it has been performed with the SPSS software in a desktop.

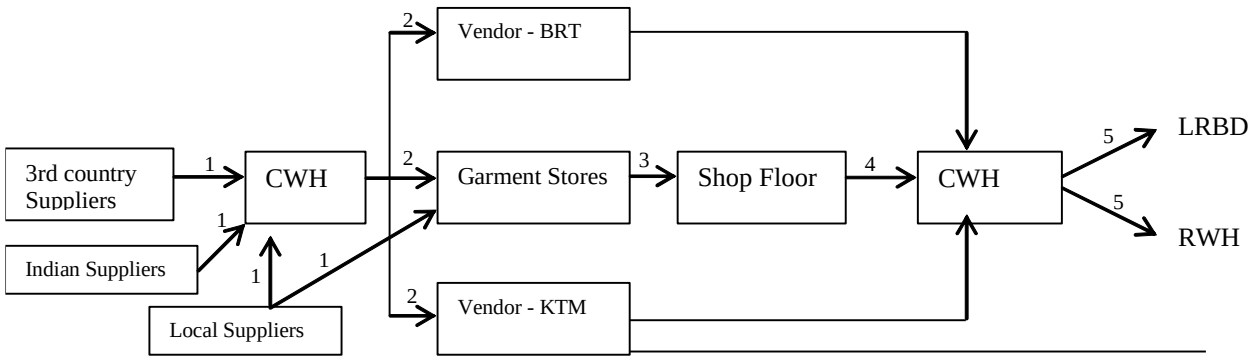
CHAPTER 5: PRESENTATION AND ANALYSIS OF DATA

5. Logistic Management in Surya Nepal Pvt. Ltd.

5.1 Physical Flow

The first assigned task was preparation of overall physical flow of goods. This included both inflow of RM (inbound logistics) and outflow of finished goods (outbound logistics). The figure is presented below and explained later.

Figure 7: Physical Flow of Goods



The number denotes what kind of physical product flows and how between the units. They are further explained:

Source: CWH Operating Procedure,2005.

Number 1-3 denotes Inbound Logistics and Number 4 and 5 mean outbound Logistics. The CWH appears two times in the figure. This does not mean they are different In fact, there is only one CWH and here, it is presented otherwise for the sake of simplicity.

1. Raw Material (RM) from the suppliers (3rd country, Indian and local) is received in the CWH. RM includes primarily fabric, fusing, stitching and finishing materials. However, some finishing materials like product boxes are directly send from the local vendors to the Garment Stores (GS). Though they are physically transferred directly to the Stores, the legal documentation happens in the CWH.

2. RM is then transferred from CWH to the Garment Stores for the manufacturing of garments. The SNPL factory manufactures only shirts. Manufacturing of some shirts is outsourced to Biratnagar Vendor and manufacturing of trousers and jackets are outsourced to the Kathmandu Vendor.
3. Once goods arrive in the GS, they are issued to shop floor based on the production and loading plan. In case of local vendors too, they are used for production. But the detail is not shown in the figure and only concentrated for the factory.
4. After the manufacturing process is complete and FGs are readily loaded into the cartoons, they are collected in the CWH. If the manufacturer is Kathmandu vendor and the garments are for sale in Nepal they are directly send to the RWH located in Kathmandu. However, all other garments (that will be exported to LRBD or Biratnagar-manfucatured garment for Nepali market) must be transferred to CWH.
5. After FGs are collected in the CWH, they are sent to various warehouses of LRBD (North, East, West and South). FGs for Nepal market are transferred to RWH, Kathmandu, from where they are distributed to local retailers.

5.2 Information Flow

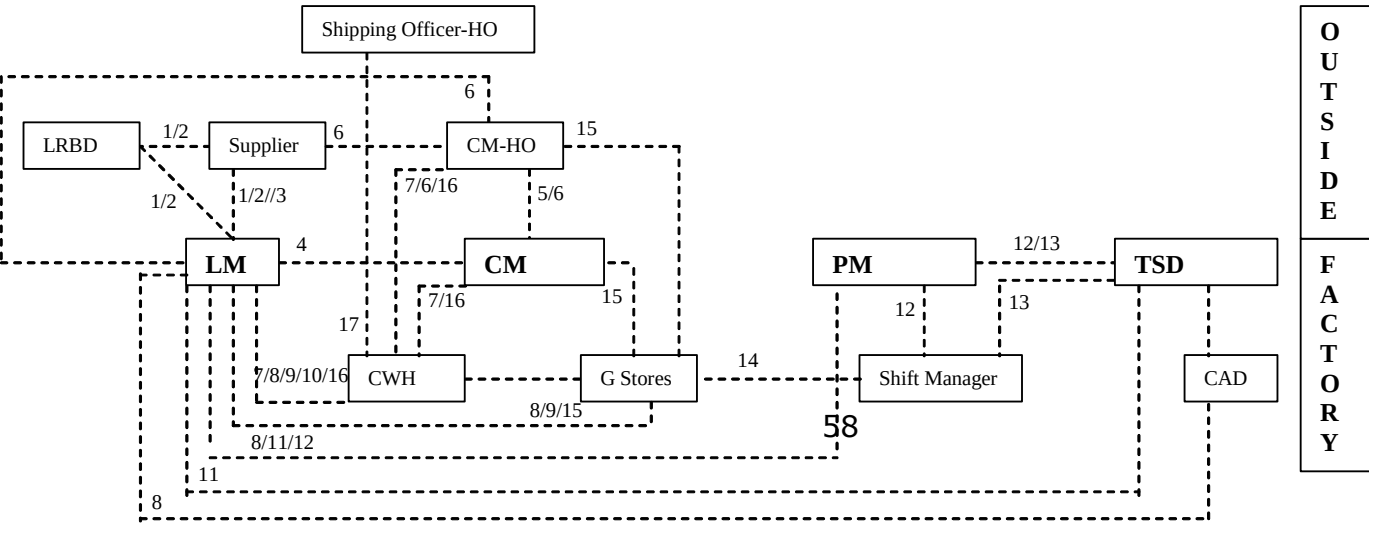


Figure 8: Information Flow

Source: CWH

Operating Procedure,2005.

LM stands for Logistics Manager. But in this figure it denotes the whole Logistics Department and include both the manager executive.

Similar is the case with CM and PM. In this figure they are implied as Commercial and Production Department.

The number signifies what kind of communication takes place between units and how. They are explained below:

LEGEND	
LRBD:	Lifestyle Retailing and Business Division
LM:	Logistics Manager
CM:	Commercial Manager
CM-HO:	CM- Head Office
CWH:	Central Warehouse
GS:	Garment Stores
SM:	Shift manager
PM:	Production Manager
TSD:	Technical Service Department
CAD:	Computer Aided Design

The information/communication flow does not necessarily happen in the order of numbers given below. Sometimes two things happen simultaneously or before/after.

1. **Supplier and RM selection:** LRBD and LM
   The fabric/trims supplier is chosen through consent between LRBD and LM. For a careful selection, frequent communication takes place among the three parties.

2. **Next Season Order:** LRBD and LM
   LRBD gives the order for next season through Range Architecture. LM specifies its Capacity Commitment and the both develop *Fabric Procurement Plan*.

3. **Purchase Invoice (PI)**: Supplier to LM
   The supplier sends a PI mentioning the quantity and rate of raw materials that can be procured by SNPL. PI is negotiated if rates are perceived high by SNPL.

4. **Forward PI**: LM to CM

   PI, if accepted by the LM gets forwarded to the CM.

5. **Verify and Forward PI**: CM to CM (HO)

   CM verifies the PI against the initial season procurement plan and forwards it to CM-HO for raising the Purchase Order (PO). If the PI deviates from the plan, things are clarified with LM on why the deviation has occurred.

6. **Raise PO:** CM (HO) to Suppliers; CC to LM/CM/CWH

   The actual ordering for the purchase is done by the CM-HO. A formal, legally binding document is sent to the supplier to dispatch the raw materials. LCs, custom clearance, insurance, transportation and all other direct costs are undertaken by the CM-HO.

   This information is also communicated with LM, CM, and CWH to facilitate planning and give an idea on when the RM will be received.

7. **Goods Receipt Note (GRN) of RM**: CWH to CM/ CM-HO/ LM

   When the raw materials are actually received, goods are verified for quantities based on the PO raised earlier. CWH records all the receipts in GRN and sends the information to CM, CM-HO and LM.

8. **Work Order**: LM to CWH/GS/CAD/PM

   Once the fabric is received in the CWH (known from GRN), LM gives work order to GS, CAD and PM. GS will use the information to prepare for transferring the goods from warehouse to its own stores. CAD will start designing the marker on how to cut the fabric so that minimum of fabric is wasted. PM will start planning for the production.

9. **Bill of Material (BOM):** LM to GS/CWH

Once the work order is given to all the concerned departments, LM arranges for transferring the trims from CWH to GS. The BOM is a table that lists the quantity of each material that will be required to complete the production of planned quantities.

10**.Goods Issue Sheet (GIS):** CWH to CM (Stores)/Local vendors/LM

After BOM and Work Order are received, CWH starts transferring trims based on the requirement of BOM. All the issues are noted is the GIS and communicated to LM and stores. The trims and fabric are also issued to Local Vendors (Easywear and Classic) and the procedure is same.

11**.Trims Status:** PM/TSD to LM

Work Order and BOM is insufficient to immediately start production. PM seeks the trims status to make the production plan and TSD seeks it to make the loading Plan.

12**. Production Plan:** PM to SM/TSD/LM

PM makes the production plan. It is usually a month long plan detailing what design of fabric will be produced on the 3 different production lines (prep 1, prep 2 and niche lines) and in which shift (morning and evening).

A recent approach has been to make a 5-day rolling plan to maintain a stronger control over production. This plan is communicated to LM to make the RM ready; to the TSD to make the machines ready and the shift managers to make necessary labor allocations and revise daily production target.

13**. Loading Plan: TSD to PM/SM**

Even production plan does not guarantee that the garments will be manufactured in the same way. Machines need to be ready/changed based on the design code, fabric code; trims have to be available in the

stores. Based on these two data, the loading plan is developed by the TSD and communicated with PM and SM.

14. **Packing List: SM (Finishing Section) to GS**

After the *Finishing* of a garment production, including final audit, various designs are packed in the cartoons of 24 pcs capacity. The packing is best done in the Production Monitoring and Reporting System (PMRS). This PMRS maintains a demand-wise cartoon ID, SKU and quantity packed for both LRBD and RWH. However, due to system problem of reading barcode, or emergency requirement in the CWH, FG is manually packed in the cartoons and packing list manually developed. Finally the **Finishing Section** forwards the packing list to the GS.

15. **Advanced Shipment Notice (ASN):** CM (Stores) to CWH/LM/CM/CM-HO

After receiving the packing list from the **Finishing Section,** the goods are then transferred to CWH for shipping. Based on the transfer, the packing list is uploaded by the GS into the Distribution Automated System (DAS). When this is done the Advanced Shipment notice (ASN) is automatically sent to the CWH, LM, CM, CM-HO and Shipping Officer.

16. **GRN (FG):** CWH to CM/ CM-HO/ LM

When the FG is received in the CWH, the treatment is similar to goods received with the raw materials. The only difference is that goods are received from stores and local vendors instead of RM suppliers.

If the packing list was generated based on the systems allocated pack, then the goods are ready for shipping. However, if garments are mixed and contain distorted ratio, they are reworked in the CWH. Also, in this phase, the goods that are for Nepal market are modified in body tag, and JP boxes are removed. After the final packing is done based on demand, the information is passed to the LM, CM-HO and LM-HO

17.**Shipping Date:** Shipping Officer/RWH to CWH

The shipping date, the day when FG should be sent out of the CWH to Kakarbhitta for exporting is given by the shipping Officer. After Kakarbhitta, goods are relocated based on the zonal requirements of India and shipped accordingly. For Nepalese market, the marketing team of RWH gives the delivery date.

5.3 RAW MATERIALS USED FOR GARMENT PRODUCTION

1. Fabric:

Fabric is the most important raw material and comprises of around 60% of the garment's cost. Fabric is what will be sewn in the machines (manually or automatically) with thread to complete a wearable shirt. Fabric comes in different colors which are coded a different fabric code. All other RM except fabric is called trims.

Two types of fabric are used in the Factory presently:

- **Solid Fabric** is a plain, one colored fabric. It is relatively easier to produce because of its nature. For example it can be cut in any manner or any area and operators too can sew it easily.
- **Yarn-dyed Fabric** is check or striped fabric, sometimes in multiple colors. This fabric is more demanding in time. For example, cutting or sewing cannot be arbitrary because checks/stripes of a part should match with that of another. This reduces productivity.

2. Fusing:

Fusing is a key input for garments. Fusing is a thick material pasted on fabric to give a stronger shape to the garment. It is used in collars, cuffs and the front placket.

3. Threads:

Threads are used for sewing the fabric. It is one of the most important and expensive trims. Thread should be matched with the fabric color. So,

there are as many thread types as the fabric code. It is used for pocketing, sewing the cuffs, collar, front, sleeves, and assembling all the parts together. It is available in tubes of 1000 meter and thus, careless handling can cost lots of money.

4. Buttons:

Buttons are the next most important and expensive trims. Buttons come in different colors like thread and are as many as the fabric code. In addition, each full sleeve shirt requires 14 L and 18 L buttons. 14 L are smaller buttons used behind sleeve and underneath the color. 18 L buttons are the main buttons used in the front.

5. **Main Label:**

All labels are external pieces of small materials which have something written on them. The main label mentions the brand name of the garment (John Players or Wills). It is a small external piece of label stitched in the inner collar. Sometimes main label come along with size attached. Other times there is a separate size label.

6. Special Label:

Special Label mentions the specific type of fabric that is used for garment. It is stitched little above the main label. Some of these labels are "*100% cotton*", "*Super mercerized cotton*". This label changes with the quality of fabric.

7. Washcare label:

The washcare label is another label that is stitched in the front placket-inner side of the shirt. It contains washcare instructions such as "Do not bleach, Avoid direct sun…including Made in Nepal"

8. Barcode Tags/Brand Tags

Tags are colorful and made of hard laminated cardboard, which are loosely hanged with the help of Kimble. Barcode tags are the ones where the barcode will actually be pasted. It is also called the brand tag because it mentions the brand name with bigger letters in the front while barcode is pasted on the other side.

9. Pins:

Ball-headed pins are used to stretch and fasten the folded garments. Pins are used during the process of folding. They are only used for the John Players brand, not Wills.

10. Clips:

Like pins, Clips are used to fasten the garment and to let it stretched. A-clip is used for John Players brand and M-clip, which is of superior quality, is used for Wills. Clips are used before the garment is packed in the polybag.

11. Butterfly:

Butterfly is a flexible plastic material, placed in the collar of the folded shirts. It is inserted after the shirt is folded and fixed with the collar button.

12. Collar PVC band:

Collar PVC band is similar to butterfly, but longer is shape and used in the inner part of collar. In other words, it is inserted inside the collar, while the butterfly is place in the outside. It also has small holes for fixing the appropriate size (39”, 40”, 42”, 44” and 46”)

13. Collar CB Band:

This is a small piece of cardboard that will be inserted in the collar before folding it. In other words, Collar CB band will be inserted before folding the collar.

14. Collar Bone:

Collar Bone is the material that will be sewn in the collar of few shirts. It does not require in normal shirts.

15. Back Support/Cardboard Insert:

The long cardboard is used to give a rectangular shape to the shirt at the Folding stage. It is inserted inside the shirt using a machine, after which pins and clips are used to fasten them in a stretched manner.

16. Foam

Foam is a thin sponge and used along with the cardboard insert during the folding of the garment.

17. Butter Paper

Similar to foam, a butter paper (very thin and white) is also inserted.

18. Kimble:

Kimble is a thin, but strong plastic used to hand the tags (hang tags, barcode tags). It works as a shield - once it is closed, it does not open.

19. Belly Band/ Ribbon:

It is a thin non adhesive/colorful tape that specifies the occasion when or where the garment should be worn. It is wrapped around the folded garment.

19. Collar size Tag/Special Tag:

These are special labels that are loosely hanged after in the finishing. They are hanged near the brand tags

20. Ploybag:

After finishing, FGs are placed inside a thin ploybag after which they will again be put in the product boxes.

21. Product Box:

The final garment is packed in Product Box. It contains two parts- Outer and Inner. The outer box is colorful (red for John Players), laminated and also contains photo of the brand endorser (Hritik Roshan) and mentions the occasion when it is to be worn, e.g., work mode, celebrations, etc The inner part is plain white. The product box is only used for the garments which are exported to India. For the garments which are sold in the Nepalese market, product boxes are removed.

22. Carton:

It is a big box, where the FGs are loaded. A carton has a capacity of packing 24 garments with product boxes. Without, product boxes, as many as 32 FGs can be packed. While packing in the carton, the SKU code is mentioned outside, along with the fabric code, style and the size of garments that it contains inside. It also specifies the RDC and different collars of tape are used to identify those areas. Carton signifies ready for dispatch.

Even the simplest shirt will require 20 or more trims. Failing to provide one item stops the production or shipment of the whole design lot. Thus, garment industries face unique challenges in inventory and logistics matter vis-à-vis other industries

5.4 TRIMS CLASSIFICATION

1. Generic Trims & Specific Trims

Generic Trims

Generic Trims are used for any fabric or design. They do not normally change with the style of the garments and are used for all garments. Thus, they are ordered in bulk in the beginning of the season, any excess trims from a particular fabric are stored in the GS or CWH and then used for other fabrics. For generic trims there is a less risk of overstocking.

Following are some generic trims:

1. Fusing
2. Main Label
3. Washcare label
4. Barcode Tags/Brand Tags
5. Pins
6. Clips
7. Butterfly
8. Collar PVC band
9. Collar CB Band
10. Collar Bone
11. Back Support/Cardboard Insert
12. Foam
13. Kimble
14. Ploybag
15. Product Box
16. Carton

Specific Trims

Specific Trims are suitable for specific fabrics only. They are ordered based on the fabric availability and shipment target/production plan. The inventory management of these trims is challenging as well as risky. Over-ordering is a waste because it cannot be used elsewhere and ordering less will result in shortfall, which will delay the production. More care should be placed for planning these inventories.

Following are some specific trims:

1. Threads

2. Buttons
3. Special Label
4. Belly Band/ Ribbon
5. Collar size Tag

2. Sewing Trims & Finishing Trims

Sewing Trims

Sewing trims are used/consumed during the sewing process. They are vital because when the shortfall for these trims arises, production is halted. Since, garment production follows a continuous process – one stage leading to the other, switching job is very difficult. Therefore, unless sufficient sewing trims are available in the stock, they are not loaded for production.

Following are some sewing trims:

1. Threads
2. Buttons
3. Labels (Washcare/main/size/special)

Finishing Trims

Finishing trims are used/consumed after the production is completed. When the shirt is ready but the finishing is yet to be done. When shortfall for these trims arises, the shirts are piled up as WIP inventory and waited for trims to arrive. IT is relative easy to change the line for these cases. While they are still to be completed, the production for other fabric is loaded where there are sufficient sewing trims.

Following are some finishing trims:

1. **Buttoning Section**: Buttons
2. **Folding Section:** Butterfly/PVC Band/Cardboard Insert/Foam/Butter Paper/ Pins/Clips/Collar Size tag

3. **Packing Section:** Hang tag /Barcode tag/Kimble/Ribbon/Poly bag/JP Box/Carton

THE PRODUCTION PROCESS

The Biratnagar factory has product-focused lines using state-of-the-art technology, world-class manufacturing systems and people processes. Production is characterized by Job Specialization where each job within the factory is highly specialized.

The in-house garments factory successfully operates in two shifts to optimize the capital productivity for high cost automates.

The overall production process of the factory can be classified into four stages:

1. Cutting (Fabric is cut into parts)
2. Sewing (Each part is sewn in separate lines)
3. Assembly (All the sewn parts are assembled/stitched together)
4. Finishing (Finishing activity)

We should note that the four stages happen in the Preparatory Line (Preparatory I and Preparatory II). In the *"Niche Line,"* (characterized by efficiency and greater team work) the sewing and assembly operations are combined. After which they are collected in the Finishing section.
The figure below summarizes the production process.

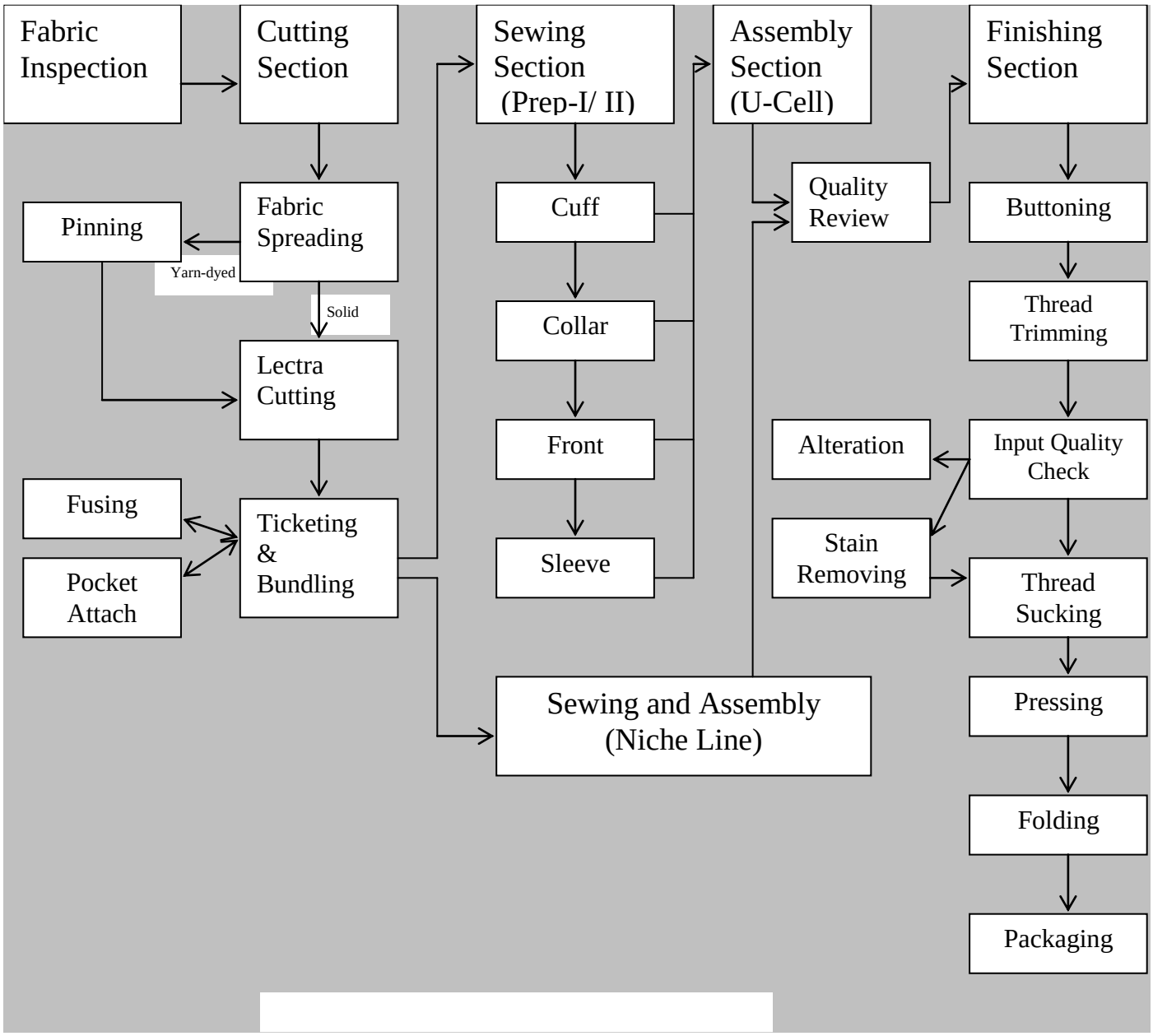


Figure 9 : The Production Process

Source: CWH Operating Procedure,2005.

1. Fabric Inspection

Fabric Inspection is the first activity in the shop floor. In this stage, the whole fabric is rolled from Inspection Frame/Machine perch fitted with speed motor as well as meter for measuring roll length. This process helps identify defects like shade variation, slubs, holes, strains and knots. The defect is marked using an *alter sticker* (so that they can be removed from production). If the fabric has defects exceeding the benchmark

level, the whole roll is rejected. For acceptable fabric, the defect area is removed from the production.

5.6 Cutting Section

2. Fabric Spreading

Fabric Spreading is the first activity of cutting section. After fabric inspection, the solid fabric is spread with a Spreading Machine. The machine, which is 20 meter in length, cuts the fabric once it is spread in full length. It is rolled back and cut again. The final output is a pile of long sheets of fabric of 20 meter length each, which will later be cut by the Lectra Cutter. In addition, distinct fabric is placed under the current fabric (where alter sticker has been sticked) so that the defect can be easily identified while cutting the parts/patterns.

But, this automatic spreading is done with solid fabric only and not with yarn-dyed fabric. Solid fabric is plain fabric and cutting its any part will not harm. But yarn-dyed (stripes or checks) fabric must be cut properly so that the stripes of print are not broken.

3. Pinning

This stage is applicable for yarn-dyed fabric only. In this stage, the fabric is spread manually and pinned to maintain the stripes in correct manner. After pinning they are send for Lectra Cutting

4. Marking in the CAD room

This step (not shown in the figure) is not the successor of fabric spreading/pinning. In fact, it is a back office function and starts after receiving the work order from the logistics. In this phase, patterns for the fabric are developed (in digitized form) using the Lectra systems. Patterns are the style in which the actual garment will be cut e.g., the cut style of

pockets, sleeves, front, back, etc. The fabric should be cut in specific patterns before sewing. The challenge of CAD is to design the marker (patterns of cutting) in such a way, that maximum of fabric is used and minimum is the leftover. Sometimes the width of the same fabric roll differs, all these should be considered. Currently the efficiency level of CAD is around 89%, meaning 11% is the leftover after cutting.

We should note that marking is just a design phase on how the fabric will be cut. It is not the actual cut. The patterns are normally given by LRBD but some are developed in-house.

5. Fabric Cutting

Based on the marking specified by the CAD, the fabric is actually cut in this stage. Lectra Cutter is the most advanced machine in the Asia, which is also used by SNPL. The fabric which is folded into many layers, outcome of fabric spreading, is cut at a time by the Lectra machine. The cut parts are:

- Front (Right and Left)
- Front Placket
- pocket
- Back
- Back Yoke
- Sleeve
- Sleeve Placket
- Collar
- Collar band
- Cuffs

These parts will later be sewn separately and assembled together.

6. Ticketing and Bundling

Ticketing

After cutting the fabric using the Lectra Systems, each of the parts is ticketed i.e., given a number/sticker. For example a bundle of sleeves is given a number from 1-24. The second bundle is give 25-48. Similarly, for all the parts ticketing is done in the same way.

The concept of ticketing is for internal control. Once the ticket is issued, we know how many pieces of each part have been issued for sewing. In other words, how many parts are cut compared to or plan (WO)? Another advantage is that ***"the maximum number of garments that can be produced is the minimum number of a part available."*** Thus, ticketing also ensures that we do not sew other parts, which does not have a particular part to be assembled. For example, the cutting may have an output of 700 fronts, 695 backs and 680 collars. In absence of ticketing, all the available parts would have been sewn. But ticketing gives an idea that only 680 of all parts need to be sewn. This way a lot of time and resource can be saved.

We should also note that the poor-quality parts are not ticketed. Another use of ticketing is to match the ticket number in the assembly section. For example, a front with ticket number 5 will only be assembled with the number 5 collar, back, sleeve, etc. This ensures that the size/style code of one garment does not get sewn with the size/style of other.

Bundling

Bundling is the stage, where similar parts are bundled in a lot of 24 pieces. A collar bundle has 24 pieces of collars. The concept of bundling is to aid the job specialization, and make the job easy for each operator. There are two more steps before the bundles are sent for sewing. Left front is sent for pockets-attaching and collar, collar bank and front placket are sent for fusing. They are collected back, and they are ticketed and bundled together.

7. Pocketing (Automatic Machines)

After ticketing and bundling the parts, there is a separate machine, which does the pocketing operation. The left front is sent to this machine for this operation. This automatic pocket machine will attach pocket in the front (left) after which it is re-bundled in the Ticketing and Bundling section.

8. Fusing

Fusing operation is similar to pocketing attach. In this step three parts (cuff, collar and front placket) are sent for fusing from the Ticketing and Bundling Section. In this stage fusing is laid over the fabric and made to pass from the machine. Due the heat and pressure of the machine, the fusing gets attached in the fabric when it comes out from the other end. Fusing is used to give a strong shape to the part.

5.7 Sewing Operations

The sewing operation is organized in two lines. They are:

- Preparatory-I, and
- Preparatory-II

There are four major parts to be sewn in each line. Both the lines do the same function but may differ a little when different fabric is sewn. The job of each of these parts is further subdivided and highly standardized. The four major parts are:

1. Cuff

There are six subtasks within the cuff operation. They are:

a. Hem (sewing the border) is done with the cuff. We should note that this part contains fusing material.

b. Non-ply fabric is sewn with the cuff. This step is called Run.

c. Cuff blocking, where the cuff is turned inside out. (This is done the cuff is actually opposite after run0.
d. ¼" (a quarter inch) top stitching is done in the border
e. Holes are made in cuff. These holes will later be used for buttoning.
f. Two Cuff buttons of 18L are stitched on each side of the hole.

Cuff is used in full sleeve shirts. Therefore, this operation is unnecessary for half sleeve shirts.

2. Collar

Collar operation has ten sub tasks. They are:

a. Fusing ply is run with the non-fusing ply.
b. The extra fabric is trimmed out after the run operation.
c. Similar to cuff blocking, there is collar turn blocking.
d. ¼" top stitch.
e. Collar band hem. Collar band is the lower portion of the main collar. It has single fusing, while the main collar has double fusing and is thicker.
f. The collar is joined with the collar band.
g. After joining these parts, they are pressed.
h. Collar band top stitch.
i. Then, Collar notch is made. This means three needle holes are made in the center of the collar. These holes will serve as mark for stitching the special label and joining the back yoke.
j. Special label is stitched based on the notch.

3. Front

a. Stitch right placket with the left.
b. Make buttonholes in the left placket.
c. Stitch the right placket.
d. Stitch the left placket and insert the wash care label
e. Stitch back yoke.
f. Make back yoke notch

g. Stitch the main label in the center of notch

4. Sleeve

a. Attach sleeve placket with the sleeve
b. Make diamonds in the placket. Diamonds are the stylish side cuts in the cuffs. Thus, they are non-applicable for half sleeve.
c. Sleeve placket pleats/crease is made in the diamond.
d. Sleeve placket buttonhole of 14 L is made.
e. 14 L button is attached with the Sleeve placket.

5.8 Assembly Operations

After the completion of the activity in each Preparatory sub-section, the Preparatory feeders move the parts to the RTL (Ready to Load) rack. Once all the parts of the garment get collected in the RTL rack, the red board is turned back side to green. After seeing this green board the Assembly feeder collects the bundles and hands them to assembly section.

There are six assembly sections named U-cell 1, U- Cell 2, through U-Cell 6. All parts are joined in this phase. The same part is transferred to the other operator after the completion of his/her part. The work is organized in teams and requires high degree of co-ordination among operators, unlike other sections. The sub-tasks in each of the cell are as follows:

a. Yoke and Back Attach
b. Front Attach
c. Sleeve attach
d. Sleeve top attach
e. Attach front and left with the back
f. Collar attach
g. Collar close
h. Cuff attach (hem for half sleeve)
i. Bottom hem (closing the base of the shirt)
j. Quality check before sending it to Final Quality Review

Quality Review

In this phase, the quality of the shirt is looked in detail. Since quality check has already been done in the assembly operation, sampling inspection is done here. But the audit is in detail and covers all the sewing and cutting defects. After passing through this step, normally sewing defects cannot be traced. Hence, it is critical.

5.9 Finishing Operations

In the Finishing section, most of the trims are used or consumed. The product passes through the following stages in a sequential manner:

1. **Buttoning:** Buttons are stitched in the front and the collar.
2. **Thread Trimming:** Every Excess thread are trimmed out.
3. **Input Quality Audit:** Thorough quality checking for rework.
4. **Stain Removing:** If any strains, they are removed.
5. **Thread Sucking:** To ensure that not of the thread is stuck.
6. **Sleeve Press:** Manual pressing of sleeve.
7. **Collar and Cuff Press:** Automatic machine press for collar and cuff.
8. **Body Press:** Body press is also automatic.
9. **Button Close: T**he buttons are closed to ready garments for folding.
10. **Folding:** Garments are folded using back support, pins, clips.
11. **Packaging:** Final packing is done using tags, Poly bag and product boxes.

CHAPTER 6: FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Problem Identification – Trims Shortfall

Logistics is concerned with getting products and services where they are needed and when they are desired. Thus, the basic task of logistics is to provide the right number of products, in the right time, at the right place and in right quality.

Logistics in SNPL, Garments Division is very complex, given the demand of the corporate customer – LRBD, which occupies around 95% of the sales. LRBD has stringent requirements for its top-selling brands like John Players and Wills. Thus, to meet the specific orders, Logistics and planning has a crucial role.

To meet the delivery commitments of LRBD, production should be timed and planned. Once production is completed, shipping is fairly easy. Thus, the goal of logistics is also to aid to the uninterrupted supply of raw materials for production. One major hindrance to achieve that goal of "uninterrupted production" is trims shortfall, i.e., deficit of trims.

The problem of trims shortfall has frequently arisen in the Biratnagar factory. For example, even the simplest shirt is made from 21 raw materials. Out of 21 raw materials, one is fabric and the rest is trims. And unavailability of a single trim means that the shirt is not completed. For SNPL/GD, which receives huge orders in design but low in the size, the trims becomes even more complicated to manage, inviting greater planning and control from the Planning and Logistics Department.

The perceived *major* issue in the factory has been addressed in the report, suggesting ways to reduce it.

6.2 Trims Shortfall – What is it?

Shortfall can be defined as unavailability or deficit of raw materials during production. Fabric alone dictates how many garments will be produced. Based on the cut quantity of fabric, trims must be made available. Fabric is very expensive raw material, and it is not wasted at all. Thus we do not consider the concept of fabric shortfall but trims. Simply put, trims shortfall is unavailability of trims required for production. The trims could be any one of thread, buttons, fusing material, labels or packing materials.

6.3 Impacts of Trims Shortfall

Is it really necessary to study trims shortfall? What are the impacts of shortfall? The major problems created by trims shortfall to SNPL-GD are discussed below:

1. **Production halt:** The immediate impact of shortfall is the stop in production. For example, when there is buttons shortfall, then the *Buttoning Section* stops and waits until alternative arrangements for other designs made.
2. **Line Changing:** This is more relevant during thread shortfall. For example, different design requires different sewing machines, or machine parts. So, when thread shortfall arises, even after alternative arrangements to adjust production, the line changing, consumes a lot of time.
3. **Large WIP:** The first two points discussed above has an effect on the level of Work-in-Progress (WIP). Due to the production stoppage, large amount of WIP remains locked up until the shortfall trims are made available.
4. **Adverse impact on employees' psychology:** Shortfall also has negative impact on employees' psychology. Unavailability of trims/production halt affects their daily production target and reduces or negates the amount of incentives.

5. **Reordering Cost:** shortfall trims must be reordered anyway. So it has not only the material cost but the cost of administration, transportation, etc. which is much higher than the initial order since it will be ordered on urgent basis (couriers).
6. **Shipping Commitment delayed:** Finally due to the reasons above, the production deadline cannot be met, which means that the shipping deadline will be missed as well. If repeated problem arises it will ultimately reduce customer trust.

6.4 Reasons of Trims Shortfall

What are the causes of trims shortfall? Why do not we have enough trims during production? The following points help answer these question:

1. **External Reasons**

   Short Supply: Trims shortfall also occurs due to low supply from the suppliers. Even when right order has been placed, short supply can be a reason for trims shortfall.

   Delay in Supply: Other than short supply, suppliers may delay the supply. When materials do not arrive on time of prodcution, trims shortfall can arise

   Rejection of supply: Trims shortfall also occurs due to poor quality of supply. For example, 3800 special labels have been supplied in the right time and right quantity. But if 800 are rejected due to scratches, then it will result in shortfall of the same quantity.

2. **Internal Reasons**

   Low Order: Trims shortfall occurs when less amount of trims are ordered than required. For example, if buttons for 2000 garments are ordered when 2200 is the cut quantity, then there is a low ordering for 200 garments.

   Improper Inventory Management: Inventory related problems in both the CWH and Garment Stores could lead to trims shortfall. Improper

storage or improper data recording regarding inventory could also lead to trims shortfall.

High Floor Waste: Shortfall can also arise due to high floor waste. Even when right quantity and quality of trims are available in right time, but are wasted rampantly on the floor, then shortfall will arise.

External reasons are supplier-related problems and hence not under immediate control. They can only be solved in the long term through proper vendor selection and cordial relationship with them. Internal reasons are organization-related problems and thus can be controlled by proper management. These causes are therefore more important than the former ones.

Of the three internal causes of trims shortfall, effort was made to see, where the problem existed. Data has shown the existence of **low ordering** and **high floor waste.** But we cannot conclude that these were the reasons for shortfall. The findings are discussed in the next section.

6.5 A SITUATION OF LOW ORDERING

The following Table shows the situation of low ordering:

Table 2: Low Ordering of Thread

Fabric Code	Style	WO cons	Cutting Cons	Work Order Qty	Actual Cut Qty	Difference	Thread Ordered	Reqd Tubes	Excess/ Low
1 I	FSOC	1.72	1.65	17527	18991	1464	2103	2279	-176
	HSOC	1.42	1.35	2389	1869	-520	267	208	59
1J	FSOC	1.76	1.76	5114	5242	128	614	629	-15
	HSOC	0	0.00	0	0	0	0	0	0
J6	FSOC	1.64	1.61	15761	16010	249	1891	1921.00	-30
	HSOC	1.36	1.34	2150	2178	28	215	218.00	-3
M8	FSOC	1.64	1.61	13739	14010	271	1649	1681.00	-32
	HSOC	1.38	1.33	1526	1604	78	153	160.00	-7
M9	FSOC	1.64	1.62	17062	17126	64	2047	2055.00	-8
	HSOC	1.38	1.32	1900	1942	42	190	194.00	-4
A5	FSOC	1.6	1.57	36274	37785	1511	4353	4534.00	-181
	HSOC	1.34	1.29	4125	4254	129	413	425.00	-12
							13895	**14304**	**-409**
Avg	**FSOC**	**1.67**	**1.64**						Total
	HSOC	**1.38**	**1.33**						Shortfall (Tubes)

The first column **Fabric code** means the type of fabric under consideration. For example, J6 is the code for "premium cotton", M8 for "cotton rich" etc. The second column **Style** denotes whether the shirt is a full sleeve open collar (FSOC) or half sleeve open collar (HSOC). The third column **WO cons** stands for consumption (in mt.) per garment standard based on the Work order. WO is prepared by the Logistics Department and it is a tentative plan on how many garments will be produced based on the available fabric. The value 1.72 means that to produce a FSOC garment of 1I, 1.72 meters of fabric is required. The fourth column **Cutting Cons** means the actual consumption (in mt.) per garment as per the cut quantity. It is the derived from Total Fabric cut (in mt.) divided by number of garments cut. The fifth column **Work Order Qty** is based on the WO cons. It is the estimated number of garments (by Logistics) that will be produced. Similarly, the sixth column is the **Actual Cut Qty** and denotes the actual number of garments that has been cut. The seventh column is the difference between WO Qty and Actual Cut Qty.

The most important ones are the last three columns. **Thread ordered** is the primary order placed by the LD based on WO Qty. it is calculated as WO Qty multiplied by the standard thread consumption of the garment/shirt. Thread is measured in tubes. One tube has 1000 mt. of thread. We must not that this is

the primary order only i.e., the order placed initially, so if reordering has been made that does not include here. **Required Tubes** is the number of thread tubes actually required for the cut garment. It has been calculated based on the same standard of thread consumption per garment. The last column shows Excess/Shortfall based on the difference between ordered tubes and required tubes. Positive value signifies excess ordering and negative means low ordering. We can see a total of 409 tubes of low ordered threads.

The following figure highlights the major cause for low ordering

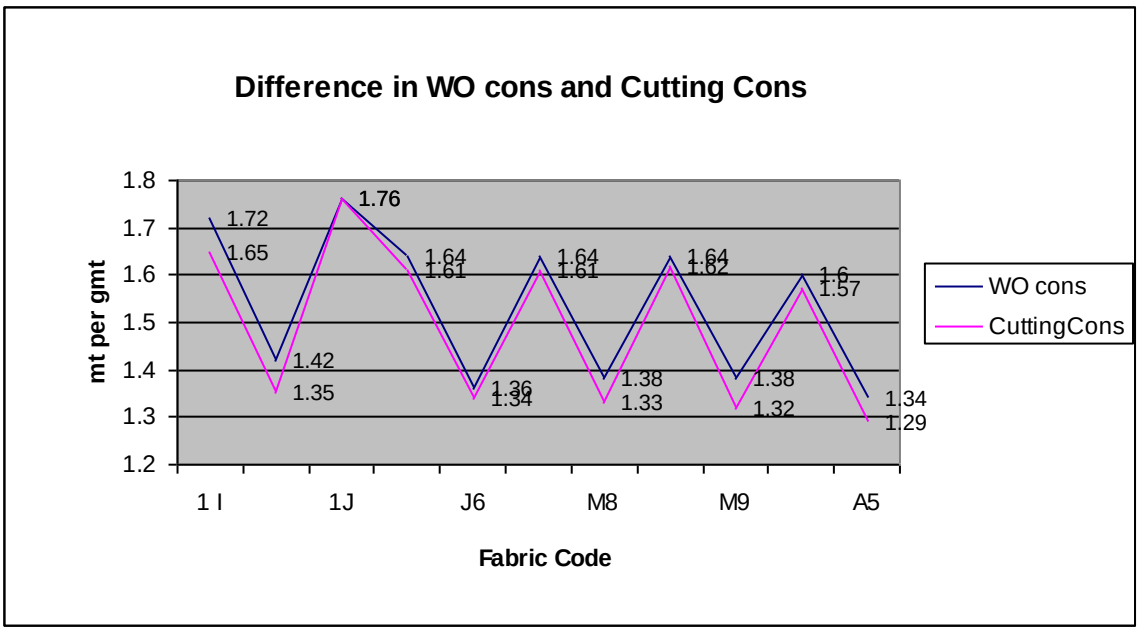


Figure 10: Difference in WO and Cutting Consumption

We can observe the difference in the WO consumption per garment and the Actual consumption. The cutting consumption is significantly lower than the WO consumption, which means that more number of garments will be produced than planned. The impact of this difference is that, based on the estimated production, amounts of trims ordered will be fewer than required. And if not identified in time this can lead to shortfall. The figure below illustrates this idea.

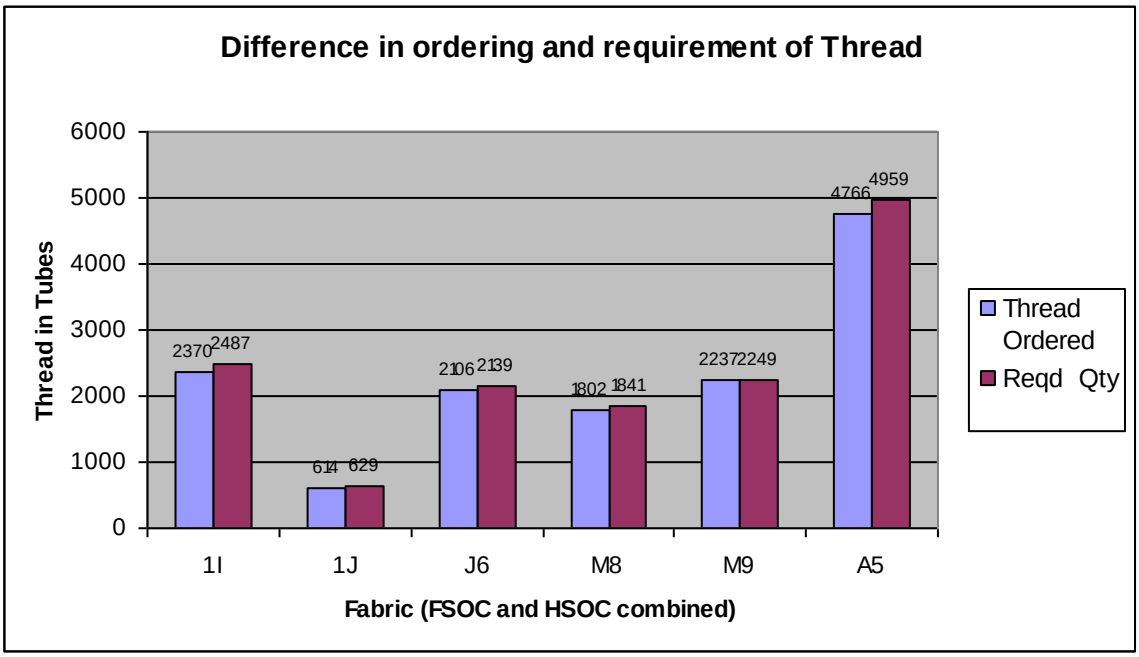


Figure 11: Difference in Ordered and Required Qunatity of Thread

We can observe the impact of deviation with the figure above. Though the bars are similar in height, the order quantity is less than the required quantity. A closer look at the values say that total of 409 tubes were ordered less than required. It does not mean shortfall occurred with above fabric. If reordering was done adequately earlier, the problem may not arise. Also if ordering was done with sufficient margin, the problem would not be seen.

Similarly, the impact will be on all the trims related to that garment. The figure below shows low order for buttons.

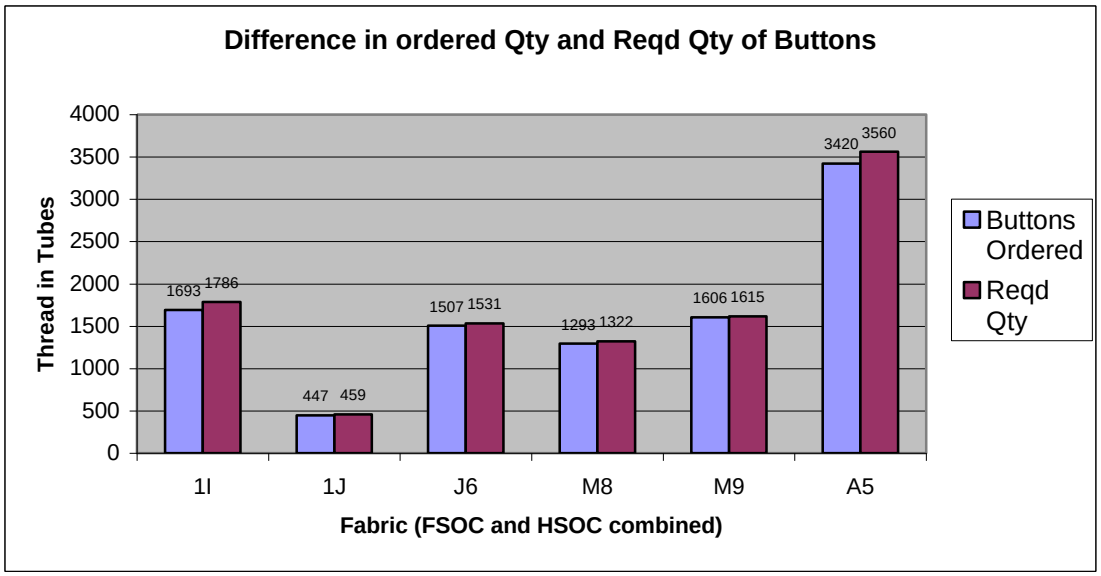


Figure 12: Difference in Ordered and Required Quantity of Buttons

The case is similar for buttons too. A close look reveals that 307 gross of buttons were ordered less than the required quantity. Buttons are measured in gross and one gross has 144 buttons.

6.6 A SITUATION OF EXCESS ISSUE TO THE SHOP FLOOR

Each and every trim has a standard consumption rate (per garment). LD orders trims based on the standards including a margin for waste. However, the, data below shows that there is excess issue from stores to the floor and the excess materials are not returned.

Table 3: Comparison of Floor Issue and Required

		Issued to floor			
		Thread (Tubes)	buttons (Gross)	Special Label	Belly Band
Fabric	WO Qty	A	B	C	D
M9	18962	2273	1983	19431	11800
M8	15265	1854	1653	16034	10000
J6	17911	2123	1785	18178	11000
		6250	5421	53643	32800
		Would be Consumption			
		Thread (Tubes)	buttons (Gross)	Special Label	Belly Band
Fabric	Actual Prodn	A	B	C	D
M9	18876	2227	1968	19254	11326
M8	15546	1834	1621	15857	9328
J6	18084	2127	1867	18446	10850
		6188	5456	53556	31504
		Difference			
		Thread (Tubes)	buttons (Gross)	Special Label	Belly Band
Fabric	Excess/Less	A	B	C	D
M9	86	46	15	177	474
M8	-281	20	32	177	672
J6	-173	-4	-82	-268	150
	Total	62	-35	87	1296

The table above explains the excess issue of trims from the stores to the shop floor. Four specific trims are considered because they are costly and only usable for given fabric. The first section of the row shows the quantity of each trim issued from the stores to the floor. The second section shows "would-be consumption" quantity based on the level of actual production. It includes the waste margin too. Here, actual production is the data of assembly output. This means if 18,876 garments of M9 fabric has been produced (assembled), how much of thread actually has been consumed in the garment. The third section show the difference based on the issued quantity and required quantity. This reflects the issue made but not used in the garment output and surprisingly not even returned to the stores.

Figure 13: Excess Issue of Thread

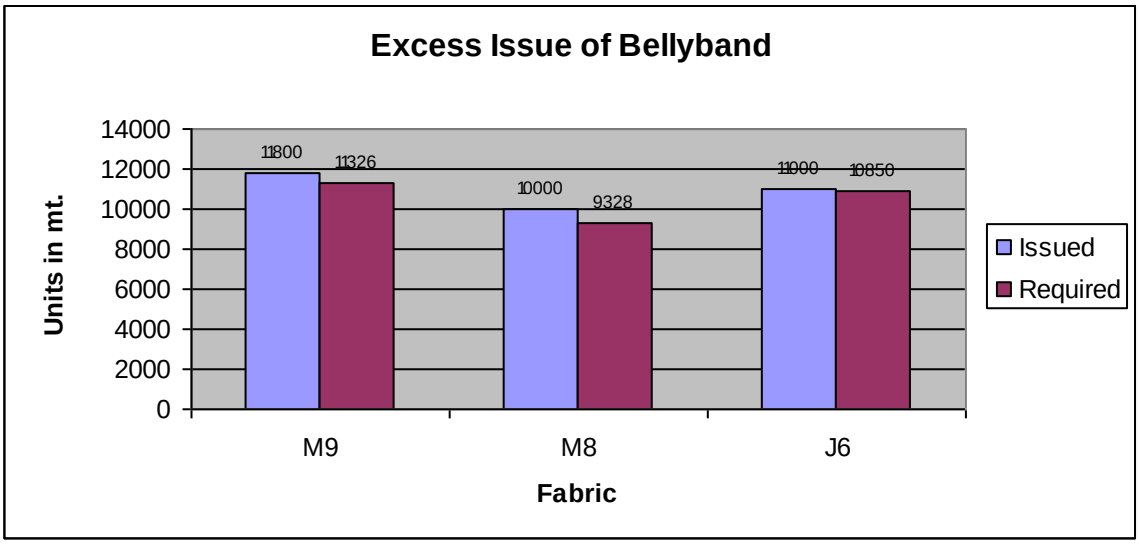


Figure 14: Excess Issue of Bellyband

The comparison of Figure 12 and Figure 13 shows that the issue of trims is variable in nature. For example, the excess of thread issued is 1% over required but for bellyband the excess issue is around 4%. However, both the excess issues are waste because they are not returned to the stores. Thus, there lies an obvious opportunity to control the level of trims issue from the stores to the floor.

6.6.1 Season 9 Tracker

A tracker is a data base built by the SNPL-GD by compiling the data of each stage of production process. Garments are tracked right from cutting to finally shipping point. The data has so far been used for production and quality control. But it can also be used for controlling the materials waste.

Following data are available in the tracker (Season 9)

1. Cutting
2. Feeding
3. Assembly
4. Finishing
5. Shipment

To these data, Work Order was added and a correlation study conducted. The output is as follows:

Table 4: Correlation study of Season 9 Tracker

	WO Qty	*Marker Qty*	*Cut Qty*	*Feed Qty*	*Assembly Qty*	*Finishing Qty*	*Shipment Qty*
WO Qty	1						
Marker Qty	0.920993	1					
Cut Qty	0.922067	0.999722	1				
Feed Qty	0.916442	0.993752	0.993953	1			
Assembly	0.914353	0.992821	0.993034	0.9991452	1		
Finishing Q	0.913608	0.992795	0.993008	0.9991517	0.998610844	1	
Shipment Q	0.916582	0.992701	0.992998	0.9992343	0.998235416	0.99902483	1

We can observe a higher degree of correlation among marker, Cut Quantity, Feed Quantity, Assembly Output, Finishing output and Shipment Quantity. However, there is a relatively low degree of correlation between Work Order and Cut Quantity. This reinforces our earlier point of variation of estimated production (WO) and actual production (Cut Qty).

6.6.2 Ration of process loss/rejection

When garments pass from one production stage to other, 100% acceptance is not possible. There are inevitable process losses. Sometimes there are high

quality problems leading to rejection and alteration. Based on the season 9 tracker the following table was computed.

Table 5: Computation of Average Process Loss/Rejection

Fabric	Feed to Cut	Assembly to cut	Finishing to Cut	Cut to Ship
A5	99.61%	98.66%	98.08%	98.86%
J6	99.10%	100.04%	97.67%	97.43%
M9	99.90%	99.04%	94.44%	97.30%
M8	99.65%	99.69%	98.55%	98.21%
3J	99.85%	99.25%	99.25%	93.30%
1J	97.25%	95.62%	93.54%	97.71%
1I	99.90%	99.68%	98.96%	98.22%
Average	**99.32%**	**98.86%**	**97.21%**	**97.29%**

Thus, based on the table, we can predict the following:

- Assembly/Cut Ratio: 98.86% ≈ 99%
- Finishing/Cut Ratio: 97.21% ≈ 97%

Only these two ratios are taken, because they reflect two classifications of trims- **sewing trims and finishing trims.** The current practice is that Store issues trims on the basis of these classification, so there is an opportunity for control. For example there is a process loss of around 1% when the garments reach assembly section and around 3% process loss when it reaches finishing section. So, if trims are issued on the basis of cut quantity there are high chances of floor misuse.

6.7 EXPERIMENTATION WITH THREAD WASTE SEGREGATION

What is the logic for excess issue to the floor? There is actually no problem with excess issue. The real problem is that none of the excess materials are returned back to the stores. So, most of the items of excess issue are waste. Only those items which are packed and not opened are returned because it is easy to document them. But other unused trims which are mixed during the production process are not returned and no documents made to the same.

This waste constitutes to a significant portion of material cost. An experiment was conducted On July 23, 2006 to track this waste and find ways to reduce it. All the waste bins of preparatory, assembly and niche line were emptied one day in advance to ensure that the collected thread are of single day only.

The finding is as follows:

Table 6: Data on Wasted Thread Segregation

All except Niche					
Thread	**100%**	**75%**	**50%**	**25%**	**Total Segregated**
White	11	8	18	18	**30.5**
Off-white	3	12	15	22	**25**
Y-19560	0	2	4	1	**3.75**
Y-1256	3	11	7	5	**16**
Black	1	3	4	2	**5.75**
Y-447	4	2	6	2	**9**
Y-1622	0	1	6	6	**5.25**
Y-772	0	0	8	2	**4.5**
Y-1534	4	4	4	2	**9.5**
Total					**109.25**
Niche Line					
Thread	**100%**	**75%**	**50%**	**25%**	**Total Segregated**
White	7	10	5	1	**17.25**
Off-white	4	12	10	8	**20**
Y-1256	15	9	3	9	**25.5**
R7-C09	7	0	1	0	**7.5**
Black	0	0	2	9	**3.25**
Total					**73.5**
GRAND TOTAL					**182.75**

Since 'partially-used' thread cannot be quantified in meters, threads were classified into four categories based on approximate remaining (e.g., 100% for new tube, 50% for half-used tube). This way, it was seen that total of around 182 tubes were collected which would have otherwise been wasted. Though this method does not give the correct picture of the thread in meters, it is the only solution available. In fact, the same approach has been used earlier in the organization.

The next day, all white thread (47 tubes) was issued for G3 fabric. This was total savings because that would otherwise have been waste. Thread waste segregation was practiced for 5 days more but not documented due to

complexity of counting. Operators and feeders were given thread from the same lot whenever it was the size of issue was small.

6.8 CONCLUSION OF THE STUDY

From the overall study, observation, analysis and recommendations, following things can be concluded:

- Garment business is very complicated. Though the factory under consideration produced shirts only, the orders placed by LD was sufficient to conclude that nothing is stable in garment, and requirements keep on changing.
- Surya Nepal garments have stronger challenges relative to the 3rd country exporters. LRBD places stringent quality and design requirements but relatively low orders which make the company in the brisk of volatility. The exporters often get millions of order of a same garment.
- Logistics is a great opportunity to build a competitive advantage for SNPL. Long term focus, careful vendor selection, rigorous planning and the robustness of production combined will benefit the company.
- Excess Issue means waste. Controlling the issue can have multiple benefits from reducing waste to reformulating the consumption standard.
- SNPL should start thinking of diversifying the market of John Players. Currently John Players is offered only for India and Nepal. But the conformance and international quality standards justify the 3rd country export market.

6.9 RECOMMENDATIONS

6.9.1 Recommendations for Ordering

The problem of low ordering has resulted from the mismatch of "consumption per gmt" standard between Actual Cutting and LD estimate in WO. To reduce this problem, consumption per garment standards for should be forecasted based on past data.

1. Why not increase the margin of ordering in BOM?

- Simply increasing the margin on ordering is not recommended because Cutting Efficiency is a trend. It has improved with time and will continue to do so. If the trend of efficiency is forecasted, there is less chance of error. However, increasing the margin of ordering is the solution for one season only. In the next season, the new efficiency may be achieved making the margin infeasible.

2. What is required for forecasting?

- The data of cutting-efficiency should be maintained chronologically after which the consumption standard can be extrapolated to the next season. The current practice does not maintain the cutting data chronologically and the data are simply added to excel based on cutting. Adding a single column to the left will be the basis for forecasting.

3. Who will do the forecasting?

- The Cutting Department should recommend the estimated standard to LD. The cutting experts can explain the common causes and special causes of variations. So, they will know best in deciding what may be the next efficiency.

Impact of implementing the action

- Trims shortfall due to ordering will reduce
- Reduction in Reordering cost
- Margin of ordering in BOM must be reduced (adjusted) to reflect the changes
- The consumption standard per gmt can be used as a parameter to evaluate the performance of the Cutting Department.
- Potential Problem: **Excess ordering.** Often due to special causes the cutting may be inefficient (For example, width variations, fabric rejections)

Is the decision worthwhile?

The cost of both the alternatives is mentioned below:

Excess Order	Low Order/Shortfall
Storage	Reorder cost
Costing	Increased WIP
	Production Delay/Halt
	Shipping Commitment Delayed

Clearly, the cost of low order is serious than excess ordering. The other point that advocates accepting excess ordering is that if excess trims are ordered they can be kept for the next season.

6.9.2 Recommendations for Reducing Floor Waste

1. Excessive issue from the store to the floor should be controlled

Since returning of trims from floor is non existent, efforts should be made to control the issue to the shop floor. Some strategies are:

Sewing Trims:

- To be issued on the basis of cut qty. Current practice to be continued.
- Cuff/Sleeve Buttons to be issued separately to avoid transferring buttons from Preparatory Line to Assembly Line. This will reduce falling and mixing of buttons.

Finishing trims:

- Buttons: To be issued for 99% of cut qty for buttoning section (Based on the rejection ratio computed from season 9 tracker).
- Packing Trims: To be issued for 97% of cut qty

Impact of implementing the strategy:

- Waste of trims will be minimized
- **Potential Problem: Under-issue of trims to the floor**

If there is minimal process loss or no rejection, controlling the issue may backfire resulting in under issue. But the problem does not lead to shortfall because of sufficient stock available in the stores. We are only controlling the issue from the stores, not in ordering by LD.

2. Daily Segregation Plan

The same experiment can be made a practice in the organization to reduce floor waste. Some recommendations are:

- The waste-bin should segregated daily at the end of Shift
- The segregated trims should be returned to the store. All received trims are quantifiable except thread, and daily record should be kept to maintain control.
- Store will re-issue the trims to the floor.
- The remaining trims will be returned to the CWH at the end of the season

3. Who will monitor the Segregation Plan?

- Shift Manager is responsible for the floor operation and thus should monitor the plan
- House-keeper should do the segregation
- Store In charge will do the recording and reissue,

Impact of implementing the Segregation Plan

- **Wastage margin can be revised after saving is stabilized:** The current waste margin is more than 20% for thread, 5% for buttons and 2% for other trims. Since there is no formula for setting waste margin, only repeated practice and continuous improvement can reduce it. Implementing the above recommendation can be valuable for pulling down the waste margin on thread and buttons specially. This will have benefits on reducing the costing.

6.9.3 Other Recommendations

- Continuous update of data is necessary. In absence of automatic data entry due to system error, manual recording is necessary for effective planning.
- Systematic Physical Storage should be followed in both CWH and Garment Stores. The basic guidelines to storage (mentioned in the CWH operating procedure) are not followed in the CWH.
- Efforts should be made to reduce the large amount of Work-in-progress by encouraging the JPEs to become more proactive and work together in a team.
- Unused trims should be immediately returned to or collected by Garment Stores. Failing to this, has resulted in another store inside the shop floor.
- Nepal. But the conformance and international quality standards justify the 3rd country export market.

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