



Internship report on
Data management, Analysis and Data
Visualization of Majestic Enterprise
(PVT.) LTD.

By:

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ID - 21341044

An internship report submitted to the Department of Computer Science and
Engineering in partial fulfillment of the requirements for the degree of
Bachelor of Science in Computer Science

Department of Computer Science and Engineering
BRAC University
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Declaration

I hereby declare that

1. The presented internship report is solely prepared by me on the basis of my practical work experience during the course of six months under Majestic Enterprise (PVT.) LTD. under the general supervision of my supervisor.
2. The work contained in the report is my original work and does not violate any third-party copyrights.
3. This report has not been previously submitted to any other institution for any other degree or diploma.
4. Materials used in the report from other sources has been acknowledged.

Student's Full Name & Signature:

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Letter of Transmittal

Nadia Rubaiyat
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CSE Department
BRAC University
66 Mohakhali, Dhaka-1212

Subject: Submission of internship report on “Data management, Analysis and Data Visualization of Majestic Enterprise (PVT.) LTD.”

Respected Ma’am,

With due respect and honor I am very pleased to submit my internship report on “Data management, Analysis and Data Visualization of Majestic Enterprise (PVT.) LTD. ” This report details my learning, activities and experiences in the company during my internship period, starting from the month of November 2021 to the month of April 2022. This internship has provided me a great leaning opportunity. I have tried my best to incorporate all relevant information and explanation to make my report informative and comprehensive.

Lastly, I would like to express my sincere appreciation and deep gratitude for your guidance without which it would not have been possible to complete this report.

Sincerely yours,
Tanjina Hassan
ID:21341044
Department of Computer Science and Engineering
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Date: May 24th, 2022

Non-Disclosure Agreement

This agreement is made and entered into by and between Majestic Enterprise (PVT.) LTD. and the undersigned student at BRAC University.

Acknowledgement

First of all I would like to thank the almighty for his blessings and for enabling me to complete this report on time. The completion of this internship report would not have been possible without the kind support and help of many individuals and I would like to extend my sincere gratitude towards all of them.

I would like to convey my deepest gratitude to my Academic supervisor, Nadia Rubaiyat for her valuable guidance and encouragement throughout my internship. I would also like to convey my heartiest gratitude to my company supervisor, Md. Kamruzzaman Shovon, who in spite of being extraordinarily busy with his duties took time out to guide me and give me necessary advice and allowed me to carry out my tasks at their esteemed organization during my internship period. Both of them are amazing mentors who have rightfully guided me throughout my work and I would like to extend my heartiest thanks to them.

Last but not the least, I would like to express my gratitude towards my parents and all the department heads and the staffs at the company for their kind co-operation and encouragement which has helped me in completion of this report.

Executive Summary

Majestic Enterprise PVT LTD (MEPL) is a processor and exporter of frozen and chilled raw food items, as well as dry food items. The company has been operating since 1998 and exporting its products to various countries worldwide. This report is about my internship program at MEPL. In this comprehensive report, I have discussed about my work experiences, the proposed methods, my implemented works and my training experience under MEPL. I have also aimed to highlight some drawbacks of the company from my observation during my internship period. The following tools: Microsoft word, Microsoft Excel, Microsoft Power Point and Microsoft Power have been used for the documentation of the company's data and for carrying out proper analysis.

This report has been divided into five chapters. The first part of the report is introduction. The second part of the report is an overview of the company. The third part of the report is about the works that I have learnt from my training under MEPL. The fourth section of the report discusses about the proposed solutions. For increasing efficiency of inventory management, Standard operating procedures (SOP) and stock-keeping units (SKUs) have been introduced. SOPs describes what needs to happen for an outcome and it helps to simplify the data entry process and avoid errors. SKUs being unique and specific to particular locations allows to keep track of final inventory status more effectively. The fifth part of the report is discusses about the internal and external problems faced by the company and about their feasible solutions. Analog data keeping, absence of modulated procurement production schedule and wastage and inventory mismatch are some of the internal problems. Suggesting usage of Enterprise Resource Planning softwares to build a database and manage inventory effectively, raising awareness at critical points and accurate and honest reporting of waste percentage can provide remedy to the above mentioned problems. Increase in Price of Raw Materials and Skilled labor crisis are some of the external problems that the company faces. Building alliance with various shipping line companies, freight forwarding companies and international authority and training the workers under strict supervision and legal contract can help solve the external problems to a great extent. The final and the last part of the report is about my experience gathered from the internship.

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List of Acronyms

BAPA	Bangladesh Agro-Processors' Association
BFFA	Bangladesh Frozen Food Exporters Association
BFVAPEA	Bangladesh Fruits, Vegetables, and Allied Products Exporters Association
BIDA	Bangladesh Investment Development Authority
BLPA	Bangladesh Land Port Authority
BRCP-1	Bangladesh Regional Connectivity Project-1
CIT	Reduced Corporate Income Tax
DoF	Department of Fisheries
EPB	Export Promotion Bureau
EU	European Union
FY	Fiscal Year
GoB	Government of Bangladesh
IQF	Individually Quick Frozen
LDCs	Least Developed Countries
MEPL	Majestic Enterprise (PVT.) LTD.
MOFL	Ministry of Fisheries and Livestock
NBR	National Board of Revenue
R&D	Research and Development
SKU	stock-keeping unit
SME	Small and Medium Enterprise
SOP	Standard Operating Procedures
SOP	Standard Operating Procedures
TFO	Trade Facilitation Office

Chapter 1

1.1 Introduction

This report presents the summary of all the work that I have been executing and my work experience gathered during the course of six months of my internship as a data manager under Majestic Enterprise PVT LTD (MEPL). MEPL is a processor and exporter of frozen and chilled raw food items, as well as dry food items. The company has been operating since 1998 and exporting its products to various countries worldwide. It is an enlisted and an active member of the Bangladesh Agro-Processors' Association (BAPA), Bangladesh Frozen Food Exporters Association (BFFEA) and also, Bangladesh Fruits, Vegetables, and Allied Products Exporters Association (BFVAPEA). This report contains the details of how data management is crucial to this organization and its future prospects, as previously it has not managed data in systematic methods. During my internship, I have learnt to use tools such as Microsoft word, Microsoft Excel ,Microsoft Power Point and Microsoft Power BI for documentation of the company's data and to turn unrelated sources of data into coherent, visually immersive, and interactive insights. The purpose of this internship is to analyze, sort, store and visualize the data of MEPL.

1.2 About this report:

This internship is a part of a requirement to complete my bachelor's degree under BRAC University, upon which my evaluation will be made based on my internship report. I have written about my work experience as an intern under MEPL and their work environment in this report.

1.3 Objective:

- The main objective of the internship is to create an inventory management system using user friendly tools that would allow the organization to keep track of their inventory status in real time and would facilitate easy management of data on a large scale.
- Using the analysis from the data being collected, and converted to preferred reports, according to various business and market situation.
- From the solid quantitative reports, management can come up with logical reasoning and decision making.
- Basic inventory functions such as tracking the quantity of products and providing

accurate product information, including product descriptions will be provided by the system.

- The system will also keep track of orders, order processing, order in process, processed goods and ready to ship items.
- To evaluate the inventory management system of MEPL, understand the underlying problem leading to poor management and propose feasible solutions.
- Allocation of resources and utilization of inventory to reduce costs of operation.

1.4 Literature Review:

The problems that I had to face during my internship program at Majestic Enterprise (PVT.) LTD. is that, starting from the top management to the root level, employees have little idea with inventory management systems. They do not have any information management system to keep track of inventory, finished or unfinished, work in process or safety stock. Though they have more than enough experience in this line of business, but in any situation, data speaks louder than mental estimates.

During the beginning of my internship, I faced difficulty understanding my work as I was completely unfamiliar to the export field. They wanted me to design a simple, user friendly and interactive inventory management system. While designing the inventory, I had to learn about how the export system functions. This involved self-research and short weekly discussions with my company's marketing manager. We initially created rough flow charts from our discussion sessions to get visualization of the requirements. Based on which I proceeded to create the inventory management system.

I used MS Excel for inventory management of MEPL which involved making separate files for each inventory types, linking separate related workbooks and also including their cost calculations. For example, categorizing packaging lists, vegetable inventory and fish inventory separately. The idea behind this is to be able conduct data analysis based on the data available and get an overview before production, also get real time status of current inventory, enable the management authorities in charge to make cost effective decisions as they will know whether there is any shortage of item, how much food products are being processed, which items are yet left to be processed, which items are ready to be shipped, how much of wastage is generated during the entire food processing cycle and which products would be shipped where. Cost calculations would integrate wages and salary of employees, electricity bills, payments given to respective vendors, advances, warehouse costs, food expenses and all sorts of costings and expenses. This would thereby help them keep track of their daily production and help them plan their overall system more efficiently and cost effectively. To begin with, Factory Supervisor and the main Accountant, as well as the General Manager of the company were informed about this and they suggested on how to get the actual data of the factors involved. Then the data is collected, cleaned and sorted in MS Excel Files, where it will give a level of overview on the factors mentioned above. We have tried to gather enough data and visualize it in MS Power BI, so that the upper management can make the most effective day to day, short term and long-term procurement, logistics and production decisions for maximum efficiency and cost effectiveness.

1.5 Limitations:

The limitations that I have come across while creating this report are as follows:

- Lack of sufficient data and information to provide a comprehensive view considering the time limitations that I had while preparing the report.
- As I had joined the company as an intern, I did not have access to all the necessary information.
- Due to the heavy workload and tight schedule of the employees of MEPL, it was not possible to gather all the necessary data.
- For reasons of confidentiality, some important information could not be included in the report.
- It was really difficult to travel to the production facility due to the spread of the Omicron variant.

1.6 Methodology:

This report has been created on the basis of my experience at MEPL during the course of six months. All the information has been put together from both primary and secondary sources.

1.6.1 Primary Sources:

- My practical work experience.
- Weekly discussions with the company's management authorities, mainly middle level management.

1.6.2 Secondary Sources:

- Data gathered within the organization itself.
- Official documents.
- Internet.

Chapter 2

Company Profile:



MAJESTIC ENTERPRISE (PVT.) LTD

From its humble beginnings, the company has seen the significance and the vast potential of agro processing and exporting these items to promote and appreciate the fertile country, and the rich water resources of Bangladesh.

Managing Director: Md. Babul Sareng

Number of Employees: 33

Office Address: Eastern Trade Center, 56 Inner Circular (VIP) Road, 10th Floor, Dhaka – 1000, Bangladesh

Factory Address: A/12 BSCIC Industrial Estate, Sagarika Road, Pahartali, Chattogram 4217, Bangladesh

Website: <http://www.majesticenterpriseltd.com>

2.1 Background:

Majestic Enterprise (Pvt.) Ltd. is a manufacturer, processing, export and import company, with the sole purpose of providing best of class service goods to their clients of various countries. The company was established in 1998 by its Managing Director, Md. Babul Sareng.

Agriculture is the single most important sector of the economy and the company wants to harness the potential of the hard working people and to contribute to the agro processing sector. It is an enlisted and an active member of the Bangladesh Agro-Processors' Association (BAPA) , Bangladesh Frozen Food Exporters Association (BFFA) and also, Bangladesh Fruits, Vegetables, and Allied Products Exporters Association (BFVAPEA) . The company has been very consistent in terms of providing quality service to their clients and has been in this line of business for nearly two decades whilst holding on to their value.

2.2 Mission:

Providing clients all around the world with the best of quality and reasonable pricings, and building a good relation.

2.3 Vision:

To be a global exporter of Bangladesh based Halal food items while keeping the integrity, commitment, values and sincerity.

2.4 Values:

- They believe the value system has an important bearing on its corporate culture, and determines its behavior towards its employees, shareholders and society as a whole.
- Their corporate culture is to achieve objectives in environment of fairness, honesty, transparency and courtesy towards the customers, employees, clients and society at large.

2.5 Company Departments:

Majestic Enterprise (Pvt.) Ltd has a hierarchical organizational structure. They rely on a direct line of command that flows from the top down and every employee are assigned specific roles and responsibilities.

2.6 Recruitment process:

Applicants need to submit their resumes for specific position to the company's Human Resource Department. Then upon evaluation, applicants are called for an interview. I was called for an interview at their office where I was questioned about my technical skills, the area of work that I am interested in and what my commitment and dedication would be for their organization. A week later I was sent an offer letter to join their company.

2.7 Company Products:

The Processed and Exported Products:

- Frozen Fish, Chilled Fish, Shrimp
- Dry Fish
- Frozen Meat
- Vegetables (Fresh and Frozen)
- Sweets
- Pickles
- Ready To Cook Snacks
- Foodstuffs

Frozen Fish, Chilled Fish Shrimp: The organization collects a variety of fish and shrimp from the producing zones and transports them to the facility, where they are processed and packaged for export through air or sea freight, as required by their discerning customers. They have a lot of expertise with Clean IQF and Clean Block Frozen for clients' chosen freezing method. Some of the fishes are mentioned below: Hilsha (*Tenualosa ilisha*), Ruhi (*Labeo rohita*), Katol (*Catla catla*), Boal (*Wallago attu*), Gulsha (*Mystus cavasius*), Koi (*Anabas testudineus*), Telapia (*Oreochromis mossambicus*), Chital (*Notopterus chitala*), Pabda (*Ompok pabda*), Shol (*Channa striata*), Shrimps (*Macrobrachium rosenbergii*) etc.

Shrimps: Shrimp farming in Bangladesh is nearly entirely organic. The year-round availability of sunlight and heat, as well as the water fertility, provide ideal circumstances for fish and shrimp spawning and growth.

1. Giant freshwater prawn / Golda Chingri (*Macrobrachium rosenbergii*)
2. Giant tiger shrimp / Bagda Chingri (*Penaeus monodon*)
3. Sea water gray brown shrimps/ Harina (*Metapenaeus monoceros*)
4. White shrimp / Chapda chingri (*Penaeus indicus*)
5. Small shrimps / Icha

Dry Fish: Fish drying to preserve fish is an age-old notion that is still used in several regions, particularly Chittagong. Dry fish is regarded a delicacy in this region, and many people eat it. Fish is dried and processed in selected coastal locations to fulfill the demands of numerous Bengalis living overseas.

Frozen Meat: They are one of the leading companies in Bangladesh in terms of exporting meat. Their meat items include: Beef, Chicken, Duck, Mutton, and Lamb.

Vegetables: They also export the freshest of vegetables, produced in the most organic way to be enjoyed in various countries. A variety is listed below:

Kachur Mukhi/Taro Cormel (*Colocasia esculenta*), Kachur Loti/Stolon of Taro (*Colocasia shoots/stems*), Kanchi Morich/Green Chili (*Capsicum frutescens*), Lebu /Lemon (*Citrus limon*), Potal/Pointed Gourd (*Trichosanthes dioica*), Shim/Sword Bean (*Canavalia ensiformis*), Kakrol/Teasle Gourd (*Momordica cochinchinensis*), Dhone Pata/Coriander Leaf (*Coriandrum sativum*), Satkara/Melanesian Papeda (*Citrus macroptera*), Danta/Stem Amarnath (*Amaranthus lividus*), Chalta/Indian Dillenia (*Dillenia indica*), Kodbel/Woodapple (*Feronia limonia*), Green Mango (*Mangifera indica*), Green Papaya (*Carica papaya*), Green Banana (*Musa acuminata*), Sazna / Drum Strick (*Monringa oleifera*), Chichinga/Snake Gourd (*Trichosanthes anguina*), Jinghe /Ribber gourd (*Luffa acutangula*), Karola/ Bitter gourd (*Momordica Charantia*), Lal shak / Red amaranth(*Amaranthus gangeticus*), Kachu shak/ Taro leaves (*Colocasis esculenta*), Bean seeds(*Phaseolus vulgaris*), Shalgom/ Turnip (*Brassica rapa*), Barbati/String bean (*Vigna sesquipedalis*), Olive (*Olea europaea*), Jackfruit Seeds (*Artocarpus heterophyllus*), Green Turmeric (*Curcuma longa*), Red Chili (*Capsicum annum*), Red Onion (*Allium cepa*), Chalta (*Dillenia indica*) etc.

Snacks Foodstuffs: Bangladeshi delicacies also comprise a variety of snacks (Ready to Cook) and commodities, which the firm is quite adept at producing and exporting.

Ready to Cook Snacks: Paratha, Singara, Samucha, Spring Roll, Vegetable Roll, Puri (Lentils filling, Potato filling) etc.

Foodstuffs: Puffed Rice, Chanachur, Chira, Gur (Patali), Vermicelli (Shemai), Isabgol (*Psyllium husk*), Black Cumin, Butter, Ghee, Mustard Oil, Black Cumin Oil, Rice Bran Oil, Corn Flower.

Rice: Rice is Bangladesh's most important food crop, and the country is the fourth-largest rice producer in the world. Rice is also a major source of income in rural regions.

Types of rice exported: Aromatic Rice, Miniket, Katari Bhog, Paizam, Najir Shail.

Spices: Bangladeshi spices are composed of a wide range of spices cultivated in South and Southeast Asia. Diverse spices and mixes are incorporated in every home across the country to create different and unique flavors in foods. MEPL exports a wide range of spices from our country's internationally renowned manufacturers. The spices exported are as follows:

Turmeric, Chili, Coriander, Cumin, Cinnamon, Curry Powder, Biryani Masala, Prunes (Alu Bukhara), Cardamom, Black Pepper, White Pepper etc.

Sweets: In Bangladeshi tradition, each great news or event is accompanied by a packet of sweets. The company exports a variety of sweets, including : Rosogolla, Chomchom, Kalojam, Rosmalai, Sondesh, Lal Mohan, Chana, Sweet Yogurt etc.

Pickles: The pickles are created with high-quality ingredients and natural preservatives, with no artificial taste or color added. Pickles exported are as follows: Mango, Chili, Olive, Tamarind, Jujube (Kul), Garlic, Mixed Pickles etc.

Images of Products is added to the Appendix.

2.8 Industry Perspective of exports of Agro-Based products

In terms of natural-goods exports, Bangladesh has been a prominent player. Agriculture employs a large part of the population, and the cheap labor costs assure a higher production. Bangladesh exports more than 700 items including 63 basic agro processed products most of which are cereal grains, frozen fish, processed meat, tea, vegetables, tobacco, cut flower, fruits, spices, dry food and other processed agricultural products including livestock, poultry & fish feed to more than 140 countries. At present, there are 486 agro processing manufacturers in the country among which 241 are exporters and 235 cater to the domestic market. In FY 2018-19, the agro sector realized export earnings worth 1.41 billion dollar. The main exports items are frozen fish, shrimp and other frozen food products, tea, spices, fruits including dry fruits and some other processed agricultural products. Bangladeshi exports to Asian nations were USD 41.6 billion in FY 2016-2017, accounting for 12% of overall exports, according to figures from the Export Promotion Bureau (EPB) . At the same time, the European Union (EU) imported 55.83 percent of Bangladesh's total exports (USD 9.35 billion), while the United States imported 21.19 percent (USD 7.3 billion). Despite the vast commercial potential in the area, Bangladeshi exports to Asian nations remain low due to a lack of adequate preferential trade agreements and high-quality products. The GoB's most major export markets are the Middle East and the European Union (EU). Bangladesh is now the most notable exporter to the major global market among Least Developed Countries (LDCs) .

The creation of watchdog groups and associations benefited the supply chain since they collaborate with farmers, manufacturers, and exporters to ensure quality, safety, and improved manufacturing methods in Bangladesh. They also educate farmers on topics like as preservation and storage to extend shelf life, post and pre-harvest management, and so on.

The organizations are listed below:

- Bangladesh Agro-Processors' Association (BAPA) - Established in 1998, it has provided much attention to Good Agriculture Practices (GAP) among the farmers establishing of Training Institute, Research and Development (R&D) center and ultra-modern Lab in Bangladesh.
- Bangladesh Fruits, Vegetables & Allied Products Exporters Association (BFVA-PEA) – It provides training, seminar, and advice to the entrepreneurs. It aids in the inspection of the products for business and provides consultation for better yield.
- Horticulture Export Development Foundation (Hortex Foundation) – Hortex Foundation was established in 1993 at the patronage of the Ministry of Agriculture, Government of the People's Republic of Bangladesh. It works for the development, promotion and marketing of exportable horticultural/agricultural items.
- Ministry of Fisheries and Livestock (MOFL) – It was founded so as to function for the increase in production and productivity in the fish and livestock sector.

- Department of Fisheries (DoF) - DoF is a department under the Ministry of Fisheries and Livestock responsible for regulating the fisheries industry in Bangladesh.

According to Bangladesh Investment Development Authority (BIDA) , the GoB has provided numerous incentives and gave advantageous policies.

Incentives related to Agro and Food processing

Reduced Corporate Income Tax (CIT) for 5 to 10 years depending on location, for industrial undertakings engaged in processing of locally produced fruits and vegetables.

- Complete tax exemption on income from rice bran oil production up to 10 years.
- 20% special rebate on electricity consumption to agro processing units.
- Tax exemption on royalties, technical knowhow/ assistance-related fees (and their repatriation).
- Exemption of import duties on capital machineries.
- Full repatriation of profits & initial investment amount.

For Exporters

- Tax exemption for income derived from export.
- No VAT imposition on export goods.
- 20% export subsidy/ cash incentive for exporters of locally processed agricultural products and halal meats.

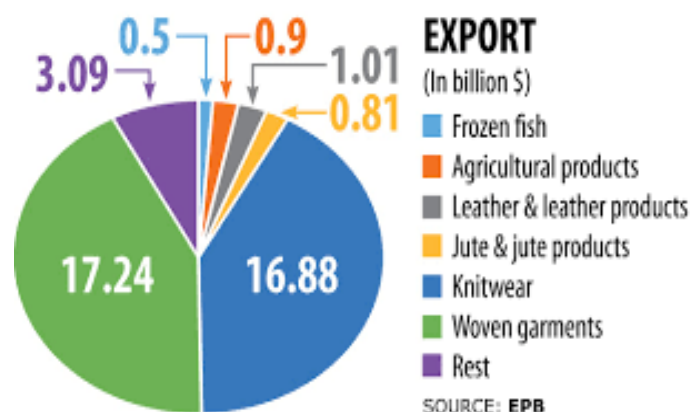


Figure 2.1: Export Growth of Bangladesh in the Fiscal Year 2019

Chapter 3

Training Phase

3.1 Getting familiar with the company:

- I was acquainted to our company's workplace and their employees.
- I was given a brief introduction about our company's work ethics, their policies and also given an insight about their marketing strategies.
- I was explained about my job responsibilities at our company.
- I had been sent to workshops related to the export business field.

The practical work environment has a lot of experience to offer. What I learnt is that the export industry is a lot more complex than what I had expected it to be. It not just involves collecting items and shipping them, but also involves food testing, processing, packaging, acquiring government permissions, warehousing and many other factors. Since I joined as an intern, I was kept under the guidance and supervision of our marketing executive.

Moreover, the company enrolled me in two workshops:

1. Export Readiness Training For SMEs In The Agro-processing Sector – This was organized jointly by Trade Facilitation Office (TFO) , Canada and the Small and Medium Enterprise (SME) Foundation. It taught me that exporting value added agri-products requires a lot of precision and involves a lot of organizations and documentation, starting from the exporter's holding the bank account in a Foreign Exchange Corporate Branch of a bank, to the association relevant to the exported product category, till the audit firm which evaluates the post shipment documents and its financials.

2. Bangladesh Regional Connectivity Project-1 (BRCP-1) - The Project is jointly implemented by Ministry of Commerce (World Trade Organization Cell), Ministry of Shipping (BLPA) and Ministry of Finance (NBR) . In awareness of the significance of international trade, the Bangladesh government has implemented a broader trade reform policy and established a coordination platform to improve trade volume with its neighboring countries. The project aims to reduce trade time and costs while also enhancing infrastructure and trade conditions along strategically significant regional transportation corridors.

3.2 Work environment:

MEPL has a friendly and respectful work environment. Working as an intern, I had the opportunity to learn from people who are experts in the field. Since MEPL deals with huge data on a regular basis and there is no room for error when it comes to dealing with international clients, so they are extremely cautious while handling documents and keeping record of their data. Every employee needs to remain alert and steadfast when it comes to their work responsibility, as a lot of process goes hand in hand before it becomes either chaotic or fruitful.

The headquarter of MEPL lies in the heart of the Dhaka city, that is, Paltan. At the headquarters, Managing Director, Commercial Manager, Accounts and Finance Manager, Marketing Manager and an Office Assistant works, where the key decisions are made for the organization. The factory plant at Bangladesh Small and Cottage Industries Corporation area of Sagarika Road, Chittagong is responsible for processing, production, storage of the raw materials and finished goods. The factory plant consists of a Factory Manager, Procurement Manager, two Production Supervisors (one for Fish Processing and one for Vegetable Processing), two Machinery Supervisor on shifts who overlook the machinery status and the temperature of the Blast Freezer unit and the Cold Storage Unit, and a handful of Factory Workers. They have accommodation facilities at the factory and can start production on demand.

3.3 My Works:

I have collected available data from Mr. Mithankor and Mr. Masud, and used Microsoft Excel to store, clean and sort data, and Microsoft Power BI to visualize data for Executive decision making.

Using Microsoft Excel, the data was collected and organized on the basis of management of inventory:

- Amount of input of the raw material, and which vendor supplied it and in what date.
- How much is processed and turned into Work In Process and Final Goods.
- How much wastage is generated?
- Inventory Level of Packaging Materials and production related items and equipment

Some of my works has been portrayed below:

Managing inventory and auto-Populating fields in excel using Drop-Down, VLookup formula and VBA.

Date	Input(Raw Material)	Vendors	Amount	work in process	Final Goods	To be processed	Wastage	Wastage%	Remarks
4-Dec-21	Kachur Mukhi	Titu	1500	700	400	100	300	20%	needs inspection
5-Dec-21	Kachur Loti	Titu	1000	550	350	0	100	10%	under control
11-Dec-21	Kanchi Morich	Shimul	300	0	260	0	40	13%	under control
11-Dec-21	Lebu	Ripon	400	0	0	400	0	0%	under control
15-Dec-21	Potol	Shubho	700	600	0	0	100	14%	under control
15-Dec-21	Shim	Titu	300	0	270	0	30	10%	under control
15-Dec-21	Kakrol	Ripon	1200	0	1100	0	100	8%	under control
16-Dec-21	Dhone Pata	Kamal	100	0	90	0	10	10%	under control
17-Dec-21	Satkara	Shubho	250	200	0	0	50	20%	needs inspection
17-Dec-21	Danta	Shimul	100	0	90	0	10	10%	under control
19-Dec-21	Chalta	Tomal	500	445	0	0	55	11%	under control
19-Dec-21	Kodbel	kabir	900	300	130	400	70	8%	under control
19-Dec-21	Green Mango	Kabir	1100	800	0	100	200	18%	needs inspection
19-Dec-21	Green Papaya	Ripon	500	0	0	450	50	10%	under control
19-Dec-21	Green Banana	Kabir	350	330	0	0	20	6%	under control
19-Dec-21	Sazna	Titu	800	0	500	150	150	19%	needs inspection
23-Dec-21	Chichinga	Kader	250	200	0	0	50	20%	needs inspection
22-Dec-21	Jinghe	Ripon	300	270	0	0	30	10%	under control
28-Dec-21	Karola	Shimul	650	0	550	0	100	15%	needs inspection
29-Dec-21	Lebu	Ripon	700	100	450	100	50	0.071428571	under control
30-Dec-21	Alu	Titu	700	250	300	130	20	0.028571429	under control

Figure 3.1: Inventory Data

Inventory Information

Product Category:	vegetables
Type:	Lebu
Amount:	Lebu
Date:	Kacha Morich
Packaging Type:	Satkara
	Sana
	Karola
	Potol
	Kochur Loti
	Kochur Mukhi

Figure 3.2: searching information based on item type

Inventory Information

Product Category:	vegetables
Type:	Lebu
Amount:	300
Date:	24-Jan-22
Packaging Type:	Mexim(small)

Inventory info. vegetable Inventory

Figure 3.3: Overall information of product category

Automatic date entry using VBA:

```
Vegetable and packaging inventory.xlsm - Sheet1 (Code)
Worksheet Change
Private Sub Worksheet_Change(ByVal Target As Range)

    If Target.Cells.Count > 1 Then Exit Sub

    If Not Intersect(Target, Range("C1:C40")) Is Nothing Then

        With Target(1, 2)

            .Value = Date

            .EntireColumn.AutoFit

        End With

    End If

End Sub
```

Figure 3.4: Automatic data entry using VBA

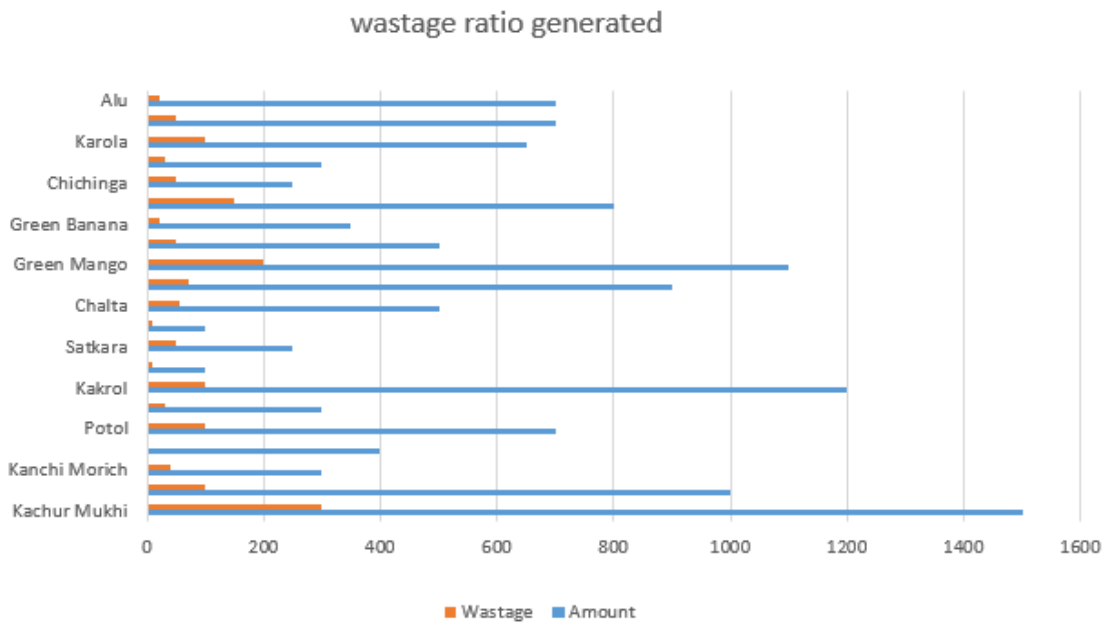


Figure 3.5: Graphical representation of the proportion of waste generated in comparison to the amount of goods received in kg.

Using Microsoft Power BI, I have made intuitive visual reports for the Executive decision makers to make fast and effective decisions about production, procurement, expenses, and relevant matters. The main aim is to make interactive visual reports which responses to the specific criteria or information preferred by the audience. With Power BI, the audience can click on the interactive report according to the data needed. For example, the user can click on “Potol” on a table, all the information of Potol on all the repots will get highlighted.

Some of my works are displayed below:

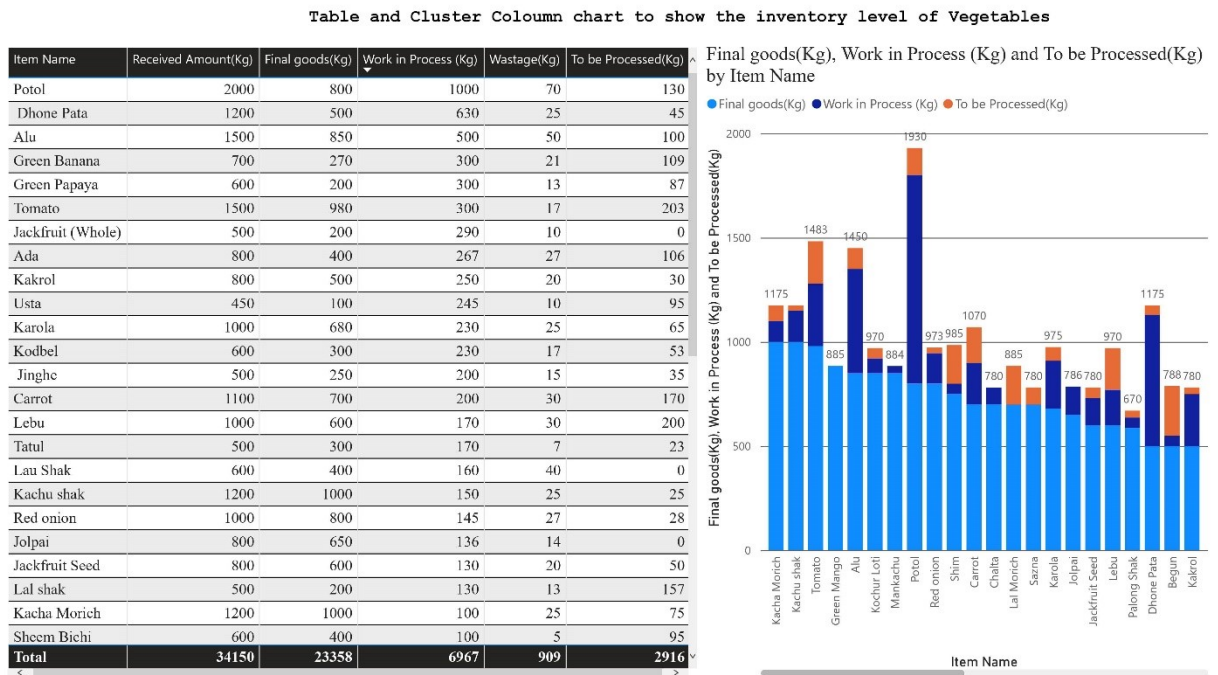


Figure 3.6: Interactive Table and Cluster Column Chart , showing inventory level of Vegetables.

Final Goods, WIP & Wastage Report by items (Vegetable)

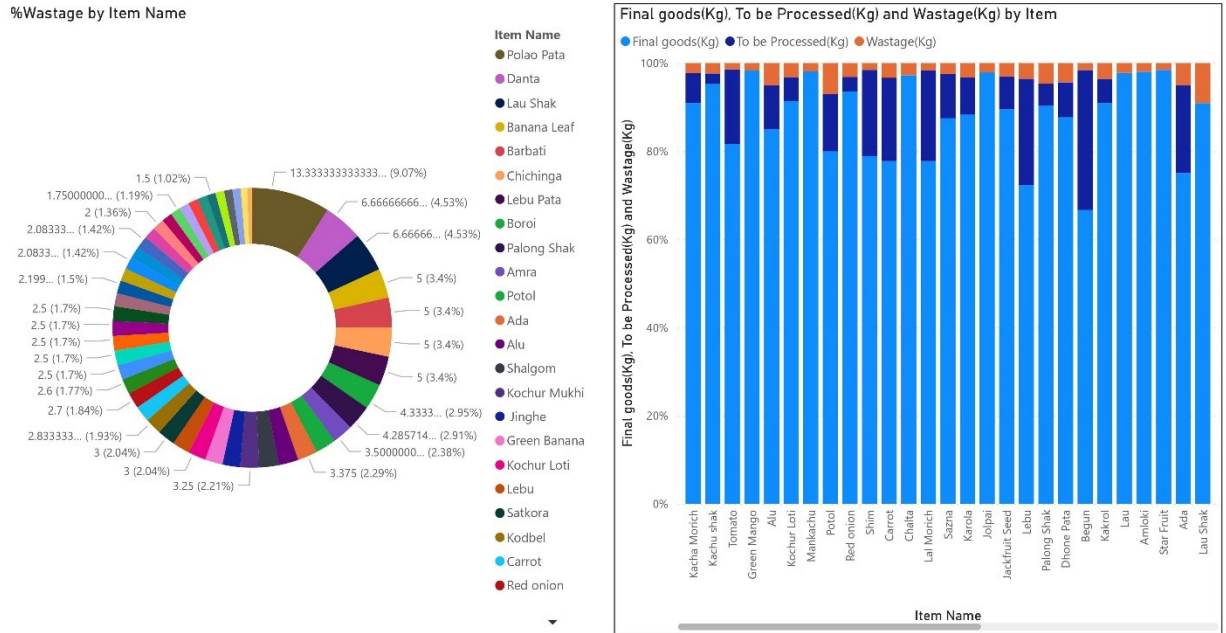


Figure 3.7: Interactive Donut Chart and 100% Stacked Column Chart , showing Inventory level with Wastage Amount of Vegetables.

Inventory Report of Packaging (Vegetable)

Packaging Type	Received	Used	Remaining Stock
Mexim Vegetable (Small)	70000	11500	188500
Padma Vegetable (Small)	50000	11500	152500
Total	120000	23000	341000

Figure 3.8: Interactive Table, showing inventory level of Vegetable Packaging.

Table and Cluster Column chart to show the inventory level of Fish

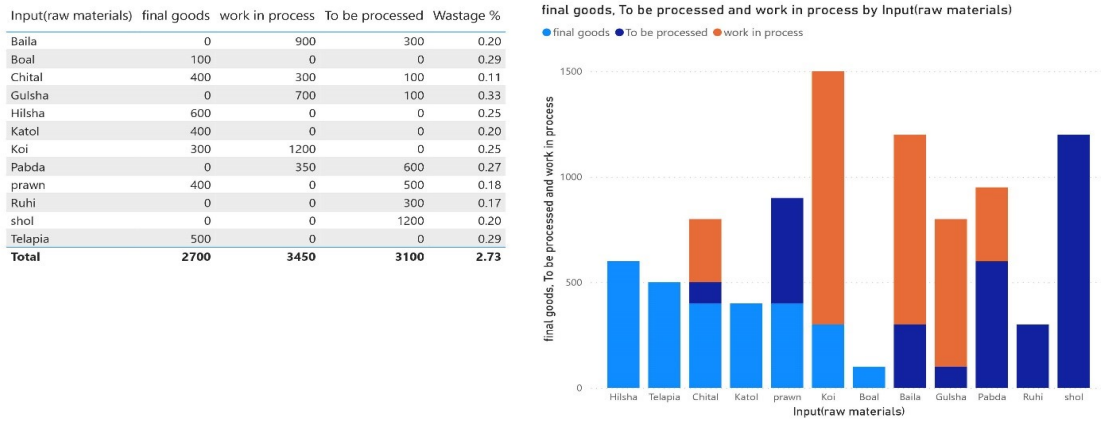


Figure 3.9: Interactive Table and Cluster Column Chart , showing inventory level of Fishes.

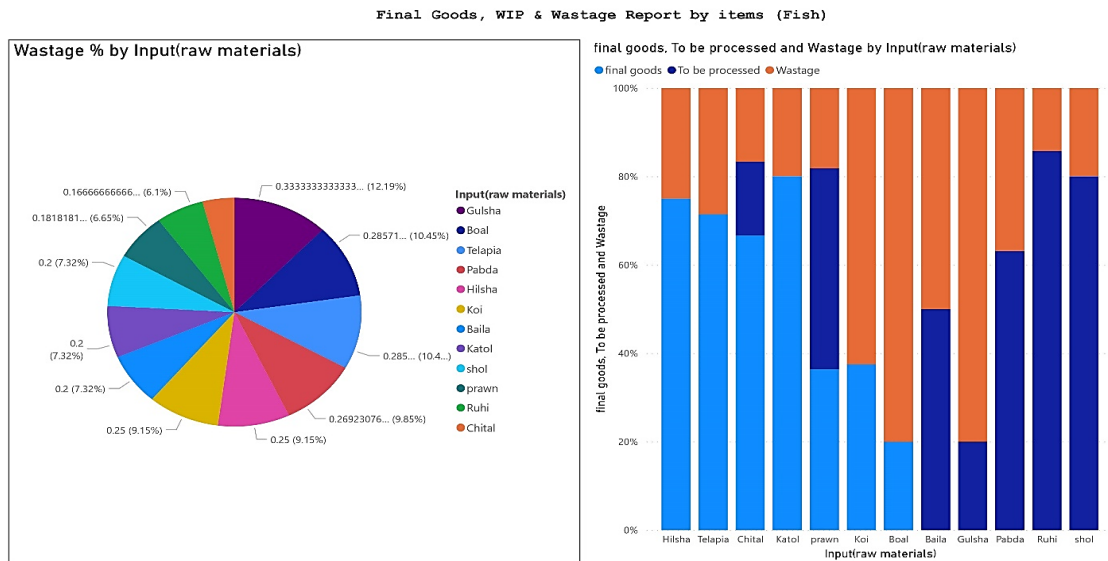


Figure 3.10: Interactive Donut Chart and 100% Stacked Column Chart , showing Inventory level with Wastage Amount of Fishes

The above figures are correlated with each other, as they show the inventory level of raw materials input, finished goods, work in process, to be processed, packaging materials used and left. These are the primary information needed by the Executive decision makers to proceed with a shipment products breakdown and how much of cost and time will it take for the shipment to happen, and then getting a order confirmed from the Buyer in the foreign country.

Chapter 4

Proposed solutions for increasing efficiency of inventory management

4.1 Standard Operating Procedures (SOP) for Data Entry:

Standard operating procedures (SOP) are a series of step-by-step instructions prepared by an organization to assist employees in carrying out their routine tasks. . In addition, we can include more detailed steps and information such as who, when, and where.

4.2 Need for SOP for the organization:

- To simplify the data entry process.
- To avoid errors.
- To prevent manufacturing failures.
- To meet production requirements.
- To overcome any language barrier which may arise due to the requirement of instant/immediate data entry caused by anytime production resulting due to factors such as crisis of production and price hike. The main reason is that it needs to be user friendly for the management.
- Can be used for training new employees.

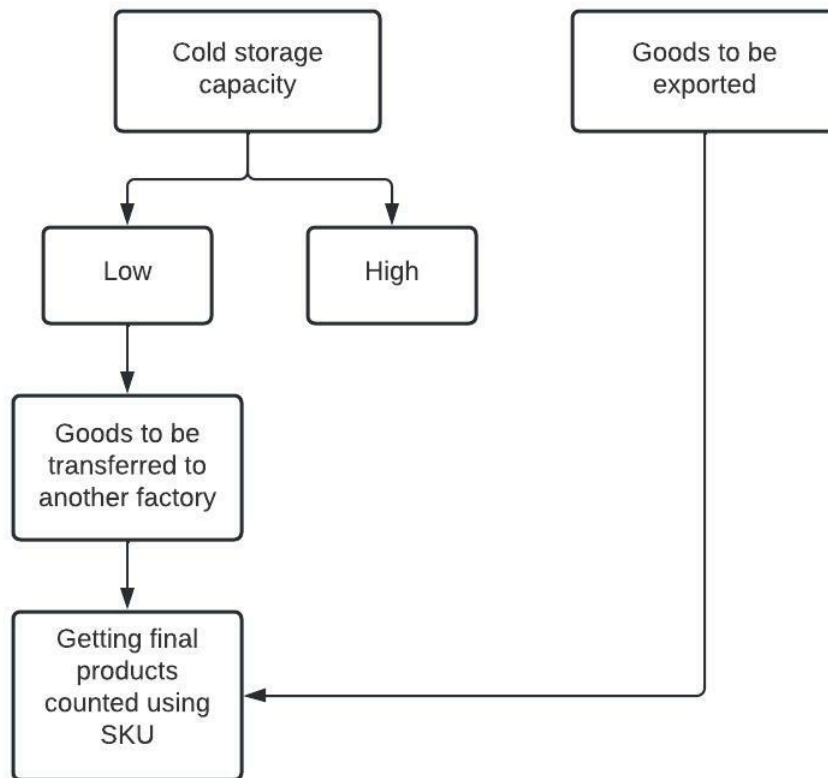


Figure 4.1: Standard Operating Procedure to implement SKU for Final Products, ready to be exported or moved to another cold storage, on basis of requirement or cold storage space availability.

Giving step by step instructions to the user will definitely keep the errors occurring chances low. Most importantly, these minor issues become a huge mismanagement as it could result in fines and fees. For instance, there was a shortage of 1 carton full products, and to manage it, it costed 2 days of delay in shipment time. For that, USD 25 was charged each day of delay.

4.3 Procedure diagram for inventory management:

The flow chart below outlines the step by step instructions that we have designed for efficient inventory management. This would enable the inventory management executives to easily understand the work flow.

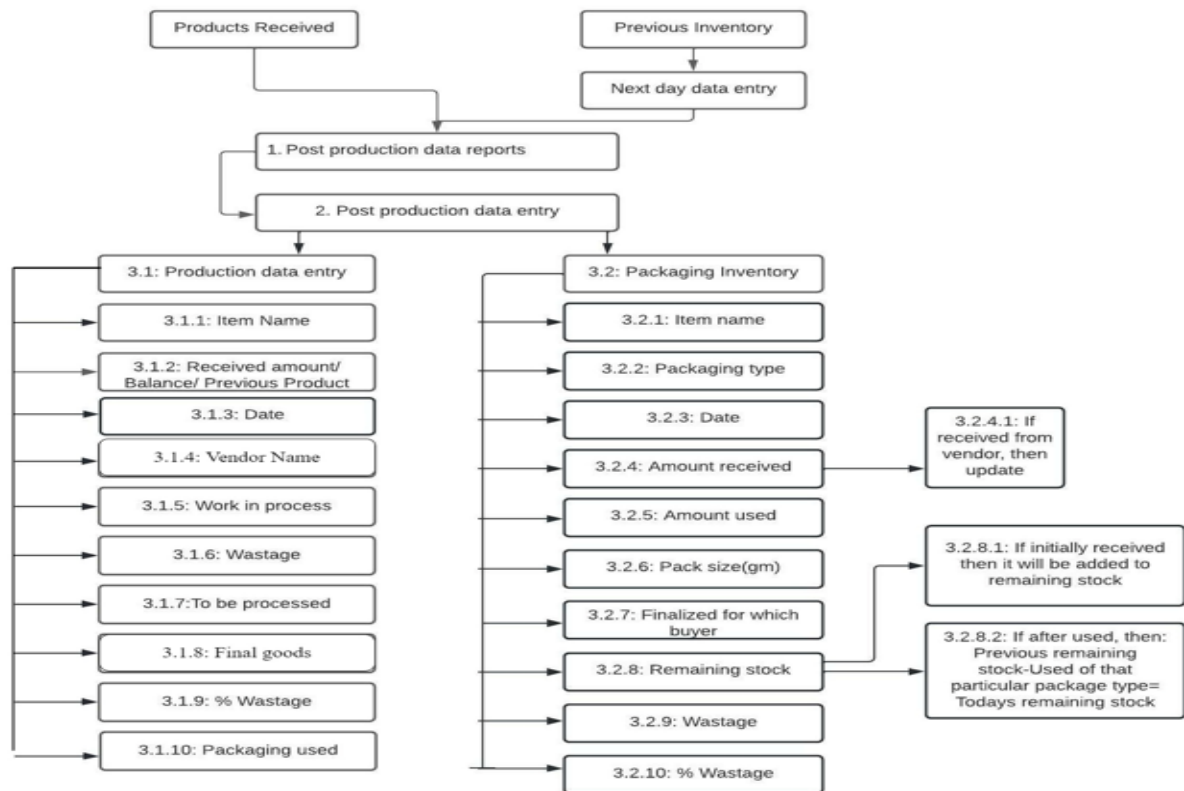


Figure 4.2: Flowchart of SOP of Data Entry (Computer Operator / Data Entry)

4.4 SKUs for processing and storing of perishable item:

A stock-keeping unit (SKU) is a scannable bar code that allows suppliers to track inventory movement automatically. It is most commonly found written on product labels.

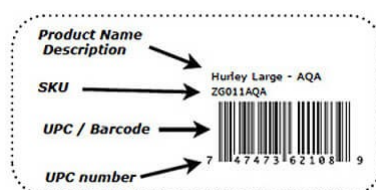


Figure 4.3: SKU ON PRODUCT LABELS

4.4.1 Benefits of using SKUs

- SKUs are also unique and specific to particular locations.
- SKUs make it easier to figure out how much stock is on hand.
- SKUs allow you to effortlessly track your inventory right down to individual variants of every product.
- Inventory classification using SKUs improves visibility of stock movements and aids in determining where and how stock has gone missing, reducing the risk of unaccounted missing products or theft.

4.4.2 How inventory is tracked

The company's production managers and supervisor use analog systems to manage and control inventory to this date, which in turn is provided to Mr. Mithankor (Assistant Manager), who makes a rough-cut report of mainly input, output and wastage per day, but there is not any sufficient use of software to keep diligent observation of the inventory matters. It was observed that the employees, mainly the first level management, are very resistant to change, being the fact that they are not very much aware of their roles and responsibilities. As a result, many employees lose track and have decreased motivation to keep track of everything in a systematic way. Thus, tally system is still used to this day, and pen and paper is used only.

4.4.3 How the company can implement it

Date	SKU	Item Name	Net wt (in Gm).	Amount(Pcs)	Amount(kg)	Moved	Export
17/2/2022	Rohu-BF-400gm-PADMA-PDFLR	Rohu	400	1250	500		Exported
25/2/2022	Hilsha-BF-400gm-PADMA-PDFLR	Hilsha	400	2000	800		Exported
29/2/2022	Baila-IQF-300gm-MEXIM-MXFMSM	Baila	300	1600	480		Exported
11/3/2022	Katol-IQF-400gm-MEXIM-MXFLR	Katol	400	500	200	Moved	
16/3/2022	Koi-IQF-300gm-MEXIM-MXFMSM	Koi	300	2000	600		Exported
21/3/2022	Shol-BF-400gm-PADMA-PDFSM	Shol	400	875	350		Exported
25/3/2022	Boal-IQF-400gm-PADMA-PDFLR	Boal	400	2000	800	Moved	
28/3/2022	Baila-IQF-400gm-MEXIM-MXFLR	Baila	400	1250	500	Moved	
1/4/2022	Pabda-BF-400gm-PADMA-PDFSM	Pabda	400	1000	400		Exported
7/4/2022	Chital-BF-400gm-MEXIM-MXFLR	Chital	400	700	280		Exported

Figure 4.4: (i) Assigning SKU(s) to the final products (Fish)

Date	SKU	Item Name	Net wt. (in Gm)	Amount(Pcs)	Amount(kg)	Moved	Export
1/22/2022	Potol-300gm-PADMA-PDVSM	Potol	300	2000	600	Moved	
1/22/2022	Kakrol-300gm-PADMA-PDVSM	Kakrol	300	1340	402	Moved	
1/23/2022	Jinghe-300gm-MEXIM-MXVSM	Jinghe	300	1000	300		Exported
1/29/2022	KochurMuk-300gm-MEXIM-MXVSM	Kochur Mukhi	300	1340	402		Exported
1/29/2022	Shim-300gm-MEXIM-MXVSM	Shim	300	1680	504		Exported
2/8/2022	Chalta-300gm-PADMA-PDVSM	Chalta	300	1340	402		Exported
2/8/2022	Danta-300gm-MEXIM-MXVSM	Danta	300	1340	402	Moved	
2/8/2022	Kodbel-300gm-LAZIZ-LZVSM	Kodbel	300	1180	354		Exported
2/16/2022	Tomato-300gm-LAZIZ-LZVSM	Tomato	300	1340	402	Moved	
1/22/2022	Lalshak-300gm-MEXIM-MXVSM	Lal shak	300	680	204	Moved	

Figure 4.5: (ii) Assigning SKU(s) to the final products (Vegetables)

MEPL can harness the power of technology to keep track of, evaluate and interpret the flow of its final goods. Developing and quick beta testing for a appropriate data management of the minor but even more complex costs and losses.

Fig. 4.4:(i) 4.5:(ii) shows how the tracking of final goods inventory can be done with Microsoft Excel , by assigning SKU codes to a product by its product type, net weight, buyer company, and internal code system.

A portion of the sticker can be allotted for the already existing labelling stickers in the overall packaging, packets and cartons. This can be scanned and get counted on movement from point A to B, whether it can be exported, or moved to another storage facility or even disposed.

Below would be the Figure 4.6 and Figure 4.7 existing sticker, without any SKU codes, for Kachur Loti, which were exported to Japan and Jaggery, which were exported to Canada, and Figure 4.8 and Figure 4.9 to show the suggested labelling designs for SKU implementation.

NAME / 品名	KACHUR LOTI / STOLON OF TARO (<i>Colocasia esculenta</i>)
SIZE / 内容量	400 gm
MFG. DT. / 製造日付 (Y.M.D)	2022.01.20
EXP. DT. / 賞味期限 (Y.M.D)	2024.01.19
COUNTRY OF ORIGIN/ 原産国	A PRODUCT OF BANGLADESH বাংলাদেশ
IMPORTED BY / によってインポートされた	
Exporter's Website: www.majesticenterpriseld.com	

Figure 4.6: Existing Sticker of Kachur Loti (400gm Pack)

Figure 4.7: Existing Sticker of Patali Gur

Figure 4.8: Suggested Labelling with SKU (Vegetable Packet)

Figure 4.9: Suggested Carton Design Print with SKU

Chapter 5

Problems Faced By the Organization, the Implemented Feasible Solutions

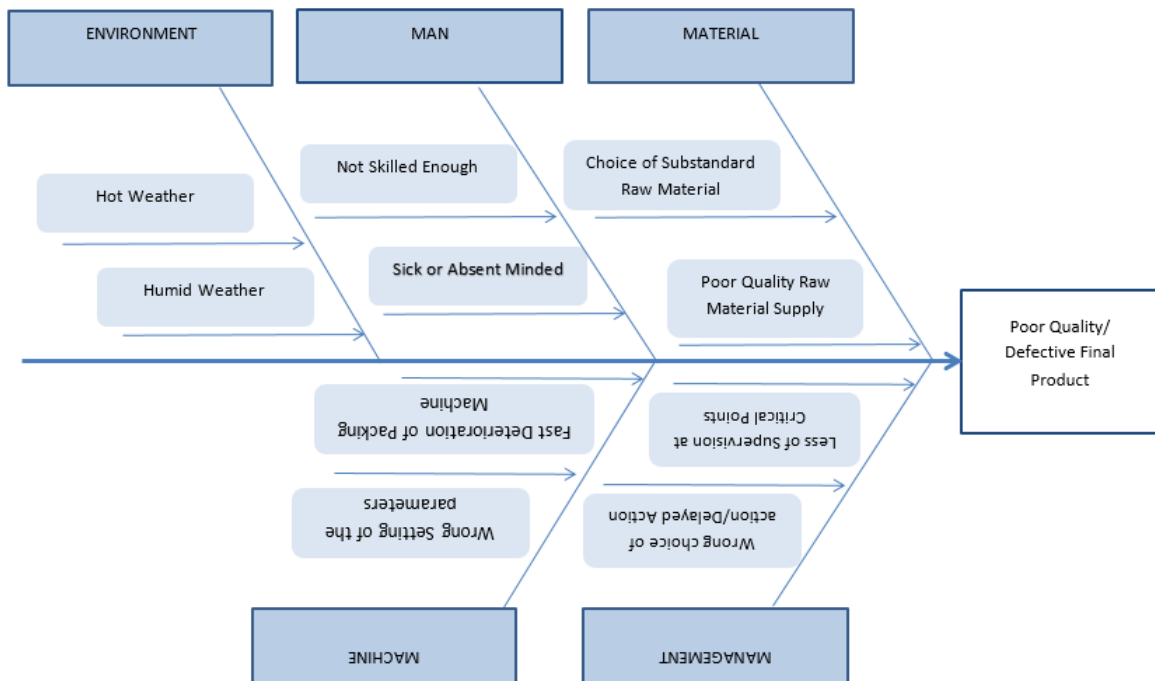


Figure 5.1: Fishbone Diagram showing causes leading to substandard goods.

As like any activity is subjected to error, there are problematic causes, external or internal to the organization, which leads to lesser quality or defects in the output of the final goods. The Fishbone Diagram shows the causes leading to substandard goods.

The problems and cause of any entity can be explained using a Fishbone Diagram, and for this case, the points are explained in brief below:

1. **Man:** The skilled labor crisis provides huge challenges for an organization which depends on manual labor. The Fishes and Vegetables are processed by hands and if the labor is sick, it causes shortage of in-house worker, who are trained for processing activities only. If the labor is absent minded, the final good has a higher chance of not being up to the mark.
2. **Machine:** The machinery of the factory is not updated, meaning they face problems more often compared to updated machineries of other factories. This causes increase in maintenance costs, as well as defects in final goods.
3. **Management:** Information gap between the supervisors and management results in ineffective decision making in the organization, which leads to sub-standard final goods. Sometimes, when the supervisors are busy doing other office work except not keeping an eye on the production floor, the production workers get lazy or absent minded, leading to less quality products.
4. **Materials:** As vegetables, fruits and fishes are mostly seasonal, sometimes the organization has no choice but to procure what is available in the market to make the shipment date. In that case, the suppliers take advantage and provides substandard goods along with the required quality goods because of shortage of that specific product category.
5. **Environment:** During the hot weathers, the organization has to run the machineries of the Cold Storage unit and the Blast Freezer unit for a longer period of time, as a change in temperature by 3 to 4 Degrees leads to a high-quality product being to a low-quality product. Moreover, delivering a shipment in the hot weathers is really difficult as the final goods are frozen and is susceptible to damage.

5.1 Internal:

1. **Analog Data Keeping** – Unfortunately, there is no dedicated computer operator in the factory, being appointed till date, to store, organize and sort the data of materials received, items processed and manufactured and stored in the factory premises digitally. This causes major decision-making problems when the shipment date is near. Even more, being a pioneer of the agri – manufacturing and export industry, the employees, beginning from top-level management to lower-level management, are technologically challenged. Thus, the factory manager, Mr. Masud, Mr. Shibu, Production Supervisor (Fish) and Production Supervisor (Vegetables) Mr. Mamun resort to write the data on a register book and send pictures to the headquarter, where Mr. Mithankor,

the Assistant Manager of the organization just keeps a database in excel, without any adjustment. If there is adjustment, it happens to mismatch with the original inventory most of the time.

Solutions: Building a viable database and using Enterprise Resource Planning softwares as the data amount gets sufficient would surely be of help. I was appointed to bring about primary methods of data collection by identifying data points.

2. **Absence of modulated procurement production schedule** – The company's processing and storage facility in Chittagong has less capacity of storage of frozen items due to the presence of another company leasing here. Thus, almost always, they tend to keep their items in other factories storages whenever the production is amped up for processing seasonal fishes, vegetables and fruits. This sometimes causes the whole production line to halt the processing of raw materials. The imbalance of inventory leads to delay in shipments, causing lethargic financial events a few times of the year. Thus, without accurate data, and shortage of storage capacity, the company is sometimes stuck with major decisions and is unable to maintain a proper procurement and production planning.

Solutions: Proper planning and coming to proper grounds with the vendors of raw materials, as well as giving the sufficient knowledge to them, such as the quality and quantity of an item needed at each specific production plan monthly and yearly.

3. **Wastage inventory mismatch** – The organization does not have an Inventory Manager, whose main responsibility is to monitor and report on our company's inventory levels and will be responsible for developing inventory tracking systems, reviewing levels of supplies, ordering new materials, and performing a daily analysis. But according to Mr. Aslam, the procurement manager, what happens in the organization is that almost before every shipment, there are disorders. He further explains that commonly, the quantity of finished goods or packaging materials mismatch with prior reports just before the end of a shipment, and the shipments get delayed from two weeks to four weeks due to shortage of finished goods or packaging. Then the raw materials have to be procured and converted to finished goods, which is a big hassle, especially if the requirement is short in amount, as the cost of operating the machineries is same for 700 (Seven Hundred) Kg and 7 (Seven) Kg. For the other case, the packaging materials have to be ordered which takes around 10 (ten) working days, but the factory works get slowed and expenses are same, meaning output to expense ratio is highest in those 10 days. In terms of food & food related items, the wastage % after production is an indicator of three things: quality of the raw material received, skill level or

effort provided of the processing line employee, and lastly, theft. Due to absence of accurate data presentation, the workers sometimes show that there is high wastage in spite of their efficient work, even though the quality of the raw materials are good, they report that the quality is bad, but in reality, there was theft.

Solutions: The wastage %, if reported correctly and precisely, can be an excellent way to stop this ridiculous atrocity. Being experts in the industry, the middle level management explained that they know the wastage percentage range for the raw materials. Thus, if they have the proper records and unconvoluted data, they can decipher what needs to be done and when just by looking at the numbers, which in case might be 40% wastage is reported for a day's Red Chilli production, but truly it might be only 25%, which in turn would be 150 Kg of red chili being misplaced from production line. So, appointing an experienced Inventory Manager can provide a remedy for accurate inventory and wastage management, such as having the right amount of packaging materials or ordering of packaging materials for a shipment just after a Production Breakdown is reviewed and confirmed, not just before the shipment. So, the Inventory Manager should examine the levels of supplies and raw material to determine shortages, document daily deliveries and shipments to update inventory, prepare detailed reports on inventory operations, stock levels, and adjustments and evaluate new inventory to ensure it's ready for shipment.

5.2 External:

1. **Increase in Price of Raw Materials** - Recent increase in the price of fuel in Bangladesh has caused huge increase in the price raw materials, mainly due to the increase in logistics costs. But the global acceptance of the price level range of an item being imported from Bangladesh has not changed yet. This has caused many small to medium level business to change their line of business. Even more, the hike in freight charges of shipping container has escalated to an apocalyptic proportion. Mr. Kamruzzaman, the Marketing Manager, says that in the year 2019, he has booked a shipping container of 40 Foot with USD 1,200, whereas in 2022, it is above USD 8,500. This crosses out Bangladesh of being a key exporter of agri products as the competitors of other countries, who are closer to the importing country will get the priority and the order as the difference is noticeable on a per Kg basis. He further explains that this has happened due to the inefficiency of the Ports of Bangladesh and the lesser prevailing efforts of the Customs to keep a closer relationship with the international shipping lines, and also due to the global events such as COVID and the Suez Canal issue that happened in the previous year, that caused a huge backlash in the global supply chain.

Solutions: Currently, Mr. Kamruzzaman is also assigned as the logistics development executive and he is building alliance with various shipping line companies, freight forwarding companies and international authority who can give the best possible solutions to these events.

2. **Skilled labor crisis** – After the COVID 19, many factories had to cut loose their employees as they could not afford to keep the business operation up and running smoothly. Thus, many skilled workers were forced to return to their homeland and abide by the traditional methods of earning bread , such as farming or being a temporary labor for hire at various organizations. According to Shanta Chakma, a factory plant worker of the organization, who was hired in the beginning of the fiscal year 2021 – 2022, she was closer to being promoted to the leader of her group but all her talents and dreams went down south when her Manager told that the business will no longer be able to keep her and give her the facilities that were already being given.

Solutions: Building a group of workers, by training them and providing them the platform to grow and learn the systems, under strict supervision and management, under a legal contract. The workers must be adaptable to the dynamic scenarios, such as when the goods are loaded and unloaded during shipment, the rush is severe.

Chapter 6

Conclusion :

The internship program at MEPL has given me an excellent opportunity to get exposed to real life work environment and it has enabled me to make use of what I have learnt in my academic setting to actual work scenario. It has taught me to work with teams, handle workload professionally and has enhanced my communication and technical skills. The professional and technical skills that I have acquired from the internship will be of great help for my future career. I am extremely thankful to my supervisor and my mentors who have been extremely supportive and have rightfully guided me through my journey. The duration of my internship is six months, starting from 1st November and it will be ending by the month of April. This report is a part of my final thesis and it covers six months of my experience at MEPL.

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Appendix



Figure 1: Packaged Mukhi Kachu



Figure 2: Packaged EEL



Figure 3: Shrimp Processing



Figure 4: Block Frozen Fish



Figure 5: Primary Packaging (Fish)



Figure 6: Raw material (Vegetables)



Figure 7: Reefer Container being loaded for shipment



Figure 8: Individual Quick Frozen(Rohu)