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**SYMBIOSIS INSTITUTE OF OPERATIONS MANAGEMENT
NASHIK**

Summer Internship Project 2022-24



**Raw Material Inflow Management. (CORDET)
&
Product Dispatch Management**

Submitted by

Satvik Singh (017)

Agri Operations Management 2022-24

Project Guide

Mr. Swayam Prakash Singh

Mr. Rajesh Singh

Mr. Birendra Singh

Faculty Guide

Dr. Isha Sharma

Synopsis

Project 1:

a. Background of the problem considered for improvement/solution:

Reducing the cost of production in the bio fertilizers segment of the company (CORDET)

To reduce the cost of production the need to understand the process of production in bio fertilizer segment was essential. So, at first the process was observed and understood with the help of project guide & employees.

By the understanding it was being found out that high raw material cost was a major contributor of high Cost of Production. Further study showed that the area where cost could be reduced can be the procurement of Carrier Material (Talc Powder) for bio fertilizers.

b. Summary of the Project:

The procurement cost of Carrier Material (Talc Powder) was seen as the area of improvement, for which selection of new suppliers from places where Talc Powder is processed in abundance as the old suppliers had local monopoly and were giving material at high cost.

The increase of logistics cost and time was also taken into consideration before providing the solution.

In conclusion the overall cost of production was reduced and the time increase was not hampering the production process.

c. Brief description of the improvement/solution:

The solution was provided to select the suppliers of Udaipur, Rajasthan after the product quality check from Haldwani, Uttarakhand & Udaipur, Rajasthan was up to the required standards as the material cost were less in Udaipur, Rajasthan.

Increase in Logistics cost was also considered and at conclusion new overall cost of production came down to Rs12 per kg from Rs40 per kg. Saving of Rs28 per kg was done with reference to increase in time.

d. Application/Advantages of the Solution:

Rs 28 per kg in the carrier material procurement (Talc Powder) is being saved with the implementation of the solution.

Still a proper logistics channel by optimizing routes must be set up to minimize transportation cost and more importantly to reduce time as time constraints are kept outside the scope of The project.

As the company owns its own trucks and other transport so it has also been suggested to not go for any third-party logistics for reducing further cost.

As CORDET has recently diversified into powder-based bio fertilizers such reduced cost can give them highly competitive and market advantage.

Project 2:

a. Background of the problem considered for improvement/solution:

Reduction in time in the process of product dispatch.

For reducing the time in the product dispatch section, a good level of understanding of dispatch process, dispatch channels, & product portfolios was essential. Observation & Information provided by project guide & on-site employees was considered for studying the subject matter. Also, secondary information (Company Website & research articles) was used for research methodology and finding solution.

The channel for further study was Railway transportation and the area of problem identification was manual cleaning of wagons before loading and it took a lot of time and also increased the waiting time for the next train in line for unloading.

b. Summary of the Project:

Relevant sections of dispatch segment were being observed upon, from company's dashboards, indents, process for booking of railway engines, to on-site loading & unloading, cleaning process.

A need for automating the cleaning of wagon process was observed and the solution was suggested accordingly.

The solution provided was a long-term solution and required high capital investments so It is still in consideration stage.

c. Brief description of the improvement/solution:

Automation of the cleaning process was suggested as the solution.

For cleaning of wagons, a ballast vacuum cleaner with certain addition of crawler mechanism was suggested. As the machine is not designed for cleaning wagons but for cleaning rail tracks it needed some modifications.

The modification research is already being carried out in Brazil for the company named Vale which deals in coal. And the new kind of ballast vacuum cleaner is currently in Practice for the use of wagon cleaning. Vale also has channels of export to India which makes the machine accessibility easier.

d. Application/Advantages of the Solution:

The use of ballast vacuum cleaner in place of manual labor will save 110mins or 1hr 50mins per train in the whole cleaning procedure (detailed calculations has being provided in the Research Methodology, Findings & Solution section).

It also eliminates the labor inefficiencies as it can run 720hrs without major maintenance, and, it improves the quality of work as each corner of the wagon can be cleaned easily.

The cost is not taken much into consideration as the contribution in long term makes the solution more rational and logical.

Abstract

The presented Project Report is done as a part of Symbiosis Institute of Operations Management, Nashik MBA (AOM) course curriculum. This report presents the project work completed during the 2 months duration with “IFFCO.”

The project gave a varied and acute knowledge of Product outbound and Raw Material Inflow facilities through multiple channels and of multiple type of products.

All these channels (modes) and products were observed and then a lot insights were being drawn upon.

The mode of transports was:

1. Railway
2. Road

The Products were: -

1. Urea
2. Nano Urea
3. Bio Decomposer
4. Bio Fertilizer

All these segments were studied for IFFCO for Phulpur (Prayagraj) Site. To complete the project work, detailed literature review was conducted inorder to gain as-is knowledge and practices in the field of Product outbound & Material Inbound channel management, Enterprise Resource Planning (ERP).

Also, product information was gathered in order to understand the nature of Products and a thorough study of different carrier materials used in bio fertilizers to get to a conclusion in Project 1. Primary data collection and IFFCO working structure is used to understand the business needs, managerial implications, and future scope.

इंडियन फार्मर्स फर्टिलाइजर कोऑपरेटिव लिमिटेड
INDIAN FARMERS FERTILISER CO-OPERATIVE LTD.

TRAINING CENTRE

TO WHOMSOEVER IT MAY CONCERN

DATE: 23/06/2023

Ref No: Voc Trainee / Internee / 2023 / 6603

NAME OF TRAINEE : Satvik Singh
BRANCH : MBA (Agri-Business) YEAR 2023
INSTITUTION : Symbiosis Institute of Operations Management,
Nashik
TRAINING SCHEME : Unpaid Vocational Training / Unpaid Internship
AREA OF TRAINING : SYSTEMS
TRAINING PERIOD : From : 06/04/2023 To : 06/06/2023
PERFORMANCE : VERY GOOD
REMARKS : PROJECT REPORT SUBMITTED ON
Product Dispatch Management

This is to certify that the student, whose details are given above, has taken his/her training / internship during period* of 06/04/2023 To 06/06/2023

I wish Him/Her all the best for his/her future endeavours

* It does not certify the attendance of the student during the mentioned period

P.O. Ghiyanagar, Prayagraj-212404 (U.P.) Phone : (05332) 253374, 251243
पोस्ट : घियानगर, प्रयागराज-212404 (उ.प्र.) फोन : (05332) 253374, 251243

तार/ Gram : इफको घियानगर, IFFCO Ghiyanagar, फैक्स/ Fax : General - (05332) 251252, Maintenance (05332) 251263
ईमेल/ E-Mail : phulpur@iffco.in वेबसाइट/ Website : www.iffco.in

R.K. Pandey
23-06-2023
Head
Training Centre
R. K. PANDEY
Manager (Training)
IFFCO Phulpur Unit
Prayagraj

को-आपरेटिव रूरल डेवलपमेन्ट ट्रस्ट
CO-OPERATIVE RURAL DEVELOPMENT TRUST
मोतीलाल नेहरू फार्मर्स ट्रेनिंग इन्स्टीट्यूट
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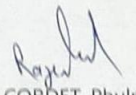
Ref No.: Training/2023-24/

DATE: 08.06.2023

TO WHOM IT MAY CONCERN

This is to certify that SATVIK SINGH ID NO. 22020742017 of Student of MBA Agri Operations (3rd Year) in SYMBIOSIS INSTITUTE OF OPERATION MANAGEMENT NASHIK, has completed satisfactorily his 02 Month training in our BIOFERTILISER UNIT CORDET, Phulpur, Prayagraj from 06.04.2023 to 06.06.2023 on unpaid basis.

I wish his every success in future.


CORDET, Phulpur

Bio-fertiliser Production Unit
Motilal Nehru Farmers Training Institute
Phulpur, Allahabad - 212 404

पो० घियानगर, फूलपुर, इलाहाबाद - 212404,
P.O. GHIYANAGAR, PHULPUR, ALLAHABAD - 212404
Email-rajendrayadav@iffco.in

Satvik Singh _ SIP Report _ 017

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Founder: Prof. Dr. S. B. Mujumdar M. Sc. Ph. D. (Awarded Padma Bhushan and Padma Shri by President of India)

DECLARATION BY STUDENT

Name of the Student : Satvik Singh

PRN : 22020742017

Name of the company : IFFCO (Indian Farmers Fertilizer Cooperative)

I have completed the assignments given to me at the company on 06-06-2023 (date) to the satisfaction of my project guide and HR. I have also discussed and submitted my final Internship project to the company.

I declare that I have abided by all rules and regulations and operated within the code of conduct of the company including confidentiality of information. This work is completed within the scope defined for my internship.

Signature of the student :

Date : 06-06-2023

Acknowledgement

I would like to take this opportunity to thank “IFFCO” for giving me this wonderful opportunity to take up this project, thereby allowing me to work with them.

I would like to thank Mr. Swayam Prakash Singh, for allowing me to work on “Product Dispatch Management at IFFCO” and Mr. Birendra Singh & Mr. Rajesh Singh to work on “Raw Material inbound (Carrier Material)” at CORDET. This project has helped us gain firsthand experience in the field of Agri Input Processing, Product outbound channel management, Enterprise Resource Planning (ERP), and Material inbound.

This acknowledgement section would be incomplete without offering my thanks and gratitude to our Director Dr. Vandana Sonwaney, the placement coordinator Dr Yashomandira Kharde and the placement committee of SIOM Nashik, and all the student members who have constantly supported the entire batch for the project.

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SUMMER INTERNSHIP PROGRAMME 2023

COMPLETION REPORT & NO DUES CERTIFICATE FROM COMPANY (to be attached to the report by the student)

A student of SYMBIOSIS INSTITUTE OF OPERATIONS MANAGEMENT, Nashik Mr. / Ms. Satvik Singh
with PRN NO : 22020742017 worked with our company for his/her summer internship / field project under the project title
Raw Material Inflow Management & Product Dispatch Management from 06/04/2023 (date) to 06/06/2023 (date).

During this period his/her conduct was good. We have no complaints about his/her discipline or about his/her work.

He/she has no dues to the company with respect to money, files, data, reports or any other material issued to him/her during the process of his/her summer internship.

We wish him all the best in his/her endeavors.

He / she has completed the project satisfactorily.

Signature Project Guide / Departmental Head:

Name of the Company Guide : Mr Rajesh Singh, Mr Swayam Prakash Singh.

Place: Phulpur, Allahabad, U.P.

Date: 06/06/2023.

COMPANY SEAL

Bio-Fertilizer Production Unit
Motilal Nehru Farmers Training Institute
Phulpur, Allahabad - 212404

Introduction

Background of Industry

Agribusiness in India:

Agriculture and related industries, which make up around 20.19% of the GDP, have a substantial impact on the Indian economy. The Indian industry has a net worth of Rs 71,220 billion in 2021. According to the IMARC Group report, the industry is expected to grow at a CAGR of 12.3% and reach Rs 142,280 billion by 2027.

Businesses that typically clean, process, store, and/or pack a variety of products that are mostly produced from agricultural produce make up the agricultural sector. Fibers, food, and raw resources are a few typical agricultural product categories. In addition to other operations, it encompasses farming, logging, dairying, fish and animal husbandry, crop cultivation, and more. Businesses that make seeds, fertilizer, and farm machinery are also included since they assist agricultural activity. Because it employs the vast majority of the people and makes a sizable contribution to the Indian economy, it promotes market expansion.

Indian agriculture trends:

The country's high population increase is the main driver of the sector's expansion. The rising income levels in rural and urban regions, which have increased the demand for agricultural goods across the nation, provide additional support for this. The rising use of cutting-edge technology, including block chain, artificial intelligence (AI), geographic information systems (GIS), drones, remote sensing technologies, and the release of several e-farming applications, is therefore encouraging the industry. The market is also positively impacted by the supportive government policies in place throughout India to promote and enhance the whole agricultural infrastructure, including farmer finance facilities. programs for crop insurance and other rewards for shipping agricultural products via air. The market is also impacted by the general public's rising demand for organic agricultural goods. The rapid expansion of allied services like cold storage and warehouses, the variety of agroclimatic conditions, the large quantity of agricultural land, and the increase of digitalization are additional aspects that favorably impact the Indian market.

Cooperatives Information

A **cooperative** (also known as **co-operative**, **co-op**, or **coop**) is "an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically-controlled enterprise". Cooperatives are democratically controlled by their members, with each member having one vote in electing the board of directors.

Cooperatives can be found in various sectors and industries, including agriculture, housing, banking, retail, energy, healthcare, education, and more. They are driven by the principles of cooperation, collaboration, and shared decision-making. Members of cooperatives have equal voting rights, allowing them to participate in the governance and decision-making processes of the cooperative.

The key features of cooperatives include:

1. **Voluntary Membership:** Cooperatives are open to all individuals or businesses who meet the membership criteria and are willing to actively participate in the cooperative.
2. **Democratic Control:** Each member has an equal vote, regardless of their financial investment or ownership stake in the cooperative. Decisions are made collectively, following the principle of "one member, one vote."
3. **Member Ownership:** Cooperatives are owned and controlled by their members, who contribute capital and share in the benefits and risks of the cooperative's activities.
4. **Member Benefit:** The primary purpose of a cooperative is to serve the needs and interests of its members. Profits are distributed equitably among the members based on their participation and patronage.
5. **Social Responsibility:** Cooperatives operate based on ethical values and principles, aiming to benefit not only their members but also the broader community and society.

Cooperatives play a vital role in promoting economic democracy, empowering communities, fostering social cohesion, and addressing the needs of marginalized or disadvantaged groups. They offer an alternative business model that prioritizes cooperation, sustainability, and collective well-being over individual profit.

Background of Company

IFFCO, short for Indian Farmers Fertiliser Cooperative Limited, is one of the largest cooperative societies in the world and a prominent player in the Indian agricultural sector. Established in 1967, IFFCO has made significant contributions to the growth and development of Indian farmers by providing them with various agricultural inputs, especially fertilizers, at affordable prices.

IFFCO operates as a cooperative venture, owned and controlled by over 36,000 member cooperatives. The cooperative structure allows farmers to become members and benefit from the organization's activities, ensuring their active participation and democratic decision-making. The main objective of IFFCO is to improve the socio-economic status of farmers and promote agricultural sustainability in India.

Fertilizer production and distribution are the core areas of IFFCO's operations. It has several state-of-the-art manufacturing plants spread across different locations in India. The cooperative produces various fertilizers, including urea, diammonium phosphate (DAP), complex fertilizers, nitrogen-phosphorus-potassium (NPK) fertilizers, and other customized blends. IFFCO's focus on quality control and innovation has helped it maintain a leading position in the Indian fertilizer market.

In addition to fertilizers, IFFCO also offers a range of agricultural services and products. It provides seeds, agrochemicals, farm machinery, and agricultural implements to farmers. IFFCO has also diversified its activities into areas like rural retail, rural telecommunications, rural processing, and rural energy solutions. These initiatives aim to provide comprehensive support to farmers and strengthen rural infrastructure.

IFFCO places significant emphasis on sustainable agriculture practices and environmental protection. It promotes balanced and judicious use of fertilizers, encourages organic farming, and implements various programs to create awareness about conservation and resource management. IFFCO is actively involved in research and development activities to develop new and innovative solutions that enhance agricultural productivity while minimizing environmental impact.

Furthermore, IFFCO has expanded its reach beyond India and has a global presence. It has subsidiaries and joint ventures in several countries, enabling it to cater to the needs of farmers worldwide. The cooperative has established partnerships with international

organizations, fostering knowledge exchange and technological advancements in the agricultural sector.

Apart from its business operations, IFFCO is committed to corporate social responsibility (CSR) initiatives. It undertakes various welfare activities for the upliftment of rural communities, such as providing education, healthcare, sanitation, and clean drinking water facilities. IFFCO also supports farmers during natural disasters and calamities, extending a helping hand when needed the most.

Overall, IFFCO has played a significant role in transforming Indian agriculture and empowering farmers. With its cooperative model, commitment to quality, sustainable practices, and social responsibility, IFFCO continues to be a driving force in the development of the agricultural sector in India and beyond.

Projects

Project 1:

Project Name:

Raw Material Inflow Management. (CORDET)

Business Need:

To gain knowledge of bio fertilizers and reduce the cost as much as possible.

Problem Statement:

The major area where cost reduction was possible was inflow of carrier material (powder). The project targets the suppliers as well as the supply channel to minimize the cost.

Goal Statement:

1. To analyze the Primary data, identify root cause and gaps
2. To develop solutions from the analysis
3. To record lesson learnt for ongoing and future projects

Project: In Scope: Transportation Channel, Transportation Facilities.

Project: Out Scope: Supplier Capacity, Tax Rates, Price of carrier.

Project 2:

Project Name:

Product Dispatch Management

Business Need:

To gain knowledge of product dispatch management by having on ground sight of the process of dispatching and try to make the process more efficient and effective by reducing as much time as possible.

Problem Statement:

The major area where time reduction was possible was during the cleaning of freight wagons before loading of Product. The project will target to reduce the time and try to make the process more effective.

Goal Statement:

1. To analyze the Primary data, identify root cause and gaps
2. To develop solutions from the analysis
3. To record lesson learnt for ongoing and future projects

Project: In Scope: Transportation Channel, Quantity.

Project: Out Scope: Railway quantity agreements, Rail engine availability.

Literature Review

Agri Inputs

Agri inputs, also known as agricultural inputs or farm inputs, are various resources and materials used in agricultural production to enhance crop growth, productivity, and overall agricultural operations. These inputs are essential for successful farming and can include:

1. **Seeds:** High-quality seeds of different crop varieties that possess desired traits such as high yield, disease resistance, drought tolerance, or specific market requirements.
2. **Fertilizers:** Nutrient-rich substances, both organic and synthetic, that are added to the soil to provide essential elements like nitrogen, phosphorus, and potassium for plant growth and development.
3. **Pesticides:** Chemicals used to control and manage pests, diseases, and weeds that can damage crops and reduce yields. Pesticides include insecticides, fungicides, herbicides, and rodenticides.
4. **Irrigation Systems:** Equipment and infrastructure for water management, including drip irrigation systems, sprinklers, pumps, and water storage tanks. These help provide adequate water supply to crops, especially during dry spells.
5. **Agrochemicals:** Various chemicals used in agriculture, such as growth regulators, soil conditioners, soil amendments, and pH adjusters, to improve soil fertility, optimize plant growth, and enhance overall crop health.
6. **Farm Machinery and Equipment:** Tools and machinery used in farming operations, including tractors, harvesters, plows, planters, sprayers, and irrigation systems, to mechanize and streamline agricultural tasks.
7. **Animal Feed:** Nutritious feed and supplements provided to livestock and poultry for optimal growth, health, and production.
8. **Veterinary Medicines:** Medicines, vaccines, and treatments used to maintain the health and well-being of livestock and address animal diseases.
9. **Farm Management Software:** Technological tools and software applications designed to assist farmers in managing and optimizing farm operations, crop monitoring, inventory management, financial planning, and decision-making.
10. **Research and Advisory Services:** Access to expert advice, research findings, and agricultural extension services that provide valuable insights on best practices, crop selection, pest management, and other relevant agricultural guidance.

Agri inputs are crucial for modern agricultural practices, helping farmers maximize crop yields, improve quality, and enhance sustainability. The judicious and responsible use of these inputs is important to ensure environmental protection, resource efficiency, and long-term agricultural viability.



Talc Powder as Carrier for Biofertilizer

Talc powder can be used as a carrier material for bio fertilizers. Here's how talc powder can be beneficial in the context of bio fertilizers:

1. **Improved Dispersion:** Talc powder has excellent flowability and dispersion properties. When used as a carrier for bio fertilizers, it helps to evenly distribute the beneficial microorganisms or nutrients throughout the soil.
2. **Protection and Preservation:** Talc powder acts as a protective barrier, shielding the bio fertilizer from environmental factors such as moisture, UV radiation, and temperature fluctuations. This helps to preserve the viability and effectiveness of the bio fertilizer over an extended period.
3. **Adhesion and Root Contact:** Talc powder adheres well to seeds or granular formulations, enhancing their adherence to soil particles and promoting root contact. This improves the efficacy of bio fertilizers by facilitating direct interaction between the beneficial microorganisms and plant roots.
4. **Nutrient Release Control:** Talc powder can be formulated with bio fertilizers to control the release of nutrients. The porous nature of talc allows for a gradual release of nutrients over time, providing a sustained supply to plants and minimizing nutrient leaching.
5. **Easy Application:** Talc powder is lightweight and easy to handle, making it convenient for application. It can be mixed with bio fertilizers to form granules or coated onto seeds for seed treatment. The fine particles of talc ensure uniform coverage and distribution during application.
6. **Soil Conditioning:** Talc powder has inherent soil conditioning properties, improving soil structure and water retention. When applied with bio fertilizers, it contributes to the overall health and fertility of the soil, creating a favorable environment for plant growth.

It is important to note that the suitability and effectiveness of talc powder as a carrier for bio fertilizers may depend on the specific requirements of the bio fertilizer formulation and the target crop or soil conditions. It is recommended to consult with fertilizer experts or agronomists to determine the optimal combination and application methods for bio fertilizers using talc powder as a carrier.



Product dispatch channel management

Product dispatch channel management refers to the process of effectively managing and optimizing the channels through which products are dispatched and delivered to customers. It involves coordinating various activities, resources, and stakeholders involved in the movement of products from the manufacturer or supplier to the end consumer.

Effective product dispatch channel management is crucial for ensuring timely and efficient delivery, customer satisfaction, and cost optimization. It involves several key components and considerations, including:

1. **Channel Selection:** Choosing the right channels through which to dispatch products is essential. This includes evaluating options such as direct sales, distributors, wholesalers, retailers, e-commerce platforms, or a combination of these. The selection depends on factors such as target market, product characteristics, customer preferences, and competitive landscape.
2. **Inventory Management:** Efficient inventory management is vital to ensure products are available when needed. It involves maintaining optimal stock levels, monitoring demand patterns, forecasting future requirements, and coordinating with suppliers to replenish inventory in a timely manner. Proper inventory management helps minimize stockouts, reduce holding costs, and avoid excess inventory.
3. **Logistics and Transportation:** Managing the movement of products from the manufacturer or warehouse to the customer requires effective logistics and transportation management. This includes selecting reliable carriers, optimizing routes, tracking shipments, coordinating delivery schedules, and ensuring proper handling and storage during transit. Efficient logistics help minimize delivery time, reduce transportation costs, and enhance customer satisfaction.
4. **Order Processing and Fulfilment:** Streamlining the order processing and fulfilment process is crucial for dispatch channel management. This involves efficiently capturing and processing customer orders, coordinating with warehouses for order picking and packing, managing order priorities, and ensuring accurate and on-time shipment. Automation and integration of systems and processes can enhance order processing efficiency and reduce errors.
5. **Channel Performance Measurement:** Monitoring and evaluating the performance of dispatch channels is essential to identify areas for improvement and make informed decisions. Key performance indicators (KPIs) such as delivery time, order accuracy, customer satisfaction, inventory turnover, and cost metrics should be tracked and analysed. This helps identify bottlenecks, assess channel effectiveness, and implement corrective measures.
6. **Communication and Collaboration:** Effective communication and collaboration among all stakeholders involved in the dispatch channel management process are crucial. This includes close coordination between manufacturers, suppliers, distributors, carriers, and customers. Clear communication channels, shared information systems, and collaborative relationships facilitate smooth operations, proactive issue resolution, and customer service

excellence.

7. Continuous Improvement: Dispatch channel management is an iterative process that requires ongoing evaluation and improvement. Regular review of performance metrics, customer feedback, market dynamics, and emerging technologies helps identify opportunities for optimization. Implementing innovative strategies, adopting new technologies, and staying updated with industry trends can enhance efficiency, reduce costs, and drive competitive advantage.

In summary, product dispatch channel management involves the strategic coordination of channels, logistics, inventory, and order processing to ensure efficient and timely delivery of products to customers. By optimizing these processes, businesses can enhance customer satisfaction, reduce costs, and gain a competitive edge in the marketplace.



ERP – Enterprise Resource Planning

ERP, short for Enterprise Resource Planning, is a comprehensive software system that integrates various business functions and processes into a unified platform. It allows organizations to streamline their operations, improve efficiency, and make data-driven decisions by providing real-time visibility and control over critical business activities. An ERP system typically includes modules or components that cover different functional areas such as finance, human resources, supply chain management, manufacturing, inventory management, customer relationship management, and more. These modules are interconnected, enabling seamless flow of information across departments and facilitating cross-functional collaboration.

The key features and benefits of an ERP system include:

1. **Centralized Data Management:** ERP systems centralize data from different departments and processes, eliminating data silos and duplicate entries. This ensures data consistency, accuracy, and integrity, providing a single source of truth for the organization. Users can access real-time information, generate reports, and perform data analysis, leading to better decision-making.
2. **Process Automation:** ERP systems automate manual and repetitive tasks, reducing the need for manual intervention and minimizing errors. It streamlines workflows, automates approval processes, and facilitates standardized procedures. This leads to increased operational efficiency, reduced cycle times, and improved productivity.
3. **Improved Collaboration:** ERP systems enable enhanced collaboration and communication across departments. Employees can access and share information in real-time, collaborate on projects, and work together towards common goals. This promotes cross-functional teamwork, improves coordination, and facilitates better internal communication.
4. **Enhanced Customer Relationship Management (CRM):** ERP systems often include CRM modules that help organizations manage customer interactions and relationships more effectively. It allows businesses to track customer information, sales orders, inquiries, and support tickets, enabling personalized customer service and targeted marketing efforts.
5. **Supply Chain Optimization:** ERP systems integrate supply chain management functions, including procurement, inventory management, production planning, and logistics. It provides visibility into the entire supply chain, optimizing inventory levels, reducing lead times, and improving supplier relationships. This helps organizations streamline their supply chain processes, reduce costs, and enhance customer satisfaction.
6. **Financial Management:** ERP systems offer robust financial management capabilities, including general ledger, accounts payable and receivable, budgeting, financial reporting, and more. It enables organizations to track financial transactions, generate accurate financial statements, and manage cash flows effectively. This supports financial planning, compliance with accounting standards, and facilitates financial decision-making.
7. **Scalability and Flexibility:** ERP systems are designed to accommodate the evolving needs of organizations. They can scale as the business grows, allowing for the addition of new modules, users, or functionalities. ERP systems also provide flexibility to configure workflows, processes, and reports to align with specific business requirements and industry practices.

Implementing an ERP system requires careful planning, change management, and user

training. Organizations should evaluate their specific needs, select a suitable ERP vendor or solution, and customize it to align with their business processes. Successful ERP implementation can bring significant benefits, improve operational efficiency, and provide a competitive advantage in today's dynamic business environment.



Research Methods, Findings & Solution

Project 1

Phase 1

Methodology

- ❖ All the sections of agri input at CORDET were observed.
- ❖ As per the business need the cost in this section was to be reduced.
- ❖ So, the identification of gap was majorly done in this section.

Findings

- ❖ The product was found out to be Bio Fertilizer and the area was reducing the overall cost of carrier material used that was powder.
- ❖ As CORDET have recently moved on to powdered form of Bio Fertilizer and the local and old suppliers were only being used.

Phase 2

Methodology

- ❖ After finding the area to be worked upon the old supplier rates was noted that was around Rs 40 per kg including all the expenses like transportation provided by supplier only.
- ❖ To reduce overall cost in which two major segments of cost were considered
 - Cost of Good
 - Transportation cost including toll taxes.
- ❖ The cost of good was reduced by selecting different suppliers which resulted in increased transportation cost.

Findings

- ❖ It was found that although the transportation cost was increased, the overall cost was being reduced if an outside supplier is selected.
- ❖ So, there were two places selected for selecting a supplier
 - Udaipur, Rajasthan
 - Haldwani, Uttarakhand
- ❖ There were quality constraints too which were being looked upon by ordering samples from both the places.

Phase 3

Methodology

- ❖ The new overall cost (COG + Transportation cost) was calculated.

Findings

- ❖ The new cost of good of Rs.7.5-Rs.9.0 per kg from Udaipur, Rajasthan and Rs12-Rs14 per kg From Haldwani, Uttarakhand.
- ❖ Both the samples possessed the desired quality.
- ❖ Udaipur suppliers were selected for the purpose.
- ❖ Transportation was to be provided from IFFCO end as suppliers had constraint of delivering very high quantity that was required.
- ❖ Transportation Cost: -

- Travelling Cost

Mileage = Rs6-7 kmpl
[If using Taurus 25T (14 tyres) having capacity of 25 tons]

Distance from Phulpur to Udaipur = 1100 Km

Total diesel used = $1100/6 = 184$.

Total travelling cost single journey = $184*100 = 18400$

(Assuming Diesel rates 100 per liter)

Total travelling cost single journey and return journey

= $18400*2 = 36800$ -----(i)

- Toll Tax

Toll tax cost = Rs 9500 (single journey),
Rs 19000 (going and coming back) -----(ii)
[can be reduced by making monthly pass]

- Driver's salary

= Rs 15000 per month
Rs 500 per day----- (iii)

Adding (i), (ii), & (iii)

= $36800+19000+500$
= 56300

Per kg cost

= $56300/25000$
= 2.25 per kg

Considering contingency, maintenance, and other expenses

Total Transportation Cost = Rs 2.5-2.75 per kg

❖ Overall Cost = $9 + 2.75 = 11.75$ approximate Rs 12 per kg.

❖ Study based on Per km.

| Cost Areas | Cost/km | Contribution |
|---------------------|----------------|---------------|
| Fuel | 20.3 | 45.0% |
| Documentation | 6.8 | 15.0% |
| Tolls | 4.5 | 10.0% |
| Driver's Salary | 4.5 | 10.0% |
| Maintenance | 4.5 | 10.0% |
| Others | 2.3 | 5.0% |
| Loading & Unloading | 1.4 | 3.0% |
| Tyres | 0.9 | 2.0% |
| Total | Rs 45.0 | 100.0% |

Note the total transportation cost by km comes out to be $45 \times 1100 = \text{Rs } 49500$ which is very close to cost per kg i.e. Rs 56300.

Solution

The new suppliers of Udaipur are selected as they are costing Rs 12 per kg as compared to Rs 40 per kg from the previous suppliers.

Rs 28 per kg is being saved.

Time is increased on the other hand but the cost saving is proportionately more.



At CORDET Bio Fertilizer unit

Project 2

Phase 1

Methodology

- ❖ A clear understanding of product dispatch process was being taken by the guide.
- ❖ The information consisted of backend software processes and frontend logistics.

Findings

❖ Dashboards and Indents

- The dispatch (transport outbound) department works on a common platform or dashboard by which all the stakeholders are connected.
- The dashboard facility is outsourced by a software-based company of Bareilly, Uttar Pradesh.
- The dashboard provides all kinds of information and new information is feeded in it every day.

Transporter-Wise DI Bifurcation

Plant Code: PH0 - PHULPUR UNIT From Date: 01-05-2023 End Date: 22-05-2023 --SELECT--

Load DI List Reset

Road DI Marketing : Destination Section

Show 10 entries Search:

| DI No | DI Dest SNo | DI Date | Party Code | Party Name | District | State | Product | Bags/Bottle | Qty Required | Actions |
|------------|-------------|------------|------------|--------------------------------|----------|---------------|------------------|-------------|--------------|---------|
| PH23000575 | 001 | 22-05-2023 | CUAL03556 | IFFCO BAZAR BAIRAMPUR CHAKMADA | Fatehpur | UTTAR PRADESH | FU0 - IFFCO UREA | N.A. | 27.0 | |

Showing 1 to 1 of 1 entries Previous 1 Next

Road DI : Transporter-wise Bifurcation Add New Bifurcation Row

| DI No | DI Dest SNo | DI SNo | ECA/DER | Product Code | Shipment No | Transporter | Transporter Code | WO Seq | Bag/Bottle No | Qty Required | Qty Short Close | Remarks | Pending | Status |
|------------|-------------|--------|---------|--------------|-------------|-------------|------------------|--------|---------------|--------------|-----------------|---------|---------|--------|
| PH23000575 | 001 | TT1 | DER | | | --Select-- | | | | 0 | | | Yes | Activ |
| PH23000575 | 001 | TT2 | DER | | | --Select-- | | | | 0 | | | Yes | Activ |
| PH23000575 | 001 | TT3 | DER | | | --Select-- | | | | 0 | | | Yes | Activ |

Update

Dashboard View

- There are requests that are raised by indents by categorically two parties, one Self and the other by marketing team which then goes to warehouse and shop (retailer) respectively.



Home - Web Menu Cloud x Home | Microsoft 365 x Mail - transport-phulpur - Outlook x IFFCO Global Plant Despatch

about:blank

INDIAN FARMERS FERTILISER COOPERATIVE LIMITED
Transportation Department, Phulpur Unit

IFFCO
Wholly owned by Cooperatives

Report Date: 22/05/2023 14:59

To
Goods Supdt./Chief Goods Supervisor
IFFCO PHULPUR SIDING

Plant Name : PHULPUR UNIT

State : 09 Uttar Pradesh

GSTIN No : 09AAAAI0050M3ZR

TPT-F-01

Indent Date-Time : 22/05/2023 15:00

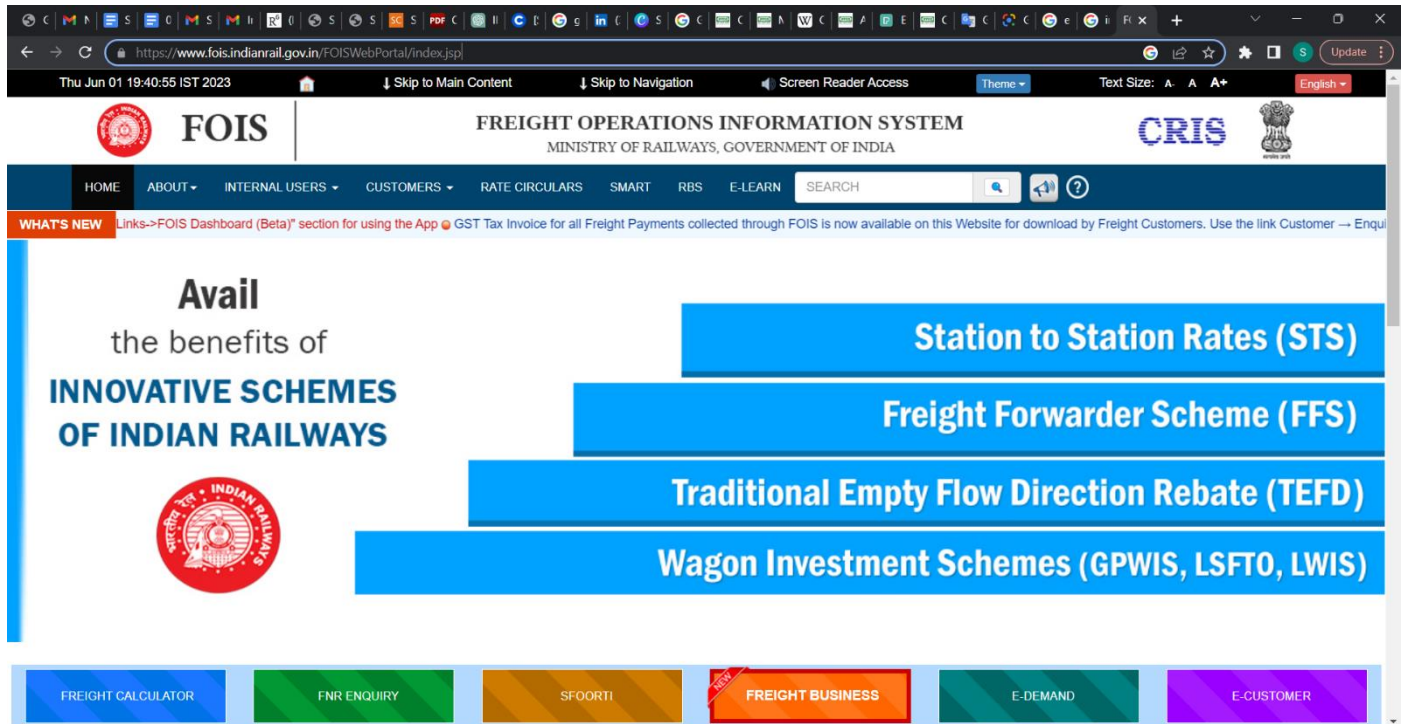
Indent No : PH230089

INDENT FOR SUPPLY OF WAGONS

| S. No. | Name and Address of Recipient | Consignee Name & Address | Desination & Rly. Code | Product |
|--------|--|--|---|---|
| 1 | IFFCO C/o: U.P. S.O. IFFCO Bhawan, 8, Gokhale Marg, Lucknow District: Lucknow Mail ID: smm_up@ifco.in Phone No: PIN : 226001 State : 09 Uttar Pradesh GSTIN No: 09AAAAI0050M3ZR | DI No : PH23000090 IFFCO C/o ZIYAUDDIN SIDDIQUI P.O. BASTI Tiwari Tolla, Raja Maidan, Dakhin Darwaja-272002 Phone No : 9956391269 Phone No : 285823 | Basti Alpha Code : BST Station Code: 04209412 Rail Zone : NE Via : FD-MUR | NEEM UREA PH-I (45 KG) No. of Wagons 16 BCN in IFFCO HDPE/ PP Bags |
| 2 | IFFCO C/o: U.P. S.O. IFFCO Bhawan, 8, Gokhale Marg, Lucknow District: Lucknow Mail ID: smm_up@ifco.in Phone No: PIN : 226001 State : 09 Uttar Pradesh GSTIN No: 09AAAAI0050M3ZR | DI No : PH23000090 IFFCO C/o ZIYAUDDIN SIDDIQUI P.O. BASTI Tiwari Tolla, Raja Maidan, Dakhin Darwaja-272002 Phone No : 9956391269 Phone No : 285823 | Basti Alpha Code : BST Station Code: 04209412 Rail Zone : NE Via : FD-MUR | NEEM UREA PH-II (45 KG) No. of Wagons 26 BCN in IFFCO HDPE/ PP Bags |

Indent View

- Requests are usually in the form of wagons when dealing in railway and tons when dealing in trucks.
- There are owned as well as rented wagons and there is a booking that is needed to be done for the rail engines required.
- This demand for rail engines is generated through the website- <https://www.fois.indianrail.gov.in/>



FOIS website view

❖ **Use of ERP under abnormal situations.**

- It is used for correcting any mishappening that has occurred at any phase of dispatchment process.
- Some of the use cases of ERP at IFFCO are provided by the chart.



❖ **Dispatchment distribution by mode of transport (Particularly Urea)**

- Currently IFFCO is using two modes of transport
 1. Railway (80%)
 2. Road (20%)
- The breakdown is determined based on railway terms, where 80% of the total urea production is allocated to meet the transportation requirements of Railways. In return, Railways provide engines and wagons for the transportation of urea.
- There are different loading types that are been seen and different wagon types that are being used. Given below is a matrix of Chargeable Weight-Wagon-Loading Types.

| Wagon Type | Chargeable Weight according to Loading Type | | | | | |
|------------|---|------------|-----------------------------|------------|-----------------------------|------------|
| | CC+4 | | CC+6 | | CC+8 | |
| | Chargeable weight (in tons) | Sack Count | Chargeable weight (in tons) | Sack Count | Chargeable weight (in tons) | Sack Count |
| BCN | 59 | 1306 | 61 | 1350 | 61 | 1350 |
| BCNA | 62 | 1372 | 64 | 1418 | 64 | 1418 |
| BCNAHS | 62 | 1372 | 64 | 1418 | 66 | 1430 |

CC – Carrying Capacity

BCN - Bogie Covered Watertight wagon with cast steel bogie

BCNA - Bogie Covered Watertight wagon with cast steel bogie & air brake.

BCNAHS – Bogie Covered Watertight wagon with cast steel bogie & air brake & heavy load

- The matrix explains about the norms of each wagon type and their carrying capacity in tons for each type of wagon BCN-Light weight, BCNA-Heavy Weight, BCNAHS-Special Heavy Weight. The matrix also shows the capacity in terms of Sack Count.
- The rest 20% is transported by trucks of IFFCO itself which has the capacity ranging in: -

$$18.5 \text{ Ton} < \text{GVW} \leq 28 \text{ Ton}$$

Gross vehicle weight = Unladen weight + Payload

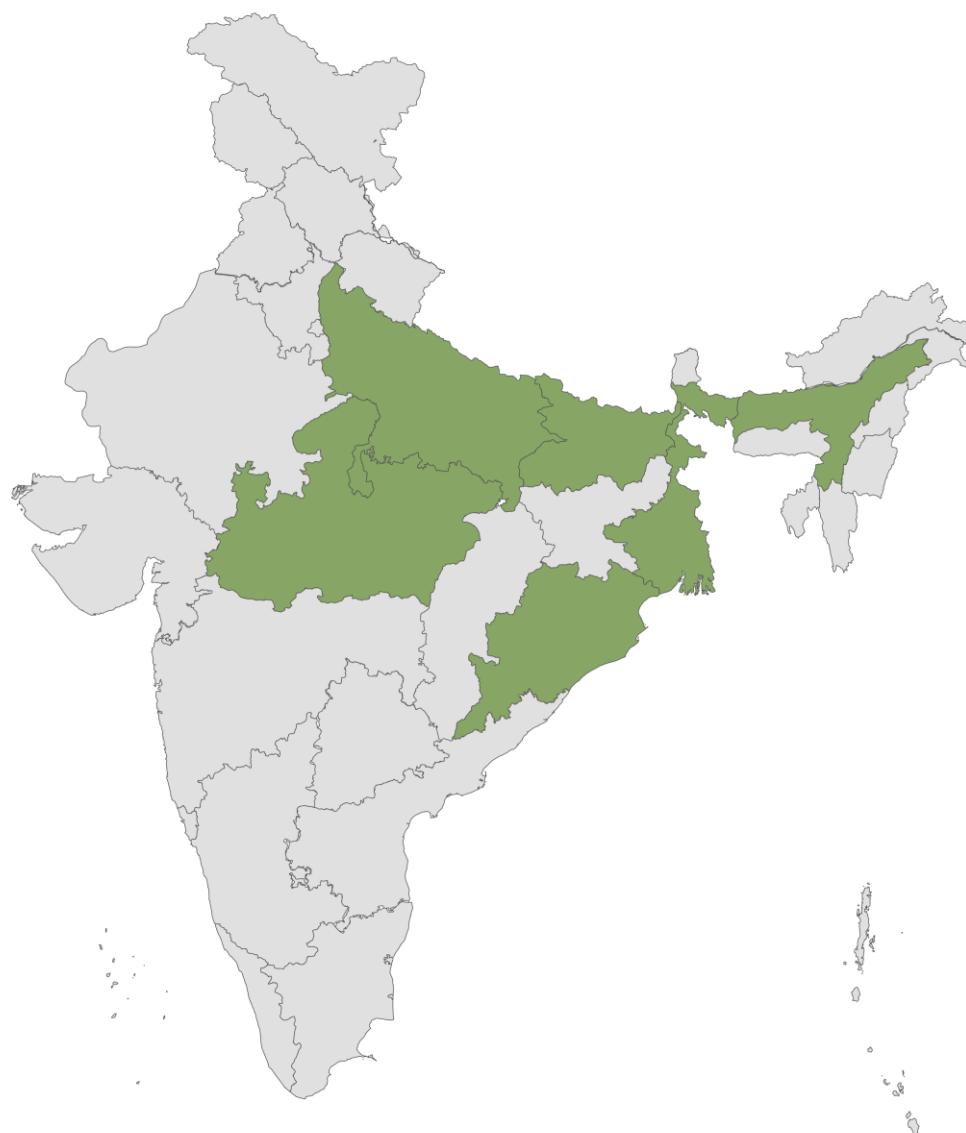
❖ Dispatchment distribution by product

1. Urea (1000-1200 Tons/Day, 6200-6300 units/day)
2. Nano Urea (Quantity uncertain)
3. CORDET Bio Decomposer (Quantity uncertain)



❖ **Dispatchment distribution by region**

- Distribution by both Rail & Road
 1. Uttar Pradesh
 2. Madhya Pradesh
- Distribution only by rail
 1. West Bengal
 2. Assam
 3. Orissa
 4. Bihar
- Export by Rail – Nepal (Nano Fertilizer)



Distribution on Map of India

Phase 2

Methodology

- ❖ Identification of gap was majorly done in this phase.

Findings

- ❖ Gap Identified: - Time taken in cleaning of wagons before loading.



Solution

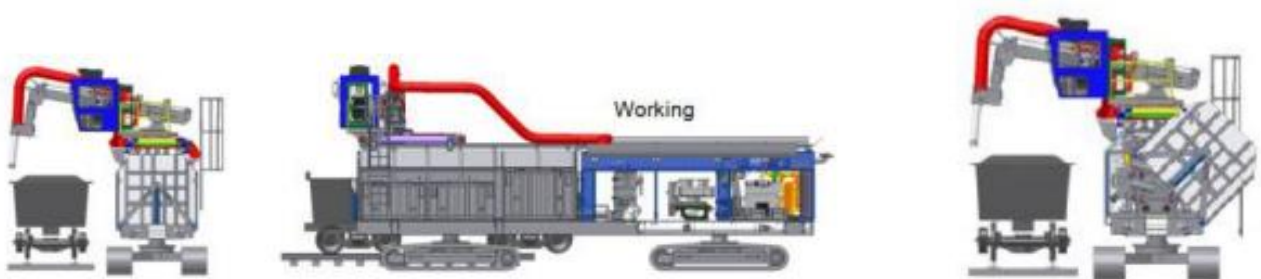
❖ Automating the cleaning process:

- Massive time saving can be done by automating the process.
- Using of Ballast Vacuum Cleaner for cleaning of wagons will automate the full process and make it more effective.
- Ballast Vacuum Cleaner are used for cleaning tracks but research* carried out in Brazil says that by modifying the machine and adding crawler mechanism the cleaner can be used for cleaning wagons as well.
- Companies like Vale are taking advantage of the same technology and has export channels with India so accessibility problem will be removed.

*Note: The attached link of research can be found in the reference section.



Ballast Vacuum Cleaner



Crawler Mechanism

❖ **Time before:**

- Average time taken by 2 labors to clean one wagon = 20 mins
- Activities involved in manual cleaning –
- Cleaning from inside the wagon
 - Collecting dust from outside and putting in sacks
 - Loading of sacks in trucks
 - Dumping of dust
-
- Loading time of each wagon's dust = 1 min
 - Avg number of labors involved (full capacity) = 15
 - Average No. of wagons
(Data taken from Indent) = 42
 - No of wagons cleaned simultaneously (in 20 mins) = $(15-1)/2 = 7$
 - Total Time taken to clean 42 wagons = $20 \times 6 = 120 \text{ mins}$
- $= 120 + 42 = 162 \text{ mins or } 2 \text{ hrs } 42 \text{ mins}$

❖ **Time after:**

- Avg time taken to clean one wagon = 1 min
- No. of wagons = 42
- Average time taken to dump = 10 mins
- Total time taken = $(1 \times 42) + 10 = 52 \text{ mins}$

❖ **Time Saved:**

| |
|---|
| $162 - 52 = 110 \text{ mins per train}$ |
|---|

❖ **Limitations of solution:**

- The solution does not take consideration of cost.
- It assumes that labor working conditions are optimized.
- The machine should have a working life of 720 hours without need major maintenance shutdowns.
- The machine should have a fuel tank designed for at least 24 uninterrupted operating hours.



Labors during working hours

❖ **Other benefits of automation:**

- Work optimization
- Less supervision
- Better Quality
- More synchronization
- Only one driver required
- Wait time for other trains is reduced.

Managerial Implication & Further Scope of Study

The results and conclusions of the study shows that these institutions can be great opportunities for Agri-Operations Managers who want to contribute in developing & managing robust supply chain channels.

As here the contribution was made by using operations concept:

- Project 1: Reducing Cost
- Project 2: By giving plans to reduce time.

Integrating a huge and diverse workforce through one platform and ensuring the network stability And longevity is a huge task as well as scope for learning as a manager.

Use of new technology like IoT (Internet of Things) & ERP (Enterprise Resource Planning) gives direction to IFFCO to opt and implement more advanced tech in future like Artificial Intelligence for further smoothening the operations.

Moment of Student



At Plant Entrance



Campus View



IFFCO Main Gate

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- <https://rdso.indianrailways.gov.in/uploads/files/know%20indian%20railways%20wagon.pdf>
- <https://www.sap.com/india/products/erp/what-is-erp.html>
- <https://loram.com/wp-content/uploads/wagon-cleaning-vale-oliveira.pdf>