

THE INDIAN AGRICULTURE INDUSTRY SUPPLY CHAIN MANAGEMENT: A CRITICAL STUDY

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ABSTRACT

Indian Agriculture/Agro Industry (IAI) is a key piece of Indian culture and economy. Roughly 50 percent of the complete populace depends on this industry as a guideline wellspring of pay and it contributes around 14 percent of India's GDP. Indian food business has expanded to US\$ 250 billion out of 2015 when contrasted with US\$ 220 billion in the year 2009 and expected to become further quickly in the following ten years. Indian Agriculture is a world chief as far as creation of numerous item classes accordingly, on one hand commitment of colossal populace, rising interest, ranch automation, increment in worldwide business sectors, and so forth, offer tremendous potential for this industry. The study examines the Indian Agriculture supply management system. The paper however sought to explain the structure of the Indian supply chain management system, the associated supply chain issues and challenges in the Indian agro industry and expantiate on the poor dissemination of information and knowledge. The research employed secondary analysis of data with information obtained from independent and governmental related materials and websites. The key result is that states who haven't yet suffered. Makers of agro items are getting only 30–35 percent of the market cost in the greater part of the cases because of absence of Supply chain rehearses. Yearly wastages of farming yield are likewise extremely high which in money related term summarizes to around Rs 90,000 Crore. This wastage is principally because of an insufficient Supply chain foundation. This paper sought to recommend solutions to the supply chain management gaps of the Indian Agriculture Industry in the areas of de-monopolizing the industry, encouraging private sector players and exploring Cost saving techniques and initiatives

KEYWORDS: Agro Industry, Indian Agriculture, Real-Time Information, Supply Chain Management, Supply Chain Network

Article History

Received: 04 Jun 2021 | Revised: 11 Jun 2021 | Accepted: 22 Jun 2021

INTRODUCTION

In India, Agriculture is the fundamental unit of Indian culture and around 600,000 towns comprising of generally 65 per cent of the complete populace is occupied with the farming creation it the foundation of Indian economy. Likewise Agriculture area in India is that biggest area wherein in excess of 110 million ranchers are locked in. This area has huge commitment in the GDP and fare income too whereby its information adds up to 26per cent and 1/6th separately. As of now, India is following China, the biggest food maker of the world and turning into a main maker of numerous item classes around the world.

Indian horticulture has enormous prospects of development. Certainly, India can turn into the food bin of the world. Disregarding being a significant benefactor in the economy, Indian horticulture is the most misused, exceptionally

sloppy and generally divided area. The term Supply chain can be characterized as a cycle where all individuals from the worth chain i.e., the clients, sellers and all outsider coordination specialist organizations are interrelated and incorporated so that the merchandise and the data are made accessible at the most appropriate time. This data voyages easily from the initiation highlight the utilization point lastly guarantees a better an incentive than all the organization individuals. In Indian agribusiness there is too long Supply tie network because of the presence of numerous middle people who make long hole between the customers and the ranchers (makers). Therefore, the makers (ranchers) are uninformed about request and get the misshaped data, being made at the utilization side (known as Bullwhip Effect) along these lines denying them of ongoing data. On a basic level, accessibility of continuous data is the way to achievement of any Supply chain model. Further, presence of a considerable number of channel individuals' get the significant segment of the pie. Accordingly, ranchers get less value; there is value heightening at each connection subsequently destroying the entire Supply chain. Indian agro and nourishments industry is likewise misfortune and wastage inclined. The investigation has demonstrated that around 14.8 per cent, which further sums up to Rs 90,000 crore is squandered yearly by going through every single Supply chain levels lastly the retail level. Indian Agriculture is likewise reviled with issues like low efficiency, tremendous post-reap misfortunes, and extreme abuse of ranchers by brokers, nonsensically low cost of agro items got by ranchers, a lot of post-collect wastage, and so forth. These issues adversely affect the appeal of the business. This paper distinguishes a portion of the above issues of the Indian Agriculture which are fundamentally because of nonattendance of satisfactory Supply chain framework, non-accessibility of ongoing data to ranchers about market cost of their agro items, presence of too long Supply chain organization, helpless coordination foundation and so forth.

LITERATURE REVIEW

over 58 percent of the provincial family units rely upon farming as the guideline methods for work". Mehta et al., expresses that "horticulture alongside its partnered businesses like fisheries and ranger service is probably the biggest supporter of the Gross Domestic Product (GDP) which represents almost 14% of it and around 11% of India's fare" (Indian Brand Equity Foundations, 2017). It is additionally a significant wellspring of crude materials to number of enterprises. As indicated by Singh India is the eighth greatest exporters of farming items alongside United States and the European Union. As per the report of The Central Statistics Office, "Agribusiness alongside its associated areas contributes essentially to the GDP of the nation. For instance ranger service and fisheries have huge commitments which were 15.35 % of the Gross Value Added (GVA) during 2015–16 at 2011–12 costs". Singh further included that in the year 2012 yearly percentage wage increment in India's fare was 22 % and it represented 2.6 % of complete world horticultural fare. At present, the creation of food grains in India is around 245 million tons which will ascend by 25% for example 307 million tons constantly 2020.

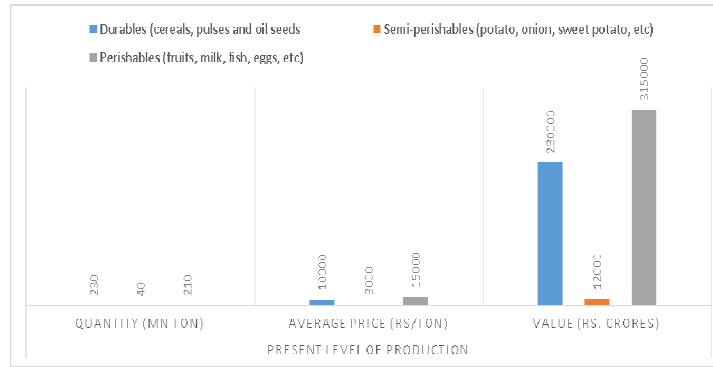
The Economic Times Intelligence Group (ETIG) in its investigation of generally situation of Indian Agriculture uncovered a few realities as indicated by its report; India has the second biggest arable land (161 million hectares) and watered land (55 million hectares) on the planet. It has been accounted for as the biggest makers of wheat (72 million tons) on the planet and contributing around 15 % of worldwide wheat creation; second biggest maker of heartbeats with the creation of 15 million tons. This sums for 21 % of worldwide heartbeat creation. India likewise acquired the pride of turning into the biggest maker of milk on the planet by delivering 96 million tons, which adds to the 17 % of worldwide milk creation; mango (around 10 million tons for every annum) from a region of 16 lakh hectares and now India is among the biggest developing and exporter of flavors on the planet. The rundown doesn't end here, India has become the second

biggest maker of tea which further records for almost 28 % of the worldwide tea creation. It has additionally enlisted its name among the biggest maker of rice by contributing up to 22% of worldwide rice creation. The sugarcane delivered in India additionally represents a huge bit of worldwide creation which is up to 21%. As indicated by the FOBICS, as gotten from IBEF 2013, "The Indian food industry which as of now remains at near US\$ 135 billion with a CAGR of 10%, is required to contact US\$ 200 billion by 2015". It incorporates leafy foods, fisheries, milk and milk items, meats and poultry, mixed refreshments and soda pops separated from essential nourishments like, wheat, rice, maize, and so forth. A quick development in Health food and wellbeing food supplement is another developing area having high potential because of the ascent in wellbeing cognizant populace. This examination likewise distinguished the significant downsides of Indian farming. This distinguishes that despite being one of the significant food makers of the world, India has under 1.5% of commitment in the worldwide exchange surprisingly. As indicated by Department of Land Resources of Government of India, (2013), the horticultural profitability is as of now 50% of what it is in numerous other countries. As indicated by Agrawal, "The chief issue for the Indian Agriculture is the misfortunes and wastage. As much as 10 to 20 % is lost when the agro items arrive at the retail level basically because of helpless Supply chain framework. There is lost 14.8% on a normal adding up to Rs 87, 800 crore a year as displayed in Figure 1b". ETIG just as NMCC itemized out in their reports that Indian horticulture is experiencing multifold issues of wasteful activities. Around, 20% of the complete food created is squandered here (www.etfoodprocessing.com). As per an examination led in 2015 by CIPHET, a Government office, it has been accounted for that creation of food in India is high alongside its wastage and upto to 67 million tons of food is squandered each year in India. This tremendous wastage is equivalent to the public yield of Britain and enough to take care of any huge territory of India for the entire year. Agrawal, identifies some of the important reasons for this huge loss.

The failure in taking care of the produce, lacking storeroom, helpless coordination and transportations, bother invasions and so forth, are significant territories of worry among strategy creators. Circumstance is more terrible with transitory items as they are more inclined to rot and decaying. The risk of bug pervasion, troublesome climate alongside the nonattendance of present day cold storerooms add further to these wastages. Distinguished that 1,000,000 tons of onions get died while in transit to business sectors just as 2.2 million tons of tomatoes. Similarly around. 5 million eggs break or turns terrible because of inappropriate storerooms. Indeed, even minimal decreases in these misfortunes will undoubtedly improve the salary level of the ranchers. Deloitte, in its investigation found that Indian agro industry is experiencing numerous insufficiencies, for example, wasteful storerooms, helpless force Supply and absence of adequate cold storerooms because of which practically 40% of all out products of the soil are squandered en route to the business sectors. Wastage level has additionally expanded to around 30–35 % of the all-out creation which in money related terms comes to around Rs 85,000 Crores. The Economic Times Intelligence Group (ETIG) report additionally recognized that the Supply chain organization of Indian Agriculture Industry is excessively long including at any rate 5–6 individuals in the middle of rancher and purchasers in particular, town consolidator as well as commission operator, locale commission specialist/dealer, distributor, sub-distributor, lastly the retailer. Dasgupta contended that this long chain of middle people includes significant measure of cost at each level, subsequently prompting excessive costs at the customer level. Besides this additionally reveals not many brokers in the demonstration of storing and making counterfeit Supply insufficiency on the lookout. Agarwal clarified that toward one side customers need to address significant expenses while at the opposite end, ranchers get immaterial costs for their produce. Purchasers in India burn through 3–4 times of the rancher's costs in contrast with the created nations, where customers simply burn through one and a half to multiple times the rancher's genuine cost. Thusly, significant segment of the agro and food items costs paid by Indian customers is disseminated among

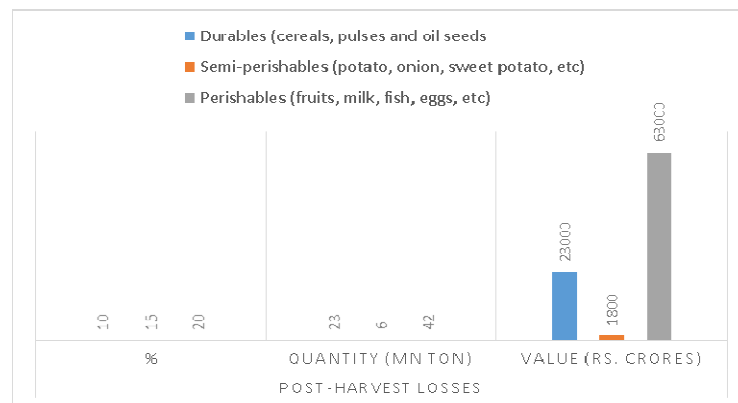
the direct individuals in the middle. Dasgupta further distinguished that wholesalers, retail merchants and food preparing organizations are now and again suspended to purchase yield legitimately from the ranchers. The representatives in the middle of defer installments to ranchers for quite a long time, the mediator at mandi charge commission from both the dealers (rancher) and the purchaser (the metropolitan retailer/food processor). All these at last gets climb costs at the last customer level. By and large, ranchers get around 35 % of the market cost of their produce in the majority of the cases. Appropriation of edge among Supply chain network individuals is portrayed in Table 2 (ETIG).

The most noticeably awful part is that food items really cost more in India, which has a plenitude of food, than in different economies where food is a shortage. The presence of a sizeable number of Supply chain network individuals, go-betweens, there is significant disintegration of value, increment in wastage level because of helpless taking care of and ranchers get just a tiny part of market cost of their items. It has been discovered that the vast majority of the value increase occurs in the possession of this enormous number of middle people. Supply tie failure is basic to Indian Agriculture. These shortcomings are basic at each stage from creation to circulation to advertising to infrastructural advancement. In addition, there is nonappearance of productive associations between rural examinations, augmentation programs, advancement of yield, continuous market data and so on. There is likewise absence of productive system in the general farming worth chain. One can't locate any reasonable model for farming credit and account which is again significant for development and advancement of the business. In the light of given auxiliary slack and the framework complexities, there is a need to create popularized horticulture outfitted with high specialized expertise with accessibility of compelling credit offices and market impedances. This position can be accomplished large corporate houses alongside other fruitful agri-business houses approach to put resources into this area. This is thusly accepted that an interest driven farming formative technique is the need of great importance. Such technique can possibly use the positive part of Supply chain in this way expanding ranch salaries. There is an incredible open door for ranchers to catch the expanding request and increment their pay level. Vertically coordinated homesteads and markets have loads of potential to develop. In an investigation led, by Fa champs et al., it was accounted for that "that little data courses about imperceptible yield qualities. Little data was discovered to be exchanged on assortments, planting time, pesticide and compost use. Producers do get a value premium for perceptible qualities of the yield, for example, drying, evaluating and pressing. These ascribes serve to lessen exchanges expenses to merchants, thusly they are just esteemed by brokers and don't convert into unit value premium further down the worth chain. Vertical joining was not found in this examination bunch in India aside from little separated pockets". There is a wide hole regarding accessibility of data, information, working connections, mechanical improvement for ranch motorization, attributes of market, and so on between the ranchers and the business sectors. These holes have a great deal of antagonistic effect on ranchers just as purchasers and the most profited gathering of individuals is just mediators (Supply chain network individuals) among ranchers and buyers. Because of the presence of many organization individuals, there is further mutilation of accessible data. Numerous scientists have set up that the way to achievement of many Supply chain is the keen utilization of data. It is additionally settled that Information Technology (IT) can possibly connect ranchers and shoppers straightforwardly. The accomplishment of present day horticulture relies on ongoing data stream and information sharing. Every individual from the Supply chain to a great extent relies on opportune and exact data for different choices. That is the reason; associations like Indian Council of Agriculture Research (ICAR), National Informatics Center (NIC) in India and world association like FAO (Food and Agriculture Organization) have been endeavoring to give quality data administrations to help the farming area for speed and dependability, better correspondence; eliminating geological limits; person to person communication; and improved less expensive availability when contrasted with print media.



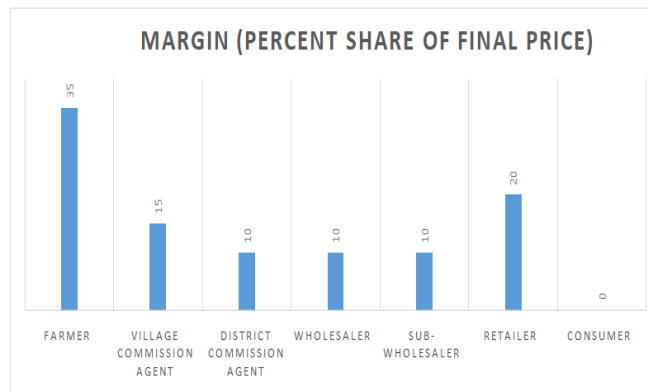
Source: Agrawal, 2005

Figure 1: Wastage Levels of Indian Agro and Food Products – Present Level of Production.



Source: Agrawal, 2005

Figure 2: Wastage Levels of Indian Agro and Food Products – Post Harvest Loss.



Source: Agrawal, 2010

Figure 3: Margin Share Between Farmer and Supply Chain Network Members.

OBJECTIVES

- To analyze the supply chain issues and challenges in the Indian Agro Industry.
- To shed light on the poor dissemination of information and Knowledge.
- To decisively explain the Indian Agriculture supply chain network structure.

RESEARCH METHODOLOGY

The present study is based on secondary data collected from multiple institutional and government websites have provided an opportunity for researchers to use their experience of climate change in the study. The examination technique utilized for this investigation is a sensible mix of a broad writing study for identification of different key components of Supply chain related issues and difficulties of Indian agro industry and an inside and out experience review of secondary data drawn. The value of this data collection strategy is that it provides the researcher the opportunity to have in-depth information from a broad variety of outlets, including policy and association study. This research provides detailed analysis of the many diverse aspects in the analysis of the Indian agriculture industry and the structure of the industry's supply chain management system.

Supply Chain Issues and Challenges in Indian Agro Industry

The pitch of Supply chain lies in the coordination and relationship with different channel accomplices i.e., providers, delegates, outsider specialist organizations and furthermore the purchasers. These channel accomplices catalyze the smooth progression of merchandise benefits alongside related data all through the organization. Generally, in Supply chain the board coordinates Supply and request the executives inside and across firms and all key business measures from the end client for augmentation of significant worth to all organize individuals by end of duplication or reiteration of comparative work, end of non-esteem including network individuals, counteraction wastages and harms, accessibility of ongoing data, and so on" With every one of these points of interest Supply chain the board can be an amazing asset to address the issues looked by Indian agro industry. Through Supply chains, ranchers (makers) have constant access of showcasing data and information. They utilize this data and information for improving their worth included administrations. The Supply chain the executives benefits the association by decreasing the misfortunes and costs, expanding the deals, guaranteeing alluring item quality and security. Supply Chain likewise supports the scattering of innovation (which is a lot of wanted in Indian farming), capital and information among the different channel individuals. Improvement of Supply chain benefits Supply chain members as well as brings social, conservative and maintainable natural advancement by creating greater business openings, esteem expansion and a noteworthy decrease in the item misfortunes. These preferences when utilized in farming purpose a large portion of the innate issues. While dissecting the situation of Indian horticulture, it is evident that predominant Supply chain frameworks and practices are to a great extent ordinary in nature coming about into amateurish and customary outlooks. Creating and having an all-around expressed Supply chains in this industry is perplexing cycle and challenge that requires satisfactory data and specialized aptitude for building chains and guaranteeing obstacle free correspondence and duty from all the Supply chain accomplices. This needs an appropriate system to be manufactured. Based on cautious examination of Indian Agro industry, it is perfectly clear that there is critical measure of misfortunes and wastages coming about into crumbling of worth. In the Supply chain viewpoints, such a terrible and disturbing situation is winning because of following reasons:

Poor Dissemination of Information and Knowledge

The accomplishment of any Supply chain framework requires information and continuous spread of all significant data all through the chain. To fabricate an effective serious position the Supply chain technique must be by and large planned by all the channel accomplices. It is essential for each channel accomplice to obviously perceive the customers alongside the new serious climate winning in the farming area. As such, there must be full perceivability of data among taking an interest individuals from the Supply chain. The significant data incorporates information about interest, promoting, coordination,

quality, data stream, explicit part of significant worth expansion of every part, innovation, present stock position, income, and so forth which must be accessible on ongoing reason for the smooth working of chains overall. Above highlights when applied to Indian agribusiness gives a totally different picture. Ranchers have next to no or no information about different parts of the Supply chain. ETIG just as NMCC recognized that that Indian horticulture is doomed by huge no. of issues. Its Supply chain is customary and stayed unaltered which upset its effective activity. Chaotic business sectors keep on ruling the area. Just 2 % of the all-out food market in India is composed. The purposes for this insights are little land property, poor monetary position and ignorance of the ranchers driving frantic selling, absence of information about market cost and market openness, absence of dealing power, nonappearance of gauging input to ranchers to change crop blend to expand advantage, and so forth Further, Supply chain arrangement of Indian agribusiness is fixated on different impediments like presence of huge no. of negligible/little ranchers, nonattendance of economies of scale, broken down Supply chains, disorderly and low degree of significant worth expansion exercises, insufficient framework of advertising of rural products.etc. Sajjad obviously expresses that Indian horticulture can be become through the presentation of productive appropriate Supply chain foundation. This implies that all ranch produce ought to be made accessible to the shoppers at correct spot, time and amount alongside right cost. This is just conceivable when the requests will be appropriately estimated and decided. On the off chance that the rancher neglects to foresee legitimate interest it prompts vacillation of interest between Supply chain stages. This change further fuses another perilous wonder known as - Bullwhip Effect, in which counterfeit and unbelievable interest is indicated accordingly misinforming all the partners in question. Over the span of involvement overview, it has been discovered that ranchers have been limited purposely from scattering of essential information about showcasing, coordinations and new advances. They have been kept from dynamic contribution while reacting to changing economic situations in the vast majority of the cases. Coupling of Information Technology with present day cultivating methods brings about various advantages. For instance, there are confirmations where ranchers have been engaged with the assistance of broad utilization of data innovation that thusly, tended to many Supply chain related issues of ranchers. For instance, after the enormous accomplishment of E-Chaupal, International Business Division of Indian Tobacco Company (ITC), runs Aqua-Chaupal in Andhra Pradesh for Shrimp ranchers. It is an electronic stage helping shrimp ranchers of Andhra Pradesh with ongoing data on climate and current logical cultivating rehearses. It likewise outfits ranchers with the information on winning business sector costs, techniques to improve profitability and lessen exchange costs at their doorsteps. This model encouraging ranchers from numerous points of view including testing quality seeds and giving them to ranchers, sharing constant data on price tag of ITC just as different organizations, arranging of value items for trade purposes, and filling of data Gap between the ranchers and the business sectors. ITC additionally runs Soya-Chaupal at Madhya Pradesh, Wheat-Chaupal at Uttar Pradesh and espresso Chaupal at Karnataka. Service of Agriculture, Government of India runs Kisan Call Centers (KCC) through a complementary number the nation over for giving data to the questions of ranchers in local language. It likewise interfaces ranchers and researchers for answers for their particular issues identifying with horticultural and related field issues, for example, fisheries, veterinary, dairy and so forth.

In the writing overview, it has been discovered that misfortunes and wastage level in Indian agribusiness is exorbitantly high and around Rs 85,000 Crores essentially because of helpless coordination framework all the more explicitly material taking care of, warehousing, and transport offices. The aspect of the Supply chain the executives which helps in the viable and proficient forward and in reverse progression of merchandise/benefits alongside its appropriate stockpiling exercises is known as Logistics Management. Coordinations is additionally answerable for the progression of

continuous data between the inception focuses to the utilization point guaranteeing esteem moves to a definitive buyers. Its exercises includes inbound and outbound transportation, the board of armada, treatment of materials, warehousing, satisfaction of requests, planning coordinations organization, the executives of stock, arranging of Supply/request, and furthermore to oversee (IPL) Third Party Logistics Services Providers. Coordinations in India needs to confront numerous difficulties because of huge size, lopsided topographical conditions, enormous populace, nonappearance of basic foundation, successive common cataclysms and so forth There is nonappearance of expert networks which can bring incorporated frameworks way to deal with coordinations the executives. Hardly any monster public area associations like the Central Warehousing Corporation (CWC) and Food Corporation of India (FCI) have been set up by government to give all out coordinations answers for improve the presentation of agro Supply chain however they are experiencing their own framework shortcomings.. As indicated by, "the last expense of securing wheat and rice by FCI ascending from Rs 1,411.9 and Rs 2,039 for every quintal (2015–16 assessments) to Rs 2,181.7 and Rs 3,038.9, separately, Grains which are to be appropriated through (PDS) Public Distribution System are redirected. As the grains move from government goes downs to the reasonable value shops a few spillages emerge in the middle. Accordingly, modest grain is redirected out of the shadows market and sold at more exorbitant costs by a gathering of mafia containing state authorities, carriers and apportion retailers. The current arrangement of grain the board is another wellspring of shortcoming of these goes down. Pundits contend that by clutching grain well over the recommended cushion stock cutoff points, FCI causes noteworthy holding costs. Further, on account of helpless storerooms, these stocks regularly wind up spoiling". In this way, we see that there is a need to give cautious consideration towards the regions of coordinations and Supply chain the executives in Indian agro industry. This territory is being neglected from long time. Consumption on coordinations in India is low when contrasted with created nations. It just burns through 3% of its GDP in coordinations, when contrasted with a normal of 10 % in other created nations. More than 50 % of cost in India contains Transportation and stock. With the presentation of better Supply Chain Management, the Logistics costs have diminished worldwide from 12.2% to 11.7%. It has portrayed before that there is an enormous measure of misfortunes as far as wastages of significant worth. These misfortunes are because of accessibility of helpless coordinations framework and all the more explicitly, ill-advised dealing with, absence of transportation and capacity foundation and numerous treatment of agro items. Capacity is the best issue in the Indian Agro Industries. In mid-2001, there were reports that ranchers in Punjab unloaded their harvests close to the stockroom and didn't guarantee them by any means. There are obstacles in transportation too-with products of the soil voyaging significant distances from ranch to mandi (commercial center) in open trucks and farm haulers, losing quality, weight, water and numbers along helpless streets. Since, potato is a significant harvest in India, in 2000, India had 297 cold stockpiles with capacity limit of 14 lakh huge loads of potato. 90 % of all chilly stockpiles were for potatoes. India created up to 30 lakh huge loads of potatoes in 2001 which has expanded upto 480.08 Lakh tones in the year 2014–15. In such manner the Agra Cold Storage Owners Association (ACSOA), has made a thankful stride in expanding stockpiling limit of potatoes at Agra. It has the putting away limit of around 2.2 million tones. The area adds to 7 % of the complete cold stockpiling limit accessible in the nation leaving Punjab, MP, Maharastra, and Karnataka much behind. In addition this sort of capacity framework isn't accessible over the horticulture overwhelmed zones of the nation. The Bhabha Atomic Research Center (BARC) in Mumbai has polished illumination methods for a long time. Illumination of potatoes can diminish growing and waste down to 10 %. Accordingly, potatoes can be put away at 15 degrees Celsius, a lot higher than the 2 degrees Celsius that would somehow be required. That is a direct cost saving. Given that 92 % of all cold stores in India are for potatoes, the potential for savings just by this technique is enormous. Some of the hurdles that create problems in the supply chain due to poor logistics infrastructure are

- Lack of storage facility at farm level reducing quality and quantity
- Lack of large-scale transport from farm to trader/mandi resulting into high cost of piecemeal transport
- Shortage of weighing scales, stocking space, manual cleaning and open air storage during most of processes reducing quality and quantity

Too Long Supply Chain Network Structure

While looking at the supply chain of Indian agriculture, it has been found that different actors are linked in the network to achieve effective and consumer-oriented flow of products. These actors include a good number of members like growers, pickers, packers, processors, storage and transport facilitators, marketers, distributors, wholesalers, and retailers. With so many stakeholders present in the overall chain there is a need to reanalyze the existing pattern of trade along with its peculiar environment of product flow, exchange levels, forces affecting the operation of the supply chain such as governmental policies, etc. This reanalysis will help in distinguishing potential Supply chain players and accordingly the entire framework can be recovered to expand the proficiency of generally speaking Supply chain. Accomplishment of a Supply chain as far as effectiveness, adaptability, advancement, and responsiveness relies upon a solid and coordinated Supply chain network structure dependent on the various parts of the Supply chains basic achievement factors. Through experience study, it has been recognized that India is as of now confronting absence of coordinations foundation coming about into more individuals (seven to eight) in the Supply chain network structure when agro items arrive at buyers. Worth expansion is simply as far as coordinations (development or accessibility) which might associate with 20 % by network individuals from the homestead door while coming to in the possession of purchasers yet ranchers (makers) get pretty much 25–35 % of the retail estimation of the nourishments as shown in Table 3. Above Table obviously portrays that there are least seven individuals in the middle of ranchers who produce agro and food items and last buyer. From Supply chain points of view, such a long chain is coming about into esteem destroyers and not esteem including Supply chain individuals in India. Neither ranchers are getting a sensible return nor shoppers discover genuine incentive in items as far as newness and cost. In other essential nourishments, returns are as low as 25–35 % of the last cost. As such, while costs are unavoidable and may not be conceivable to decrease past a specific breaking point, the edges included at each stage can and should be diminished. Moreover, too long Supply chain network structure brings about failure and helpless market reactions since enormous number of delegates brings about huge storing, all the more misusing, expanded conveying and creation costs and at last securing of working capital. Besides the long chain is likewise answerable for absence of coordination, cooperation and trust incorporating which results with helpless relationship among the channel individuals.

There are specific confirmations ranchers are improving cost of their agro yields Supply chain network has less individuals. For instance, Marico Industries in the year 2003 set up Marico Innovation Foundations (MIF) to construct a drawn out relationship with the copra ranchers. Marico acquires Copra legitimately from ranchers through 8 authoritative and 6 social areas particularly in south India. It offers preparing to the ranchers on present day ranch rehearses and further gathers the produce through different assortment communities set up at advantageous spots for ranchers. Alongside guaranteeing standard Supply to Marico, these assortment communities guarantee reasonable costs and purchasing assurance to the ranchers. Marico has additionally set up a copra gateway where sellers and copra providers could offer/provide cost estimates on the web. Roughly 5000 ranchers have been profited by this undertaking of Marico. Marico is additionally connected with the Coconut Development Board. Because of standard preparing gave to ranchers, the sellers have now become more confident and don't need to rely upon specialists and mediators for their dealings. Due to the

realtime idea of the exchanges, they settle their records consistently and oversee income effectively. Another model is of Gujarat Cooperative Milk Marketing Federation (GCMMF), (which is famously known as AMUL) has three level framework in which ranchers are in direct contact with the organization with no delegate. This example is famously known as Anand Pattern. In this example, AMUL structures a town helpful society including essential makers. This general public is under the direction of a Milk Supply Officer of Co-usable Dairy Union (locale level helpful which possesses the preparing plant). Any milk maker can turn into the part. He has simply to pay ostensible expenses and should consent to sell milk just to the general public so as to have smooth, consistent assortment. This further guarantees ordinary showcasing of milk and milk items alongside accomplishing economies of scale. In this example of helpful, the ranchers with just 2–3 dairy animals likewise sell legitimately to the agreeable society. The conventional mediators (merchants, consolidators, drivers, wholesalers, and so on) who are so powerful in other rural items' market, are prominently missing in 'Amul Model' coming about into decrease in obtainment cost, reasonable and better cost than milk ranchers and nature of milk. Thus, ranchers are paid up to 90 % of the market cost of milk. As indicated by the rate chose in the year 2015–16 ranchers are paid Rs. 42.50 per litter for milk containing 7 % fat and 9 % Solids Not Liquids (SNL) (www.amul.com) In request to use Supply chain of Indian horticulture, it is fundamental to rebuild the organization by dispensing with or disintermediating a portion of the individuals from the ordinary framework. For this purpose, farmers' cooperatives and contract farming should be encouraged by the Government. This adds:

- More value and better return for all stakeholders,
- Faster and better responses to new needs and opportunities
- Leveraging pooling of resources and expertise of all supply chain partners to gain more competitive strengths.

To diminish number of individuals from the Supply chain organization, government has just taken activities at public level in the ongoing past. Public Agriculture Market (e-NAM) is a container India brought together electronic entrance where ranchers can straightforwardly sell their produce. It interfaces all the business sectors shaped under Agriculture Produce Committee (APMC). As of now 585 business sectors are being associated with this entry. Generally, ranchers sold their items through the physical Mandis or Bazar Committees which were profoundly clumsy and collected various obligations on their items. Under e-NAM, there is just one permit for the each State and obligation is exacted distinctly on one point. Costs are chosen through electronic sale. It is currently encouraging the change of the entire state to one market. The ranchers are straightforwardly presented to the business sectors and accessible costs. They can settle the cost and afterward sell their produce. This framework is more straightforward and has encouraged ranchers improve cost for their agro items.

CONCLUSIONS

Having specified the issues, issues and difficulties looked by Indian agro and food industry regarding Supply chain the executives and potential arrangements that can be adjusted at both miniature and large scale levels, there is an expanding function of the private area in essential nourishments, and continued and decided government endeavors for strengthening of rancher and unwinding of guideline will be imperative, among different activities. Past these means, an incorporated way to deal with a few parts of the Supply anchor must be taken by all partners as there is gigantic extension for Supply chain streamlining in Indian agro and food industry thus, composed coordination administration industry (3PL) has an extraordinary chance. Indian food Supply chain is excessively convoluted for one single player, so the pattern will be

towards building up an organization of specific accomplices and assembling win-win arrangements. One coordinated progression of data must create to deliver what is needed, to decrease costs fundamentally because of inventories not being noticeable all through the chain and to guarantee interest by exchange of long haul associations. The benefits of the Supply chain the board approach in Indian farming are various. It diminishes the misfortunes of items during transportation and capacity. Supply Chain Management in horticulture expands the business which further outcomes into better re-visitations of all partners. It brings dispersal of innovation and data about the progression of items, progressed procedures, capital and information among the chain accomplices. In nutshell Supply chain brings better control of item wellbeing and quality

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APPENDIX

Table 1: Wastage Levels of Indian Agro and Food Products

Commodity	Post-harvest Losses		
	%	Quantity (mn Ton)	Value (Rs. Crores)
Durables (cereals, pulses and oil seeds)	10	23	23000
Semi-perishables (potato, onion, sweet potato, etc)	15	6	1800
Perishables (fruits, milk, fish, eggs, etc)	20	42	63000
Total	14.8	71	87800

Source: Agrawal, 2005

Table 2: Margin Share Between Farmer and Supply Chain Network Members

Supply Chain Network Members	Margin (Percent Share of Final Price)
Farmer	35
Village Commission Agent	15
District Commission Agent	10
Wholesaler	10
Sub-wholesaler	10
Retailer	20
Consumer Not Applicable	Not Applicable

Source: Agrawal, 2010

Table 3: Supply Chain Members and Their Functions Along With Margin Addition

Supply Chain Member	Function/Value Addition	Margin Added (%)
Farmer	Production	
Consolidator	Aggregation of produce of small farmers at village level	10–15
Commission Agent	Negotiation, selling to trader and demand-supply matching	10–15
Trader	Consolidation at district/mandi level	15-20
Commission Agent	Large scale demand-supply matching and arranges for sale to wholesalers in city	10–15
Wholesaler	Reselling to retailers	10–20
Retailer	Sells to consumers	20-30

Source: Agrawal, 2010

