

Survey of Literature on the Opportunity and Constraints for Vegetable Production in the Rural Areas of Bihar

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ABSTRACT

Vegetables are important constituents of Indian agriculture and nutritional safety due to their short period, high yield, nutritional richness, economic viability and ability to generate on-farm and off-farm employment. Increasing per capita income, health consciousness, urbanization, increasing working women, shifting of farmers to high value vegetables due to higher revenue, favourable income elasticity of demand and annual growth rate for vegetables are also important ingredients for fuelling vegetable growth in the country. Bihar is the largest producer of vegetables, which is dominated by Potato, Onion, Eggplant (Brinjal) and Cauliflower. Although having abundant natural resources, the state of Bihar has continued to lag behind in terms of agricultural development up until recently. Survey of literature review on the opportunities and constraints for vegetable production in rural areas of Bihar. Simple random techniques are used while interviewing some farmers, observation method is also used instead of questionnaire. Data analysed though collected data shows opportunities and constraints in vegaculture. We have some findings regarding vegetable farming or we can say that overall study on vegaculture.

Keyword- Bihar, vegetable production, agriculture, opportunities, constraints, horticulture, vegaculture

INTRODUCTION

The word vegetable was first recorded in English in the early 15th century. It comes from old French, and was originally applied to all plants; the word is still used in this sense in biological contexts. It derives from Medieval Latin vegetabilis 'growing, flourishing' (i.e. of a plant). The meaning of 'vegetable' as a 'plant grown for food' was not established until the 18th century. In 1767, the word was specifically used to mean a 'plant cultivated for food, an edible herb or root'. The year 1955 noted the first use of the shortened, slang term 'veggie'.

VEGETABLE PRODUCTION IN INDIA

After China, India ranks second in vegetable production in world. India grows the largest number of vegetables from temperate to humid topics and from sea-level to snowline; vegetables are excellent source of vitamins, particularly niacin, riboflavin, thiamine and vitamins A and C. they also supply minerals such as calcium, and iron besides proteins and carbohydrates. Vegetables combat under nourishment and are known to be cheapest source of natural protective tools. Most of the vegetables, being short duration crops, fit very well in the intensive cropping system and are capable of giving very high yields and very high economic returns to the growers. Major vegetables grown in India are Potato, Onion, Tomato, Cauliflower, Cabbage, Bean, Egg Plants, Cucumber and Garlic and Okra.

India's diverse climate ensures availability of all varieties of vegetables. It ranks second in vegetables production in the world, after China. As per National Horticulture Database published by National Horticulture Board, during 2013-14, India produced 162.89 million metric tonnes of vegetables. The area under cultivation of vegetables were at 9.36 million hectares (source- NHD 2014).

VEGETABLE PRODUCTION IN BIHAR

There has been an organizational shift in the economy of Bihar from primary sector to the services sector in terms of income share in the last one and a half decades. However, agriculture still governs the economy, supplying over a quarter of the state income and accounting for employment of about 70% of the rural labour force. Hence, full-bodied growth of the agriculture sector holds the key for economic and social development of the state. Keeping this in view, the Government of Bihar has tossed many ingenuities for refining throughputs growth in crop and livestock sectors. These include the development of irrigation, firming up the input supply and postponement programmes, and the introduction of market reforms and farm mechanism.

In Fruit cultivation, it is the largest producer of lychee and third largest producer of pineapple, as well as major producer of Mango, Banana, and Guava. Sugarcane and Jute are the two other major cash crops of Bihar.

Bihar lies in the river plains of the basin of the river Ganga. It is endowed with fertile alluvial soil ground water resources. This makes the agriculture of Bihar rich and diverse. Rice, Wheat, Maize are the major cereal crops. Arhar, Urad, Moong, Gram, Peas, Lentils and Khesari are one of the pulses cultivated in Bihar.

The economy of Bihar has witnessed structural transformation in the last one and half decades. Agricultural sector occupies a prominent place in the structural changes of the economy with a significant contribution to the state's income and rural employment. Under various olericulture development schemes, beneficiaries are advised first to purchase the required items such as olericulture implements using their own capital and then get reimbursed through DBT. But due to reported inefficiencies in the working of DBT (Direct Benefit Transfer) schemes, particularly since those schemes are based on a reimbursement mode. Stakeholders mentioned that land is constraint in the development of nurseries and there is a need for a specific policy to promote growth of nurseries.

CROPPING SYSTEM BIHAR

The net sown area in Bihar is 60% of its geographical area. This percentage is much higher than the all-in average of 42%. Such a high percentage of cultivated land is possible for two reasons:

1. Most of Bihar is plain area suitable for agriculture.
2. Most of the forest had been converted into farmland during the last 2000 years.

Currently land under forest constitutes only 6% of the area. South Bihar is a productive agricultural centre, while North Bihar is hindered by its flood and drought prone geography. In the south, the Ahar - Pynes system of agriculture has long been used to cultivate crops.

FOOD GRAINS

In Bihar rice is cultivated in all districts. Autumn rice, Aghani rice and summer rice are three different varieties of rice grown at three different times of year. The average production of rice is around 5 million tonnes every year. Some 5 decades back, Wheat cultivation was very restricted to western districts of Bihar. After success of Green Revolution Wheat was planted by Bihari farmers on a larger scale and wheat now occupies the status of major crop of the rabi (spring) season. The average annual wheat production is approximately 4-4.5 million tonnes. Maize is also cultivated, with an annual average production level of approximately 1.5 million tonnes and a steady positive trend in production. The leading producer districts are Khagaria and Saharsa. Pulses such as moong, Arher, peas and Khesari are grown more in southern than in northern Bihar. The leading districts are Patna, Bhojpur, Nalanda and Aurangabad.

HORTICULTURE

Bihar is one of the major producers of vegetables and fruits in India with 9.8 and 6.7 percent of national production respectively. It ranks third and sixth among other states in the production of vegetables and fruits respectively.

FRUITICULTURE

Bihar is one of the largest producers of fruits and vegetables in the country. Bihar accounts for 71% of India's annual litchi production. Makhana cultivation is done in about 5000 hectares in the entire country, and produces 90% of the world's fox nuts. In fruit cultivation, the third largest producer of pineapple, as well as a major producer of mango, banana, and guava. Few Bihari farmers are turning to Strawberry cultivation for better economical return. Also, better economical return has attracted former to cultivate Kamalam (Dragon fruit). Corrigendum one of the world's costliest crops is now under cultivation in Bihar by few farmers.

VEGACULTURE

The total area under vegetable cultivation is currently about 11% of the state's gross sown area, and is increasing. The important vegetable crops include potato, onion, tomato, Cauliflower, and Brinjal, Hajipur in Vaishali is famous for an early variety of cauliflower that reaches market in the last week of September. Production of vegetables is well dispersed over the districts, with a concentration of production in some particular districts. Apart from Patna and Nalanda (Jehanabad), where vegetable production is quite extensive, the other districts with high shares in total vegetable production are Vaishali, Muzaffarpur, West Champaran, East Champaran, Katihar and Begusarai. **ANIMAL HUSBANDRY**

The Dairy co-operative was founded in 1983 to coordinate the work of various local milk unions. The government opened Nalanda Dairy Plant in Eastern India. The establishment of Sudha was a result of White Revolution. In January 2021, the organisation had decided to make two new dairy plants in Bhagalpur and Purnia districts operational by the next three-four months each with a capacity of 2 Lakh litres per day. The setting of new plants would help to enhance the income of the milk producers of the region. In year 2020, Bihar Government started a dairy plant of 5 lakh litres per day and an annual fodder plants in the state, the government has released a sum of RS 53 Crores to comfed as first instalment out of RS. 234 Crores. In 2018,

Bihar state Milk co- operative federation, is known as Sudha, planned at consolidating its market in Guwahati before expanding its reach to other states of the Northeast.

agriculture.

A. IMPORTANCE: _____ In rural areas of Bihar, vegetable production is of great importance due many factors. Some of the important motives are as follows:

- i.**Reduced Dependence on Imports:** By promoting vegetable production in rural areas, the state can decrease its dependence on imports, improving its food security and self-sufficiency.
- ii.**Refined livelihoods:** Vegetable production can contribute to improved livelihoods and poverty reduction in Bihar rural areas. With increased income and employment opportunities.
- iii.**Employment:** The production, harvesting, and processing of vegetables require labour, and this can create jobs for large numbers of local people, particularly women and youth in rural areas of Bihar. So that, we can say, vegetable production can also create employment opportunities in rural areas.
- iv.**Income:** The state's favourable climate and fertile soil provide good conditions for vegetable cultivation, which can generate income for farmers and their families because vegetable production can be profitable enterprise for smallholder farmers in Bihar.
- v.**Nutrition:** A diet rich in vegetables provide essential fibre, minerals and vitamins, which are crucial for maintaining good health and protecting chronic diseases.
- vi.**Food security:** Vegetable farming provides consistent supply of fresh vegetables to the rural population. In this way contributes to food security.
- vii.**Environmental Benefits:** vegetable farming can be done using organic farming practices, which minimizes the use of harmful pesticides and fertilizers and chemicals. That is why, vegetable farming can be sustainable environmentally.
- viii.**Development in rural areas:** By promoting entrepreneurship, building local supply chains, and improving infrastructure, vegetable production can also contribute to the overall development of rural areas of Bihar.

B. OBJECTIVES OF THE STUDY

The main objective of the study is: -

- To analyse the problems faced by the vegetable growing farmers, vendors, and consumers.
- To study vegetable growing scenario of Bihar rural areas.
- To find out the limitation of vegetable cultivation.
- To find out opportunities for vegetable production in the rural areas of Bihar.
- To catch on constraints for vegetable production in state's rural extents.
- To improve the nutrition and food security of the population.
- To generate source of income for rural farmers themselves and their families.
- To create employment opportunities in rural areas, especially for youth and women.
- To diversify vegetable production in rural areas, reducing reliance on a single crop and increasing resilience to climate change and other shocks.
- To examine the investment made in agricultural marketing and market related infrastructure in Bihar after repeal of APMC act,
- To find out the factors responsible for lack of investment in agricultural marketing and market related infrastructure in Bihar.
- To suggest ways and means to promote investment in agricultural marketing and market related infrastructure in Bihar.

C. HYPOTHESIS:

- Vegetable farming in rural Bihar is a gainful and sustainable agricultural activity that provides employment, income, and nutritional benefits to the local population.
- The availability of suitable land, favourable weather conditions, access to irrigation, and availability of labour make vegetable farming a viable option for small and marginal farmers.
- Additionally, the demand for fresh and organic farming, vegetable farmers can maximize their products and minimize their production costs.
- Vegetable production has the potential to contribute to the overall development of Bihar's rural areas by improving the economic status of farmer's, promoting entrepreneurship, and enhancing food security and nutrition.
- Vegetable production has many opportunities in developing the economy of Bihar.
- Despite constraints vegetable farming has vital importance and efficiency in contributing to SGDP.

D. LIMITATIONS:

There are several factors that can limit vegetable production in rural areas of Bihar, including:

1. Lack of irrigation: In rural areas, where vegetable is largely rain-fed, drought and water scarcity are major limiting factors. Bihar is primarily an agrarian state, but access to irrigation facilities remains a major challenge.
2. Climate change: Bihar is vulnerable to climate change, which can affect the availability of water and the timing of planting and harvesting. Erratic rainfall patterns and extreme weather events can also affect crop productivity and yield.
3. Soil fertility: Most parts of Bihar have poor soil fertility due to excessive use of chemical fertilizers and poor management practices. This leads to low productivity and yield, which limits the potential for vegetable production.

4. Limited technical knowledge: Many farmers in rural areas lack technical knowledge about vegetable production. This can limit their ability to adopt modern farming practices and improve their yields.
5. Pest and disease management: Pests and diseases can cause significant damage to vegetable crops. Farmers in rural areas often lack knowledge about pest and disease management and may not have access to appropriate pesticides or other control measures.
6. Limited access to credit: Rural farmers may face difficulty in accessing credit to invest in their vegetable production. This can limit their ability to purchase inputs, such as seeds and fertilizers, and to make necessary improvements to their farms.
7. Lack of access to market: Many rural areas in Bihar lack adequate infrastructure for transportation and storage of vegetables. This can lead to spoilage and loss of crops, reducing the profitability of vegetable production.
8. Study is mainly based on secondary data collected through literature review.
9. The chances of biasness can be happened.
10. This study is limited to Bihar only.
11. This result can't be generalized to whole country.

E. REVIEW OF LITERATURE

- 1) Samridhii: Redesigning the vegetable supply chain in Bihar. By Bhavna Anjaly and Vaibhav Bhamoria- success story of Kaushalendra Kumar, founder and managing director of Knids Green Pvt. Ltd. Journey of vegetable start-ups from small outlet to become brand name "Samridhii". And empowering the marginal farmers of Bihar financially. And help them to face the future challenges in the emerging economic environment of India.
- 2) Availability and post-harvest losses of fruits and vegetables in Bihar: Economic Analysis-By Meera Kumari, Shoji Lal Bairwa, Lokesh Kumar Meena and Sk. M. Rahman- post-harvest losses are very high in fruit, vegetables and root crops as they are much less hardy and are quickly perishable,

and if care is not taken in their harvesting, handling and transport, they soon decay and become unfit for human consumption.

- 3) Food, Agriculture, and Nutrition in Bihar: Getting to zero Hunger- By Soumya Gupta, Shubh Swain, Bhaskar Mittra, Naveen Sridhar, and Nikita Tiwari- This report presents a food systems approach for achieving sustainable development goal 2 (SDG2)- Zero hunger by 2030 in Bihar, India.
- 4) An Insight of Redesigned Vegetable Supply Chain in Bihar Through Co-operatives-by Dr. K. P. Ranjan- The present study undertakes a thorough review of basic facilities available and attempts to identify the business problem in the supply chain of vegetable sector in Bihar.
- 5) Documentation of the Experiences of Pilot projects of Diversified Kitchen Gardens (Homestead Farming) by Mr. Aditya Mohan, Ms. Priyanka Rani and Dr. Jaison, Senior Program Lead. – To capture the existing practices of homestead farming and its impact on food security, promotion of bio-diversity and protection of environment.
- 6) A survey on vegetable production and productivity on some selected vegetable growing belts of South 24 Parganas district of West Bengal by Prasenjit Kundu and Tapan Mandal-In this study we just find out overall scenario of vegetable farming. Vegetable production has been affected by several production and marketing constraints.
- 7) An analysis on problems of vegetables marketing in Farmers' market of Bihar-A Case Study in Samastipur District by Soniyo Yomichan, and Mr. Siddhartha Mundre. – The study aims to analyze the problems of marketing vegetables in farmers' markets of Pusa block and also analyze the price gap between procurement price and selling price.
- 8) Investment in Agriculture Marketing and Market Infrastructure-A case study of Bihar by Dr. Vijay Intodia- Present study has been undertaken to understand that to what extent reforms measures in terms of repeal of the act has affected investment in agricultural marketing infrastructure. And the factors which are influencing the investment in the food sector.

Bihar is one of the largest vegetable producing states in India, with a significant portion of the population dependent on agriculture for their livelihood. The state has a diverse agro-climatic condition, which makes it suitable for the cultivation of various vegetables. However, despite its potential, vegetable production in Bihar has been facing various challenges, including inadequate irrigation facilities, low availability of quality seeds and fertilizers, lack of proper market infrastructure.

Several studies have been conducted to assess the status of vegetable production in Bihar. A study by Kumar et al. (2018) found that farmers in Bihar face challenges in accessing quality seeds and fertilizers, which significantly affect the yield and quality of vegetables produced.

Another study by Mishra et al. (2019) noted that the lack of post-harvest infrastructure and market facilities often result in significant losses for farmers, leading to a decline in their income.

However, despite these challenges, some success stories of vegetable production in rural areas of Bihar have also been reported. For instance, a study by Singh and Kumar (2020) reported that farmers who adopted scientific methods of vegetable production, including integrated pest management and balanced fertilization, achieved higher yields and better-quality vegetables.

Another study by Kumar and Kumar (2019) found that farmers who adopted organic farming methods for vegetable production, using locally available resources, significantly increased their income.

In conclusion, the literature suggests that vegetable production in rural Bihar faces several challenges, including inadequate irrigation facilities, low availability of quality seeds and fertilizers, and lack of proper market infrastructure.

However, farmers who adopt scientific and organic methods of vegetable production have reported success, which can potentially improve the livelihoods of rural communities in Bihar.

CONSTRAINTS FOR VEGETABLE PRODUCTION

During 1950 to 1990, not only per hectare production was less but also per capita labour production was not upto the mark. There are lot of reasons for unsatisfactory development in Indian agriculture, which are given below

Human Problems

Pressure of population on agriculture- The population in India is increasing at a rapid pace and exerts heavy pressure on agriculture. Agriculture has to provide employment to a large section of work force and has to feed the teeming millions.

Conditions of agricultural labourers- From the very beginning, Landlords and Zamindars exploited labourers and converted some of them as slaves or. All this led to wretched condition and total deprivation of the rural masses.

Loss of land quality- Indian soils have been used for growing crops over thousands of years without caring much for replenishing it. This has led to depletion and exhaustion of soils resulting in their low productivity.

INSTITUTIONAL PROBLEMS:

Faulty Land System: The distribution of agricultural land in India is not fair. Rather there is a considerable degree of concentration of land holding among the rich landlords, farmers and money lenders throughout the country.

Uneconomical Land Distribution- In India, the size of agricultural holding is quite uneconomic, small and fragmented. There is continuous sub- division and fragmentation of agricultural land due to increasing pressure of population and breakdown of the joint family system.

Ineffective Development Policy- The farmers in India have been adopting orthodox and inefficient methods and techniques of cultivation due to ineffective development policy. It is only in recent years that the Indian farmers have started to adopt improved implements like steel ploughs, seed drills, barrows, hoes etc. but it is to a limited extent only.

TECHNICAL PROBLEMS

Lack Of Use of High-Quality Seeds- Distribution of assured quality seed is as critical as the production of such seeds. Unfortunately, good quality seeds are out of reach of the majority of farmers, especially small and marginal farmers mainly because of their exorbitant prices.

Use Of Traditional Agriculture Techniques- In spite of large-scale mechanisation of agricultural in some parts of the country, most of the agricultural operations in larger parts are carried on by human hand using simple and conventional tools and implements like wooden plough, sickle etc.

Inadequate Irrigation Facilities- Indian agriculture is still suffering from lack of water supply through artificial irrigation facilities. Thus, the Indian farmers have to depend much upon rainfall which is neither regular nor even.

Inadequate Storage Facilities- Storage facilities in the rural areas are either totally absent or grossly inadequate. Under such conditions, the farmers are compelled to sell their produce immediately after the harvest at the prevailing market prices which are quite low.

ECONOMICAL PROBLEMS

Insufficient Credit Facilities-

In India, there is a lack of credit facilities for agriculture. Even today, a large number of farmers are dependent upon money lenders, merchants etc. They charge high rate of interest and farmers are caught in a situation of debt- trap.

Faulty Marketing Facilities- Inadequate transportation facilities, improper roads, lack of storage facilities, faulty marketing management etc. are some of the reasons for low income of farmers.

Poor Breed of Animals- Sowing, ploughing etc. are affected because of poor breed of animals. It is one of the reasons for poor output in agriculture.

NATURAL PROBLEMS

Dependence on monsoon- Indian agriculture is heavily dependent on monsoon which is irregular in nature and hence many areas are either drought or flood affected.

Natural Calamities- Hailstorm, floods etc. are also prevalent in Indian agriculture.

Soil Erosion- Sometimes due to high wind pressure, soil gets eroded which degrades the fertile soil and hence production decreases.

OPPORTUNITIES IN VEGETABLES PRODUCTION**Equipment & Technology Suppliers**

- New technology in F & V processing.
- Cold chain & pack-houses- Farm level, logistics, end product storage and at a point of retail.
- Packaging technology.
- Food testing labs with latest equipment and technology.

F & V Processors

- New product development- Health, food, traditional food, nutraceuticals.
- Convenience foods.
- Beverages- Indian traditional beverages like nimbu panni, coconut water etc.
- Processed ingredients for ice creams, yogurt, beverages etc.

Exports

- During 2014-15, India exported fresh fruits and vegetables worth USD 1.2 Billions. Mangoes, Walnut, Grapes, Bananas, Pomegranates, account for bulk of the fruits exported from the country while Onions, Okra, Bitter Gourd, Green Chillies, Mushrooms and Potatoes contribute largely to the vegetable export basket.
- The major destinations for Indian fresh fruits and vegetables are UAE, Bangladesh, Malaysia, UK, Netherland, Pakistan, Saudi Arabia, Sri Lanka and Nepal.
- India's export of processed Fruits and Vegetables was around USD 0.5 Billion in 2014- 15, which majorly included Dried and Preserved vegetables and Mango Pulp.

NEW JOBS AND ECONOMIC OPPORTUNITIES:

Horticulture crop production create jobs. On average it provides twice the amount of employment per hectare of production compared to cereal crop production. The move from cereal crop production towards high-value horticulture crops is an important contributor to employment opportunities in developing countries. The horticultural commodity chain is also longer and more complex than the cereal crop one and as a result job opportunities are more are more abundant. Women have the most to benefit from the increasing importance of horticulture in rural economies.

Women, in general, play a much more significant role in horticulture crop production compared to starchy staple crops. Throughout the developing countries of Africa, women play a dominant role in the production of horticulture crops and cultivate more than half of the total smallholdings. Besides creating jobs on the farm, the horticulture sector also generates off farm employment, especially for women. This is the case for export and value-added processing industries, which are important sectors of the economy of Ethiopia. Since horticulture production is very labour- intensive, landless labourers also benefit from the new employment

opportunities created by horticultural crop production. These jobs usually provide more income than jobs obtained by the labourers in most other sectors.

HIGHER INCOME AND STRONGER RURAL ECONOMIES:

Horticulture crop production provides new and profitable sources of income for farmers. The production of horticultural crops can be especially important for small-scale farmers since these crops are well suited to smallholdings and family enterprises and are often adaptable to urban areas and small plot gardens. Horticultural crops have a comparative advantage over cereal crops when land is scarce and labour is abundant, which is often the case in developing countries. Studies from the developing countries of Asia and Africa consistently show that farmers engaged in the production of fruits and vegetables earn higher net farm incomes than farmers engaged in cereal production alone.

Horticultural production contributes to the overall growth of markets and agri-businesses in rural economies. Studies show that the agro industrialization process has been faster for non-traditional products such as fruits and vegetables. In many African countries, export horticulture is providing opportunities in an otherwise poor agriculture sector.

METHOD AND METHODOLOGY

I. **Selection of survey topic-** “A survey of literature on the opportunity and constraints for vegetables production in the Rural areas of Bihar” was undertaken so that the findings of the study describe the vegetables production scenario as well as problem of vegetable farming and its solution.

II. **Research Design-** The study was based on descriptive research design. Accordingly, after a thorough and meaningful formulation of the problems, specific objectives were decided.

III. **Location of the survey area-** Randomly selected some rural areas of Bihar. Ex-Pusa, Harpur, Maniyari, Mushari

IV. **Sampling procedure-** data collection was organized using multistage random sample survey method. purposive as well as simple random techniques were adopted for the study.

V. **Selection of study area-** selection of the blocks, selection of respondents.

VI. **Study period-** the period of literature study is January 2022-January 2023

VII. **Data type-** Qualitative as well as quantitative.

VIII. Source of data collection-**✓ Primary source: -**

- Observation
- Personal interview
- Focus group discussion

✓ Secondary source: -

- Journals
- Magazines
- Websites
- Literature review
- Government publication
- Organisational reports. Etc.

DATA ANALYSIS

The study was conducted on 50 farmers, which include small, marginal and medium and were selected from three different villages of Muzaffarpur block and Pusa block, 25 vendors. The analysis was done on a 3point scale, the constraints will be marked according to the intensity of the problem faced by respondents of each village. The point ranking was given as, mark 3 to 2 for highly intensive issue, mark 2 to 1 for intensive issue and mark ‘–’ for less intensive issue.

The problem faced by the vegetable growers of all the villages are almost same, since the farmers are having a maximum of 5-10 katha of vegetable cultivation or some have nearly 1 acre land under which the farmers cultivate vegetables and cereals crops along with pulses, since all the farmers are small and marginal type, they are not supported by any subsidies or schemes, the input cost and cost for irrigation is too high. Even though the farmers suffer all the pains by taking loans and from money lenders and banks, after harvest they are again disappointed because they don't receive good price for the produce, perishability of the produce, lack of cold storage and regulated market which provide to lack of cold storage facility. The local vegetable

vendors in all villages had similar constraints, the highly intensive problem faced by the vendors in villages are perishability of commodity, lack of good storage and warehousing facility so that the produce can be stored and sold in the peak season, now they have to sell the commodities directly after the harvest and the next level of intensive constraints are seasonality of the vegetables, market fluctuations and various players or commission agents. The least intensive constraint as the vendors responded was that lack of cold storage facility and financial issues.

FIDINGS OF THE STUDY

- ✓ There are very less supports available to small land holding farmers.
- ✓ The major constraints faced by the vegetable sellers are perishability of vegetables, lack of good infrastructural facility of storage of the vegetables, grading and sorting. The market price fluctuations are also big issues to vendors.
- ✓ The least intensive constraints faced by the growers are perishability of product, price gap between procurement and selling, bulkiness of products, seasonality of production.
- ✓ The storage and transportation are the major constraints faced by the vendors. The vegetable due to the perishable nature have to be harvested at the right time and should be marketed, so the vendors need transportation facility in which the produces will not be destroyed.
- ✓ The highly intensive problems faced by the vegetable growers are lack of irrigation facility, large input cost to small land holding farmers, lack of regulated market, lack of marketing channel, higher cost of storage, and higher cost of irrigation.
- ✓ The vegetables have to be irrigated from seedling to harvesting up to 8-10 times, the cost for irrigation ranges from Rs. 100-150 for diesel motor for 1 hour for 1 katha and 80-120 for electric and solar pumps.
- ✓ There are very less supports available to small land holding farmers.
- ✓ Even though many blocks of Bihar is surrounded by rivers and water bodies, during summer (starting from March till July) the farmer suffer big problem of irrigation.

CONCLUSION

It can be concluded that the system of vegetables marketing in rural areas of Bihar has not proved to be adequate and efficient. Farmers are not getting surplus and they face widespread distress sales, particularly by marginal and small farm households. The vegetable markets are suffering certain structural weaknesses, like existence of unorganised small farmers or producers, weak storage capacity of the small producers, and the absence of good infrastructure, grading, cold storage and processing units.

The vendors or traders in the vegetable market is another chain the connect farmer and the consumer, they also face problems storage and transportation. The vegetables due to the perishable nature have to be harvested at the right time and should be marketed, so the vendors of the studied area are in demand of good transportation facility in which the produces will not be destroyed. The other constraints include faced perishability of vegetables, lack of good infrastructural facility of storage of the vegetables, grading and sorting. The market price fluctuations are also bog issues to vendors.

There exists rate of high-level problems in marketing vegetables from farmers to consumers. The highly intensive problem faced by the farmers are lack of irrigation facility, higher cost of irrigation, higher cost of storage, lack of marketing channel, lack of regulated market, large input cost to small land holding farmers. The moderate level of constraints faced by vegetable growing farmers are transportation, seasonality of yields. And finally the less intensive constraints were perishability of product, seasonality of production, bulkiness of products, price gap between procurement and selling.

RECOMMENDATIONS AND SUGGESTIONS

- ❖ Strengthening of the marketing infrastructure by increasing the number of market places, upgrading the facilities at the designated marketplaces, constructing cold storages and go downs.
- ❖ Timely supply of the quality inputs, irrigation facility especially seeds and fertilizers.
- ❖ Training on modern methods of production should be provided to the farmers before vegetable sowing or propagation of appropriate practices suited to small and marginal farms.
- ❖ Promotion of contract farming through vertical integration with large marketing and vegetable processing firms.

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