Business Model for India International Horticulture Market in Sonipat (Haryana)

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10.18805/BKAP879

ABSTRACT

Background: The horticulture sector in India faces a significant challenge due to the high perishability of produce, resulting in substantial losses in quantity, quality and producer returns. To mitigate these challenges, the India International Horticulture Market (IIHM) has been established in Sonipat, Haryana, as a world-class facility capable of managing large volumes of produce from auction to processing and market distribution while maintaining quality standards. IIHM will serve 17 states and provide dynamic business opportunities. The study primarily focuses on exploring business opportunities and their financial viability within the IIHM framework.

Methods: The study was structured around two primary objectives: (i) to study and analyse various revenue generation streams for the fruits and vegetables wholesale market and (ii) to identify parameters for different revenue models and prepare a business model for each combination. Data collection involved brainstorming sessions with officials from the fruits and vegetable wholesale market, analysis of detailed project reports (including the Rungis Market) and a study of Asia's largest wholesale spice market in Delhi. Seventeen distinct revenue generation streams were identified, which were examined under four principal revenue models: renting, outright sales, revenue sharing and collaboration. Simple mathematical and statistical tools were employed for data analysis. Calculations for the rental model were performed using input information, such as area and rate per square metre, provided by the National Council of State Agriculture Marketing Boards, applying a 1.5% annual growth rate after an initial two-year gestation period. Rates for outright sales, revenue sharing and collaboration models were determined by aiming to surpass the income generated through the rental model.

Result: The rental model emerged as the most financially viable among the seventeen streams, while the success of outright sales, revenue sharing and collaboration was contingent on pricing structures and partnership levels. Financial projections over 12 years demonstrated significant revenue potential, exemplified by Shops and Sheds under the rental model generating Rs. 9,61,87,50,000. The findings emphasise the necessity of incorporating growth rates into lease models to ensure long-term profitability.

Key words: Business model, Horticulture, Rental, Revenue, Wholesale.

INTRODUCTION

Agriculture is the prime importance to human beings. Without agricultural produce, no one can imagine surviving. The influence of the monsoon and market on the farm, farmer and farming sector is increasing day by day due to global warming and to some extent, political interference (Patel, 2022). Agriculture sector is facing various difficulties in marketing of its production. Farmers face challenges in getting fair prices for their produce. Government of India has taken various initiatives to address the problems (Gulsia, 2022). Agricultural marketing in India plays a pivotal role in connecting farmers with consumers and ensuring that agricultural produce reaches markets efficiently. Despite significant progress in production, the marketing system remains fragmented and often biased against smallholder farmers (Hussain and Singh, 2017). Indian agricultural marketing system is suffering from various problems *viz*. improper warehousing, lack of grading and packaging, inadequate transport facilities, presence of large number of middlemen, malpractices of traders, inadequate market information and insufficient funds *etc.*

Most agricultural produce in India is sold to private moneylenders often those to whom farmers are indebted or to local traders who operate within village networks (Agricultural Marketing: Agricultural Marketing in India, 2022). Wholesale markets serve as central aggregation points, collecting produce from diverse sources and redistributing it to meet the needs of urban and rural retailers nationwide. These markets are also important for government procurement programs and, therefore, require well-developed physical infrastructure and robust regulatory frameworks (Halder and Pati, 2011).

Agriculture, like any enterprise, remains sustainable only when it ensures positive net returns for producers.

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How to cite this article: Raghav, R. and Mathur, A. (2026). Business Model for India International Horticulture Market in Sonipat (Haryana). *Bhartiya Krishi Anusandhan Patrika*. **41(1):** 32-39. doi: 10.18805/BKAP879.

Submitted: 21-08-2025 **Accepted:** 16-12-2025 **Online:** 15-01-2026

Efficient and transparent market systems help farmers realize fair prices, which are crucial for their income stability and livelihood security (Bhardwaj *et al*., 2011; Joshi and Singh, 2015). Marketing efficiency directly impacts both the producer and consumer, emphasizing that production and marketing together determine agricultural profitability. However, India's marketing landscape is highly diverse markets differ by geography, crop type and trading practices. Farmers may sell produce in local weekly mandi, nearby village fairs, or periodic town mandis, depending on accessibility and available market linkages (Agricultural Marketing: Agricultural Marketing in India, 2022).

Recent studies emphasize that improving agricultural marketing requires innovation in both infrastructure and business models. The emergence of e-commerce platforms and wholesale hubs has created opportunities for integrating technology into agri-value chains (Dong, 2016; Manohar, 2012). Efficient supply chain management and better logistics are essential to reduce post-harvest losses and improve the flow of fruits, vegetables and spices across regions (Halder and Pati, 2011; Mason-D'Croz *et al*., 2019). Sustainable and innovative business models are also gaining importance in transforming agricultural markets toward resilience and inclusivity (Chesbrough, 2010; Evans *et al*., 2017; Clinton and Whisnant, 2019).

Ultimately, agricultural marketing in India stands at the intersection of production, policy and innovation. There is no compulsion on the producer to sell their produce in APMC market yards, producer are quite free to sell directly to private companies or private market yards or farmers' consumer markets under amended APMC Act (Hussain and Singh, 2017). Also, to enhance farmer income and ensure food security, markets must evolve through better infrastructure, regulation and adoption of sustainable business models. A comprehensive approach integrating traditional market mechanisms with modern strategies can help India achieve equitable growth in its agricultural sector (Brealey *et al*., 2012).

The World Union of Wholesale Markets (WUWM), which has a specific section dedicated to the retail market format, defines the retail markets as those premises, usually covered buildings, which unite a variety of commercial establishments and retail entrepreneurs that provide a wide commercial offer of food products of daily consumption complemented by other non-food products and all this under a unity of management. It is time to concede that production and marketing together benefit farmers and consumers. It should be considered that each market requires a customized analysis and unique intervention, as there are no two equal markets, nor two equal cities, nor two equal groups. Also, products are sold in various ways. For example, it might be sold at a weekly village market in the farmer's village or a neighboring village. If these outlets are not available, then produce might be sold at irregularly held markets in a nearby village or town, or mandi.

Maurice and Mary (2009) examined the performance of India's agricultural marketing system and analysed the economy-wide implications of an improved marketing efficiency system in India and concluded that greater investment in agricultural markets and efficiency in India's agricultural supply chains have the potential to enhance agricultural growth over the longer term. New policies lead to rapid investment by modern retailers and others in transforming India's markets and more efficient agricultural marketing is likely to strengthen consumer demand for food and other goods.

Traditionally wholesale market in India has been a source of potential income (market fees). In recent years, almost all positive and negative fees were either minimized or removed in the wholesale market and at present no alternate sources of revenue are implemented. Gradually revenue stream has taken on a distinct and specialized meaning in the context of wholesale agriculture markets as a novel, undiscovered, potentially lucrative, innovative and creative means of generating income or exploiting the combination of markets. Revenue streams consist of different combinations that can be considered before the implementation of a particular stream in the wholesale market.

Planning Commission (2007) reported that the working group on agricultural marketing infrastructure and policy required for internal and external trade for the XI Five Year Plan 2007-12 have suggested to develop agricultural marketing and market related infrastructure namely rural Primary Markets/Rural Periodic Markets/Rural Haats and setting up of new wholesale markets, Terminal Markets under PPP mode, Farmers Markets, commodity specific markets for fruits and vegetables, specialized flower markets, markets for medicinal and aromatic plants, specialized markets for spices, livestock markets, modern abattoirs under PPP format, modern meat retail markets, cool chain infrastructure and increased warehousing capacity. And, also related infrastructure like farm roads, national Electronic Spot Markets, automated weather stations, centres of Perishable Cargo, food safety infrastructure, good agricultural practices for India gap certification and farmers' organizations should be developed. They estimated the total investment requirement for all the above-suggested infrastructure items is Rs 64,312 crores. Of this, private sector investment has been estimated at the tune of Rs 30,652 crores. Besides, the estimated investment for the food processing sector is Rs 43,000 crores during the XI Five-Year Plan.

The business model for the fruits and vegetables wholesale market in the Sonipat district of Haryana provides a storage infrastructure for growers to trade their products directly into the market. The business model will work on the principles of the hub and spoke model, *i.e*., to deliver the products in the most cost-effective and timely means possible. To make a world-class, modern, wholesale fruit and vegetable platform, the Haryana

government has decided to make use of French expertise in horticultural marketing and develop an India International Horticultural Market (IIHM) in Sonipat. The market will be spread across 537 acres with an investment of around Rs 3000 crore. The government of Haryana has allocated Rs 400 crores recently, while Rs 50 crores have already been spent. Approx. 20 Lakh MT of annual arrival is expected from 17 states of India and downstream services to 12 states, distributing 10 Lakh MT (The Economic Times, 2012). It also includes rules on the marketing of agricultural products and the functioning of producer and inter-branch organizations. Finally, it covers issues related to international trade (*e.g.*, licenses, tariff quota management, inward and outward processing) and competition rules.

About Haryana State Agricultural Marketing Board (HSAMB)

The Haryana State Agricultural Marketing Board (HSAMB) is planning to develop and rope in the private sector to work as service providers at the India International Horticulture Market (IIHM), in the Sonipat district of Haryana and plans to set up 100 horticulture collection centers all over the State.

HSAMB has invited expressions of interest from intending partners from the private and public sectors to work as service providers at the IIHM and the 100 horticulture centers. The Public-Private Partnership route is being taken to combine the vastness of the state infrastructure with the efficiency of the private sector to bring growers better returns and the consumer's fresh produce at reasonable prices.

The board is setting up IIHM at Sonipat in the National Capital Region, in an area of over 537 acres. It will be positioned as a potential hub for the export of fruits, flowers and vegetables from all over the country. First of its kind in the country, the market will be built on international standards. When operationalized, it will offer farmers, consumers and traders access to modern sorting, washing, grading, packaging, waxing, preservation, testing and certification facilities.

Schemes were also prepared for boosting the marketing of horticultural produce in NCR. A Centre of Excellence for horticulture is being set up in each district for the promotion of new horticultural techniques.

The market is developed on the pattern of the Rungis market in China and a special-purpose vehicle would be constituted in it. The Haryana State Agriculture Marketing Board has prepared a special policy for the resettlement of ousters, squatters and allotters. Experts from 5 departments have been working on the completion of this ambitious project.

Objectives of the study

Objective 1: To study and analyze various revenue generation streams for the fruits and vegetables wholesale market.

Objective 2: To identify various parameters for the revenue model and prepare a business model for each combination.

MATERIALS AND METHODS

The study is based exclusively on secondary data collected from authenticated and publicly available sources. The primary sources of data include Detailed Project Reports (DPRs) of wholesale and terminal markets for fruits and vegetables, documents related to the Terminal Market Scheme (TMS), feasibility studies, and official publications of government agencies and agricultural marketing institutions. Information on rates, user charges, rentals, service fees and prices associated with various revenue-generating streams was compiled from DPRs, policy documents, and market-level reports available up to the study period. A descriptive research design was adopted for the study. A business model matrix was developed to assess and compare different combinations of revenue streams in terms of their contribution to overall market revenue, enabling identification of financially viable business models. The collected data were analyzed using tabular and comparative analysis. Simple mathematical tools, such as totals, averages, percentages and ratios, were employed to estimate revenues and examine the relative contribution of each revenue stream.

RESULTS AND DISCUSSION

Various revenue generation streams for the fruits and vegetables wholesale market

These streams were identified after conducting an exhaustive brainstorming session with the officials of the fruits and vegetable wholesale market and also through the analysis of detailed project reports of major markets (Rungis Market).

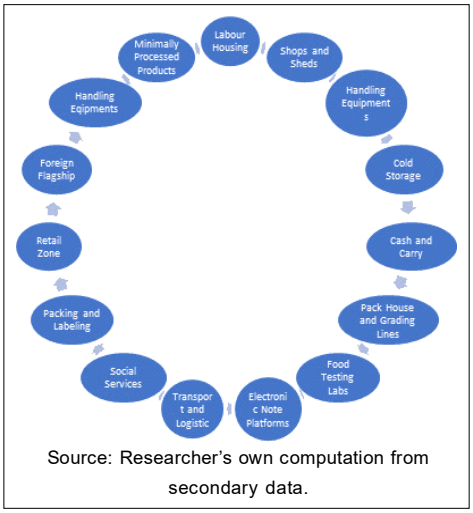
On request, very experienced and knowledgeable members of the organization, the Director of the National Council of State Agriculture Marketing Boards, members of the World Union of Wholesale Markets (WUWM), the Assistant Manager and Managers, along with fellow interns, participated in the brainstorming session to achieve an applicable methodology. Every person put forward his or her opinion and the rest of the members helped in analyzing each idea with their valuable viewpoints.

The overall idea of the brainstorming session proved to be a positive exercise as it concluded in finalizing four revenue models, *viz*. rentals, outright sales, revenue sharing and collaboration to be considered and numbers related to area measurement, rates and even growth rates were achieved.

Based on the brainstorming session and analysis of detailed project reports, the following revenue generation streams for the wholesale fruits and vegetables markets were identified:

Fig 1 illustrates the diversified and interconnected revenue generation streams in a modern wholesale fruits

and vegetables market. The figure presents seventeen distinct yet complementary revenue sources identified through systematic brainstorming and analysis of Detailed Project Reports (DPRs). These streams span across core market operations (such as shops and sheds, cash-and-carry operations, pack houses, grading lines and cold storage), value-added services (including packing and labeling, minimally processed products and food testing laboratories), support infrastructure (handling equipment, labour housing, and logistics services) and enabling services (electronic trading platforms, transport and logistics, social services and retail zones). The integrated framework highlights how operational, service-oriented, and infrastructural components collectively contribute to sustainable revenue generation. This comprehensive set of revenue streams provides a strong foundation for identifying optimal combinations to develop a financially viable and resilient business model for wholesale fruits and vegetables markets.



Source: Researcher's own computation from secondary data.

Fig 1: Revenue generation streams for the wholesale fruits and vegetables markets.

Various parameters for the revenue model and a business model for each combination

The Khari Baoli market, located in Old Delhi, was taken as a prime focus as it is Asia's largest wholesale spice market that deals with all kinds of spices, nuts, herbs and food products like rice and tea and has been operating since the 17th century. The market was studied in detail to understand the Indian market situation.

Rates for each stream in the case of rentals were used to calculate the income to be generated in the set period of 12 years. The total amount generated in 12 years is taken as the base value and the minimum income possible through the stream if rental is taken as an applicable revenue generation model. After this rate, which is to be used while dealing with other revenue models like outright sale and collaboration models, is determined through expected possible return estimation, which has to surpass the income generated through the rental model.

For the various revenue generation streams, first, the calculation through the rental model was done with the input information that was provided by the National Council of State Agriculture Marketing Boards.

Table 1, 2, 3 and 4 shows the input information, like area and rate/square meter, which is used in calculating

Table 1: Calculation through the rental model for various streams such as labour housing, shops and sheds, handling equipment, cold storage, cash and carry, *etc.*

	Labour housing	Shops and sheds	Handling equipment	Cold storage	Cash and carry
Area-sq.m	500	500000	2379924	48562.32	24281
Rate-Rs. /sq.m	5000	1500	1	1500	1500
Growth rate percentage/years	1.5	1.5	1.5	1.5	1.5
Gest. period-years	2	2	2	2	2
Time-years	10	10	10	10	10
Amount inc./years	Rs. 75.00	Rs. 22.5	Rs. 0.015	Rs. 22.5	Rs. 22.5
Return in 2 years	Rs. 50,00,000	Rs. 1,50,00,00,000	Rs. 4759848	Rs. 145686960	Rs. 72843000

Table 2: Calculation through the rental model for various streams such as packhouse and grading and sheds, food testing labs, electronic note platform, transport and logistics and social services.

	Packhouse and grading lines	Food testing labs	Electronic note platform	Transport and logistics	Social services
Area-sq.m	8093	264436	2644	32374	1000
Rate-Rs./sq.m	1500	30	10	1500	1500
Growth rate percentage/years	1.5	1.5	1.5	1.5	1.5
Gest. period -years	2	2	2	2	2
Time-years	10	10	10	10	10
Amount inc./years	Rs.22.5	Rs.0.45	Rs.0.15	Rs.22.5	Rs.22.5
Return in 2 years	Rs. 24281160	Rs. 15866160	Rs. 52880	Rs. 97122000	Rs. 3000000

Table 3: Calculation through the rental model for various streams such as packaging and labelling, secondary processing unit, retail zone and foreign flagship.

	Packaging and labelling	Secondary processing unit	Retail zone	Foreign flagship
Area-sq.m	32374	80937.2	5000	20234
Rate-Rs./sq.m	1500	1500	1500	1500
Growth rate percentage/years	1.5	1.5	1.5	1.5
Gest. Period- years	2	2	2	2
Time-years	10	10	10	10
Amount inc./years	Rs.22.5	Rs.22.5	Rs.22.5	Rs.22.5
Return in 2 years	Rs. 97122000	Rs. 242811600	Rs. 15000000	Rs. 60702900

Table 4: Calculation through the rental model for various streams such as Frozen food section, Minimally processed products and shops and other spaces.

	Frozen food section	Minimally processed products	Shops and other spaces
Area-sq.m	3237	3237	50000
Rate-Rs./sq.m	1500	1500	1500
Growth rate percentage/years	1.5	1.5	1.5
Gest. Period-years	2	2	2
Time-years	10	10	10
Amount inc./years	Rs.22.5	Rs.22.5	Rs.22.5
Return in 2 years	Rs. 9711000	Rs. 9711000	Rs.150000000

Table 5: Total income through the rental model for labour housing, shops and sheds, handling equipment, cold storage, cash and carry, *etc*. in 12 years.

	Labour housing	Shops and sheds	Handling equipment	Cold storage	Cash and carry
Subsequent years			**Income**		
Total (3rd to 12th year)	2,70,62,500	8,11,87,50,000	Rs. 2,57,62,677	Rs. 78,85,30,671	Rs. 39,42,62,737
Total income in 12 years	3,20,62,500	9,61,87,50,000	Rs. 3,05,22,525	Rs. 93,42,17,631	Rs. 46,71,05,737

Table 6: Total income through the rental model for packhouse and grading and sheds, food testing labs, electronic note platform, transport and logistics and social services in 12 years.

	Packhouse and grading lines	Food testing labs	Electronic note platform	Transport and logistics	Social services
Subsequent years			**Income**		
Total (3rd to 12th year)	Rs. 13,14,21,778	Rs. 8,58,75,591	Rs. 2,86,213	Rs. 52,56,72,825	Rs. 1,62,37,500
Total income in 12 years	Rs. 15,57,02,938	Rs. 10,17,41,751	Rs. 3,39,093	Rs. 62,27,94,825	Rs. 1,92,37,500

Table 7: Total income through the rental model for packaging and labelling, secondary processing unit, retail zone and foreign flagship.

	Packaging and labelling	Secondary processing unit	Retail zone	Foreign flagship
Subsequent years		**Income**		
Total (3rd to 12th year)	Rs. 52,56,72,825	Rs. 1,31,42,17,785	Rs. 8,11,87,500	Rs. 32,85,54,446
Total income in 12 years	Rs. 62,27,94,825	Rs. 1,55,70,29,385	Rs. 9,61,87,500	Rs. 38,92,57,346

Table 8: Total income through the rental model for the frozen food section, minimally processed products and shops and other spaces.

	Frozen food section	Minimally processed products	Shops and other spaces
Subsequent years		**Income**	
Total (3rd to 12th year)	Rs. 5,25,60,787	Rs. 5,25,60,787	Rs. 81,18,75,000
Total income in 12 years	Rs. 6,22,71,787	Rs. 6,22,71,787	Rs. 96,18,75,000

Table 9: Income through outright sales, revenue sharing, and collaboration model for various revenue generation streams labour housing, shops and sheds, handling equipment, cold storage, cash and carry, *etc.*

	Labour housing	Shops and sheds	Handling equipment	Cold storage	Cash and carry
			Outright sales		
Area- sq.m	500	500000	2379924	48562	24281
Amount req.	Rs. 3,20,62,500	Rs.9,61,87,50,000	Rs.3,05,22,525.30	Rs.93,42,17,631	Rs.46,71,05,737
Rate- Rs./sq.m	Rs. 64,125	Rs. 19,237,50	Rs. 12.83	Rs. 19,237	Rs. 19,237
			Revenue sharing (50%)		
Area- sq.m	500	500000	2379924	48562	24281
Amount req.	Rs. 3,20,62,500	Rs.9,61,87,50,000	Rs.3,05,22,525.30	Rs.93,42,17,631	Rs.46,71,05,737
	Rs. 6,41,25,000	Rs.19,23,75,00,000	Rs.6,10,45,050.60	Rs.1,86,84,35,262	Rs.93,42,11,475
Rate- Rs./sq.m	Rs. 1,28,250	Rs. 38,475	Rs. 25.65	Rs. 38,475	Rs. 38,475
			Collaboration		
Area- sq.m	500	500000	2379924	48562	24281
Amount req.	Rs. 3,20,62,500	Rs. 9,61,87,50,000	Rs.3,05,22,525.30	Rs.93,42,17,631	Rs.46,71,05,737
	Rs. 6,41,25,000	Rs.19,23,75,00,000	Rs.6,10,45,050.60	Rs.1,86,84,35,262	Rs.93,42,11,475
Rate- Rs/sq.m	Rs. 1,28,250	Rs. 38,475	Rs. 25.65	Rs. 38,475	Rs. 38,475

Table 10: Income through outright sales, revenue sharing and collaboration model for various revenue generation streams packhouse and grading and sheds, food testing labs, electronic note platform, transport and logistics and social services.

	Packhouse and grading lines	Food testing labs	Electronic note platform	Transport and logistics	Social services
			Outright sales		
Area-sq.m	8093.72	264436	2644	32374	1000
Amount req.	Rs.15,57,02,938.50	Rs.10,17,41,751	Rs.3,39,093.00	Rs.62,27,94,825.00	Rs.1,92,37,500.00
Rate-Rs./sq.m	Rs. 19,237.50	Rs. 384.75	Rs. 128.25	Rs. 19,237.50	Rs. 19,237.50
			Revenue sharing (50%)		
Area-sq.m	8093.72	264436	2644	32374	1000
Amount req.	Rs.15,57,02,938.50	Rs.10,17,41,751	Rs.3,39,093.00	Rs.62,27,94,825.00	Rs.1,92,37,500.00
	Rs.31,14,05,877.00	Rs.20,34,83,502.00	Rs. 6,78,186.00	Rs. 1,24,55,89,650.00	Rs. 3,84,75,000.00
Rate-Rs./sq.m	Rs. 38,475.00	Rs. 769.50	Rs. 256.50	Rs. 38,475.00	Rs. 38,475.00
			Collaboration		
Area-sq.m	8093	264436	2644	32374	1000
Amount req.	Rs.15,57,02,938.50	Rs.10,17,41,751	Rs.3,39,093.00	Rs.62,27,94,825.00	Rs.1,92,37,500.00
	Rs.31,14,05,877.00	Rs.20,34,83,502.00	Rs. 6,78,186.00	Rs. 1,24,55,89,650.00	Rs. 3,84,75,000.00
Rate- Rs/sq.m	Rs. 38,475.00	Rs. 769.50	Rs. 256.50	Rs. 38,475.00	Rs. 38,475.00

Table 11: Income through outright sales, revenue sharing, and collaboration model for various revenue generation streams packaging and labelling, secondary processing unit, retail zone and foreign flagship.

	Packaging and labelling	Secondary processing unit	Retail zone	Foreign flagship
			Outright sales	
Area-sq.m	32374	80937	5000	20234
Amount req.	Rs.62,27,94,825	Rs.1,55,70,29,385	Rs.9,61,87,500.00	Rs.38,92,57,346
Rate-Rs./sq.m	Rs. 19,237	Rs. 38,475	Rs. 19,237.50	Rs. 19,237
			Revenue sharing (50%)	
Area-sq.m	32374	80937	5000	20234
Amount req.	Rs.62,27,94,825	Rs.1,55,70,29,385	Rs.9,61,87,500.00	Rs.38,92,57,346
	Rs. 1,24,55,89,650	Rs. 3,11,40,58,770	Rs. 19,23,75,000.00	Rs. 77,85,14,692
Rate-Rs./sq.m	Rs. 38,475	Rs. 38,475	Rs. 38,475.00	Rs. 38,475
			Collaboration	
Area-sq.m	32374	80937	5000	20234
Amount req.	Rs.62,27,94,825	Rs.1,55,70,29,385	Rs.9,61,87,500.00	Rs.38,92,57,346
	Rs. 1,24,55,89,650	Rs. 3,11,40,58,770	Rs. 19,23,75,000.00	Rs. 77,85,14,692
Rate-Rs/sq.m	Rs. 38,475	Rs. 38,475	Rs. 38,475.00	Rs. 38,475

Table 12: Income through outright sales, revenue sharing, and collaboration model for various revenue generation streams frozen food section, minimally processed products and shops and other spaces.

	Frozen food section	Minimally processed products	Shops and other spaces
		Outright sales	
Area-sq.m	3237	3237	50000
Amount req.	Rs. 6,22,71,787.50	Rs. 6,22,71,787	Rs. 96,18,75,000
Rate-Rs./sq.m	Rs. 19,237.50	Rs. 19,237	Rs. 19,237
		Revenue sharing (50%)	
Area-sq.m	3237	3237	50000
Amount req.	Rs.6,22,71,787.50	Rs.6,22,71,787	Rs. 96,18,75,000
	Rs. 12,45,43,575	Rs. 12,45,43,575	Rs. 1,92,37,50,000
Rate-Rs./sq.m	Rs. 38,475.00	Rs. 38,475	Rs. 38,475
		Collaboration	
Area- sq.m	3237	3237	50000
Amount req.	Rs. 6,22,71,787.50	Rs. 6,22,71,787	Rs. 96,18,75,000
	Rs. 12,45,43,575	Rs. 12,45,43,575	Rs. 1,92,37,50,000
Rate- Rs/sq.m	Rs. 38,475.00	Rs. 38,475	Rs. 38,475

the amount obtained through the secondary sources of information. According to the ongoing situation, a 1.5% per year growth rate was applied after the gestation period of two years. Also, the amount received during the gestation period was calculated by applying existing rates, with the area per square meter provided.

Table 5, 6, 7 and 8 shows the calculations of per-year returns after a gestation period of two years; later returns were calculated for successive ten-year periods. The primary step in this was to calculate the rate per square meter in each successive year. This was done by adding the rate increase per year to the previous year's rate.

Table 9, 10, 11 and 12 shows the calculation of total income through outright sales, revenue sharing and collaboration by taking a 50% share. Only if outright sales mode, revenue sharing and collaboration models are implemented at the above rates, these models would prove profitable over the rental model.

CONCLUSION

The study provided a thorough understanding of the available revenue streams, revenue models and rates at which these models have to be implemented. The study draws certain very interesting conclusions, findings and recommendations. Out of available revenue streams, 17 streams were studied, which projected rental model rates to be the highest.

If other revenue generation models have to be adopted, then their feasibility and success depend upon the proposal of rates in various allies. If partnership-based revenue models like collaboration, revenue sharing, or joint ventures have to be applied, then their feasibility and success would depend not only on the rates proposed but also on the percentage of sharing partnership offered by them.

Similarly, if the outright sale is to be considered as an option, then the rate should be decided after considering the revenue that would be generated by the rental model in the upcoming 12 years. Sales without considering income that could be generated from rents after growth per year would lead to a loss of appropriate revenue generation.

If a 50% partnership is considered in the case of collaboration and revenue sharing, then rental rates can be doubled for the estimation of those rates. Leasing models must be considered after keeping in mind the growth percentage in rates per year. Only after doing so lease model generates appropriate profitable revenue.

For the preparation of an effective business model matrix concerning revenue streams and models, the analysis must consider all the aspects related to various revenue streams and revenue models involved in this study.

Conflict of interest

The authors declare that there is no conflict of interest.

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