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# Value Chain Analysis for Organic Products in Indore and Nearby Markets



# VALUE CHAIN ANALYSIS FOR ORGANIC PRODUCTS IN INDORE AND NEARBY MARKETS

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## EXECUTIVE SUMMARY:

The Indian organic food industry has experienced a positive and robust growth in the past few years, attaining a value of USD 849.5 million in 2020 backed by a shift in consumer behavior, economic growth, urbanization, and spending patterns. The country's traditional method for agriculture was by default organic with negligible use of chemical inputs. However, since 1967 the need to ensure food security led to the *Green Revolution* in order to secure self-sufficiency in food grain production. While securing self-sufficiency, the *Green Revolution* resulted in an excessive use of chemical inputs which accelerated the degradation of water and soil, and adversely impacted farmers' health.

With a growing awareness about health and the environment among people and the Indian government, organic production and markets have gained space and importance in the last decade. From the consumer side, the preference for food produced under a system without the use of chemical fertilizers and pesticides, together with rising incomes, have been translated into a willingness to pay a premium price for organic products. From the producer side, it has been pointed out that organic farming leads to an improvement in soil quality, crop yield, and overall sustainability of crop production systems.

In Indore and nearby markets, the organic industry is still nascent. Consequently, the organic market per se presents a set of challenges and issues that impact the flow of products, price, and information in the value chain, as well as the performance of its different actors. In terms of market demand, consumers are still confused and do not know the characteristics or regulations of organic products. They are unclear about the benefits, or they confuse organic with natural products. In terms of market supply, chain actors have raised issues regarding the inability to follow different regulatory bodies and multiple guidelines and standards for commercializing organic products. Considering the emerging state of this industry, the organic food value chain in Indore and nearby markets faces development barriers related to product contamination, lack of consistency quality of supply, and shortage of good quality inputs.

In terms of challenges at chain actor level, this study has specifically analyzed the challenges that small- and medium-scale farmers located in the catchment of the river Narmada between Omkareshwar and Maheshwar Dams (project area) face when they try to move from a traditional farming system into an organic system. This study has analyzed as well, the challenges that farmers face during the initial stage under an organic production system. The study includes an assessment of the issues faced by retailers in order to provide direction for possible strategies to improve the current situation of the value chain in Indore and nearby markets.

## METHODOLOGY

For the analysis, this study employed the 'Guidelines for Value Chain Analysis in the Agri-Food Sector of Transitional and Developing Economies'. The Guidelines were developed as a joint project between the Food and Agriculture Organization of the United Nations (FAO, Rome – Italy) and the ESSEC Business School (Cergy Pontoise – France) with a main focus on identifying **critical issues** impacting the performance of value chains in the agri-food sector of transitional and developing economies.

The value chain analysis of organic products in Indore and nearby markets was conducted at the chain actor level in order to identify the issues that reduce the ability of chain actors to move from their current development stage into an established and functional stage. A strong emphasis has been put on activities (value creating and support activities) rather than on the strategic positioning of the chain actors in the targeted development stage.

## **KEY FINDINGS**

Based on the data collected, critical issues were identified for small- and medium-scale farmers willing to move to organic practices regarding the following aspects:

- The lack of a basic road map for the establishment of a business.
- The lack of market analyses for developing a road map.
- The production of organic products at the quantity and quality required by the customer.
- The lack of identification of market places to reach to customers.
- The low accessibility of the chain actor to the market.
- The lack of estimation of minimum profitability from the business activity related to current and organic production.
- The insufficient information to fulfill the regulatory requirements in the target market regarding business operations and product commercialization.
- The non-existence of a basic relationship between the chain actors in order to allow recurrent transactions.
- The lack of identification of a chain driver that sets some basic rules for the chain actors.

For small- and medium-scale farmers in their initial stage of organic production practices, critical issues were identified regarding the following aspects:

- Difficulties in accessing markets.
- Their availability to cover its costs and make a minimum profit from their business activities.

Finally, for retailers, a critical issue was identified regarding the following aspect:

- Their relationship with their suppliers.

Based on the methodology selected and the assessment at chain actor level, performance indicators and performance targets are suggested and presented for farmers and retailers in Tables 8, 9, and 10.

## **CONCLUSION**

The sole existence of organic market places in Indore and nearby markets does not ensure the access of farmers willing to produce under organic practices, neither the stability for those who have already entered.

For those small- and medium-scale farmers willing to move to organic practices, their main challenges come from their insufficient knowledge about organic markets. Farmers face difficulties understanding the organic market as none of them have conducted even a basic market research that supports them answering to the parameters of a basic plan for entering this market. Farmers' insufficient information about organic markets also affects their ability to establish a basic relationship with other chain actors, jeopardizing the development of a continuous flow of products towards the customer (downstream) and the flow of information and money towards their suppliers (upstream). Another main challenge comes from the farmers' inability to track their performance and the lack of counting with financial information. Farmers do not have in place even a basic system to keep records of their sales and costs, leading to have no financial and performance information about their current practices, neither a base for projections for their planned activities.

For farmers in their initial stage of organic production, the challenges continue to be related to their market knowledge, but unlike before, it is characterized by a low flow of information between chain actors, which hinders their understanding of the organic market. Additionally, the lack of managing a system to keep records represents a challenge when trying to monitor their performance and understand the profitability of their business activities.

Retailers, on the other hand, report a low satisfaction in terms of quality, quantity, price, and delivery times of the organic products that they commercialize and with the inputs that they use for processing. This issue becomes even more relevant as price determination is mostly driven by quality characteristics, an aspect that retailers are not satisfied with their current suppliers.

## **RECOMMENDATIONS**

Farmers need to understand the organic market structure, requirements, standards, and production implications, as well as having some idea of the customer needs. For this, it is imperative that farmers have access to basic information in order to overcome their greatest barriers for market accessibility.

The responsibility for sharing this kind of information may lie with different actors. For example, state authorities or regulatory bodies can share basic market structure, requirements, standards, and market trends, among others, presented in a didactic and illustrative way through communication means that are the most accessible to farmers. This information can also be prepared by any institution aiming to support the development of the farmer's livelihood, like for example local NGOs, as well as by the retailers aiming to establish a proactive relationship with farmers for their future supply.

For those retailers already working with farmers, and in terms of information flow, the preparation and distribution to farmers of periodic market info briefs or analyses can be beneficial for both parties. It can secure the supply of products based on market demand, along with improving the quantity, quality, price, and delivery times based on this demand.

Besides market information, it is important that farmers adopt a basic record keeping procedure that allows them to keep track of their operational performance as well as their business financial situation. For farmers, it is essential to cover their costs and make a profit from organic farming. Consequently, it becomes crucial to implement a system that supports them in assessing their performance under organic farming practices.

For this, it is recommended the implementation of basic record keeping procedures in already existing capacity building or training programs provided to farmers. The implementation of these procedures can be included in already existing programs in the area, or can be developed with a scope that reaches all kind of farmers considering its sectoral beneficial impact.

In terms of market information, there is an opportunity to inform consumers, yet this requires unique marketing and communication strategies designed to promote the usage and consumption of organic products. The responsibility of this can be taken by different actors in the value chain; however, a positive and successful promotion will potentially have a beneficial impact on all actors in this value chain.

Finally, the establishment of formal agreements is recommended in order to improve the relationship between chain actors. The establishment of formal contracts can improve the flow of products towards the customer (downstream) and the flow of information and money towards their suppliers (upstream).

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## INTRODUCTION:

The Indian organic food industry has experienced a positive and robust growth in the past few years, attaining a value of USD 849.5 million in 2020 backed by a shift in consumer behavior, economic growth, urbanization, and spending patterns (EMR, 2020). The country's traditional method for agriculture was by default organic with negligible use of chemical inputs. However, since 1967 the need to ensure food security led to the *Green Revolution* in order to secure self-sufficiency in food grain production. While securing self-sufficiency, the *Green Revolution* resulted in an excessive use of chemical inputs which accelerated the degradation of water and soil, and adversely impacted farmers' health (Patidar & Patidar, 2015).

In the catchment of the river Narmada, between Omkareshwar and Maheshwar Dams in Khargone district, Madhya Pradesh State, unsustainable land use practices, mostly related to agriculture, have resulted in increased water and soil contamination, topsoil erosion, and increased sedimentation in Narmada's tributaries (Deepak, Diptendu, Arun, & Sananda, 2014). The natural fertility of soil in this area is relatively poor due to the low availability of nitrogen and phosphorous levels (ADL-AGRA, -). Consequently, the cultivation of major crops, like for example cotton, chili, and soybean, has encouraged the intensive use of fertilizers and pesticides (Sharma, Rathi, Chouhan, & Meena, 2013). The unscientific use of fertilizers and pesticides over the past four decades has resulted in the loss of natural habitat balance, soil health, in addition to soil erosion, water pollution due to fertilizers and pesticides, genetic erosion, ill effects on environment, reduced food quality, and increased cost of cultivation, rendering the farmers poorer year by year (Patidar & Patidar, 2015). Moreover, the irrational use of chemical inputs has had a negative impact in the health of farmers, particularly women and children (Sharma & Singhvi, 2017). Farmers in the area believe that if current practices continue, agriculture will not sustain beyond the next 10 to 15 years.

With a growing awareness about health and the environment among people and the Indian government, organic production and markets have gained space and importance in the last decade. Organic farming has become a production solution that supports the cultivation of products without the application of chemical fertilizers and synthetic pesticides or genetically modified organisms, growth hormones, and antibiotics, protecting the environment as well as improving the socio-economic conditions of farmers. Organic farming also responds to the consumer quest for safer and better foods that are produced through more ecologically and authentically systems (Das & et al., 2020). In Indore and nearby markets, the preference for food produced under a system without the use of chemical fertilizers and pesticides, together with rising incomes, have been translated into a willingness to pay a premium price for organic products (Kumar & Choudhary, 2017).

In recent years, the Government of India has implemented a number of programs and schemes for boosting organic farming in the country, including the National Programme for Organic Production, the National Project on Organic Farming, the National Mission for Sustainable Agriculture, among others (Das & et al., 2020). Yet, despite the growth in organic agriculture, the awareness of environmental degradation, the existing programs and schemes supporting organic farming, most of the farmers in Madhya Pradesh State keep practicing agriculture inorganically (Patidar & Patidar, 2015). Farmers have struggled changing their traditional farming practices into organic ones even though it has been pointed out that organic farming leads to an improvement in soil quality, crop yield, and overall sustainability of crop production.

This study analyzes the challenges that small- and medium-scale farmers located in the catchment of the river Narmada between Omkareshwar and Maheshwar Dams (project area) face when they try to move from a traditional farming system into an organic system. This study analyzes as well, the challenges that farmers face during the initial stage under an organic production system (from the first to the second year under organic production). The study includes an assessment of the demand-side for organic products in Indore and nearby markets, and the performance of retailers (dominant players in the value chain of organic products in the national and/or local markets) in order to provide direction for possible strategies to improve the current situation of the value chain.

## **BACKGROUND**

This study is part of the project 'Narmada Landscape Restoration Project', funded by the United States Agency for International Development (USAID) and NTPC Ltd., and implemented by the Global Green Growth Institute with the support of the Indian Institute of Forest Management (IIFM), Bhopal, Civil Society Organizations, Indore Municipal Corporation (IMC), and State Government of Madhya Pradesh.

The project aims to improve and maintain, through inclusive and sustainable landscape management interventions including organic farming, the quantity and quality of water of selected river Narmada tributaries. For this, the project has the following objectives:

- To develop capacities and provide incentives for sustainable landscape management for local communities in the upland watershed;
- To create awareness of the importance of ecosystem services and sustainable landscapes management; and
- To develop an incentivization mechanism based on the landscape management practices.

Under this project, this study is a component of the Phase-I, 'Baseline Assessment and Development of Project Implementation Plan (PIP)', which has the specific objective to be the guiding document for project implementation – Phase-II.

## **OBJECTIVES OF THE STUDY:**

The main objective of this study is to analyze the value chain of organic products in Indore and nearby markets in order to support farmers to move from traditional farming systems into an organic farming system. Under this objective, the specific objectives include:

**Objective 1:** Assess the markets (demand-side) for organic products in Indore and nearby markets; and

**Objective 2:** Analyze current agricultural practices and the challenges for local farmers to switch to organic farming.



## METHODOLOGY

For the analysis, this study employed the ‘Guidelines for Value Chain Analysis in the Agri-Food Sector of Transitional and Developing Economies’. The Guidelines were developed as a joint project between the Food and Agriculture Organization of the United Nations (FAO, Rome – Italy) and the ESSEC Business School (Cergy Pontoise – France) with a main focus on identifying **critical issues** impacting the performance of value chains in the agri-food sector of transitional and developing economies.

**Critical issues**, issues which have a vastly negative impact on the chain performance which are not only slowing down the development of the chain, but can go as far as to put an end to the existence of the chain (Attaie & Salazar, 2003).

The value chain analysis of organic products in Indore and nearby markets was conducted at the chain actor level in order to identify the issues that reduce the ability of chain actors to move from their current development stage into an established and functional stage. A strong emphasis has been put on activities (value creating and support activities) rather than on the strategic positioning of the chain actors in the targeted development stage.

The analysis for the identification of critical issues at chain actor level followed the instructions from the “Manual for Identification of Critical Issues at Chain Actor Level”. Recommendations for performance indicators and performance targets follow the recommended Tables for Identification of Performance Indicators and Performance Targets for Critical Issues included in the Guidelines.

## DATA NEEDS AND SOURCES

Primary and secondary data were used in this study. Primary data was collected from two main chain actor levels (Producer and Distributor) based on the instructions from the “Manual for Interviews of Chain Actors”, which is part of the practical recommendations on the implementation of the Guidelines. Data was collected according to the characteristics presented in Table I. Regarding secondary data, main sources included already existing analyses for organic products in India and the region, market assessments in Indore for organic products, and referential information provided by the project partners.

**Table 1.** Characteristics of chain actors for data collection.

CHAIN ACTOR LEVEL	CHAIN ACTOR	STAGE IN THE VALUE CHAIN	CHARACTERISTICS OF THE CHAIN ACTOR	CORRESPONDING QUESTIONNAIRE
Producer	Farmer Type A	Birth	Small- and medium-scale farmers (Small-scale >0 & <4 ha; medium-scale >=4 & <10 ha) <sup>1</sup> . Farmers interviewed were under a traditional production system but were willing or aiming to change into organic farming (a conditional assessment for determining compliance was conducted).	Questionnaire Set A (Birth)
	Farmer Type B	Existing	Small- and medium-scale farmers (Small-scale >0 & <4 ha; medium-scale >=4 & <10 ha). Farmers interviewed were already producing under an organic production system but were in the initial stage (from 1 year to 2 years under organic production). Referential characteristics included no or low links with other chain actors, low sales related to market potential, low number of customers related to market potential, profits relatively low (even negative), and investment in market entrance.	Questionnaire Set B (Out of Birth Stage)
Distributor	Retailer	Existing	Actors whose main activity is under the distribution level and that commercialize mainly organic products (more than 60%). Characteristics taken into consideration included being an active player in the value chain, existing integration with different chain actors, having recognition in the market, and being under expansion of sales.	Questionnaire Set B (Out of Birth Stage)

## SAMPLING AND DATA COLLECTION

Data from retailers was collected from main players with physical operations in Indore City. Data collection from farmers followed a cluster sampling method, given that data about the population of small- and medium-scale farmers was not available in the project area. Additionally, this sampling method was employed considering COVID-19 mobility restrictions to access villages in the project area. For data collection from farmers, the clusters were represented by the villages within Gram Panchayat (local government division in the project area). Data was obtained from a simple random sample from accessible clusters disqualifying farmers that did not comply with the characteristics described above.

**Table 2.** Chain actors sampling.

CHAIN ACTOR LEVEL	CHAIN ACTOR	STAGE OF CHAIN DEVELOPMENT	SAMPLE
Producer	Farmer Type A	Birth	15
	Farmer Type B	Expansion	19
Distributor	Retailer	Expansion	4

<sup>1</sup> Pocket Book of Agricultural Statistics 2017, Government of India.

## **LIMITATIONS**

The study encountered several limitations due to:

- Limited number of subjects of interest available for this study.
- Information scarcity, incomplete data, and outdated information. Statistical information about organic production is limited in the project area.
- Limitation of data collection due to COVID-19 mobility restrictions and contagious risk.
- Unwillingness to disclose detailed information related to economic activities.
- Data estimation due to insufficient accounting processes.



## ORGANIC PRODUCTS VALUE CHAIN ANALYSIS

### MAPPING THE ORGANIC PRODUCTS VALUE CHAIN IN INDORE AND NEARBY MARKETS

#### ORGANIC PRODUCTS IN INDORE AND NEARBY MARKETS

The Indian organic food industry has experienced a positive and robust growth in the past few years backed by a shift in consumer behavior, economic growth, urbanization, and spending patterns (EMR, 2020).

Currently, the Indian domestic markets for organic products are predominantly metro based, with an estimated 95% of organic brands trading in the top 10 metros (e.g., Delhi NCR, Kolkata, Mumbai, Pune, Chennai, and Bengaluru) and Tier II cities such as Indore, Nasik, and Nagpur (Nabard Consultancy Services, 2017). Market analyses have shown that Indian consumers, especially those with middle to high levels of income and higher education, believe that organic food products are healthier and superior in quality compared to conventional products, and are willing to pay a premium for these. (Mukherjee, Kapoor, & Dutta, 2018).

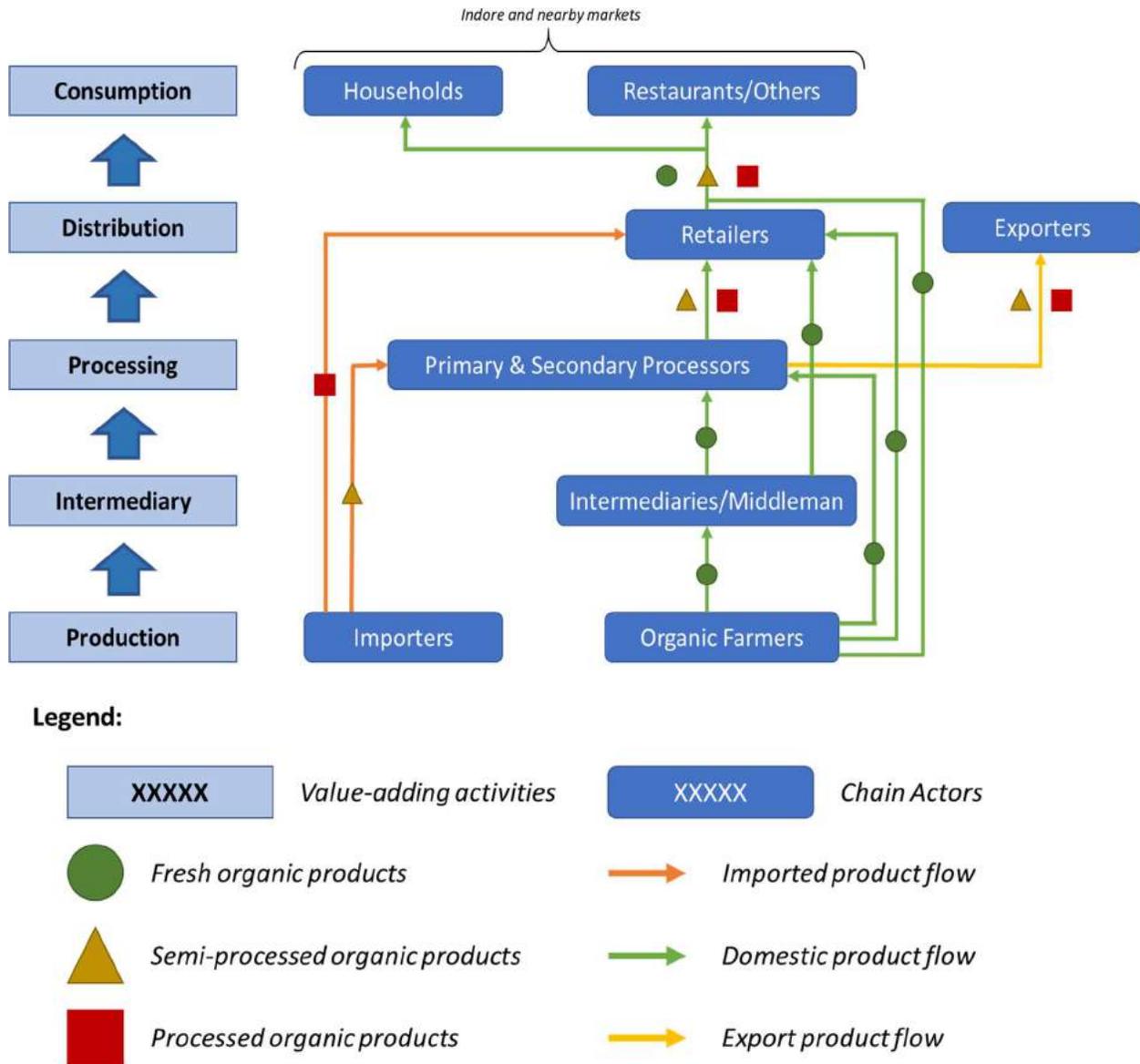
#### **Box I. Organic food production vs Conventional food production**

Organic food production is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity; without the application of chemical fertilizers and synthetic pesticides or genetically modified organisms, growth hormones, and antibiotics (Patidar & Patidar, 2015) (Das & et al., 2020).

Conventional farming is the cultivation process where synthetic pesticides and chemical fertilizers are applied to gain higher crop yield and profit. Under conventional farming, synthetic pesticides and chemicals are able to eliminate insects, weeds, and pests and growth factors such as synthetic hormones and fertilizers increase growth rate (Das & et al., 2020).

In Indore and nearby markets, organic products have begun to appear in grocery shops along-side conventional and natural foods. The following diagram (Figure 1) shows the value chain for organic products in Madhya Pradesh Region, with its largest city, Indore.

**Figure 1.** Organic products’ value chain in Madhya Pradesh Region.



Among the main players in the value chain and markets for organic products in Indore and nearby markets, companies such as Rajendra Singh Rathori, Vanya Farms, and Mangilal Pindoria are well established organic producers and traders. Companies, like for example Jaivik Setu, have established a “farm to consumer” model, working directly with farmers and selling the products through their own retail store, home delivery system, and online channels. Jaivik Setu has identified a list of local farmers to directly source products such as vegetables, fruits, and grains, avoiding intermediaries and processing them (sorting and

cleaning) in their own facilities. Table 3 includes a list of the major players in Indore and nearby organic markets.

**Table 3.** Indore and nearby organic markets main value chain players.

<b>CHAIN ACTORS</b>	<b>MAIN FIRMS/GROUPS</b>	<b>MAIN PRODUCTS COMMERCIALIZED</b>
<b>Producers</b>	Jaivik Setu	Vegetables, fruits, nuts, grains
	Towards Organic	Wheat, turmeric, ginger
	Rajendra Singh Rathori	Vegetables
	Vanya Farms	Honey, moringa, giloy, turmeric
	Mangilal Pindoria	Leafy greens, fruits
	Ajees Khan	Vegetables, beans
	Onkar Singh Bhilwara	Fruits, vegetables
	Vimala Tiwari	Vegetables
<b>Processors</b>	Jaivik Setu	Vegetables, fruits, spices, flours, grains
	Jaivik Indore	Millets, rice, wheat, ghee, honey, oilseeds
<b>Retailers/Online Retailers</b>	Jaivik Setu*	Vegetables, fruits, spices, flours, grains
	Towards Organic*	Pulses, millets, vegetables
	Jaivik Indore*	Millets, rice, wheat, ghee, honey, oilseeds
	Organic Sansar	Honey, ghee, jaggery, millets, pulses, spices
	APMC Indore	Vegetables, fruits, spices, flours, grains
	Nature's Basket (Online)	Various products
	Big Basket (Online)	Various products
<b>Exporter</b>	Radiance Overseas	Pulses, spices, oil seeds, grains, soybean

\*Main economic activity.

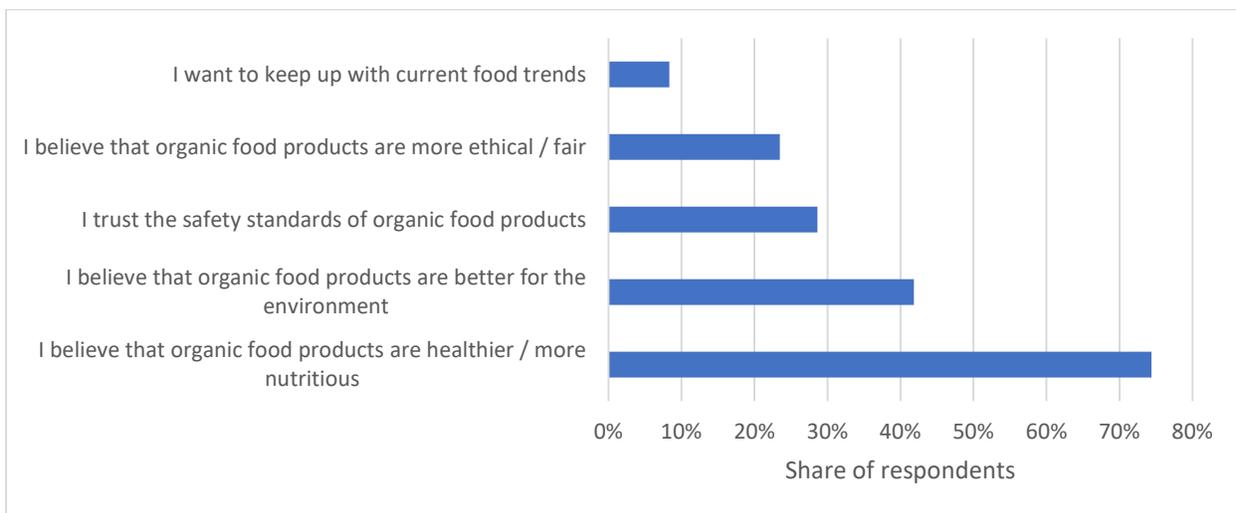
## MARKET CONDITIONS

The organic food market is growing and is on the path to become a USD 2 billion market in India. A market research from the firm IMARC highlights that for 2018 the Indian food market reached a value of USD 704 million, which is expected to grow at a compound annual growth rate of 20%, hitting around USD 2 billion by 2024 (Singh, 2020). Despite the fast growth rate, the domestic market for organic products is still nascent. In Indore, as well as in other main markets, companies try to publicize their products through fairs and exhibitions. Processors with well-developed supply chains are selling their products through multi-brand retailers, while small players try other methods such as health stores, standalone organic retail outlets, and home delivery through telephone or websites. Store-based retailers operate through supermarkets, general stores, hypermarkets, convenience stores, online e-retail stores, as well as single-brand and multi-brand stores managing only organic sales or a combination of organic and conventional food products (Mukherjee, Kapoor, & Dutta, 2018).

From the consumption side, consumer preference for organic versus conventional food products is based on a comparison of consumer attitudes towards the production system with the characteristics of the product. Market research suggests that consumer attitude works in two ways, for and against purchasing

organic products. Consumer preference for organic products is based on a general perception of desirable food characteristics such as human health, food safety, environmental relationship, nutritive value, freshness, and other sensory characteristics (Market Publishers, 2013). (See Figure 2). Nationwide, a survey of households in major Indian Cities found that among the consumers of organic products, the major percentage pointed out health concerns (82%) and lack of pesticides and other chemicals (58%) as the major reasons for buying organic food. (Technopak, 2012). An analytical study of factors influencing the purchase of organic products in Indore determined that six factors have clearly emerged. First, a natural factor that refers to the natural way in which products are grown without adding any additives, directly affects consumer buying behavior to purchase organic products. The benefits factor, related to the advantages of organic products such as taste and its eco-friendliness, comes second in the list of factors affecting consumer behavior. The third factor is the concern for the future, that is related to sustainable development concerns such as environment pollution, nutritional values, and traditional practices. The fourth factor is the family aspects, which is related to the influence from family and lesser cooking. The diversity factor is placed as fifth and it is related to the wide variety and number of organic products that are available year long. Finally, the six factor is healthy, which is related to fitness of both animals as well as humans, including good for digestion and animal welfare (Kumar & Choudhary, 2017).

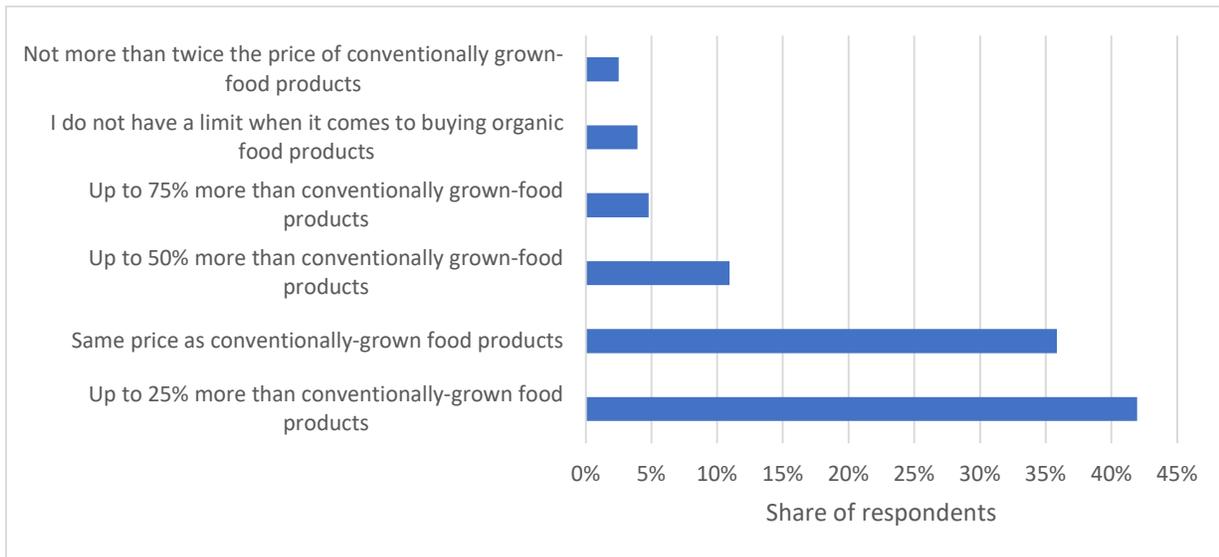
**Figure 2.** Reasons for purchasing organic food products among consumers in India as of May 2019.



**Source:** Statista (2019 a.)

Consumers that perceive organic products as healthier are more likely to purchase organic food and are willing to pay a premium for it (Kumar & Choudhary, 2017). (See Figure 3). Consumer willingness to pay higher for organic products versus conventional foods not only reflects consumer preferences, but also supports the financial stability of the sector (Market Publishers, 2013). In Indore and other main cities, market research has determined that the price elasticity of demand is higher for organic products compared to conventional products, as the organic ones have a wider range in appearance and limited availability during seasons (Market Publishers, 2013). Finally, even though organic food is perceived as healthier and safer, studies have shown that people are not entirely loyal to organic food products despite their awareness of availability (Kumar & Choudhary, 2017).

**Figure 3.** Willingness to pay for organic food products among consumers in India as of May 2019.



**Source:** Statista (2019 b.)

#### RELATIONSHIP BETWEEN CHAIN ACTORS AND CHAIN GOVERNANCE

In Indore and other main Indian organic markets, organic food products reached markets through companies who source from their own farms or source their products from organic clusters and/or from farmer associations and cooperatives. The supply chain of a company engaged in commercializing organic food products depends on a number of factors such as where the product is sourced from (e.g., own farm, organic clusters, directly from farmers, etc.); whether the product is exported, sold domestically or imported; and whether the product is fresh or processed. At the same time, companies at market level can be classified under those who are only engaged with organic food products, those who deal with natural and organic food, and those who commercialize organic food and non-food products. For domestic markets, companies mostly manage fresh and processed organic food products while for international markets companies are mainly engaged with semi-processed and processed food products across selected categories such as tea, rice, and species (Mukherjee, Kapoor, & Dutta, 2018).

Companies in the export business try to source directly from the farmers as a measure to ensure traceability of the product, as well as securing authenticity and avoiding concerns related to fraudulence and malpractices. On the other side, companies that commercialize in local markets deal directly with farmers, intermediaries, and processors; however, there is a preference to work directly with farmers and establish long-term relationships in order to ensure traceability, quality consistency, and reduce supply risks (See Table 4). In India, companies sourcing directly from farmers are expected to work with a large number of farmers as farm sizes are small, with an average size of 1.15 hectares according to the 2011 Census. Instead of an obstacle, some companies have seen this model as an opportunity to support farmers to get a better price for their produce, while providing them with training and help with the third-party certification process (Mukherjee, Kapoor, & Dutta, 2018).

**Table 4.** Sources used by companies to procure organic products.

PRODUCTS	OWN FARM	FARMERS THROUGH CONTRACT FARMING	FARMER ASSOCIATIONS	FARMER COOPERATIVES	FARMERS IN ORGANIC CLUSTERS	OTHERS*	TOTAL
Oilseeds	4.8%	0.0%	0.9%	0.9%	2.6%	3.1%	12.3%
Rice	3.9%	2.6%	1.3%	0.9%	5.7%	3.1%	17.5%
Tea	7.9%	0.0%	0.4%	0.4%	0.4%	8.3%	17.5%
Spices	3.5%	1.8%	1.3%	0.9%	3.9%	4.4%	15.8%
Fruits and vegetables	6.1%	0.4%	1.3%	0.4%	5.3%	1.8%	15.4%
Medicinal plants	4.4%	0.0%	0.0%	0.9%	1.8%	2.2%	9.2%
Herbs	4.8%	0.0%	0.4%	0.4%	3.5%	3.1%	12.3%
<b>Total</b>	<b>35.5%</b>	<b>4.8%</b>	<b>5.7%</b>	<b>4.8%</b>	<b>23.2%</b>	<b>25.9%</b>	<b>100%</b>

\*Companies in the category “others” are primarily retailers who source their products from manufacturers/processors, Non-Governmental Organization (NGOs), and suppliers, among others.

**Source:** Adapted from Mukherjee, A., Kapoor, A., & Dutta, S. (2018). *Organic Food Business in India: A Survey of Companies*. -: Research in Economics and Management.

Along the value chain, organic food manufacturers, retailers, and export businesses are the dominant players in the value chain of organic products (Mukherjee, Kapoor, & Dutta, 2018). Yet, for products destined to be exported, the value chain governors are the importers as they control and decide on quality, quantity, time of delivery and therefore the price of the products. For products commercialized in national and/or local markets, the value chain governance relies mostly on retailers as they have greater decision over quality, quantity, and consequently over price.

## PRODUCTION

More than 80% of the agricultural output comes from small and marginal farmers, from which 2 - 3% are organic producers (Singh, 2020). Currently, more than 15,000 farms have been certified as organic in India, producing main commodities such as tea, coffee, spices, fruits, among others. (See Table 5). Madhya Pradesh State in central India accounts for nearly 40% of India’s total organic cultivation area (Hindustan Times, 2016). The State is one of the main source of organic spices among the Indian States that produce organic products (Mukherjee, Kapoor, & Dutta, 2018).

### Box II. Environmental impact

Organic farming has a protective role in environmental conservation. It improves physical-biological properties of soil consisting of more organic matter, biomass, higher enzyme, better soil stability, enhanced water percolation, holding capacities, lesser water, and wind erosion compared to conventionally farming soil. In addition, organically managed soils are of greater quality and water retention capacity, which results in higher yield in organic farms even during the drought years. Finally, organic farming uses lesser energy and produces less waste per unit area or per unit yield (Das & et al., 2020).

**Table 5.** Major products produced in India by organic production systems.

TYPE	PRODUCTS
Commodity	Tea, coffee, rice, wheat, cotton, herbal extracts
Spices	Cardamom, black pepper, white pepper, ginger, turmeric, vanilla, mustard, tamarind, clove, cinnamon, nutmeg, mace, chili
Pulses	Gram, red gram, black gram
Fruits	Mango, banana, pineapple, passion fruit, sugarcane, orange, cashew
Vegetables	Okra, brinjal, garlic, onion, tomato, potato
Oil seeds	Sesame, castor, sunflower, soybeans

**Source:** Taken from Mukherjee, A., Kapoor, A., & Dutta, S. (2018). *Organic Food Business in India: A Survey of Companies.* -: Research in Economics and Management.

Even though field surveys and studies have pointed out that organic farming leads to an improvement in soil quality, crop yield, and overall sustainability of crop production systems (Mukherjee, Kapoor, & Dutta, 2018), organic producers or farmers continually struggle with their operations. Besides the existing gaps in the regulatory framework for organic products in India, producers (mostly small and marginal farmers) have reported procedural challenges on certification and quality assurance, increasing costs of inputs, and the high risk from the elongated conversion period from conventional to organic farming systems (Singh, 2020). One of the biggest barriers from venturing into organic farming is the risk of facing lower yields especially at the early stages. According to studies, it may take 6 to 7 years for the land be fully converted into an organic system with an observable yield increase. Furthermore, while there is little support and subsidies for organic farming inputs, chemical inputs are highly subsidized in India which increases the perception of risk for changing to organic systems (Mukherjee, Kapoor, & Dutta, 2018).

### COSTS, PRICE AND PROFITABILITY

At farm level, input costs depend on the commodity produced. For instance, input costs for tea, spices, and herbs are higher under organic farming compared to conventional farming. On the other hand, input costs in conventional farming are higher for rice and oilseeds when compared to organic farming. For fruits and vegetables, input costs are approximately the same (Mukherjee, Kapoor, & Dutta, 2018). (See Figure 4). It has been noted that if properly utilized, managing organic inputs may be cheaper than managing conventional inputs. However, this may happen at later stages, as at the beginning, organic farming requires purchasing inputs such as poly houses, netting, fencing, etc., specially required to prevent pest infestation and contamination. Furthermore, certification costs, higher costs associated with use of more manpower,

#### **Box III. Attitude towards organic farming**

Based on a study about the perception of farmers towards organic farming conducted in selected villages in Khargone district of Madhya Pradesh, there is a positive perception of organic farming with significant relationships between age, educational background, farm size, benefits of organic farming, and social factors. The study concludes that this positive attitude towards organic farming indicates that communities will have high adoption rate of innovations related to organic farming and other agricultural policies. The study also reveals that costs associated with organic farming does not affect farmer's attitude, being the farmers' main interest the yield and profit (benefit aspect). (Patidar & Patidar, 2015).

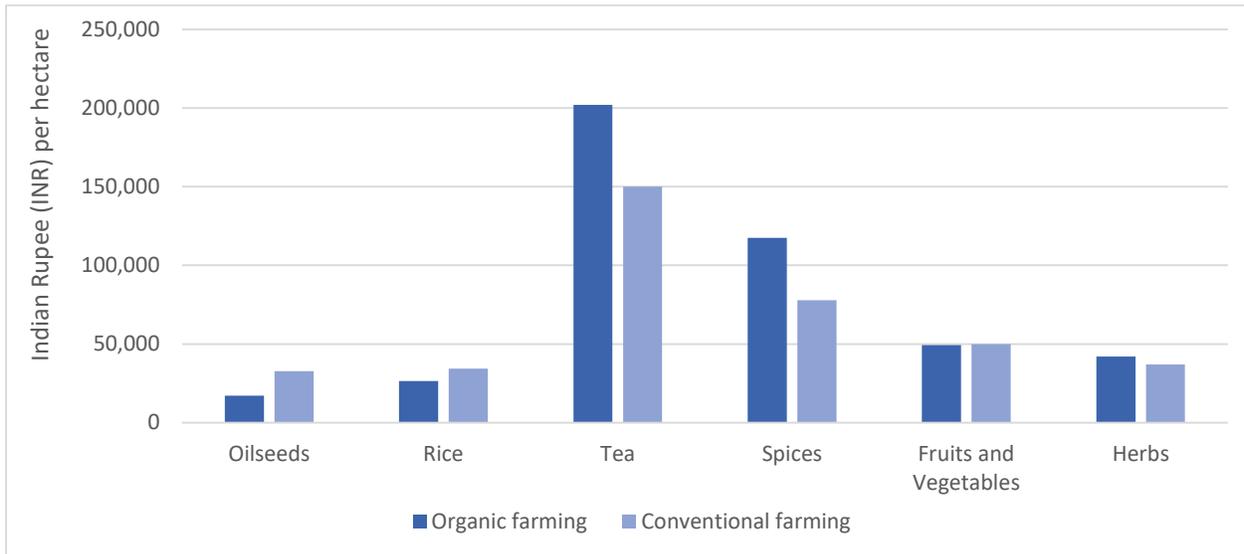
and the lack of subsidies on organic inputs in India, are major factors that raise costs compared to

conventional farming, and consequently, they raise the expected price to be received from the supply side of organic products (Mukherjee, Kapoor, & Dutta, 2018).

**Box IV. Farmers’ main cost drivers**

Based on information from the surveyed farmers, under traditional practices, their main cost drivers on average in an annual base are: input materials (ca. 45% - e.g., seeds, fertilizers, pesticides); labor (ca. 35%); and water, energy, other utilities (ca. 7%). On the other hand, for farmers under organic practices, their main cost drivers on average in an annual base are: labor (ca. 50%); input materials (ca. 20% - e.g., seeds, fertilizers, pesticides); and water, energy, other utilities (ca. 15%).

**Figure 4.** Average Input Costs – Organic vs. Conventional Farming.



**Source:** Taken from Mukherjee, A., Kapoor, A., & Dutta, S. (2018). *Organic Food Business in India: A Survey of Companies*. -: Research in Economics and Management.

On the demand side, Indian consumers are willing to pay a higher price due to an increase in awareness and health consciousness. A premium price paid for the characteristics of organic food suggest that consumers place a higher value on ‘health’ attributes (Market Publishers, 2013). In relation to this, Grossman (1972), cited in Market Publishers (2013), modeled consumer demand for ‘good health’ finding that a consumer may consider purchasing healthier food as an ‘insurance’. The characteristics of organic food may therefore be an input into the consumer’s demand function for ‘good health’, and the price of purchasing organic food becomes the cost of investing in ‘good health’ (Market Publishers, 2013). Finally, for certain organic products, demand may be much higher than supply leading to higher prices (Mukherjee, Kapoor, & Dutta, 2018).

Following supply and demand factors, the price for organic products is higher than their conventional counterparts as shown in Table 6.

**Table 6.** Average price difference between organic and conventional products (in percentage).

PRODUCT	AVERAGE PRICE DIFFERENCE
Oilseed	17.6
Rice	17.1
Tea	18.6
Spice	18.9
Fruits and Vegetables	20.5
Medicinal plants	22.2
Herbs	21.8

**Source:** Taken from Mukherjee, A., Kapoor, A., & Dutta, S. (2018). *Organic Food Business in India: A Survey of Companies*. -: Research in Economics and Management.

Regarding profitability, Mukherjee, Kapoor, & Dutta (2018) conducted a survey looking at profit margins from 75 Indian companies (including companies in Indore) operating in manufacturing/food processing, exports, imports, retailing, and wholesaling across 7 main product categories (tea, spices, herbs, medicinal plants, oilseeds, rice, fruits and vegetables). Sixty-one out of 75 companies (81.3%) reported that profit margins from organic products are higher than from conventional products.

#### **Box V. Farmers' profitability**

Based on information collected in the area of interest, for most farmers (under traditional and organic practices), the absence of a system for keeping records has not allowed them to closely monitor their performance and clearly identify their profitability. Yet, farmers under organic practices reported a greater profitability compared to traditional practices (based on their experience). Farmers under traditional farming practices and willing to implement organic farming also reported to observe greater opportunities under organic farming practices.

## **REGULATORY LANDSCAPE AND GOVERNMENT SUPPORT**

India follows a quasi-federal governance structure which divides responsibilities between the Centre and states. The agriculture sector is under the list of state's responsibilities and therefore, is under the jurisdiction of the state governments. Yet, the central government provides broad policy directions, negotiates trade agreements, and provides support and subsidies that impacts the agriculture sector and trade. The main institutions at central government level related to the agriculture sector and organic production are the Ministry of Agriculture and Farmers' Welfare (nodal authority for the promotion of agriculture and farmers' welfare), Ministry of Food Processing Industries (nodal ministry for food processing), the Agricultural & Processed Food Products Export Development Authority (APEDA - under the Ministry of Commerce and Industry and nodal agency for designing policies related to organic food exports), and the Food Safety and Standards Authority of India (FSSAI - under the Ministry of Health and Family Welfare and nodal authority for designing policies related to organic food imports and domestic food business). In 2000, APEDA developed the National Programme for Organic Production (NPOP), which covers the National Standards for Organic Production (NSOP), as well as the scope and operational structure of the National Organic Programme, the accreditation of inspection and certification agencies, the guidelines for certification of grower groups, and the certification process for exporting (products

exported can only be labelled as organic if they are certified by a third-party certification agency). In India, there are 28 certification bodies listed under NPOP. Additionally, to support the organic domestic market and encourage small and marginal landholders to enter into organic systems, the Ministry of Agriculture and Farmers' Welfare implemented in 2011 the Participatory Guarantee System (PGS-India). The National Centre for Organic Farming (NCOF) is the agency below the Ministry in charge of the PGS-India, which is an organic voluntary self-certification system (Mukherjee, Kapoor, & Dutta, 2018).

Following the organic regulatory framework in India, 3 types of farmers can be distinguished:

- 1) Third-party certified farmers that can export;
- 2) Farmers under the PGS-India, which can access domestic markets but cannot export as per APEDA's regulatory requirements;
- 3) Farmers that have never used any chemical inputs and have followed traditional farming. These farmers can access domestic markets but cannot export as per APEDA's regulatory requirements.

The regulatory framework also establishes the type of farmers from whom a company can source, which directly depends on whether the products are for domestic or international markets. A company engaged in organic business for domestic markets can source from PGS-India certified farmers, farmers that are by default organic (3<sup>rd</sup> type of farmers), or from third-party certified farmers. A company engaged in exports has to specifically source from third-party certified farmers. A company importing organic food products can commercialize products certified by a third-party or products that comply with the FSSAI requirements. Since 2017, organic food, either imported or produced domestically, has to comply with the Food Safety and Standards Regulation (established by FSSAI), especially related to manufacturing, packaging, marketing, certification, and labelling (Mukherjee, Kapoor, & Dutta, 2018).

#### **Box VI. The National Programme for Organic Production (NPOP) and the National Standards for Organic Production (NSOP)**

The National Programme for Organic Production proposes to provide an institutional mechanism for the implementation of National Standards for Organic Production, through a National Accreditation Policy and Programme. The aims of the NPOP, inter alia, include: (a) To provide the means of evaluation of certification programmes for organic agriculture and products as per the approved criteria; (b) To accredit certification programmes; (c) To facilitate certification of organic products in conformity to the National Standards for Organic Products; and (d) To encourage the development of organic farming and organic processing (Department of Commerce, 2005).

The National Standards for Organic Production includes information about general principles, recommendations, and standards about conversion requirements, maintenance of organic management, and landscape for crop production and animal husbandry in general. The NSOP also includes detailed and specific principles, recommendations and standards for crop production (e.g., choice of crops and varieties, length of conversion period, fertilization policy, etc.), animal husbandry (management, length of conversion period, breeds and breeding, veterinary medicine, etc.), food processing and handling, labelling, and storage & transport (Department of Commerce, 2005).

Regarding incentives and government support, the NCOF in partnership with state governments have promoted organic farming through schemes such as the Paramparagat Krish Vikas Yojana (PKVY), which

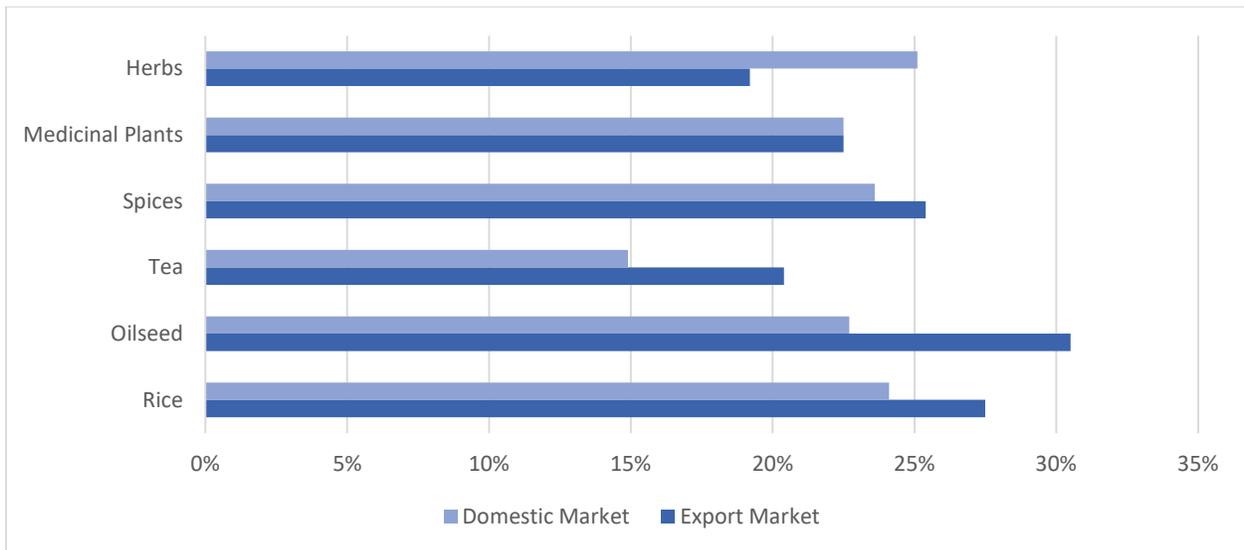
supports with subsidies promoting organic farming through a cluster-based approach. Until the end of 2017, state governments created 7,208 organic clusters under the PKVY scheme (Mukherjee, Kapoor, & Dutta, 2018). The Madhya Pradesh government has stated its intentions of promoting organic farming creating awareness about soil nourishment without using chemicals. According to the Hindustan Times (2016), 16 districts have reported the utilization of chemical fertilizers way below the state and national average.

Despite support efforts, companies in the organic business have raised issues regarding their inability to follow different government bodies regulating separately the guidelines and standards for export, import, and domestic markets. Additionally, stakeholders along the value chain have claim the need to put in place clear regulations to punish fraudulent practices. Finally, and regarding to the PKVY scheme, farmers have pointed out that the scheme may be leading to a market distortion as farmers who have higher costs due to third-party certification do not receive subsidies, whereas those who do not incur in certification receive the subsidies (Mukherjee, Kapoor, & Dutta, 2018).

### DEVELOPMENT STAGE

The growth of the organic industry in Indore and other main markets in India is optimistic with prospects for bringing more consumers embracing organic products (EMR, 2020). Companies in this industry have forecasted an annual growth rate of 20% for the following 5 years after 2018. Growth projections are on average higher for the export market compared to the domestic market. Furthermore, growth projections for some organic products in the domestic market are above the market average of 20% (Mukherjee, Kapoor, & Dutta, 2018).

**Figure 5.** Growth projections of organic products in the domestic market and the export market in the next 5 years (in percentage, base year 2018).



**Source:** Taken from Mukherjee, A., Kapoor, A., & Dutta, S. (2018). *Organic Food Business in India: A Survey of Companies*. -: Research in Economics and Management.

Behind the development and growth of this industry, e-commerce platforms have played a key role in triggering consumer awareness. It has been reported that grocery e-commerce has increased the habit of reading labels which has increased the curiosity of people’s eating habits and compels people towards an

organic lifestyle (Singh, 2020). Organic food companies (e.g., Organic India) have increased their presence in grocery e-commerce platforms such as Big Basket and Godrej Nature Fresh which have distribution networks in Tier I and Tier II cities including Indore (Kavitha & Krishnaveni, 2016). Innovative business models have also supported the development of this industry. Showcased in the form of pop-up markets, farmers have pursued a “farm to fork” model that promotes the direct trade of locally grown food between them and restaurant owners, households, among others (Singh, 2020).

Despite the optimistic view in the development of this industry, in Indore and other neighboring markets, consumers are still confused and do not know the characteristics or regulations of organic products. They are unclear about the benefits, or they confuse organic with natural products. It is important to mention that organic food may or may not be healthier than food that is not organic. By having an organic label, a food product is certified organic, not healthier. Furthermore, food that claims to be natural may not be organic (Market Publishers, 2013). Following this, the marketing of organic products comes with its own set of challenges that can result in an insufficient provision of incentives for their purchase (Singh, 2020). There is an opportunity to inform consumers, but it requires unique marketing and communication strategies designed to promote the usage of organic products on mass media (Kumar & Choudhary, 2017). Finally, and considering the emerging state of this industry, the organic food value chain in Indore and other main markets faces development barriers related to product contamination, lack of consistency quality of supply, shortage of certified good quality inputs, and multiple regulatory bodies (Mukherjee, Kapoor, & Dutta, 2018).

## **CRITICAL ISSUES AT CHAIN ACTOR LEVEL**

### **SMALL- AND MEDIUM-SCALE FARMERS WILLING TO MOVE TO ORGANIC PRACTICES**

Fifteen farmers located in the project area were interviewed for this study. The farmers' main economic activity was related to agriculture, practiced in their own land with an average farm size of 3.72 hectares. All these farmers reported to have basic technical knowledge about organic farming from peer learning from farmers and previous experience in operations. In their plans, their programmed main activity is to keep with the primary production of the following crops (in order of importance): wheat, cotton, gram, papaya, and soybean.

Following the selected methodology, data was collected from these farmers in order to support the investigation of critical issues faced when trying to move from a traditional farming system into an organic system. Information was collected in order to assess:

- **C1** - The existence of a basic road map for the establishment of a business;
- **C2** - If the road map is based on market analysis data;
- **C3** - If the product can be produced at the quantity and quality required by the customer;
- **C4** - The definitions of the chain functions that will be carried out by different chain actors;
- **C5** - The existence of a market place to reach to customers;
- **C6** - The accessibility of the chain actor to the market;
- **C7** - The estimation of minimum profitability from the business activity related to organic production;
- **C8** - The fulfillment of regulatory requirements in the target market regarding business operations and product commercialization;
- **C9** - The access of the chain actor to affordable financial resources needed;
- **C10** - The skills required to manage and operate the business activity;
- **C11** - The access of the chain actor to what is necessary for operations;

- **C12** - The access of the chain actor to storage facilities;
- **C13** - The access of the chain actor to transportation means;
- **C14** - The existence of a basic relationship between the chain actors in order to allow recurrent transactions; and
- **C15** - The existence of a chain driver that sets some basic rules for the chain actors.

Based on the data collected, critical issues were identified for some of the mentioned aspects assessed. These are presented in Table 7.

**Table 7.** Critical issues identified for small- and medium-scale farmers willing to move to organic practices.

NUMBER OF CRITICAL ISSUE	ASPECT ASSESSED
<b>C1</b>	The existence of a basic road map for the establishment of a business
<b>C2</b>	If the road map is based on market analysis data
<b>C3</b>	If the product can be produced at the quantity and quality required by the customer
<b>C5</b>	The existence of a marketplace to reach to customers
<b>C6</b>	The accessibility of the chain actor to the market
<b>C7</b>	The estimation of minimum profitability from the business activity related to organic production
<b>C8</b>	The fulfillment of regulatory requirements in the target market regarding business operations and product commercialization
<b>C14</b>	The existence of a basic relationship between the chain actors in order to allow recurrent transactions
<b>C15</b>	The existence of a chain driver that sets some basic rules for the chain actors

The establishment of a successful new business, in this case the production of organic products, entails a list of issues that can have a vast impact on the performance of the whole value chain.

In the case of the farmers assessed and regarding the existence of a basic road map (**C1**), their knowledge was evaluated in terms of the five parameters of a basic plan (1. *Arena*, 2. *Vehicle*, 3. *Differentiation*, 4. *Staging*, and 5. *Economic Logic*). In terms of *Arena* (what market to enter), farmers reported facing difficulties in accessing markets due to their insufficient knowledge about available markets. Furthermore, the majority of farmers have not been able to identify who will be their main customers, the customers' location, and the customers' main activity. In terms of *Vehicle* (how to organize the business activities) and *Differentiation* (what products to offer), farmers have simply planned to keep their primary production activities with the crops mentioned above. Regarding *Staging* (what volumes to produce initially), most of the farmers have not been able to identify the required volumes to satisfy the customer needs, as well as who will set the requirements for the commercialized products. Finally, in terms of *Economic Logic* (how it would make a profit from the business), most of the farmers reported to have no knowledge about the price that the customers are willing to pay, the main cost drivers under an organic production system, or an estimated idea of the sales volume that can be potentially commercialized.

For a road map to be developed, there is the need to conduct a market research (**C2**), even a basic one that can support answering to the parameters of a basic plan, avoiding assumptions that can mislead farmers' understanding of the market. Unfortunately, none of the farmers have conducted a market research. Consequently, they have no knowledge about their customers' needs.

Regarding the quantity and quality of products required by the customers (**C3**), unfortunately, most of the farmers have not been able to identify the volumes required to satisfy the customer needs. They also did not have available information about the specific crop characteristics required (color, size, etc.). Additionally, according to most farmers' opinion, their customers are not always satisfied with their current production and supply. All these characteristics jeopardize the ability of farmers to meet customer requirements in their plans under an organic production system.

Despite the existence of an organic market in Indore and nearby markets (**C5**), the lack of knowledge of the potential customers in this market, as well as their requirements, does not allow the farmers to reach to these customers. In terms of market accessibility (**C6**), the insufficient understanding of available markets represents for most of the farmers the main barrier for its access.

Regarding the estimation of minimum profitability under organic production practices (**C7**), farmers reported to have no estimation of projected sales volume, costs, or potential prices. Even more, the non-existence of a system to keep records of their sales and costs, has led them to have no financial and performance information about their current practices, neither projections for their planned activities. Considering that farmers reported that the price is mostly defined by negotiation with their customers, the lack of financial information decreases their bargaining power.

In terms of regulatory requirements for their business activity and for commercializing crops (**C8**), despite reporting in their majority that they do not face any difficulties in conducting their farming activities and commercializing their crops, all farmers reported not knowing if there are regulatory requirements for their business activities and for commercializing organic crops.

Finally, the inexistence of a basic relationship between chain actors (**C14**) and the lack of identification of a chain driver that sets some rules for the chain actors (**C15**), represent an important challenge for a continuous flow of products towards the customers (downstream) and the flow of information and money towards the supplier (upstream). The characteristics of the farmers related to these aspects included the lack of identification of potential customers, the lack of identification of the actor that sets product requirements, the low understanding of the consequences for not fulfilling the desired crop characteristics, and the low interest of most of the farmers to establish a relationship with their suppliers.

### SMALL- AND MEDIUM-SCALE FARMERS IN THEIR INITIAL STAGE OF ORGANIC PRODUCTION PRACTICES

Nineteen farmers that are currently in their initial stage of organic production practices were interviewed for this study. All farmers reported farming as their only economic activity, practicing organic agriculture on an average proportion of 34% of their own total farm land (average farm size 3.72 hectares). Despite primary production being their main activity, some farmers (0.26%) reported as well, being engaged in the distribution of organic products as part of their business activity. Regarding the production of organic products, most of the farmers reported to have received the knowledge and training required for organic systems from an NGO, with only a few reporting to have received it from the government. Yet, all the farmers reported to have received support from an institution in order to implement an organic production system. In terms of organically produced crops, the main products reported by these farmers included (in order of importance): wheat, gram (chickpea), cotton, soybean, red gram (pigeon pea), maize, and pomegranate.

Following the selected methodology, data was collected from these farmers in order to support the investigation of critical issues faced in their initial stage under an organic production system. Information was collected in order to assess:

- **C16** - Their difficulties in accessing markets;
- **C17** - The existence of a chain driver that sets some basic rules for the chain actors along the value chain;
- **C18** - The relationship established among the chain actors;
- **C19** - The relationship between the chain actor and its customer;
- **C20** - The relationship between the chain actor and its supplier;
- **C21** - The availability to cover its costs and make a minimum profit from the business activity;
- **C22** - The access to affordable financial resources needed;
- **C23** - The difficulties faced in meeting the regulatory requirements of the market;
- **C24** - The skills required to manage and operate the business activity;
- **C25** - The access to necessary parameters needed for operation;
- **C26** - The access to necessary storage facilities; and
- **C27** - The access to the necessary transportation means.

Based on the information provided by the farmers, a critical issue was identified regarding their accessibility to markets (**C16**) and their ability to cover the costs and make a minimum profit from the business activity (**C21**).

When accessing markets, more than half of the farmers reported to still face difficulties mostly related to market knowledge reasons and to a lesser degree, related to geographic and transportation reasons. Despite being under a current organic production system, most of the farmers reported to have a low understanding about their customer needs, with few of them (0.16%) reporting that they have received feedback from their customers. For these farmers, their customers are mostly represented by local aggregation groups (working with retailers), local processors, regional middle man, and local and regional final consumers.

Despite reporting organic farming as a profitable activity, most of the farmers were unable to identify their main cost drivers as well as their profit margins. The lack of managing a system to keep records has not allowed them to monitor their performance and understand how profitable their business activity has been. For those farmers that were able to identify their cost drivers, these are mostly driven by labor costs (ca. 50%), input costs (ca. 20%), water and other utilities' cost (ca. 15%), and the rest are represented by storage, transportation, sales, and administrative costs.

Overall, farmers reported to be satisfied with their relationship with customers, with the only problem being at the moment of settling the price. Farmers indicated that mostly, price is determined by negotiation under an informal agreement between them and their customers. Under this agreement, two main aspects have been established and agreed, the quality conditions of the crops and the responsibility for delivery.

In addition, almost all the farmers reported to have no difficulties when commercializing their organic crops despite having no knowledge about the need for any regulatory requirement for exercising their business activities or for commercializing their products.

Finally, the farmers interviewed indicated to have the access and availability to the necessary parameters needed for operation, as well as storage, transportation, and affordable financial resources. Additionally,

farmers reported an average satisfaction level regarding their relationship with their input suppliers. Yet, and comparing between inputs, the lowest satisfaction level (on average) was with the seed suppliers.

## DISTRIBUTORS

Four legal representatives from local and physically established retailers were interviewed for this study. The companies reported to have more than 5 years of operation, all being members of an organic association, and having an average size of 10 employees. Their main business activity was the distribution of organic products, but they have also vertically integrated the primary production and processing in their activities. The main organic product categories commercialized included cereals, millets, pulses, vegetables, spices, and oilseeds. Regarding organic products, the most commercialized products reported were wheat, rice, honey, ghee, jaggery, ginger, groundnut, turmeric, arhar, moong, and pickles.

Following the selected methodology, data was collected from the retailers in order to support the investigation of critical issues faced by these chain actors. Information was collected in order to assess:

- **C16** - Their difficulties in accessing markets;
- **C17** - The existence of a chain driver that sets some basic rules for the chain actors along the value chain;
- **C18** - The relationship established among the chain actors;
- **C19** - The relationship between the chain actor and its customer;
- **C20** - The relationship between the chain actor and its supplier;
- **C21** - The availability to cover its costs and make a minimum profit from the business activity;
- **C22** - The access to affordable financial resources needed;
- **C23** - The difficulties faced in meeting the regulatory requirements of the market;
- **C24** - The skills required to manage and operate the business activity;
- **C25** - The access to necessary parameters needed for operation;
- **C26** - The access to necessary storage facilities; and
- **C27** - The access to the necessary transportation means.

Based on the data collected, a critical issue was identified in the relationship between the retailers and their supplier (**C20**). The retailers reported a low satisfaction, in terms of quality, quantity, price, and delivery times of the organic products that they commercialize and with the inputs that they use for processing. Even though the existence of a relationship between the chain actors is important, the satisfaction of the two parties is critical for the proper functioning of the value chain. This issue becomes even more relevant as retailers reported that price determination for organic products is mostly driven by quality characteristics, an aspect they are not satisfied with their current suppliers. The non-existence of formal agreements and the preference of personal or informal agreements with the input suppliers may be a driver for this issue.

Overall, the retailers reported having access and being satisfied with the production place, the basic production and processing equipment, the workforce, the basic utilities, the storage, and the transportation means. In their operations, the main cost drivers are the inputs for commercializing and the labor, which together with the utilities, storage, transportation, and administration costs, were reported to have increased over the time. On the other hand, retailers reported a stable tendency in their profit margin, which has motivated them to look for strategies to decrease costs and improve efficiency.

## AREAS OF IMPROVEMENT, PERFORMANCE INDICATORS, AND PERFORMANCE TARGETS

### SMALL- AND MEDIUM-SCALE FARMERS WILLING TO MOVE TO ORGANIC PRACTICES

For farmers willing to enter into an organic production system, it is important to develop and have a basic plan that includes five key parameters: the market to enter (*Arena*), the organization of business activities (*Vehicle*), the product to offer (*Differentiation*), the volumes to produce initially (*Stagging*), and the way to make a profit from the business (*Economic Logic*). The essential information for developing this plan should be based on market analysis data gathered through a basic market research that supports answering the five key parameters. The development of this plan will also support the farmers to understand who the customers are, and the quantity and quality to be produced in order to fulfill the market needs.

It is important to highlight that the sole existence of organic market places does not ensure the access of farmers willing to produce under organic practices. Most of the farmers need to understand the organic market structure and have some idea of the customer needs. Farmers need access to basic information in order to overcome their greatest barrier for market accessibility. Besides market information, it is important that farmers adopt even basic record keeping procedures in order to support their business accountability and their performance assessment. For farmers, it is essential to not only cover their costs from the activities under an organic system, but also to make a minimum profit. Consequently, it becomes crucial to implement a system that supports them assessing their performance in their planned activities.

Finally, farmers' understanding of the requirements for their business activities and for commercializing crops will support them building their relationship with other chain actors, ensuring recurrent supply and demand transactions. Additionally, the understanding of the relationship between chain actors and chain governance will support the performance of farmers following a sense of organization.

Based on the assessment of critical issues for small- and medium- scale farmers willing to move to organic practices, the following performance indicators and performance targets are suggested and presented in Table 8.

**Table 8.** Suggested performance indicators and performance targets for small- and medium-scale farmers willing to move to organic practices.

CRITICAL ISSUE #	ACTIVITY	CRITICAL ISSUE RELEVANT FOR THE CHAIN ACTOR	PERFORMANCE INDICATORS	PERFORMANCE TARGETS	CONTEXT
CI	Chain Infrastructure	Chain actor has a basic roadmap for the establishment of a business	*Existence of a plan to establish an organic production system	*Knowledge of: - What product to offer - What customer will buy the product - What minimum volumes are required to enter the market At what price the customer will buy the product - How to make the product - What activities are required to produce organically and when to perform them	

				<ul style="list-style-type: none"> <li>- Where to meet customers</li> <li>- How to source input materials</li> <li>- Expected sales, costs, and profits</li> </ul>	
<b>C2</b>	Marketing & Sales	Basic market analysis to establish a roadmap	<ul style="list-style-type: none"> <li>*Type of market analysis done</li> <li>*Content of the analysis: what market data was gathered</li> <li>*Knowledge of customers' characteristics, needs and wants</li> </ul>	*Roadmap done on the basis of market data	Market information
<b>C3</b>	Marketing & Sales	Offer a product that meets customer needs at the quantity and quality required	<ul style="list-style-type: none"> <li>*Consumer satisfaction for product</li> <li>*Sales growth rate [sales (period x) / sales (period x-1)]</li> </ul>	<ul style="list-style-type: none"> <li>*Consumers are satisfied with product</li> <li>*Sales tendency is to grow</li> </ul>	
<b>C5</b>	Marketing & Sales	Existence of marketplace or a way to reach the customer	*Market formats available	*There are available markets to reach the customer	Market infrastructure
<b>C6</b>	Marketing & Sales	Access to marketplace (or a way to reach the customer)	*Barriers to entry to those markets	*Access to those markets is possible and affordable	Market infrastructure
<b>C7</b>	Chain Infrastructure	Chain actor should make a living out of his business	<ul style="list-style-type: none"> <li>*Volumes of product sold</li> <li>*Selling price</li> <li>*Costs</li> <li>*Price determination system in market</li> </ul>	<ul style="list-style-type: none"> <li>*Projected sales income covers total costs</li> <li>*Fair price determination system in market</li> </ul>	Market infrastructure and market information
<b>C8</b>	Chain Infrastructure	Comply with regulations in the market related to: <ul style="list-style-type: none"> <li>- Business activity</li> <li>- Product definition and presentation</li> <li>- Food Safety</li> </ul>	<ul style="list-style-type: none"> <li>*Authorization for business activity</li> <li>*Product registration and authorization to commercialize</li> <li>*Rate of occurrence of food safety problems</li> </ul>	<ul style="list-style-type: none"> <li>*The actor is authorized for its business activity, when needed</li> <li>*Product is authorized and accepted for trade in target market</li> <li>*Zero incidence of food safety problems</li> </ul>	<ul style="list-style-type: none"> <li>*Business activities regulations</li> <li>*Product definition and presentation regulations</li> <li>*Food Safety regulations</li> <li>*Monitoring infrastructure</li> </ul>
<b>C14</b>	Relationship Management	Established basic relationships between chain actors to make the	*Nature of transactions	*Transactions are recurrent	Contract regulations

		transactions possible			
<b>C15</b>	Chain Infrastructure	Existence of a chain driver	*Identification of a chain driver: someone who takes the lead for the development of the chain	*Interaction along the chain is performed with cooperation	

**Source:** Adapted from Attaie, H., & Salazar, J. (2003). *Guidelines for Value Chain Analysis in the Agri-Food Sector of Transitional and Developing Economies*. France: ESSEC.

### SMALL- AND MEDIUM-SCALE FARMERS IN THEIR INITIAL STAGE OF ORGANIC PRODUCTION PRACTICES

As mentioned before, the sole existence of an organic market place does not ensure the access and subsistence of farmers in this market. Despite having the support for the establishment of organic production systems, farmers still face in their initial stages barriers for market accessibility. These barriers are mostly represented by their low understanding and knowledge of the market. Therefore, it is crucial to support the flow of information upstream in order to sustain a proper functioning of the value chain.

For farmers, it is important to adopt or implement a basic record keeping system in order to support their business accountability and to monitor their performance. While keeping track of their activities, they will be able to identify if changes in their profitability are related to market impacts, their operational costs, the terms of payment by customers, or any fluctuations in their production capacity. Additionally, keeping records of their activities will support farmers' bargaining power at the moment of price negotiation.

Based on the assessment of critical issues for small- and medium- scale farmers in their initial stage under organic production practices, the following performance indicators and performance targets are suggested and presented in Table 9.

**Table 9.** Suggested performance indicators and performance targets for small- and medium-scale farmers in their initial stage under organic farming.

<b>CRITICAL ISSUE NUMBER</b>	<b>ACTIVITY</b>	<b>CRITICAL ISSUE RELEVANT FOR THE CHAIN ACTOR</b>	<b>PERFORMANCE INDICATORS</b>	<b>PERFORMANCE TARGETS</b>	<b>CONTEXT</b>
<b>C16</b>	Marketing & Sales	Access to market or way to reach customers	*Market formats available *Barriers to entry to those markets	*Markets are available to reach customers *Access is possible	Market infrastructure
<b>C21</b>	Chain Infrastructure	Chain actor should be able to cover costs and make a profit from the	*Profit margin $[(sales\ income - costs) / sales\ income]$ *Growth rate of profit margin $[profit\ margin\ (year\ x) / profit\ margin\ (year\ x-1)]$	*Profit margin is growing *Changes in share of key products (growing)	Market infrastructure and information

business activity	*Products dealt and share of key products *Price determination system *Customer satisfaction in terms of quality, quantity, price and on-time delivery of key products	*Fair price determination system *High level of satisfaction from customers
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**Source:** Adapted from Attaie, H., & Salazar, J. (2003). *Guidelines for Value Chain Analysis in the Agri-Food Sector of Transitional and Developing Economies*. France: ESSEC.

## DISTRIBUTORS

In the case of retailers, they should look at strategies that improve their relationship and satisfaction with their input suppliers, backed up by the establishment of formal agreements. These strategies can have an impact on product disposal costs and the turnover speed of organic products, leading to reducing costs and improving efficiency. In order to support the development of the distributors and the well-functioning of the value chain, performance indicators and performance targets are suggested in Table 10.

**Table 10.** Suggested performance indicators and performance targets for distributors.

CRITICAL ISSUE NUMBER	ACTIVITY	CRITICAL ISSUE RELEVANT FOR THE CHAIN ACTOR	PERFORMANCE INDICATORS	PERFORMANCE TARGETS	CONTEXT
C20	Relationship Management	Chain actor is satisfied with the relationship with its supplier	*Chain actor's satisfaction (in terms of quantity, quality, price, and on-time delivery) of its input *Incidence of alternative product sourcing in competing chains *Missed sales (demanded volume – supplied volume)	*High level of satisfaction of chain actor with its suppliers *Supply matching demand in quality, quantity, price, and on-time delivery) *The chain is competitive vs. other chains *Low missed sales	Contract Regulations

**Source:** Adapted from Attaie, H., & Salazar, J. (2003). *Guidelines for Value Chain Analysis in the Agri-Food Sector of Transitional and Developing Economies*. France: ESSEC.



## CONCLUSIONS

The Indian organic food industry has experienced a positive and robust growth in the last decade, with an optimistic forecasted growth rate for the following years. A shift in consumer behavior, economic growth, urbanization, and spending patterns have been the main reasons backing up the development of this industry. For organic products, the main markets are metro based, with an estimated 95% of organic brands trading in the top 10 metros and Tier II cities such as Indore.

In the domestic market, consumer preference for organic food is based on a general perception of desirable food characteristics and factors. For consumers in Indore, six factors have clearly emerged: the natural factor, the benefits factor, the concern for the future factor, the family factor, the diversity factor, and the healthy factor. Despite the consumer willingness to pay higher for organic products, the price elasticity of demand is higher for these products compared to conventional ones.

In Indore and nearby markets, organic food products reach to consumers through different chain actors. The supply chain of these actors engaged in commercializing organic food products depends on a number of factors such as where the product is sourced from; whether the product is exported, sold domestically or imported; and whether the product is fresh or processed. For products commercialized in national and/or local markets, retailers play an important role not only providing access to consumers, but also in terms of chain governance. The governance of the value chain of organic products in Indore and nearby markets relies mostly on retailers as they have greater decision over quality, quantity, and consequently over price. Retailers have established different models for commercializing organic products, from models that include their participation in the primary production, processing, and distribution, to models just based on distribution. The type of business activities of these actors has an impact on the type of relationship that they build with the farmers, along with the business activities that farmers perform.

Overall, despite the positive market development and the optimistic growth rate, the domestic market for organic products is still nascent. Consequently, the organic market per se presents a set of challenges and issues that impact the flow of products, price, and information in the value chain, as well as the performance of its different actors. In terms of market demand, consumers are still confused and do not know the characteristics or regulations of organic products. They are unclear about the benefits, or they

confuse organic with natural products. In terms of market supply, chain actors have raised issues regarding the inability to follow different regulatory bodies and multiple guidelines and standards for commercializing organic products. Considering the emerging state of this industry, the organic food value chain in Indore and nearby markets faces development barriers related to product contamination, lack of consistency quality of supply, and shortage of good quality inputs.

In terms of challenges at chain actor level, for local distributors in Indore and nearby markets, the main issue identified is related to their relationship with their suppliers. Retailers report a low satisfaction in terms of quality, quantity, price, and delivery times of the organic products that they commercialize and with the inputs that they use for processing. This issue becomes even more relevant as price determination is mostly driven by quality characteristics, an aspect that retailers are not satisfied with their current suppliers.

For organic producers, besides the existing gaps in the regulatory framework for organic products in India, producers have reported procedural challenges on certification and quality assurance, increasing costs of inputs, and the high risk from the elongated conversion period from conventional to organic farming systems. One of the biggest barriers from venturing into organic farming is the risk of facing lower yields especially at the early stages. Furthermore, while there is little support and subsidies for organic farming inputs, chemical inputs are highly subsidized in India which increases the perception of risk for changing to organic systems

For small- and medium-scale farmers, and following the main interest of this study, the main challenges that these actors face when they are trying to enter this market and during their initial stage under organic practices, are different but related.

For those small- and medium-scale farmers willing to move to organic practices, their main challenges come from their insufficient knowledge about organic markets. Farmers face difficulties understanding the organic market as none of them have conducted even a basic market research that supports them answering to the parameters of a basic plan for entering this market. Farmers' insufficient information about organic markets also affects their ability to establish a basic relationship with other chain actors, jeopardizing the development of a continuous flow of products towards the customer (downstream) and the flow of information and money towards their suppliers (upstream). Another main challenge comes from the farmers' inability to track their performance and the lack of counting with financial information. Farmers do not have in place a system to keep records of their sales and costs, leading to have no financial and performance information about their current practices, neither a base for projections for their planned activities.

For farmers in their initial stage of organic production, the challenges continue to be related to their market knowledge, but unlike before, it is characterized by a low flow of information between chain actors, which hinders their understanding of the organic market. Additionally, the lack of managing a system to keep records represents a challenge when trying to monitor their performance and understand the profitability of their business activities.

## **RECOMMENDATIONS**

As mentioned before, the sole existence of organic market places does not ensure the access of farmers willing to produce under organic practices, neither the stability for those who have already entered. Farmers need to understand the organic market structure, requirements, standards, and production

implications, as well as having some idea of the customer needs. For this, it is imperative that farmers have access to basic information in order to overcome their greatest barrier for market accessibility.

The responsibility for sharing this kind of information may lie with different actors. For example, state authorities or regulatory bodies can share basic market structure, requirements, standards, and market trends, among others, presented in a didactic and illustrative way through communication means that are the most accessible to farmers. This information can also be prepared by any institution aiming to support the development of the farmer's livelihood, like for example local NGOs, as well as by the retailers aiming to establish a proactive relationship with farmers for their future supply.

For those retailers already working with farmers, and in terms of information flow, the preparation and distribution to farmers of periodic market info briefs or analyses can be beneficial for both parties. It can secure the supply of products based on market demand, along with improving the quantity, quality, price, and delivery times based on this demand.

Besides market information, it is important that farmers adopt a basic record keeping procedure that allows them to keep track of their operational performance as well as their business financial situation. For farmers, it is essential to cover their costs and make a profit from organic farming. Consequently, it becomes crucial to implement a system that supports them in assessing their performance under organic farming practices.

For this, it is recommended the implementation of basic record keeping procedures in already existing capacity building or training programs provided to farmers. The implementation of these procedures can be included in already existing programs in the area, or can be developed with a scope that reaches all kind of farmers considering its sectoral beneficial impact.

In terms of market information, and as mentioned before, there is an opportunity to inform consumers, yet this requires unique marketing and communication strategies designed to promote the usage and consumption of organic products. The responsibility of this can be taken by different actors in the value chain; however, a positive and successful promotion will potentially have a beneficial impact on all actors in this value chain.

Finally, the establishment of formal agreements is recommended in order to improve the relationship between chain actors. The establishment of formal contracts can improve the flow of products towards the customer (downstream) and the flow of information and money towards their suppliers (upstream).

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## APPENDIX

Comparison table for crops produced in the project area: catchment of the river Narmada between Omkareshwar and Maheshwar Dams.

	Geographic Feasibility (for NLRP) [1=FEASIBLE, 0=NOT FEASIBLE]	Main Products (knowledge of people about them) [1=FEASIBLE, 0=NOT FEASIBLE]	Average Input Cost (advantage over traditional farming) [+ advantage of organic farming over traditional farming; 0 equal average input costs; - advantage of traditional farming over organic farming]	Average Price Difference (greater price difference between organic and conventional products in percentage) [+ (>15%, <=18%); ++ (>18%, <=20%); +++ (>20%, <=22%)]	Project Area		Global Average Water Footprint (m3/ton)			
					Area in Hectares 2021 (Barwaha - North Bank) [Kharif & Rabi Season]	Area in Hectares 2021 (Sanawad - South Bank) [Kharif & Rabi Season]	Green (Rain water consumed)	Blue (The volume of surface and groundwater consumed as a result of the production of a good)	Grey (The volume of freshwater required to assimilate the load of pollutants based on existing ambient water quality standards)	Total (The total volume of freshwater used to produce the product)
Wheat	1	1	Grains(+)	+	20,162.5	13,595.0	1,277	342	207	1,827
Bajra (millet)	1	1	Grains(+)	+			4,306	57	115	4,478
Jowar (sorghum)	1	1	Grains (+)	+			2,857	103	87	3,048
Soybeans	1	1	Beans (+)	+	5,800.5	1,077.0	2,037	70	37	2,145
Groundnuts in shell	1	1	Beans (+)	+			2,469	150	163	2,782
Grams (chick peas)	1	1	Beans (+)	+	118.9	24.0	2,972	224	981	4,177
Lentils	1	1	Beans (+)	+			4,324	489	1,060	5,874
Pigeon peas (red gram, tur)	1	1	Beans (+)	+	7,747.1	22,240.0	4,739	72	683	5,494
Desi Chana	1	1	Beans (+)	+			-	-	-	-
Green peas	1	1	Beans (+)	+			-	-	-	-
Urad	1	1	Beans (+)	+			-	-	-	-
Moong	1	1	Beans (+)	+			-	-	-	-
Rapeseed	1	1	Oil seeds (+)	+			1,703	231	336	2,271
Linseed	1	1	Oil seeds (+)	+			4,730	268	170	5,168
Sunflower seeds	1	1	Oil seeds (+)	+			3,017	148	201	3,366
Safflower seeds	1	1	Oil seeds (+)	+			6,000	938	283	7,221
Seed cotton	1	1	Oil seeds (+)	+			2,282	1,306	440	4,029
Sesame seed	1	1	Oil seeds (+)	+			8,460	509	403	9,371
Castor oil seeds	1	1	Oil seeds (+)	+			8,423	1,175	298	9,896
Niger seeds	1	1	Oil seeds (+)	+			-	-	-	-
Chilies and peppers, green	1	1	Spices (-)	++	2,388.0	9,126.0	240	42	97	379
Mustard seeds	1	1	Spices (-)	++			2,463	1	345	2,809
Garlic	1	1	Vegetables (0)	+++			337	81	170	589
Coriander	1	1	Vegetables (0)	+++			5,369	1,865	1,046	8,280
Maize (corn)	1	1	Vegetables (0)	+++	4,943.7	1,084.0	947	81	194	1,222
Oranges	1	1	Fruits (0)	+++			401	110	49	560
Tangerines and mandarins	1	1	Fruits (0)	+++			479	118	152	748
Lemons and limes	1	1	Fruits (0)	+++			432	152	58	642
Bananas	1	1	Fruits (0)	+++			660	97	33	790