

With support from



by decision of the
German Bundestag



Learning Report

Shipment of Coriander by Sarnagiti Kisan Agro Producer Company Ltd 2024



JULY 2024

Indo-German Agricultural Market Development Project

Authored by: Shamika Mone and Pratyush Ranjan Singh

Contents

Abbreviations list.....	3
1. Executive Summary	4
2. General Overview of the Region.....	6
3. Coriander Production in Ramganj Mandi.....	7
4. Indo-German Agricultural Market Development Project Initiatives	9
A. Brief Profile of Sarnagiti Kisan Agro Producer Company Limited	9
B. Brief Profile of Exporter- Asian Spices	11
5. The Coriander Trial Shipment.....	11
6. Costing analysis.....	17
7. Emerging Lessons	18
A. Farmers perspective	18
B. FPC perspective	18
C. Exporter perspective.....	18
D. Indo-German AMD project perspective	19
8. The challenging scenarios.....	20
9. Recommendations	21

Abbreviations list

AMD	Indo-German Agricultural Market Development Project
APEDA	Agricultural and Processed Food Export Development Authority
APMC	Agricultural Produce Market Committees
BMEL	Federal Ministry of Food and Agriculture, Germany
BoDs	Board of Directors
BP	Business Plan
BRKGB	Baroda Rajasthan Kshetriya Gramin Bank (BRKGB)
CEO	Chief Executive Officer
DAC&FW	Department of Agriculture, Cooperation and Farmers Welfare
DMI	Directorate of Marketing and Inspection
EU	European Union
e-NAM	National Agriculture Market
FPC	Farmer Producer Company
FPO	Farmer Producer Organization
GAP	Good Agricultural Practices
Govt.	Govt. of India
GI	Geographical Indications
Ha	Hectare
ISO	International Organization for Standardization
INR	Indian Rupee
IPM	Integrated Pest Management
INM	Integrated Nutrient Management
Kg	kilogram
MoA&FW	Ministry of Agriculture and Farmers Welfare, India
MRL	Maximum Residue Level
MT	Metric Ton
NIAM	National Institute of Agricultural Marketing
NABARD	National Bank for Agriculture and Rural Development
NGO	Non-Government Organizations
NPOP	National Programme for Organic Production
PHM	Harvesting & Post Harvest Management
PoP	Package of Practices
RPM	Regulated Primary Market
RMC	Regulated Market Committee
SHG	Self Help Group
SFAC	Small Farmers Agribusiness Consortium
SOP	Standard Operating Procedure
VCA	Venture Capital Assistance
UK	United Kingdom

1. Executive Summary

This report outlines the trial shipment of coriander by Sarnagiti Kisan Agro Producer Company Ltd., under the Indo-German Agricultural Market Development (AMD) Project. Located in Ramganj Mandi, Kota district, Rajasthan, Sarnagiti Kisan Agro Producer Company Ltd. embarked on this initiative to enhance the market reach of locally produced coriander, leveraging the region's prominent status as the "Coriander City."

The Indo-German AMD Project aims to support agricultural market development and boost the export potential of Indian agri-products. Specifically, this project focuses on improving the production quality and market access for coriander produced by Sarnagiti Kisan Agro Producer Company Ltd. The objectives of the AMD project are to enhance policy environments, strengthen market development support services, and integrate farmer organizations into market-oriented value chains for better access to international markets, particularly the EU.

Key initiatives under this project included training and capacity building for farmers on EU-approved active substances, integrated pest management, quality specifications, export certification requirements, and good agricultural practices. A production cluster was formed, comprising registered farmers who underwent cluster-level training programs to ensure adherence to European standards. Following the training, a trial shipment of 19 MT of EU-compliant coriander was successfully exported to Asian Spices, a leading exporter from Unjha, Gujarat.

The results of these efforts were significant. The coriander produced met the stringent quality standards required for export to the EU, as verified by lab tests conducted by Vimta Life Science, Hyderabad. The project facilitated direct connections between the Sarnagiti Kisan Agro Producer Company Ltd. and international exporters, enhancing market opportunities for local farmers. The trial shipment demonstrated the potential for significant economic benefits, including higher income for farmers and expanded market reach for locally produced coriander.

Several challenges were encountered during the implementation, including logistical issues, compliance with international standards, and the need for continuous capacity building. To upscale the marketing initiatives, recommendations include continued training and infrastructure improvements to support high-quality production, access to financial resources to sustain and expand export activities, and a gradual increase in production volume to meet growing market demands. Additionally, obtaining organic certification and developing robust branding and diverse market strategies would strengthen market presence.

The trial shipment of coriander by Sarnagiti Kisan Agro Producer Company Ltd. marks a significant step towards integrating local agricultural products into global markets. The successful implementation of this initiative highlights the potential for scaling up and achieving long-term economic growth and sustainability for the farmers in the region. The continued collaboration between local producers, governmental bodies, and international partners is crucial for sustaining this momentum and ensuring the project's success.

The trial shipment has been a series of learning episodes not only for the FPC but even the AMD Project team. All the learnings from the different steps and process during this trial shipment have helped to prepare a Standard Operating Procedures (SOPs) for spices. These SOPs will serve as a tool for any aspiring FPCs to follow and start their own export business. The SOP is accessed at the Indo-German Agricultural Market Development Website.

2. General Overview of the Region

Sarnagiti Kisan Agro Producer Company Ltd is located in Ramganj Mandi municipality in Kota district, Rajasthan. Ramganj Mandi is renowned as the "**Coriander City**" with Asia's largest coriander market and is also known for limestone export.

Kota district, situated in south-eastern Rajasthan, is irrigated by the perennial Chambal River, covering 62.15% of the area. The district comprises six tehsils: Ladpura, Digod, Pipalda, Ramganj Mandi, Sangod, and Kanwas. Notably, Kota is the only district in the state where the urban population exceeds the rural population, with an average annual rainfall of 732 mm.

The district's main crops in the Kharif season include soybean (77%), black gram (9%), and paddy (8%). In the Rabi season, wheat (46%), mustard (24%), coriander (21%), and garlic (6%) are predominant. Major farming systems are crops combined with dairy animals, horticulture, or both. The existing cropping systems feature combinations like soybean-wheat and black gram-wheat. Kota's land use includes 24.34% forest, 6.07% non-agricultural use, and 52.76% net sown area.

The revenue of Kota district is more than 18 district of Rajasthan together for the state Rajasthan. Ramganj Mandi is a trading and industrial hub of southeast Rajasthan so heavy exchange of transport is always there. Most of the economy is based on stone business and coriander seeds and well connected by rail and road to all major cities across India. There are many roadway transport services which transport Kota stone and coriander to all parts of India.



Figure 1 Kota District in India



Figure 2 Coriander Field in Ramganj Mandi, Kota

Ramganj Mandi attracts traders, farmers, and buyers from far and wide due to its extensive coriander market. The market bustles with activity, especially during peak seasons, as it serves as a crucial hub for coriander production and distribution. Apart from coriander, Ramganj Mandi's market also thrives on trading other agricultural commodities and products essential to the region's economy. The marketplace facilitates

transactions not only in coriander but also in wheat, mustard, garlic, and various other crops prominent in the district's agricultural landscape.

The market infrastructure in Ramganj Mandi supports a dynamic ecosystem of traders, wholesalers, and retailers. It features numerous mandis (market yards) where agricultural produce is bought and sold through auctions and direct negotiations. These mandis play a pivotal role in setting prices and determining market trends, influencing the livelihoods of local farmers and traders alike. Additionally, Ramganj Mandi serves as a focal point for agricultural innovation and information exchange. It hosts agricultural fairs, exhibitions, and educational workshops that promote modern farming techniques, crop diversity, and sustainability practices among the farming community. Overall, Ramganj Mandi's status as a leading mandi in Kota district underscores its importance as a center of agricultural commerce and cultural exchange, contributing significantly to the region's economic growth and agricultural development.

3. Coriander Production in Ramganj Mandi

Coriander production in the Ramganj Mandi plays a significant role in the agricultural landscape, contributing to both local consumption and regional trade. Kota, known for its fertile lands and favorable agro-climatic conditions, supports robust cultivation of coriander alongside other crops like soybean, wheat, and mustard.

The Rabi season, spanning from October to March, is crucial for coriander cultivation. Farmers typically sow coriander seeds after the monsoon season, leveraging residual soil moisture for optimal growth. The district's irrigation infrastructure, primarily supported by the perennial Chambal River, enhances crop yields and sustains coriander production throughout the season.

Farmers employ traditional and modern farming techniques to maximize coriander yields. The crop's cultivation cycle involves careful management of water, nutrients, and pest control measures to ensure healthy growth and quality. Coriander fields are often interspersed with other Rabi crops, promoting crop diversity and enhancing soil fertility.

Post-harvest, coriander undergoes processing and sorting in local market yards such as those in Ramganj Mandi, Kota's famed coriander hub. Here, the Regulated Market Committee (RMC) oversees fair trade practices, ensuring that farmers receive competitive prices for their produce. The coriander from Kota district not only caters to domestic markets but also meets export demands, reflecting its quality and market reputation.

Varieties and Grades

Improved varieties like Guj.Coriander-1, Guj.Coriander-2, RCr-41, UD-20, Rajendra Swati (RD-44), CS-287, CO-1, CO-2, CO-3, Sadhana, Swati, and Sindhu may be cultivated to get a high yield. Coriander is classified into grades like **Badami, Eagle, Scooter, single parrot, double parrot, green medium, green extra and green special**. After the harvesting of coriander, it is dried in sunlight; the excess drying leads to brown colour and fetch a low price. These brown colour seeds are called the Badami grade. The finer quality is called green, and it is traded at a premium to all other grades. However, the Badami grade has the highest market share, constituting 50% of the total produce. Many improved varieties of coriander are now available for cultivation in Tamil Nadu, Andhra Pradesh, Gujarat, and Rajasthan states.

Coriander Crop Seasonality

Time of sowing

For vegetable purpose, optimum time for sowing is first week of October and when grown for seed purpose, complete sowing in last week of October to first week of November. The crop requires 4-6 irrigations. The sowing of coriander starts post the harvesting of these two crops without much land preparation.

Harvesting

Crop duration of coriander is about 110-140 days and harvested When crop attained 20-25 cm height harvesting for green leaves can be started. Three to four cuttings can be taken. When a crop is grown for seed purpose, it is ready for harvesting in February – March month. Harvest when the capsule matures but has green colour. Overripe capsules fetch a lower price.

Post-Harvest

After harvesting allowed the crop to dry in sunlight for 6-7 days. After proper drying, carry out threshing after the cleaning operation.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

	Sowing Season
	Harvesting Season

Overall, coriander production in Kota district exemplifies agricultural resilience and economic significance, contributing to livelihoods and regional prosperity. The sector's integration with local markets and regulatory frameworks underscores its pivotal role in Rajasthan's agricultural economy.

4. Indo-German Agricultural Market Development Project Initiatives

The Indo-German Cooperation on Agricultural Market Development (AMD Project) began in 2021 with the overarching goal of fostering sustained economic growth in the agricultural sector and enhancing rural livelihoods. The project initiative aligns with India’s strategy for modernizing agricultural markets.

The AMD project focused its activities in three Indian states—Uttar Pradesh, Odisha, and Rajasthan, offering technical support to develop selected agri-food value chains for the farmer producer organizations (FPOs). The project activities aimed to improve the efficiency and effectiveness of domestic market marketing and to boost the export potential of specific agricultural value chains and products. Additionally, the project seeks to expand international marketing opportunities for Indian farmers.

The project specifically aims to achieve three key outcomes:

- Enhance the policy environment for agricultural market development and increase the export potential of Indian products through a dialogue platform.
- Strengthen support services and related capacities for agricultural market development.
- Integrate target farmer organizations into market-oriented value chains and enhance their access to international markets, particularly in the EU.

To integrate FPOs into market-oriented value chains and improve their capacity to access international markets, the Indo-German AMD Project has facilitated trial shipments of turmeric, coriander, cumin, and Mangoes. In April 2024, the project piloted trial shipments of spices from Odisha, Rajasthan, and Uttar Pradesh collaborating with selected FPOs of which one is Sarnagiti Kisan Agro Producer Company Limited.

The AMD project has implemented its project activities in two districts of Rajasthan, namely Kota and Jaisalmer. For effective execution, two FPOs/FPCs—one from Kota and one from Jaisalmer—were selected on pilot basis for active involvement. These FPOs were selected based on primary random sampling from their working areas and are engaged in targeted agri-business services, supporting services, quality standards, and identifying new market and export opportunities.

A. Brief Profile of Sarnagiti Kisan Agro Producer Company Limited

Sarnagiti Kisan Agro Producer Company Limited, based out of Ramganj Mandi (Kota, Rajasthan) which is one of the important trading hubs for the Coriander in India, has been selected under the Indo-German Cooperation on Agricultural Market Development project for developing export value chain of Coriander. FPC's business strategy and plan have been prepared to facilitate its entry into the export value chain.

The Sarnagiti FPC has been promoted actively by Samdarshani Gramin Vikas Sansthan, a multi-sectoral NGO based at Jhalawar – Rajasthan. Sarnagiti FPC was registered in May 2016 as a producer company. FPC has 1069

shareholders (1000 as per RoC) spread across 42 villages. Sarnagiti FPC is a women-led FPC, wherein all the shareholders and Board of Directors are women only. There is a Board of 5 active Directors with an efficient CEO handling the overall functioning of the FPC. Only the CEO and the Accountant are paid directly from the FPC while remaining 5 staff are paid on a daily basis.

All the equity shareholders of the FPC are small and marginal farmers of the block Ramganj Mandi of Kota district. All the shareholders have contributed to the equity of FPC, the contribution of shareholders is Rs. 1000 per shareholder.

Farmers from the Sarnagiti FPC grow a diversity of crops namely Soyabean, Mustard, Coriander, Orange, Wheat, Garlic, Gram, Groundnut, Sorghum, Corn, Onion and Vegetables. Coriander is the major focal crop of Sarnagiti FPC. The major focus of this FPC is to support livelihoods of its member farmers through a multi-sectoral approach encompassing health service provision, financial inclusion through Self Help Group (SHG) formation, educational interventions, skill development, environment conservation, social protection etc. During the discussion with the Board of Directors (BoD) of the FPC, it emerged that the BoDs are very active in the day-to-day business of the FPC, are aware of various business activities, and are keen to grow this enterprise. This ownership amongst the BoDs is one very positive factor, which is a major positive point and strength for the FPC. Members of FPC are engaged in the production of soybean, mustard, coriander, maize, and gram crops. However, FPC is mostly focusing on soybean, mustard, and coriander transactions for business activities but has limited experience in output market trading.

As Sarnagiti FPC had no prior experience on trading and marketing, coriander value chain assessment before the trial shipment was conducted. The study identified the certain measures for the FPC to strengthen their coriander value chain. The measures are given in the table below.

Table 1 Measures for Sarnagati FPC

Production support	Reducing Cost of production of Coriander
	Development and Introduction of export-oriented agronomical practices
	Developing a mechanism for product traceability
	Facilitation in creating field level post-harvest management infrastructure
Postharvest and Enterprise support	Multiproduct facility for sorting, grading and packaging as per export requirement
Market Development	Introduction of entrepreneurs, FPO and other stakeholders to export markets and buyers
Institutional Support	Training and capacity building of value chain stakeholders
	Efficient convergence with public sector schemes
	Strengthening of FPOs

B. Brief Profile of Exporter- Asian Spices

Asian Spices is a renowned and growing food company specializing in a wide range of spices and allied products. Its trusted products and brands have a global presence, being available in over 50 countries. The company is dedicated to delivering high-quality and safe food products that enhance the health and quality of life for consumers. Their commitment to sustainability and societal contribution is driven by a passion for providing safe and healthy food, ensuring long-term success and a positive impact on the world. They have a strong passion to develop a sustainable supply chain right from the farm.

The company's mission is to be a leading, trusted food company that enhances stakeholder value through ethical business practices, regulatory compliance, and sustainable operations. Asian Spices strives to provide safe, trusted food and flavors to its customers, becoming a preferred corporate citizen, employer, supplier, and brand for its valued customers. The company is passionate about understanding and meeting consumer needs, with a goal to provide high-quality products that are safe, healthy, hygienic, and flavorful.

By embracing its value system and adopting sustainable business practices, Asian Spices ensures that it not only meets but exceeds consumer expectations. The focus on ethical business practices and compliance with all regulations solidifies its reputation as a preferred corporate citizen and a trusted name in the food industry. Through a commitment to quality and sustainability, Asian Spices continues to make a positive impact on the global market, contributing to a better world for future generations.

5. The Coriander Trial Shipment

Indo-German AMD project facilitated the first trial shipment of 19 metric tons of EU compliant coriander from Ramganj Mandi to Unjha. Sarnagati FPC sent its first shipment to a leading Exporter 'Asian Spices' demonstrating its agri-business capabilities. For facilitating trial shipment, the Indo-German AMD project has followed seventeen major activities that spread from the pre-sowing of crop to the final dispatch of the finished product to the exporter. The section below highlights the major steps and activities implemented by different stakeholders of the trial shipment that led to successful completion of the trial shipment.

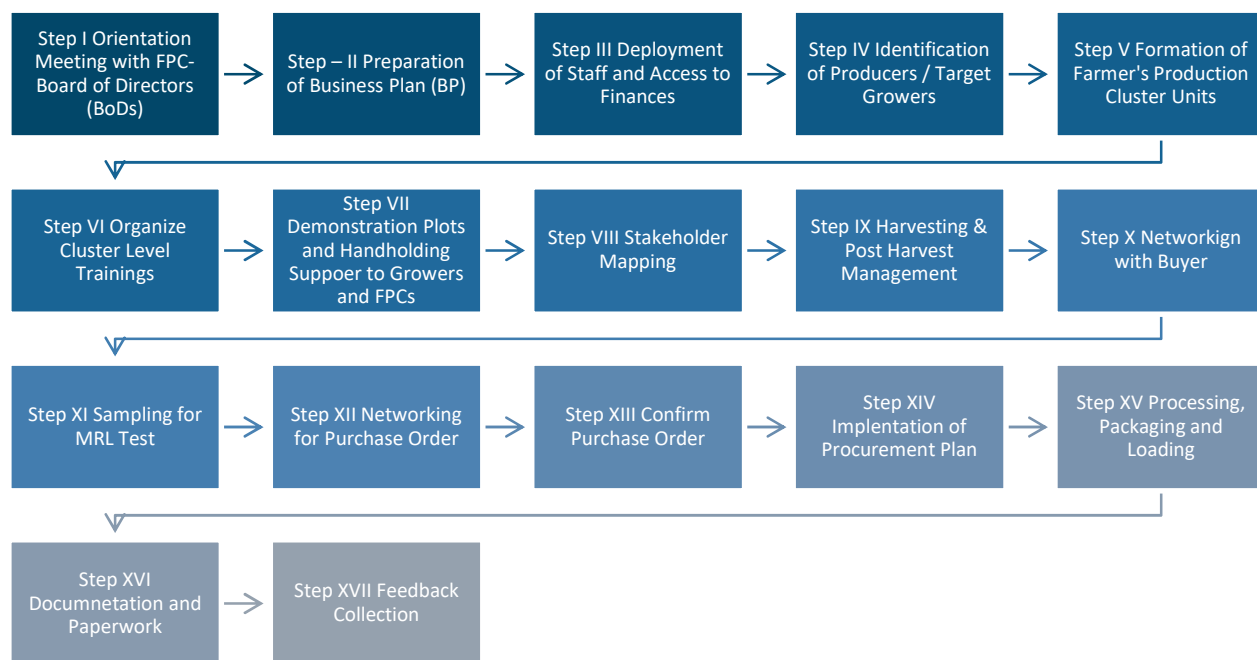


Figure 3 Snapshot of the major steps undertaken for facilitating the trial shipment

Table 2 Steps of the Coriander Trial Shipment in Rajasthan state

<p>Step – I (12 months before or just before the planting season)</p>	<p>Orientation Meeting with FPC- Board of Directors (BoDs)</p> <ul style="list-style-type: none"> ➤ The AMD Project team conducted initial meetings on ‘Basic concept on trial shipment’ with all the Board members including CEO of the Sarnagati FPC to gauge the willingness and commitment of the Board of Directors and willingness to participate in the export operations. ➤ After the confirmation of the willingness, the Indo- German AMD project planned for scheduling of monthly meeting with Board members & office bearers. Monthly meetings ensured proper communication and accountability of the Board members throughout the implementation process.
<p>Step – II (12 months before or just before the planting season)</p>	<p>Preparation of Business Plan (BP)</p> <ul style="list-style-type: none"> ➤ The AMD team invited all the BoDs and office bearers of the FPC along with 3-4 progressive farmers for business plan preparation exercise. During preparation of Business Plan, they decided to frame an objective statement that includes– Total targeted quantity of the Agri-produce for domestic markets and export markets, target export markets destinations (countries), target domestic markets, commodity form (fresh/ polished/ sorted/ graded). ➤ Sarnagati FPC was set to enter export operations for the EU market in the year 2023-24. The commodity forms that Sarnagati FPC can export include dried coriander. The major cultivation characteristics were EU complaint coriander, with the first harvest tentatively scheduled for April 2024.

	<ul style="list-style-type: none"> ➤ Key details of the trial shipment plan are as follows: <ul style="list-style-type: none"> • Expected Trial Shipment Quantity: Approximately 100 MT • Average Quantity of Produce Available per Farmer: 2 MT • Total Number of Participating Farmers: 100 • Number of Planned Trial Shipments: Three, each with 20 MT • Projected Timeline for Trial Shipments: April 2024 <p>Projected Infrastructure Requirements:</p> <ul style="list-style-type: none"> • Facilities for grading, sorting, weighing, and packaging <p>Project Service Requirements:</p> <ul style="list-style-type: none"> • Transportation • Testing and certification <p>➤ According to the projected status report of the AMD project before the first trial shipment, the Sarnagati FPC was well-prepared to meet the demands of the EU market while maintaining high-quality standards and efficient logistics.</p>
<p style="text-align: center;">Step III (12 months before or just before the planting season)</p>	<p>Deployment of Staff and Access to Finances</p> <ul style="list-style-type: none"> ➤ Between 2016 and 2019, NABARD provided support to the NGO Samdarshi Gramin Vikas Sansthan, amounting to INR 9,06,000. This funding included regular transfers of INR 50,000 to the FPC as needed. In 2018, Sama Unnati in Chennai contributed INR 20,00,000 for a one-year period. ➤ In 2019 and 2020, NEP Kisan extended working capital loans of INR 20,00,000 annually. This support continued from 2021 to 2024, with an increased loan amount of INR 30,00,000 per year. Additionally, in 2021, SFSE provided an equity grant of INR 10,00,000. ➤ From 2022 to 2024, several organizations offered working capital loans to support the FPC. IDFC provided INR 10,00,000 annually, while Baroda Rajasthan Kshetriya Gramin Bank (BRKGB) contributed INR 3,00,000 per year. Furthermore, the Custom Hiring Centre, backed by NEP Kisan, offered INR 11,00,000 annually as a working capital loan. ➤ FPC needed finances for staff, procurement of farm produce from their shareholders, transportation, and logistics. The AMD team guided the FPC to plan for the allocation of FPC's own funds as well as credit channels. ➤ For the trial shipment under consideration with a purchase order of 19 MT EU compliant coriander, the Sarnagati FPC did not require prior to payments to farmers as the exporter made the full advance payment after the loading the consignment.
<p style="text-align: center;">Step – IV (Just before the planting season)</p>	<p>Identification of Target Growers/ Producers</p> <ul style="list-style-type: none"> ➤ Progressive growers from the Sarnagati FPC were identified by the FPC and the AMD team. ➤ The AMD project, along with FPC initiated documenting the Package of Practices (PoP) for coriander, field chemical application record, production cost and Maximum Residue Limit (MRL) test results. ➤ The FPC using minimal chemicals and mostly adopting traditional farming with majority negative results for the presence of EU approved active substances, were chosen.
<p style="text-align: center;">Step – V</p>	<p>Formation of Farmer’s Production Cluster Units</p>

<p>(Just before the planting season or during plantation time)</p>	<ul style="list-style-type: none"> ➤ Based on the number of farmers participating in the exports, five potential “production clusters units” were identified. ➤ The number of production clusters units were selected in such a way to comprehensively cover all the target farmers required to meet the business plan target. ➤ The details of the cluster are <table border="1" data-bbox="561 436 1192 667"> <thead> <tr> <th>Sr. No.</th> <th>Name of Village</th> <th>No. of Farmers</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Reenchhi</td> <td>35</td> </tr> <tr> <td>2</td> <td>Salera Khurd</td> <td>25</td> </tr> <tr> <td>3</td> <td>Saandyakhedi</td> <td>25</td> </tr> <tr> <td>4</td> <td>Manoharpura</td> <td>15</td> </tr> </tbody> </table> 	Sr. No.	Name of Village	No. of Farmers	1	Reenchhi	35	2	Salera Khurd	25	3	Saandyakhedi	25	4	Manoharpura	15
Sr. No.	Name of Village	No. of Farmers														
1	Reenchhi	35														
2	Salera Khurd	25														
3	Saandyakhedi	25														
4	Manoharpura	15														
<p>Step – VI (Just after the planting season- till the harvest season)</p>	<p>Organize Cluster level Training</p> <ul style="list-style-type: none"> ➤ Regular <u>month-wise training calendar</u> were prepared for the farmers. The training plan considered all aspects from pre-sowing till post-harvest management operations and sessions were planned in a proper sequence during the span of eight months that covers the entire cropping season. ➤ The trainings were provided in cluster and cover all the farmers. ➤ The trainings considered thematic topics like- Principals of Good Agricultural Practices (GAP), Quality specification of export market standard, IPM, INM, PHM & NPOP certification, harvesting, Sorting and grading. ➤ Practical hands-on trainings were also provided at the farmer’s field. ➤ Over time, a total of 39 training sessions have been conducted on these thematic areas, covering a broad spectrum of topics. ➤ Record of all the training programs were maintained. 															
<p>Step – VII (During the cropping season)</p>	<p>Demonstration Plots and Handholding Support to Target Growers & FPCs</p> <ul style="list-style-type: none"> ➤ In each cluster ‘Demonstration Plots’, were identified. The focus of the Demonstration Plot was to showcase the benefit of export-oriented production technologies to other farmers. ➤ Handholding and technical support are provided during the land preparation, transplantation, intercultural operation, diseases and pest control and post-harvest management. ➤ The Board of Directors (BoDs) of the FPCs regularly monitored the farms and kept all the records updated. 															
<p>VIII (During the cropping season)</p>	<p>Stakeholder Mapping</p> <ul style="list-style-type: none"> ➤ Once the BoDs confirmed the business plan, discussion with different stakeholders – agri-startups, training /research centers, government officials, banks, financial institutions, logistic and transport service providers were undertaken, and necessary support should be requested. 															

	<ul style="list-style-type: none"> ➤ Initiatives were undertaken to meet the stakeholders in frequent intervals of time and keep them updated on the progress of the activities.
<p>Step – IX (Before the Harvesting Season)</p>	<p>Harvesting & Post Harvest Management (PHM)</p> <ul style="list-style-type: none"> ➤ Farmers were well trained before harvesting the crop regarding the maturity index, harvesting methods, and prevent contamination, and farm storage. ➤ Post harvest management were included to ensure proper sorting and grading. ➤ The FPC ensured that no chemicals were applied during the PHM operations. Proper clean PP bags were used to store the harvested product. ➤ Harvesting season was determined by the quality parameters of the end product rather than the total vegetative yield. Farm workers had clear instructions to use proper cutting devices and avoid harvesting unwanted plants. ➤ Proper drying techniques are essential for drying and storing the harvested crop. The drying procedure and temperature must meet the quality requirements of the produce. Sorting was done after drying and before packaging. The packaging material should be selected based on quality requirements and storage duration, ensuring it is clean, dry, and undamaged. Storage areas were clean and free from insect pests, with proper separation for different crop products. ➤ Clean and dried coriander seeds were filled in bags and stored in damp-free, aerated storehouses.
<p>Step – X (During the planting season)</p>	<p>Networking with Buyer</p> <ul style="list-style-type: none"> ➤ The AMD project facilitated networking with exporters and 4 large domestic buyers. ➤ In March 2024, the Sarnagiti FPC team, facilitated by the AMD project, visited Unjha Mandi with coriander reports and quality samples. Accompanied by FPC farmers, they met with several exporters in Unjha, Gujarat. Following a series of meetings, they finalized an Asian exporter for a trial shipment of 19 MT of coriander from the village of Reenchhi. After negotiations, they gathered all necessary documents for the purchase order, including the FPC's name, GST, account details, and registration. As a result, Asian Spices issued a purchase order for coriander to Sarnagati Kisan Agro Producer Company Ltd.
<p>Step – XI (Just on the onset of first harvest)</p>	<p>Sampling for MRL Test</p> <ul style="list-style-type: none"> ➤ Five random samples of coriander were gathered from the operational areas of Sarnagati FPC farmers. These samples underwent testing at the ISO-certified laboratory in Hyderabad, accredited for all EU-approved molecules. The purpose of sampling and testing was to ascertain the quality parameters of the harvest produce; specifically, the Maximum Residue Level (MRLs) as per the targeted EU food safety standards. ➤ Analytical sample tests were conducted at accredited laboratories immediate after the harvesting.

	<ul style="list-style-type: none"> ➤ The test reports were available within 7 days and the reports were discussed and shared with the cluster production units. Similarly, the test reports were shared with the exporter to enable exporter’s confidence. ➤ Also, a sampler from AVES Lab in Unjha, Gujarat, visited Ramganj Mandi, Kota, and conducted comprehensive sampling of all coriander lots. Sampling involved collecting samples from every bag, ensuring 100% coverage, and sealing all lots afterward. This sampling process was carried out under the supervision of Asian Spices, Unjha, Gujarat. The samplers meticulously inspected the coriander for quality standards, including size, freshness, color, aroma, and the absence of pests or diseases.
Step – XII (During peak harvesting time)	<p>Networking for Purchase Orders</p> <ul style="list-style-type: none"> ➤ Following initial interest from Asian Spices, along with AMD Project Jaipur and AMD Field Executive, and the CEO of Sarnagiti FPC, coordinated for the purchase order. ➤ Several discussions focused on the trial shipment, quantity, rates, timeline, and payment-related matters. Two days later, on April 6, 2024, Asian Spices officially issued a purchase order (PO) to Sarnagiti FPC.
Step – XIII (During peak harvesting time)	<p>Confirm Purchase Order (PO)</p> <ul style="list-style-type: none"> ➤ After receiving the purchase order confirmation of the purchase order with the buyer was done, ensuring clarity on all aspects of the transaction. ➤ The CEO of Sarnagiti FPC responded positively to Asian Spices confirming acceptance of the Purchase Order (PO). The PO specifies that Sarnagiti FPC is to deliver 20 MT of Best Single Parrot Grade coriander seeds and will receive INR 113 per kg, resulting in a total net value of INR 22,60,000.
Step – XIV (After receiving the Purchase Order)	<p>Implementation of Procurement Plan</p> <ul style="list-style-type: none"> ➤ The FPC took an important role in procurement. ➤ Procurements quality standards were ensured: <ul style="list-style-type: none"> ✓ Cleanliness, contamination of foreign materials ✓ Shape/ size, color and other physical attributes ✓ Pesticide residues level ✓ Moisture content ➤ The harvested coriander seeds undergo cleaning and are sun-dried for 15 days. They are then subjected to preliminary hand sorting and grading before being packaged in jute bags. Subsequently, the farmer sells the coriander seeds to the FPC, where they are collected and temporarily stored at the procurement center.
Step – XV (After the Purchase Order)	<p>Processing, Packaging and Loading-</p> <ul style="list-style-type: none"> ➤ The sampler visited Ramganj Mandi to verify all coriander lots. They instructed to unseal all lots and transfer the coriander from jute bags to 40 kg PPE bags. Subsequently, the bags were loaded into containers for transport to Unjha Mandi, Gujarat. Once loaded, the sampler sealed the containers, ensuring adequate ventilation to preserve freshness. ➤ Each container was then labeled with essential information, including product name, weight, shipping details, and destination. Careful attention

	<p>was given to the loading process onto shipping containers to prevent damage during transit. Containers were secured and properly sealed to maintain the quality of the product throughout transportation.</p> <ul style="list-style-type: none"> ➤ The bags were loaded in the presence of the exporter representatives and weights were cross-checked.
<p>Step – XVI- (Before dispatch of the final produce)</p>	<p>Documentation and Paperwork</p> <p>The necessary documentation / paper works required for the trial shipment are ensured-</p> <ul style="list-style-type: none"> ❖ Collection of PO from client – FPC ❖ PO confirmation & fix loading schedule – FPC ❖ Certification and Test Reports ❖ Email to client for advance payment - FPC ❖ Generation of Invoice & E-Way Bill – FPC ❖ Reporting to Govt. / Ministry / other stakeholders - FPCs
<p>Step XVII (After delivery of the Produce)</p>	<p>Feedback Collection</p> <ul style="list-style-type: none"> ➤ Once the product reached the destination of the exporter, feedback from the exporter was collected on quantity and quality.

6. Costing analysis

Table 3: Cost analysis for Coriander sale by Farmers of Sarnagati FPC

<u>Parameter</u>	<u>Value</u>
Profit Calculation for Farmers	
(A) Asian Spice Purchase Price offered to FPC	INR 113 per kg
(B) Average Purchase Price of local mandi Farmers	INR 90 per Kg
(C) Cost incurred by farmers for local transport	INR 1.5 per Kg
(D) Cost of bagging and stitching per kg	INR 0.75 per Kg
(E) Cost of Labour for Loading and Unloading	INR 0.5 per Kg
(F) Other Charges	INR 0.5 per Kg
(G) Per Kg unit cost for Farmer (B+C+D+E+F)	INR 93.25 per kg
Profit Margin for Farmer (A-G)	INR 19.75 per kg

*Cost of MRL testing of 5 Samples INR 125,000 was borne by the AMD project.

This analysis demonstrates that selling Coriander to Asian Spices significantly increases the profitability for farmers compared to selling at the local market rate.

7. Emerging Lessons

A. Farmers perspective

It was seen through the semi-structured interview with farmers that farmers are motivated as they received better price for their produce. In this shipment to Asian Spice, an international exporter with warehouses in Unjha, the increased price offer to FPC was highly motivational and slowly but surely the farmers are understanding the importance of avoiding the use of restricted EU approved pesticide molecules on the farm production. However, for the farmers the aggregation model for collective marketing by FPC is new and would require two to three additional business cycles to fully mature.

Farmers are ready to test their produce to get qualified for the trial shipment. There are 75 farmers who took the training, and they all aspire to send their produce for the next trial shipments.

Farmers need different improved certified varieties of Coriander seeds for better production as well as to avoid any seed borne diseases and the need to use chemical pesticides.

B. FPC perspective

With the first export trial shipment, receiving higher price per Kg for coriander to farmers has been the highest motivation for the farmers and the FPC to start the export business.

Starting with lack of awareness about the export value chains to successful completion of the trial shipment has brought new learnings for the FPC. Some of the important areas where FPC plans to strengthen are-

- The FPC requires high yielding seeds of coriander to increase farmers' production.
- Further understand the technicalities to maintain the export quality of coriander over the years.
- Access to quality testing centers to be available at nearby places. Access to export facilitation and the market access information.
- Access to credit and finance is always the highest priority especially in these beginning years of development.

C. Exporter perspective

Asian Spices met with the Sarnagiti FPC with active facilitation from AMD project staff where they came with a few FPC farmers, sample of fresh coriander and the test good test results that build confidence within the Asian Spices team. They decided to go ahead with the first trial shipment based on the good quality of their coriander with single parrot grade whole coriander seeds and the area under the coriander cultivation in the Sarnagiti FPC. Transparency and authenticity of the FPC played a significant role to crack the deal.

The exporter is satisfied with the first trial shipment but they expressed their reservations on the shipment being with higher percentage of split seeds and lesser single parrot grade whole seeds as promised before the shipment. This resulted in increased costs for them as they cannot pack split seeds and only whole seeds are

packed with maximum allowable limit of 3-4%. They understand that the Sarnagiti FPC is a newly formed FPC and would take them some years to establish strong enough to provide higher quantities by maintaining the quality. They are happy to support the farmer groups and the FPC to have some quality check points at farm grade level, meet with farmers before sowing so that the farmers understand the requirements well in advance.

D. Indo-German AMD project perspective

The trial shipment has been a series of learning episodes not only for the FPC but even the AMD Project team. All the learnings from the different steps and process during this trial shipment are put down into Standard Operating Procedures (SOPs) for Spices. These SOPs will serve as a tool for any aspiring FPCs to follow and start their own export business.

The FPC was able to do this trial shipment only because of the active support from the AMD project assistance and handholding. So, for the FPC to stand by itself in the export market field, may require some more years of hand holding but needs a formation of the exit strategy for AMD from the FPC for its sustainable survival in the future.



Figure 4 Sampling of Coriander



Figure 5 Loading of Coriander



Figure 6 Farmers with trial shipment truckload

8. The challenging scenarios

Table: 4 – Challenging Scenarios from different Actors of the Value Chain of Coriander under Consideration

Sr. no	Actor	Challenges faced	How was the challenge addressed?	Was the challenge addressed completely, partially or unaddressed?
1	Farmers	<p>Adoption of package and practices that are compliant to EU food safety standards:</p> <p>Farmers in the region practice coriander cultivation with almost all Good Agricultural Practices (GAP). However, many of the farmers have started using chemical fertilizers and pesticides that are not compliant with the international food safety standards. If such farmers are part of the trial shipment, the chances of export rejection are high.</p> <p>Climate Sensitive Crop:</p> <p>Coriander seeds after harvesting if stored for longer periods (more than 15 days) or if it rains during the harvest time, lose its original colour and fragrance making it impossible to sell even in the local market.</p> <p>Infrastructure:</p> <p>Due to lack of farm-level storage infrastructure, inability to hold produce to take advantage of price movement of commodities.</p> <p>Laboratory Testing:</p> <p>Around 100 farmers were given training on the EU MRL standards and EU approved active substances. But only 5 farmers samples were tested.</p> <p>AMD Project testing of all 582 molecules took 10 days for getting results while the tests done by the Asian Spices as Exporter took 3 days, so total of 13 to 15 days for farmers to know if their sample is positive or negative and would be exported or sold in the local market remained unclear.</p> <p>Availability of Seeds:</p> <p>Lack of availability of certified seeds at sowing time.</p> <p>Access to Technology:</p> <p>Limited access to technical assistance, use of modern technology, and access to modern marketing platforms.</p>	<p>Farmers and FPOs were oriented towards the EU MRL standards and EU approved active substances.</p> <p>Farmers level record and demonstration plots were introduced by the project.</p> <p>It took 13 to 15 days for the test results and only selected farmers coriander was ultimately exported to the Asian Spices and hence rest were dis-heartened.</p> <p>Storage facility of the FPC used for the particular trial shipment under consideration by the FPC.</p>	<p>Partially.</p> <p>Though farmers are now trained, it takes several years of practice and constant awareness to achieve perfection. It's also important to learn that the international standards are frequently changing, and farmers should be aware of the changes through an established mechanism.</p> <p>Not addressed.</p> <p>All farmers should be tested, and all positive results farmer's coriander should be sent in the trial shipment by also reducing the duration for getting the test results.</p> <p>Partially addressed.</p> <p>Partially Addressed.</p> <p>Un-addressed. In process to find solutions.</p> <p>Un-addressed.</p>
2	FPC	<p>Women-led FPC:</p>		

		<p>Even though the FPC is women led, in the meetings with AMD staff and also other meetings with consultant, woman farmers do not join the meeting, only their male counter parts come to the planned meetings.</p> <p>Traceability system:</p> <p>Farmers level traceability system is required to trace the quality of the produce and practices adopted by farmers.</p> <p>Certification system:</p> <p>In order to access the international premium markets, certification under NPOP or GLOBALG.A.P etc. is important. The farms of the farmers are currently with minimal use of chemicals and hence the scope for future full organic conversion can be considered.</p>	<p>Ice-breaker exercise for the male farmers to introduce themselves and their wife and how she contributes to their joint farm.</p> <p>The project prepared an IT platform to cater the farm level data in digital form.</p> <p>The project in the initial first year, had trained the farmers on different certification systems related to spices.</p>	<p>Partially. The cultural context affects and restricts the motion of woman to participate in meeting held with external parties. Internally women are active but, in some regions, women need a constant push, awareness and empowerment.</p> <p>Partially: Due to limitation of the resources, the IT platform couldn't be implemented.</p> <p>Unaddressed: Certification systems are expensive for the resource constraint farmers. Government policy related to subsidization of certification cost may encourage farmers to apply for certification.</p>
3	Exporters	<p>Coriander seed quality:</p> <p>They are satisfied with the first trial shipment, but they expressed their reservations on the shipment being with higher percentage of split seeds and lesser single parrot grade whole seeds.</p> <p>This resulted in increased costs for them as they cannot pack split seeds and only whole seeds are packed with maximum allowable limit of 3-4%.</p>	<p>The project in the initial first year, had trained the farmers on Quality Control of Coriander seeds.</p>	<p>Though farmers are now trained, it takes several years of practice and constant awareness to achieve perfection.</p> <p>Exporters are happy to support the farmer groups and the FPC to have some quality check points at farm grade level and meet with farmers before sowing so that the farmers understand the requirements well in advance.</p>

9. Recommendations

Organic Certification

Many farmers under the Sarnagiti FPC still use minimal quantities of super phosphates, fertilizers, urea, and insecticides, which are not allowed under organic farming standards due to their synthetic nature and potential environmental impacts. Organic farming emphasizes natural processes and inputs to maintain soil health, biodiversity, and ecological balance. Although farmers are now trained in Good Agricultural Practices (GAP), achieving perfection requires years of practice, follow-up, support, and on-going awareness. Providing organic alternatives to the major pest and disease issues on farms still remains a critical step to bring the FPC towards organic. It is also crucial to keep up with frequently changing international standards through an established mechanism to ensure compliance.

To promote sustainable production practices, farmers under the FPC should explore subsidies for organic certification through agencies like APEDA to reduce financial burdens. Leveraging government schemes that

provide financial assistance or subsidies for organic farming and certification processes can further support this transition. While organic products are becoming less niche in some regions, there remains significant demand for certified organic coriander, which can attract premium prices in both domestic and international markets. Certification can open doors to new markets, including high-value organic markets in Europe, North America, and Asia.

Capacity Building and Infrastructure Development

Nurture Sarnagati FPC members with skills in marketing, sales negotiation, and customer relationship management. Developing proper storage facilities to maintain the quality of coriander, reduce post-harvest losses, and enable bulk storage for better price negotiation. Establishing small-scale processing units for cleaning, drying, and packaging coriander, ensuring value addition at the local level.

Woman Empowerment

To truly empower women within this women-led Farmer Producer Company (FPC), it is essential to address the challenge of low female participation in key meetings and decision-making processes in certain areas of operation within the FPC. Strategies should include creating a supportive and inclusive environment that encourages and prioritizes women's attendance and active engagement. This could involve scheduling meetings at times convenient for women, providing childcare support, and offering transportation if needed.

Additionally, conducting gender-sensitivity training for all members, including male counterparts, can help create a culture of respect and inclusivity. Mentorship programs and leadership training specifically for women farmers can build their confidence and skills, enabling them to take on more active roles. By implementing these measures, the FPC can ensure that women farmers are not only represented but also have a significant voice in the company's operations and decision-making processes, fostering true gender equality and enhancing the overall effectiveness of the organization.

Incremental Scaling

Increase the number of shipments progressively to build operational experience, market credibility and gain independence. Use each shipment as a learning opportunity to refine logistics, understand market preferences, and improve product quality and consistency. Develop robust logistics and supply chain management practices to handle larger volumes efficiently and cost-effectively. Secure long-term contracts with buyers to ensure consistent demand and stable pricing. Establish a feedback mechanism with buyers to continually learn and improve product quality and customer satisfaction.

Branding and Diverse Market Strategies

Create a distinct brand for the coriander produced, emphasizing its unique qualities, origin, and organic status. Introduce value-added products like coriander powder. These products often command higher prices and can attract different market segments. Attending national and international trade shows to showcase the product, network with potential buyers, and understand market trends.

Strengthen Market Linkages

Develop relationships with more buyers like Asian Spices. Explore partnerships with domestic and international spice companies, organic product retailers, and specialty food markets. Utilize e-commerce platforms to sell coriander directly to consumers, enhancing profit margins by eliminating intermediaries.



Indo-German Cooperation on **Agricultural Market Development**

Building sustainable partnerships

Agricultural Market Development

Office Address:

Indo-German Cooperation on Agricultural Market Development

C/o CCS National Institute of Agricultural Marketing (NIAM)

Bambala, Kota Road, Pratap Nagar

Jaipur-302033 (Rajasthan) India