सत्यमेव जयते
Government of Rajasthan

Chief Minister's Rajasthan Economic Transformation Advisory Council (CMRETAC)

DEPARTMENT OF PLANNING, RAJASTHAN

POLICY STUDY ON INTEGRATED AGRO-BUSINESS INFRASTRUCTURE

access

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Technical Support Organisation
CMRETAC

2022

सत्यमेव जयते

Chief Minister
Rajasthan

MESSAGE

Every state is important in the scheme of national development. We cannot assure the progress of India without the progress of the states. The Constitution binds us in a federal polity where every order of the government (Union, State and Local) has an important role to play.

State governments are certainly closer to the people and hence bear an enormous responsibility towards ensuring effective delivery of goods and services. In this endeavor, they have a direct, indirect and enabling role to play. Rajasthan is committed towards that goal and has been at the forefront of many reforms since long. Our sincere and unceasing efforts, during the pandemic and otherwise, have been recognized widely.

The Bhilwara COVID-19 containment “model” has been recognized as a replicable model globally. Ours was also one of the first states in India which came up with a comprehensive strategy for economic revival in the wake of the pandemic. Besides taking a plethora of immediate steps to extend social and economic relief to the people during COVID-19, Rajasthan has also introduced several transformative measures in the recent past to boost the economy of the state. Rajasthan Investment Promotion Scheme, 2019; Food Processing Policy, 2019; Tourism Policy, 2020; MSME Facilitation Act, 2019; Handicraft Policy 2022; and Rajasthan Investment Promotion Scheme, 2022 are some of the path breaking initiatives.

We have also started the practice of 'thematic' annual budgets for converging our efforts and energy on most pressing issues and have ensured that governance is truly decentralized. Our recent campaigns on 'Prashasan Shehron Ke Sang Abhiyan' and 'Prashasan Gaon Ke Sang Abhiyan' are examples of that spirit.

While our efforts are incessant, we are also aware that nation-wide structural slowdown of the economy and recurring shocks like the recent pandemic, call for an even greater effort. Towards this end, the state government in March 2020 set up Rajasthan Economic Transformation Advisory Council under my Chairmanship with the mandate to suggest robust and resilient economic restructuring for the state. To ensure that the Council gets best possible advice, we invited eminent dignitaries and experts as members of the Advisory Council.

I am pleased to state that the Council has delivered a set of nine policy reports across areas as diverse as Fiscal Management; Managing Urban Informal Sector; Integrated Agro-Business Infrastructure; Sustainable Agriculture; Doing Business; Quantifying Intangible Cultural Assets; Education and the New Paradigm (bridging digital divide); Medical Services; and Public Private Partnership in Infrastructure. These policy areas may appear to be separate and discreet but one commonality that binds them all is that they are truly geared towards a bottom up approach to the development of the state. I urge my colleagues in the state government to also focus on inter-linkages in these policy areas for the best possible outcome.

While the Council is still at work with many new emergent areas that deserve attention, I am happy to state that the present policy study is very much a part of this endeavor.

I am grateful to the Members of the Council, my Ministerial colleagues, officers of the Government, all collaborators and organizations who have worked tirelessly to make this possible. My special acknowledgement of Shri Arvind Mayaram, Vice Chairman of the Council, whose leadership and contribution towards this endeavor has been extremely valuable. My appreciation is also to the entire team at the Council who have diligently worked to put these reform oriented reports together.

(Ashok Gehlot)

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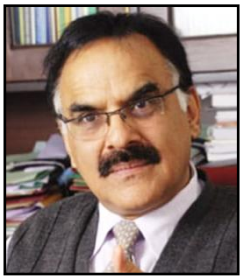
Economic Advisor to CM
& Vice Chairman
CM's Rajasthan Economic
Transformation Advisory Council



FOREWORD

Improved rural infrastructure increases agricultural productivity by enhancing farmers' access to markets, agricultural inputs, credit, market information, and technology, whilst providing the rural poor access to non-farm income-generating opportunities.

However, inefficient logistics, infrastructure and services imply enormous costs of production and marketing, and effectively wipe out much of the gains from sales and therefore offer little incentive to farmers to increase outputs.

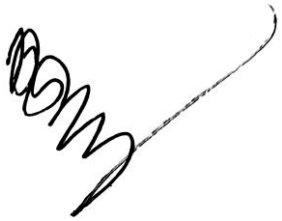
This study on Integrated Agro-Business Infrastructure prepared by Access Development Services presents a framework to determine possible areas of supply chain investments that would positively impact farmer incomes while increasing the overall resilience of Rajasthan's agriculture sector.

In brief, the study focuses on local value chains and highlights three key investment areas. These include: Crop Cluster Business Units (CCBU), Micro-Entrepreneurs Food Processing Units (MEFPU) and Minor Millet Mission.

I am pleased to state that in the Budget 2022-23 the state government announced the creation of 'Rajasthan Millet Promotion Mission' and a 'Centre of Excellence on Millets'. The Budget also contained announcements on 'Rajasthan Horticulture Development Mission' and 'Organic Farming Mission'. The recommendations suggested in the study can be highly relevant for these budget announcements.

I congratulate Access Development Services and all collaborators for putting this timely study and express my gratitude to Hon'ble Chief Minister for providing continuous support and guidance.

The study would not have been so rich and comprehensive but for the very active and continuous support of all the concerned departments and their senior officers. I also express my gratitude to all concerned Ministers, esteemed members of CMRETAC for their valuable guidance, concerned departments and Technical Support Organization to CMRETAC.



(Dr. Arvind Mayaram)

ACKNOWLEDGEMENTS

At the outset, we would like to express deepest gratitude to the Chairman of Chief Minister's Rajasthan Economic Transformation Advisory Council (CMRETAC) Hon'ble Chief Minister, Shri Ashok Gehlot and Hon'ble Minister for Industries, Smt Shakuntla Rawat.

We are indebted to Dr Arvind Mayaram, Vice-Chairman for his valuable guidance and generosity with timely feedback. We express our sincere appreciation for the valuable inputs of CMRETAC members. In particular, we are grateful to Shri T Vijay Kumar, Vice Chairman, RySS, Andhra Pradesh; Shri Pradeep S Mehta, Secretary General, CUTS International and Shri Ashok Gulati, Infosys Chair Professor, (Agriculture), ICRIER.

We are immensely grateful to Shri Dinesh Kumar, Principal Secretary, Agriculture, Horticulture and Cooperative Department; Smt. Aparna Arora, Principal Secretary, Rural Development and Panchayati Raj; Shri (Dr) K.K. Pathak, Secretary, Rural Development and State Mission Director, RGAVP; Smt Archana Singh, Commissioner, Industries; Dr Om Prakash, Commissioner, Agriculture; Shri Sohan Lal Sharma, Administrator, Rajasthan State Agriculture Marketing Board; Shri Mahesh Chandra Sharma, Managing Director, Rajasthan State Warehousing Corporation; Shri Y.N. Mathur, Additional Director, MSME and Shri Sanjeev Saxena, Executive Director, Rural Non-farm Development Agency.

This study would not have been possible without the proactive support of Shri Naveen Jain, Secretary, Plan; Dr. Bharti Dixit, Joint Secretary, Plan; Dr. O.P. Bairwa, Director, Directorate of Economics & Statistics; Shri Bhanwar Lal Bairwa, Joint Secretary, CMRETAC; Shri Munshi Singh, OSD to Economic Advisor to Chief Minister; Shri Vijay Kumar Sharma, Assistant Director, CMRETAC; Shri Ashutosh Sharma, Statistical Officer, CMRETAC; Dr. Devanand, Assistant Statistical Officer, CMRETAC; Shri Yograj Pacherwal, Informatics Assistant, CMRETAC and Ms. Saroj Saini, Informatics Assistant, CMRETAC.

We also acknowledge the tremendous contribution made by 60 FPOs across 26 districts who were consulted fo the study. The study also drew insights from Government of Odisha Mission on Millets, interventions of various corporations and CSOs.

Our sincere thanks to Shri Raman Ahuja, Principal Author of this study who carried out the study on behalf of Access Development Services; Shri Suvendu Rout, Vice President, Access Development Services and Shri Hemant Dixit, Senior Manager, Access Development Services. Indicc Associates provided technical support throughout

this study. We are thankful to Ms Mansavi Bihani and other research colleagues at Indicc Associates who constantly worked hard, sometimes on short deadlines, to ensure timely delivery of this report.

Finally, any error or omissaion that may have remained is solely ours and should not be ascribed to any of the above acknowledged people or institutions.

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TABLE OF CONTENT

EXECUTIVE SUMMARY

1 Investments in Supply Chain Clustering & Agro Logistics

Improved rural infrastructure increases agricultural productivity by enhancing farmers' access to markets, agricultural inputs, credit, market information, and technology, whilst providing the rural poor access to non-farm income-generating opportunities. Whereas, inefficient transport logistics infrastructure and services imply enormous (monetary and non-monetary) costs of production and marketing, and effectively wipe out much of the gains from sales, providing little incentive to farmers to increase outputs. The gains from increased agricultural productivity are affected by the agricultural/food supply chain inefficiencies and lead to reduction/stagnation of farmers' income and food wastage.

Therefore, policy and investment decisions need to focus on improvements on both the supply and demand sides. In light of this, this study presents a framework to determine possible areas of supply chain investments that would positively impact farmer incomes while increasing the overall resilience of Rajasthan's agriculture sector.

2 Approach & Methodology

The study has used the following three supply chains to determine the best-in-class supply chains in India. These are –

- AMUL (for milk and milk products supply chain for domestic market),
- SAFAL (for fruits and vegetables supply chain for domestic market) and
- Nashik Grapes (supply chain primarily for exports)

These supply chains demonstrate adoption of an integrated approach to the supply chains and agro-logistics with market-driven planning of the supply chain. Specifically, a Crop cluster approach has been used for the following purposes

- To identify leading crop clusters in Rajasthan
- So that cluster selections should ensure state wide representation and should have both long shelf life commodity and perishable products.

The study was benefitted by intensive interactions with several stakeholders – farmers, farmer collectives (FPO). Consultations were done with CEO of over 60 FPOs, representing approx. 50,000 farmers spread across 26 districts of Rajasthan. In addition to farmers and FPOs, discussions were held with large and medium private sector companies, financial institutions, NABARD, Agri-food startups, etc. The senior officials of various departments of the Govt of Rajasthan were very helpful in sharing the challenges and opportunities. These include Agriculture, Agriculture Marketing, Horticulture, Industries, MSME, Rural Development, RUDA, State Warehousing Corporation, etc.

1. Investment Areas

Based on the field study and analysis of the existing proven supply chains, three investment areas are recommended for consideration. These recommendations should not be seen as comprehensive or representing the totality of the opportunity in Rajasthan. Instead, these should be seen as directional, leading to development of a broader framework to address employment and enterprise creation in rural Rajasthan. **The three investment areas are:**

Crop Cluster Business Units (CCBU)

The approach of developing crop clusters leverages geographical concentration of crops– covering agriculture, horticulture, medicinal and spices. The crop clusters will allow for focused development of productivity tools, post-harvest management, value addition & marketing and deployment of agro-logistics. This study has selected twelve (12) crops – fruits, vegetables, medicinal plants, spices, that are produced across the state.

Micro-Entrepreneur Food Processing Units (MEFPU)

This will be an integrated programme – starting from harvesting to marketing of farm produce. The program will select entrepreneurs, provide processing, handling and storage technology and equipment, near farm-gate and provide marketing linkages to the processed products.

Minor Millet Clusters (MMC)

Minor Millets are primarily grown by small holder farmers and tribal communities. A cluster approach for millets recommends a 'farm-to-plate' kind of intervention in Rajasthan.

The key features of these three investment areas are represented in the boxes below –

Figure 2: Three Investment Areas

4. Recommendations

4.1. Infrastructure

In order for the Cluster Business Promotion Units to function effectively, a range of hard and soft infrastructure needs to be created under the marketing and logistics heads.

- Mapping of PMGSY roads (PWD/RD) from processing clusters to large towns, logistics centres, and identifying gaps therein.
- Establish a Packaging Development Center
- Develop and maintain a Marketing portal for promotion and trading of output
- National Accreditation Board for Testing and Calibration Laboratories (NABL) or National Accreditation Board for Testing and Calibration Laboratories
- Accredited Testing Centres for raw material and finished product quality. One testing facility should be able to service 5-7 CCBU.
- Digitize the operations of top 300 FPO/FPC in the state and bring them on a common platform. ERP for FPO & FPC
- Creation of 'ITI' like institute for developing a cadre of passionate FPO leaders

4.2. Finance

1. FPO/FPC Credit Guarantee Fund

This fund should be created in partnership with NABARD

2 MSME Credit Guarantee Fund

A credit guarantee fund targeting the MSME entrepreneurs will encourage value chain investments

3 Exporter Credit Guarantee Scheme

A pre-shipment and post-shipment credit guarantee fund will encourage exports thereby delivering greater value realization from the infrastructure investments.

Further, a set of recommendations are given below the fast track the creation of Micro Entrepreneur Food Processing Units.

- Fee waiver and single window clearance for micro-processing units at farm level
- Single window clearance for distribution centers
- Waiver of fee on set up of electricity lines for the micro processing units
- Increase the farmer entrepreneurs micro processing units' access to key road networks in districts and blocks to help reduce logistics costs
- Allocate land of about 5 acres at subsidized rates for set up of Distribution centers in each cluster to support value addition activities
- Direct local banks and RRBs to extend loans and financial support including e-Warehouse receipt facility to farmers setting up micro processing units
- KVKs & NGOs to train farmers

2. Institutional Architecture (IA)

It is proposed that two separate institutional architectures (IA) are formed (or existing structures adapted) to implement the proposed investments. One IA will support the Crop Cluster Business Units (CCBU) and the Micro-Entrepreneur Food Processing Units (MEFPU). The second IA will support the Minor Millet Cluster (MMC).

- **Institutional Architecture: IA-1 – CCBU & MEFPU**

It is proposed the RUDA be restructured the institution to implement CCBU & MEFPU. RUDA (Rural Non-Farm Development Agency) was established in November 1995, by the Government of Rajasthan. There will be a need to re-structure the Objectives of RUDA to add Agribusiness and Micro-Food Enterprises.

- **Institutional Architecture: IA-2 – Minor Millet Cluster (MMC)**

The Minor Millet Cluster will require a very different institutional architecture as it will be primarily focused on the tribal population of the state – working from production to consumption, and leveraging the nutrition programs. The Minor Millet Cluster should be within the Agriculture Department or Rural Development department.

Institutional Architecture (IA)

The key to success of these investments is centered around the institutional arrangements that are created to deliver on the design. The elements of the arrangements are given below-

- The governance mechanism that is created to ensure Interdepartmental Co-ordination, policy formation, budget allocation, anticipating areas of overlap and resolving issues in a time bound manner
- Implementation mode – given that all the three investment areas are cross functional in nature and require co-ordinated and timely action, the mode will need to go beyond the departmental structures. It will need to be a combination of 'mission' mode and stand-alone entities created specifically for these programs
- Programme leadership and implementation partners – the selection of program leader and the implementation partners will need to reflect equity, market orientation, beneficiary protection (especially in case of minor millets), etc. The human resources will need to be selected from public/private sector and where appropriate from the civil society organizations.
- Reporting – this is critical to ensure that there is timely data available for proactive action and remedy. A web based portal is required to show live status, tracking of components, tasks, outputs, outcomes, issue alerts, etc.
- Policy Design and feedback loops - Knowledge Consortium/Technical Groups would be required to evaluate programmatic progress, feedback to Governance, recommend policy re/design
- It is proposed that two separate institutional architectures (IA) are formed (or existing structures adapted) to implement the proposed investments. One IA will

support the Crop Cluster Business Units (CCBU) and the Micro-Entrepreneur Food Processing Units (MEFPU). The second IA will support the Minor Millet Cluster (MMC).

Institutional Architecture: IA-1 – CCBU & MEFPU

The core activities of IA-1 are aligned to enterprise creation and sustenance. These will be done through leveraging the existing government schemes at the grass root level. It is proposed the RUDA be restructured the institution to implement CCBU & MEFPU. RUDA (Rural Non-Farm Development Agency) was established in November 1995, by the Government of Rajasthan as an independent agency to promote the Rural Non-Farm Sector (RNFS) in the State. RUDA follows a sub-sectoral, integrated and cluster based approach for promoting rural micro enterprises for rural artisans. RUDA is registered under the Societies Registration Act giving it a certain autonomy and flexibility in its functioning. Over the last 14 years, RUDA has evolved as an innovative, creative and a highly professional agency to achieve its daunting but challenging mandate. It is already working in six sub-sectors –

- Leather
- Wool and Textile
- Minor minerals
- Handicrafts
- Handloom
- Khadi and Village Industries

There will be a need to re-structure the Objectives of RUDA to add Agribusiness and Micro-Food Enterprises. The proposed Crop Cluster Business Promotion Unit (CCBPU) that will service a cluster of 50-70 FPO & Micro-Entrepreneur Food Processing Units should be located under RUDA. Each CCBPU should at the minimum provide a set of services (like a Citizen Service Center) at the grass root level.

- Leverage Rajasthan state govt policies in Agribusiness, exports, MSME, Tribal Development, Rajeevika, etc. and Govt of India schemes
- Identify infrastructure gaps in the cluster and work with relevant departments to ensure infrastructure is available or rectified in a time bound manner
- Enable Financial linkage of entrepreneurs and FPO/FPC to financial institutions including available government schemes for credit and grants.
- Facilitate and incubate enterprise skill development of entrepreneurs & FPO/FPC.
- Deployment of digital technologies from farmgate to marketing.

The staffing of the CCBBU should be planned to provide the above services. At a minimum it should have staff that will provide services across enterprise development, agriculture supply chain development, finance, general administration and management, etc.

Institutional Architecture: IA-2 – Minor Millet Cluster (MMC)

The Minor Millet Cluster will require a very different institutional architecture as it will be primarily focused on the tribal population of the state – working from production to consumption, and leveraging the nutrition programs. The Minor Millet Cluster should be within the Agriculture Department or Rural Development department. The figure 7 below presents a schematic of the Institutional Architecture of the MMC.

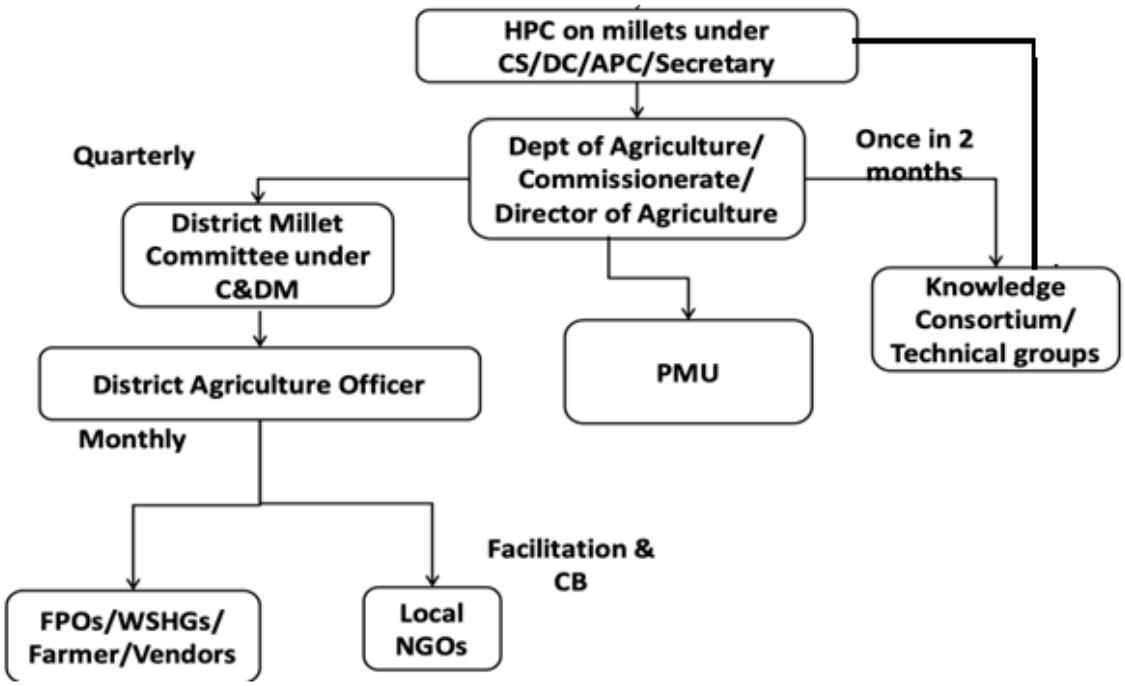


Figure 7: Institutional Architecture of Minor Millet Cluster

Roles and Responsibilities of Key stakeholders in Minor Millet Cluster

Sl no	Department	Role and responsibility
1	Chief Secretary	1. It will set up knowledge management consortium for the millet initiative with representatives of CEEW, ICAR, SAU, FAO, RRA Network and others.
		2. It will form various sub committees/ technical groups and empanel different experts and agencies and donors to provide the knowledge support in the design and development and periodic evaluation of the scheme.
		3. It will undertake periodic studies and provide guidance/suggestions/ collaborations.
2	High Power Committee under Chief Secretary/Development Commissioner/Agriculture Production Commissioner	1. Committee will meet once in six months to deliberate policy matters and facilitate inter-Departmental convergence.
		2. All policy formulation, rules and regulations and decision regarding inter departmental convergence shall be approved by the HPC.
		3. Approve the department wise and scheme wise allocation of funds for the millets initiative for convergence.
		4. It will review and approve collaborations suggested by CMETC
3	Department of Agriculture	1. It will regularly review the programme once in two months.
		2. It will also approve the allocation of funds for the Programme.
		3. It Will work as Nodal Department for the project.
4	Commissionerate/ Directorate of Agriculture	1. Commissionerate/Directorate of Agriculture is the nodal directorate for overseeing the monitoring and implementation of the initiative.
		2. It will set up a PMU for day to day project management
		3. It will approve the annual action plan for the project.
		4. It will review physical and financial progress of the activities of the Programme. It will review and approve the

		guidelines/operational modalities of the different components
		5. It will coordinate with technical subgroups formed under CM Economic transformation council.
		6. It will issue joint instructions from time to time to different district level officials of directorates/districts for better convergence and implementation of the activities
5	District Millet Committee under District Collector	1. District level millet committee will be formed under the Districtc collector with representatives from agriculture, SRLM, KVK, local NGO partners and others
		2. Committee will review the progress of the scheme on a monthly basis
		3. Committee shall issue instructions for convergence of different schemes with millet initiative.
		4. District Agriculture officer will be nodal head at district level. He shall ensure that block level review meetings of the project progress are done regularly.
		5. District Agriculture officer shall identify a local NGO to facilitate the field level implementation. FPOs/WSHGs will be actively involved in the process.
6	Local NGOs	1. One NGO may be empaneled for a cluster of 500 Ha. At least 7-10 community resource persons may be empaneled for one production cluster.
		2. NGO shall support in community mobilization, farmer to farmer extension, beneficiary selection, capacity building, awareness campaigns, cooking events, facilitating the set-up processing and value addition units, formation of FPOs, facilitate the procurement of millets etc. of the activities

Investments in Supply Chain Clustering & Agro Logistics

Rajasthan is one of the largest producers of many niche commodities such as coriander, cumin, fenugreek, fennel, isabgol, and mehndi. These commodities are in high demand in domestic and international markets. However, the markets for these crops are dominated by intermediaries, resulting in farmers receiving a low share of the final price.

Market arrivals of some of these commodities indicate that only 15 percent of the production of cumin and isabgol, and 33–40 percent of fenugreek, fennel, and ajwain (caraway) are sold within the state. For example, most of the cumin and isabgol from the state is sold in the Unjha market in Gujarat, implying a lost opportunity for adding value within the state. Further, grading and packaging at the farm level is almost absent.

Fruits, vegetables, spices and medicinal plants are often termed high-value crops, and together occupied, on average, 5 percent of the total cropped area based on Rajasthan Government production data of 2019-20.. Spices occupy more than half of the total area of high-value crops. Coriander and cumin are important spices, and isabgol (psyllium husk) is an important medicinal crop.

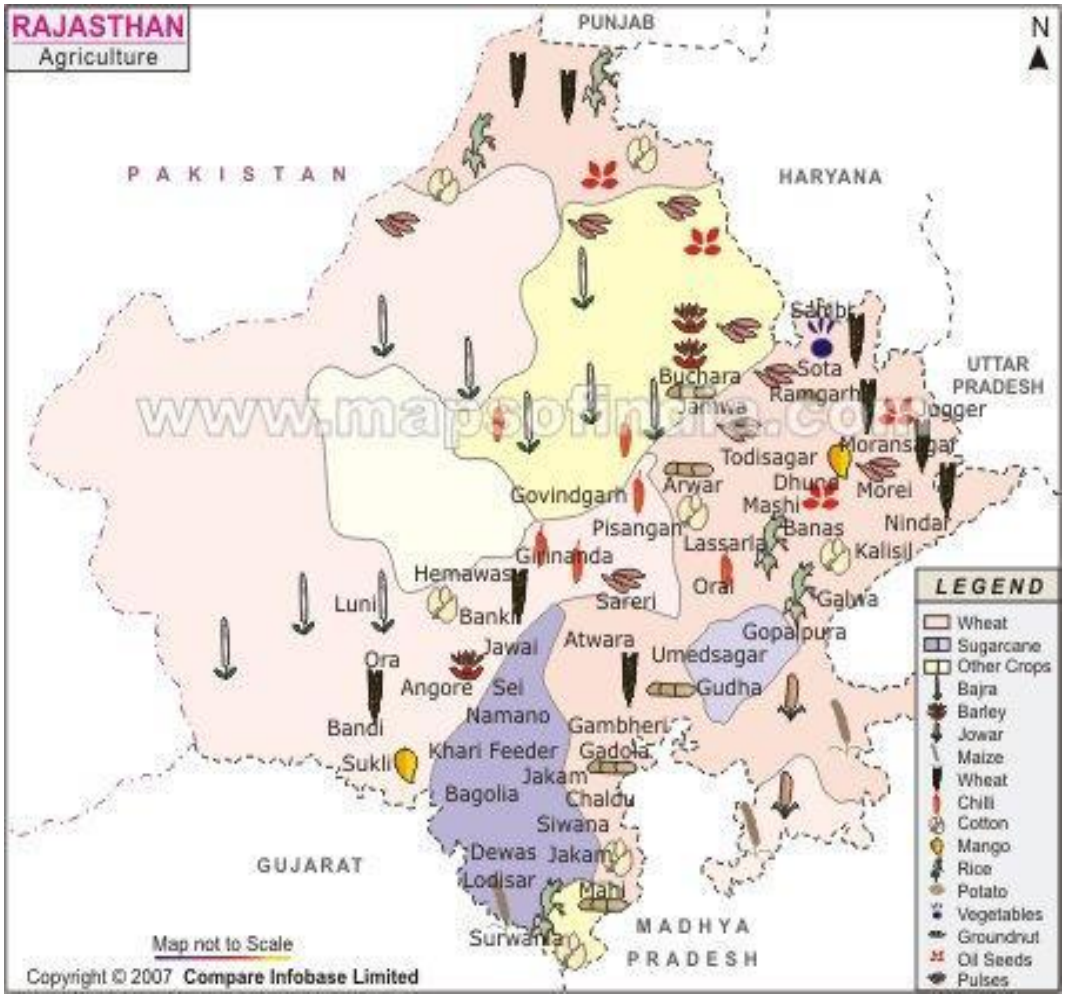


Figure 1: Agriculture Map of Rajasthan

Improved rural infrastructure increases agricultural productivity by enhancing farmers' access to markets, agricultural inputs, credit, market information, and technology, whilst providing the rural poor access to non-farm income-generating opportunities. Whereas, inefficient transport logistics infrastructure and services imply enormous (monetary and non-monetary) costs of production and marketing, and effectively wipe out much of the gains from sales, providing little incentive to farmers to increase outputs. The gains from increased agricultural productivity are affected by the agricultural/food supply chain inefficiencies and lead to reduction/stagnation of farmers' income and food wastage.

Therefore, policy and investment decisions need to focus on improvements on both the supply and demand sides in order to achieve the following:

- Improve market access, including investments in physical market infrastructure
- Promote robust value chains to create stable and reliable sales outlets
- Encourage private investment for value addition and agro processing for the desirable crops where the commercial/market conditions (domestic or export demand) allow
- Provide supportive public infrastructure, including roads, electricity and industrial water
- Investing research and extension, or broadly technology services, that can close the current yield gaps and sustain future yield growth
- Make crops more resilient and suitable to the growing conditions in the state
- Promote farming practices to enhance the productivity and competitiveness of Rajasthan in crops that it has a comparative advantage in.

In light of the above, this note presents a framework to determine possible areas of supply chain investments that would positively impact farmer incomes while increasing the overall resilience of Rajasthan's agriculture sector.

1. Supply Chain Clustering

Supply chains and agro-logistics, a sub- discipline of logistics, comprises entities that are responsible for harvesting (farmers), storage and processing (industry) and distribution (service providers and traders) of food and other agricultural products. It covers all activities that are required to take produce from farm (production point) to market. The underlying principle of an efficient agro-logistics system is to get the right agro-product, at the right place, at the right time, according to the right specifications at the lowest cost[1].

The concept of supply chains and agro-logistics is well understood and applied in the developed world, with many examples of well-established product/geography/end-market specific agro-logistics supply chains. However, in India, the understanding and applicability of this concept is at fairly nascent stage.

It's important to recognize that the farm to consumer market chain operates less like a linear value chain and more like a network. It is akin to a mobile cell phone tower network where calls are completed by moving across several cell phone towers or repeaters in the network. Unfortunately, the producer/farmer remains the weakest link in this network.

Government policy and private sector investments are often targeted towards specific segments in this chain rather than focusing on the complete chain. There is also skewness within these compartments – road transport (highly cost inefficient when compared to railways) forms the dominant chunk of transportation and traditional warehouses form a major part of the country's storage infrastructure. Till such time fresh produce supply chains are not developed as an end to end network, the solutioning approach will only lead to fragmented results.

The inefficiencies in India's highly intermediated supply chains create fertile ground for tech- enabled solutions. Digital interventions should enable operators and the ecosystem to be more efficient, rather than merely adding a digital layer over existing physical supply chain. That said, given the need for a localized, high-touch approach, it remains to be seen if digital based disintermediation will be indeed viable.

Several innovations are seen in the fresh produce supply chains and the logistics services. Innovators like KisanKonnect and Sahyadri Farms (one of the largest grape exporters from Nashik) are deploying an integrated supply chain approach backed by a wide array of digital tools. These approaches are increasingly seen as 'phygital'- complimenting digital tools with physical connectivity! The end objective of this approach is to establish trust with the suppliers and customers. Companies are using digital technology or AgTech tools for:

- Traceability in the supply chain
- Waste minimization at critical nodes in the chain – collection centres, transport and logistics, distribution centres, etc.
- Demand forecasting
- Support farmgate production and harvest planning in sync with demand forecasting

Leveraging a 'next-to-last-mile' approach, through aggregators like FPO, will help in lowering the cost of integration and deployment of technology. Further, bundling of services and partnership with local businesses (agri or otherwise) that serve as frequent touchpoints for producers will increase the trust in the network

While there are many innovations that are finding their way in the fresh produce supply, several challenges continue to pose significant bottlenecks.

- High costs of accessing and onboarding individual smallholder farmers, coupled with smallholders' low risk tolerance poses an uphill battle for digital technology deployment with small holders.
- Price discovery – no systematic approach. Farmers don't take data driven decisions
- The mindset of treating fresh produce, perishable in nature, as an 'industrial' product is detrimental to improving supply chain efficiencies. There are lot of lessons that can be learnt from the milk supply. Milk due to its perishable nature, is handled in a very organised manner.
- Integration is very necessary across the different actors. This has been the success of dairy in India.
- Proliferation of AgTech solutions is creating new opportunities however there appears to be no marriage between the requirements and the solutions. More collaborative work is needed to ensure better solutions and for increased adoption of technology.
- Customer and consumers need to start demanding quality, reliability and traceability. This will ensure that change will take place in the supply chain.

With the pandemic-induced crisis stretching on, the need for robust, efficient, transparent and traceable supply is all the more pressing.

There have been several notable developments in the past two years that should give a boost to the development of farm proximate infrastructure or local value chains. Government of Rajasthan has been very proactive in adapting the policy environment to the emerging needs. Rajasthan Govt announced several policies -

- Rajasthan Ethanol Production & Promotion Policy 2021
- Rajasthan Logistics, Warehousing and Logistics Parks Policy 2022
- Rajasthan Cabinet approved the establishment of Agro-Industries Development Board with the objective of enhancing farmer incomes by strengthening marketing infrastructure – the focus would be to prepare road map for connecting farmers to agro-processing & value addition and make recommendations for new policies.
- Hon. CM, GoR announces a three year program of INR 137 cr to strengthen 120 FPO under "Mukhyamantri Krishak Sathi Yojana" through Krishak Kalyan Kosh.

On the other hand, the Govt of India has been focused on broader national agenda and announced several schemes

- Operational Guidelines for Horticulture Cluster Development Program released by Ministry of Agriculture, GoI.
    - 12 product clusters covering 7 crops in 11 states: Apple (J&K & HP), Mango (UP, Guj. & Telangana), Banana (AP & TN), Grapes (Maharashtra) Pineapple (Tripura), Turmeric (Meghalaya), Pomegranate (Maha)

- One District One Crop concept
- Central Sector scheme for the formation of 10,000 new Farmer Producer Organizations, Ministry of Agriculture, Government of India

2. Approach & Methodology

The study has used the following three supply chains to determine the best-in-class supply chains in India. These are:

1. AMUL (for milk and milk products supply chain for domestic market),
2. SAFAL (for fruits and vegetables supply chain for domestic market) and
3. Nashik Grapes (supply chain primarily for exports)

These supply chains have evolved due to ease of adaptability and customized solution factoring local issues. Theyhighlight the gradual but revolutionary changes that have been brought about in the supply chains of respective product categories. These supply chains demonstrate adoption of an integrated approach to the supply chains and agro-logistics with market-driven planning of the supply chain.

Specifically, a Crop cluster approach has been used for the following purpuses

- To identify leading crop clusters in Rajasthan
- So that cluster selections should ensure state wide representation and should have both long shelf life commodity and perishable products.

Further, dentified cluster should meet sustainability criteria –

- Diagnostics of identified clusters to determine challenges across critical nodes of the supply chain.
- Explore convergence of plans of different departments

The study was benefitted by intensive interactions with several stakeholders – farmers, farmer collectives (FPO). Consultations were done with CEO of over 60 FPOs, representing approx. 50,000 farmers spread across 26 districts of Rajasthan. These FPO collectively were doing business of INR 20 crore. The FPO dealt with diverse crops – oilseeds, millet, pomegranate, oranges, seed spices, tomatoes, soybean, etc. The discussions helped in developing an inventory of challenges and opportunities.

In addition to farmers and FPOs, discussions were held with large and medium private sector companies, financial institutions, NABARD, Agrifood startups, etc. The senior officials of various departments of the Govt of Rajasthan were very helpful in sharing the challenges and opportunities. These include Agriculture, Agriculture Marketing, Horticulture, Industries, MSME, Rural Development, RUDA, State Warehousing Corporation, etc.

Box 1: Gaps in Developing Supply Chains

Gaps Identified

- High cost of micro enterprise establishment – electricity, licenses, compliances, etc.
- Lack of local level knowledge and support on accessing government schemes and benefits.
- Absence of integrated approach that will leverage infrastructure investments
  - Skill gaps in processing, marketing, value addition
  - Working capital – lenders are not keen to give credit limits to micro-entrepreneurs
  - Market quality requirements are not known
  - Skilled labor availability
  - Entrepreneur management skills are a weak spot
  - Post-harvest infrastructure – gaps in storage (cold and ambient), transportation, processing etc
  - No specific incentives for private sector investment
  - Product Quality testing infrastructure
  - Samples need to go out of state for NABL accredited labs. Time and cost element.
- Agro logistics - high cost per kilometer
  - Network of service providers is missing in areas close to processing units.
  - Delayed shipments leading lowering of customer interest

3. Investment Areas

Based on the above , three investment areas are recommended for consideration. These recommendations should not be seen as comprehensive or representing the totality of the opportunity in Rajasthan. Instead, these should be seen as directional, leading to development of a broader framework to address employment and enterprise creation in rural Rajasthan.

The three investment areas are:

1. Crop Cluster Business Units (CCBU)
2. Micro-Entrepreneur Food Processing Units (MEFPU)
3. Minor Millet Clusters (MMC)

The key features of these three investment areas are represented in the boxes below –

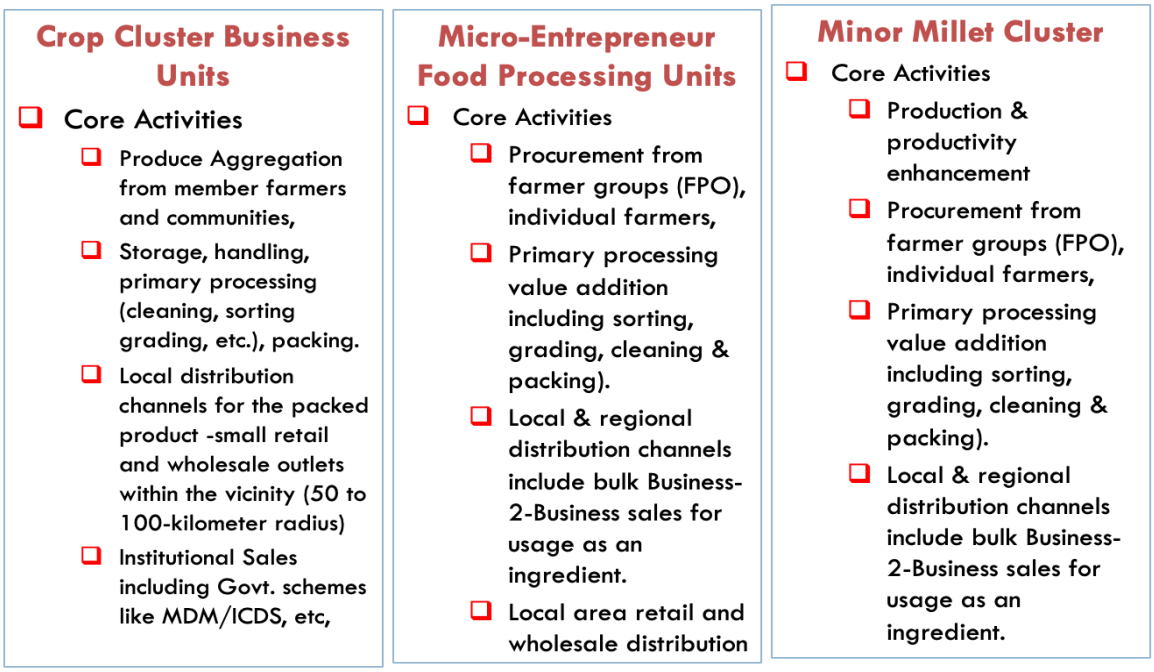


Figure 2: Three Investment Areas

Subsequent sections will detail each of these investment areas.

a. Crop Cluster Business Units (CCBU)

The approach of developing crop clusters leverages geographical concentration of crops – covering agriculture, horticulture, medicinal and spices. The crop clusters allow for focused development of productivity tools, post-harvest management, value addition & marketing and deployment of agro-logistics.

Introduction and adoption of innovative technologies including digital tools will lead to reduction of harvest and post-harvest losses. It is expected that overtime the produce from each of the CCBU should be branded reflecting the Geographical Identity (GI), the unique aspects of the product quality, and other sustainability features. An integrated, market led approach are the common denominators for developing Crop Cluster Business Units (CCBU).

This study has selected twelve (12) crops – fruits, vegetables, medicinal plants, spices, that are produced across the state – the majority of the production areas for these 12 crops are located in 22 districts. These crops and the proposed interventions are indicative in nature. Based on the implementation experience for these crops, the approach can be modified and taken across the state for other crops. Details of identified crops, total production (area in hectares and production in metric tons), main producing districts, is presented in Table 1 below.

Table 1: Crops, main production areas, and Production across the state.

S.No	Crop	Main Distircts	Production (Ha)	Production (MT)
1	Pomegrante	Jalore, Barmer	4,313	63,608
2	Psyllium	Barmer, Jalore, Nagaur, Jodhpur	1,39,148	2,05,528
3	Oranges	Jhalawar	10,123	4,84,395
4	Garlic	Baran, Kota, Pratapgarh	30,625	4,46,044
5	Coriander	Kota, Jhalawar, Baran	25,016	86,007
6	Aonla	Jaipur, Ajmer, Dausa	553	12,016
7	Fennel	Sirohi, Nagaur, Pali	10,938	25,621
8	Fenugreek	Bikaner, Jodhpur, Churu, Pratapgarh	21,942	74,670
9	Kinno	Sriganganagar, Hanumangargh	4,621	2,64,040
10	Tomato	Jaipur, Sikar, Sirohi	7,724	1,02,592
11	Cumin	Barmer, Jaisalmer, Jalore,Jodhpur	3,24,906	4,38,549
12	Potato	Dholpur, Bharatpur	5,415	2,35,236

An integrated approach to the development of each of these CCBU is necessary. Interventions in production or harvesting or post-harvest would not deliver planned results if these are not executed in tandem, meeting the volume and seasonality of the output from the cluster. Equally important is the availability of a well-equipped entity that can address the issues arising in the supply chain and the forward value chain. It is proposed that each cluster is equipped with a Cluster Business Promotion Unit (CBPU). The CBPU should be staffed to service about 50 FPO or micro-entrepreneurs. The Figure below presents the core services that should be provided by the CBPU.

Box 2: Key functions of CBPU

- Leverage Rajasthan state govt policies in Agribusiness, exports, MSME, Tribal Development, Rajeevika, etc. and Govt of India schemes
- Identify infrastructure gaps in the cluster and work with relevant departments to ensure infrastructure is available or rectified in a time bound manner
- Enable Financial linkage of entrepreneurs and FPO/FPC to financial institutions including available government schemes for credit and grants.
- Facilitate and incubate enterprise skill development of entrepreneurs & FPO/FPC.
- Deployment of digital technologies from farmgate to marketing.

In order for each CCBU to be realized, investments are required across the entire supply chain. The areas of investment are categorized across four major heads and the output is measured against three heads. The investment areas are FPO establishment, creation of post-harvest infrastructure, investment in value addition (secondary processing, storage, marketing, branding, etc.) and working capital finance. The Outputs are measured in terms of annual revenue generated, the number of farmers impacted and the likely employment that is generated.

It is proposed that a total of 880 FPO are created leading to the formation of 16-20 Crop Cluster Business Units. Details of FPO for each crop, the investments and the outputs are detailed in Table 2 below.

Table 2: Crop Cluster Business Unit – Tentative investment plan and outputs at the FPO level

S. No	Crop	No of FPO	FPO Estb Cost	Post Harvest Infra	Value Addition, Marketing & Branding	Working Capital	Total Investment	Revenue Generated INR Lacs	Farmers Impacted	Emplyment Generated
1	Pomegrante	30	1,800	3,600	1,800	450	7,650	36,000	30,000	1500
2	Psyllium	150	9,000	19,500	9,000	2,250	39,750	45,000	1,50,000	7500
3	Oranges	50	3,000	5,000	3,000	750	11,750	75,000	50,000	2500
4	Gar;ic	150	9,000	15,000	9,000	2,250	35,250	33,750	1,50,000	7500
5	Coriander	100	6,000	7,500	6,000	1,500	21,000	32,000	1,00,000	5000
6	Aonla	10	600	1,000	600	150	2,350	1,200	10,000	500
7	Fennel	30	1,800	2,250	1,800	450	6,300	13,500	30,000	1500
8	Fenugreek	50	3,000	3,750	3,000	750	10,500	21,000	50,000	2500
9	Kinno	30	1800	3000	1800	450	7,050	52,808	30000	1500
10	Tomato	50	3,000	5,000	3,000	750	11,750	9,233	50,000	2,500
11	Cumin	200	12000	15000	12000	3000	42,000	1,64,456	200000	10000
12	Potato	30	1800	3000	1800	450	7,050	19,760	30000	1500
	Total	**880**	**52,800**	**83,600**	**52,800**	**13,200**	**2,02,400**	**5,03,707**	**8,80,000**	**44,000**

A few assumptions(Table in Annex 1) have been made to arrive at these numbers –

1. FPO establishment cost is spread over 3 years and includes HR cost
2. Post-harvest Infrastructure investment is made in Year 1 and annual maintenance cost is budgeted for Year 2 & 3.
3. Value Addition & Marketing investments are spread over 3 years
4. Working Capital – Annual, rotated in 6 months
5. Prices – crop prices are taken at market price for the day.
6. Volume/quantity sold – in some cases like oranges and kinnow, almost all of the production is taken as being sold under this programme. In other cased the volume ranges between 20% to 40% of the total production of the state.
7. Revenue – the total revenue is for sales generated in Year 3. It is assumed that there will be gradual revenue phasing in Y1 & Y2 however these numbers are not taken into the above calculations
8. Farmers impacted – this number is for the entire program

The output numbers reflected in revenue, farmers impacted and the employment generated may need to be refined further, based on compilation of actual costs incurred by different FPO and substantiated by studies on the ground. The investment in post-harvest infrastructure and value addition will vary according to the local cost structures in the districts/blocks. The formation of FPO will be done by NGO partners or similar organizations that are mandated by government policies. While the period for FPO formation and commercialization is taken as 3 years, there is a need to plan for support the operational costs and human resources costs for a further three year period, at which point the performing FPO's shall become stable and mostly self-sufficient.

b. Micro-Entrepreneur Food Processing Units (MEFPU)

Micro-entrepreneur Food Processing Units are proposed for the different crops being grown across the state. This will be an integrated programme – starting from harvesting to marketing of farm produce. The program will select entrepreneurs, provide processing, handling and storage technology and equipment, near farm-gate and provide marketing linkages to the processed products. The program will also work with rural banks, NBFC, etc to ensure finance is arranged for the investments by the entrepreneur.

The details presented in this section are based on experience of building over 1800 Franchisee Entrepreneurs, 180 of these are operating in Rajasthan (see Figure 3 below)

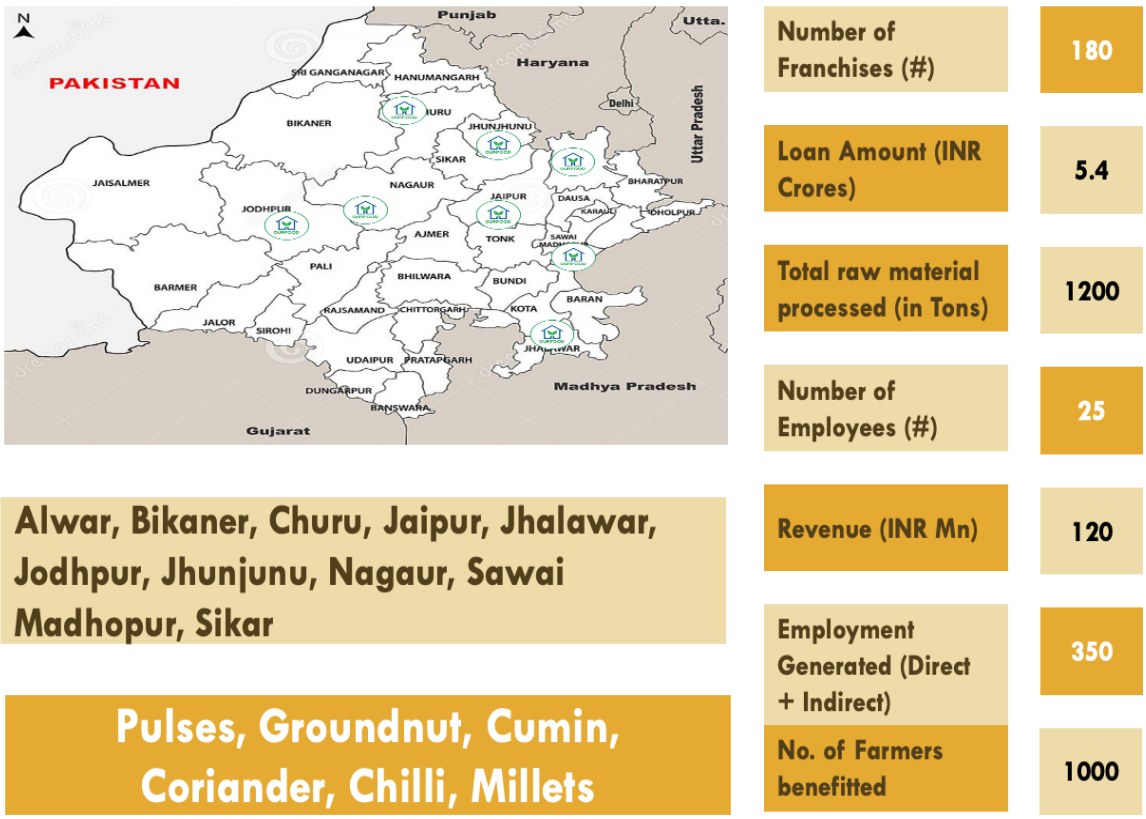


Figure 3: Micro-enterprises Operating in Rajasthan under the model of M/s OurFood Ltd.

The process flow for the model developed by M/s OurFood Ltd is depicted in figure (Figure 4) below. It starts with farmer education (on field practices, yield, sustainability, field level quality, etc.) and goes on right till marketing and sales.

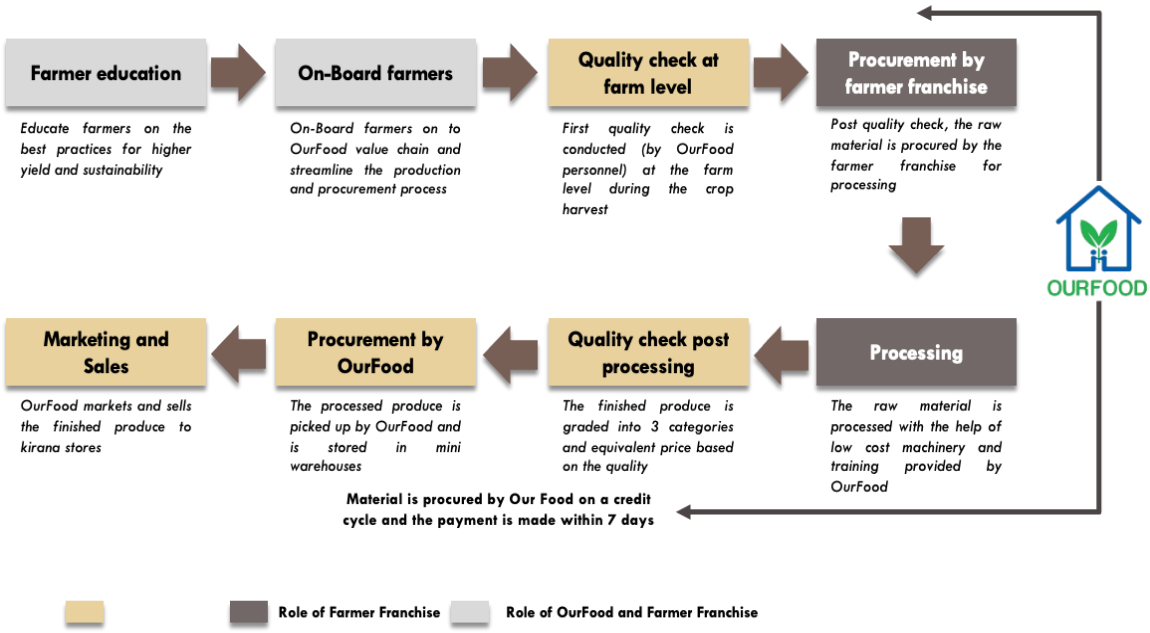
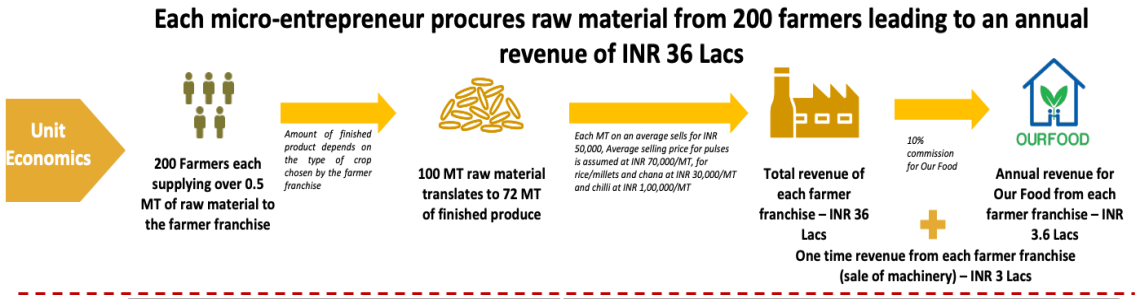


Figure 4: Process flow for micro-enterprise development
(Source M/s OurFood Ltd.)

Our Food has been at the forefront of developing technology for micro food processing at the farm level and has been promoting set up of infrastructure at the village level across multiple states. Our Food has collaborated with various rural banks and NBFCs for financing farmer entrepreneurs in establishing such units. Our Food provides marketing support for the processed foods, creates opportunities for supply chain optimization, value-added products that fetch better prices for the farmers and generates sustainable employment for the rural youth and entrepreneurs. The unit economics for each entrepreneur (franchisee) has been established based on practical experience from over 1000 such entrepreneurs that the company has created.

The economics of the Micro-Entrepreneur Food Processing Unit model presented in Figure 5 below is based on actual experience of creating 180 such entrepreneurs in Rajasthan and over 1800 across the country. The economics reflects the business model of the entrepreneur when a loan is taken at 18% interest per annum. The interest servicing cost can be reduced based on the rates that are agreed by Govt. of Rajasthan with the local banks for this project. Services provided by OurFoods

- Identification the entrepreneur
- Entrepreneur training on business, quality, etc.
- Provision technical inputs,
- Provision of appropriate processing equipment available for the identified crops
- Procurement and buyback of processed crops



Farmer Franchise Unit Economics

Project Details	
Cost of Project	7,00,000
Means of Finance	Own Capital – 3,00,000 Term loan – 4,00,000 (depends on the Credit score of the farmer)
Loan Tenure and interest rate	3 years, 18% per annum
Fixed Capital	1. Land – Own 2. Shed – 3,50,000 3. Machinery – 2,50,000
Working Capital	1,00,000

P & L Statement (projections)	Y1	Y2	Y3	Y4
Total Sales	22,05,000	43,98,975	46,18,924	48,49,870
Total Expenditure (including loan EMI repayment)	20,84,531	39,85,976	41,76,599	42,03,221
Annual Profit	1,20,469	4,12,999	4,42,325	6,46,649
Profit per Month	10,039	34,417	36,860	53,887

Figure 5: Economics of Micro-Entrepreneur Food Processing Unit

The micro-entrepreneur program- spread over five years will create opportunities for farmers for Value addition at the farm level, thereby increasing farmer remunerations and reducing post-harvest losses. The program will be spread across the state as can be seen in the map (Figure 6) below.

Figure 6: Geographical spread of Micro-Entrepreneur Food Processing Unit

Anticipated results from this program are (see Annex 2 for Details)

- Creates employment for nearly 88,000+ rural youth
- Investment - INR 1,698 crores
- Revenue of INR 26,924 crores,
- Net profit - INR 2,692 crores to the Micro-entrepreneur
- Up to 5,384 crores to farmers over a period of 5 years.
- Impact 100 farmers per Micro-Food entrepreneur
- 22 lakh farmers impacted through 22000+ units through better price realization

c. Minor Millet Cluster

Minor Millets are primarily grown by small holder farmers and tribal communities. These are climate resilient crops and are grown in poor quality soils and under rainfed conditions

In 2019-20 the total area under cultivation was 10,100 ha and production was 5200 MT.

Incidently, in 1983 -84 the total area under cultivation was over 44,000 ha!

As per 2011 census the state has 92 million ST population and almost one third of them are in Udaipur and Banswara districts. The Minor millet cluster proposal considers an integrated approach to improving production - area increase and productivity, to bring greater post-harvest value addition, and contribute to improvement in nutrition outcomes via procurement and supply through government programmes like MDM, ICDS, hostel

meals, etc. Minor millets are being used as part of MDM, ICD, and other govt programs in several states like Odisha, Karnataka, AP, MP, etc.

The proposed program for Minor Millets Cluster in Rajasthan is based on the success of Odisha Millets Mission that has been in operation since 2016-17 and is recognized across the country as a model program for revival of millet production and consumption and for addressing nutritional outcomes among producer communities. A cluster approach for millets recommends a 'farm-to-plate' kind of intervention in Rajasthan. Components of a typical cluster are presented in Figure 6 below and the detailed cost estimates are given in Table 3 & 4 and program summary is presented in Table 5.

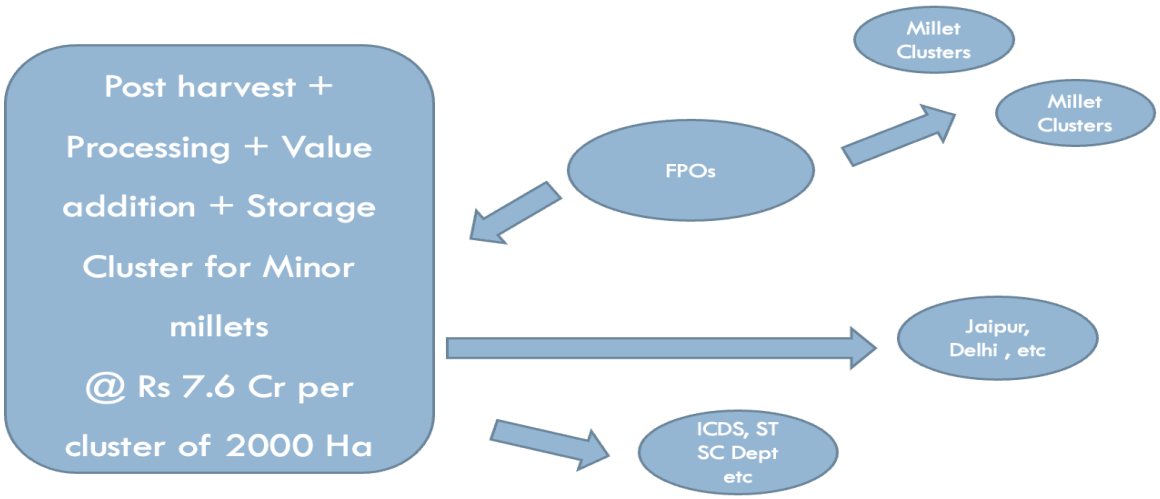


Figure 6: Components of a typical minor millet processing cluster

At the heart of the cluster is the farmer collective – FPO or any other appropriate format of producer organization. This collective could be under the Raajevika Mission or department of Agriculture or a combination thereof. Each cluster would cover about 2000 hectare of area (The actual size of the cluster will depend on the cropping area for minor millets and the geographical spread of the cultivation) and will have investments in production and productivity, post-harvest handling including primary processing, storage and value addition and procurement.

Investments in Production – area increase of 10,000 hectare per annum for three years from current level of total area under cultivation of minor millets being 10,000 hectare. The output of the increased area will be procured for government programmes. Table 3 below details the investments in production and the annual cost of procurement.

Table 3: Production & Productivity investments and Annual Procurement

Component	Approx. Cost in Rs Lakh			
	Y1	Y2	Y3	Total
Production support including seeds @Rs 10000 per Ha to farmers @ 10000 Ha/yr.	1000	2000	3000	6000
Field level Support: tarpaulins, custom hiring equipment @ Rs 3000/Ha @ 10000 Ha /yr.	300	300	300	900
Procurement support @ 10 Qntl per Ha @ Rs 4000 per qntl@ 10000 Ha 1st year @ 20000 Ha 2nd year @ 30000 Ha 3rd year	4000	8000	12000	24000
Facilitation cost: local NGOs/FPOs @ Rs 12 lakh for 500 Ha@ 3 yrs. with 10% increment every year	240	480	720	1440
Total in Rs Lakh	5540	10780	16020	32340

The investment in each cluster would be approximately INR 7.6 cr over a three year period (see Table 4 below for details of investment in one processing cluster). The production from the cluster, after addressing self-consumption by farmer families, would be channelized to value addition that will be supplied to the ICDS/MDM program, to the programs of ST & SC departments and to those of Rajeevika. Any surplus crop available beyond the above requirements would be sold in commercial markets in urban areas across Rajasthan and nationally.

Table 4: Minor Millet Cluster Investment Breakdown

Component (Rs Lacs)	Y1	Y2	Y3	Total (Rs Lacs)
Land Allotment @3 Ac	0	0	0	0
Integrated Minor Millet Post harvest + Processing Unit @ 1 MT/Hr incld AMC charges.	125	12.5	12.5	150
Value addition Units for incl of millets in ICDS & MDM, etc. Govt schemes	75	7.5*	7.5*	120
Infrastructure development for Machinery unit including electrification, boundary wall, internal road, etc.	75	7.5*	7.5*	90
Scientific Storage godown @1000 MT including husk mgmt. unit, security quarter, dormitory for labor	150	15*	15*	180
Working Capital for the Unit including apex body registration etc	50	30	20	100
HR (Engineer, Procurement manager, Storage manager, Marketing Manager, Labor etc)	50	50	50	150
Total Cost in Rs Lakh	**525**	**122.5**	**112.5**	**760**

* Y2 & Y3 expenses for maintenance cost

The investment summary for the Minor Millet Cluster is presented in table 5 below. The summary covers the following areas –

1. Production and productivity
2. Formation of farmer collectives
3. Development and operations of processing clusters – a total of 20 clusters are proposed for this program
4. Procurement of 50% of the total output from the production clusters. It is assumed that the yield would be 10 quintals per hectare (which is currently being achieved in the state.)

Table 5: Component wise investment in Minor Millet Cluster

Component	Approx Cost in Rs Lakh					
	Y1	Y2	Y3	Y4	Y5	Total
Minor Millet Area(10000 ha increase every year)	20000	30000	40000	0	0	0
Production in MT (@10 qtl/ha)	20000	30000	40000	0	0	0
Processing cluster @1 Nos for 2000 Ha	10	5	5	0	0	20
Investment Cost						
Processing cluster support	5250	3850	4362.5	1175	562.5	15200
Production Support	1540	2780	4020	0	0	8340
Procurement @50% of total production*	4000	8000	12000	0	0	24000
Total in Rs Lakh	10790	14630	20382.5	1175	562.5	47540

The programmatic investments total to INR 235.4 crores and the total procurement cost over three years will in INR 240 crs. The procured material will be used in Rajasthan's nutrition like ICDS and MDM programs.

4. Recommendations

The development of supply chain clusters leading to enhanced farmer incomes, employment generation and sustainability of state's agriculture production require significant investments in public good infrastructure. Rajasthan government has been very proactive creating the right policy environment for growth of agribusinesses. It is the right time to make these investments work for the development of agro-processing clusters in the service of the over 5.8 million farmers of the state.

This section of the report will propose the key investments across infrastructure, finance and institutional arrangements that will deliver on the Crop Cluster Business Units, the Micro-Entrepreneur Food Processing Units and the Minor Millet Clusters.

These investments will be over and above the proposed investments under each of the three investment areas.

Infrastructure

In order for the Cluster Business Promotion Units to function effectively, a range of hard and soft infrastructure needs to be created under the marketing and logistics heads.

- Mapping of PMGSY roads (PWD/RD) from processing clusters to large towns, logistics centers. Identifying gaps and prioritizing road development/upgradation to handle increased volume
- Establish a Packaging Development Center in collaboration with a technical institution like Indian Institute of Packaging
    - Environment friendly packaging solutions
    - Testing of packaging material
- Develop and maintain a Marketing portal for promotion and trading of output from Microentrepreneurs, FPO/FPC, etc.
- National Accreditation Board for Testing and Calibration Laboratories (NABL) or National Accreditation Board for Testing and Calibration Laboratories
- Accredited Testing Centres for raw material and finished product quality. One testing facility should be able to service 5-7 CCBU.
- Digital Infrastructure
    - Digitize the operations of top 300 FPO/FPC in the state and bring them on a common platform. ERP for FPO & FPC
- Human Resources
    - Creation of 'ITI' like institute for developing a cadre of passionate FPO leaders

Finance

In addition to the investments in marketing and logistics infrastructure, the state would also need to ensure appropriate financial tools are available for the entrepreneurs and the FPO/FPC operating in the CCBU. Three schemes are recommend for consideration.

1. FPO/FPC Credit Guarantee Fund

This fund should be created in partnership with NABARD as has been done by Odisha and Tamil Nadu. The fund will allow FPO & FPC, that have reached a level of maturity to access loans (term and working capital) from NBFC and Banks.

2. MSME Credit Guarantee Fund

Micro- entrepreneurs are not able to access credit from NBFC or scheduled commercial banks. A credit guarantee fund targeting the MSME entrepreneurs will encourage value chain investments

3. Exporter Credit Guarantee Scheme

Rajasthan is the leading state in production of several seed spices and medicinal plants. Several of these commodities are also exported –either directly or via traders in western India. A pre-shipment and post-shipment credit guarantee fund will encourage exports thereby delivering greater value realization from the infrastructure investments. This scheme should operate over and above the schemes of EXIM Bank to incentivise the entrepreneurs to take the risk of developing exports from the state. tc,

In addition to the above investments in infrastructure and finance, a set of recommendations are given below the fast track the creation of Micro-entrepreneur Food Processing Units. These include the proposed financial outlay from the state over a five year period.

- Fee waiver and single window clearance for micro-processing units at farm level
- Single window clearance for distribution centers (secondary processing and packaging for each cluster of 50 to 100 micro processing units)) & Agri-allied services
- Waiver of fee on set up of electricity lines for the micro processing units, distribution centers and subsidized tariff for the electricity connection and charges. @INR 50,000 per entrepreneur
- Increase the farmer entrepreneurs micro processing units' access to key road networks in districts and blocks to help reduce logistics costs
- Allocate land of about 5 acres at subsidized rates for set up of Distribution centers in each cluster to support value addition activities
- Direct local banks and RRBs to extend loans and financial support including e-Warehouse receipt facility to farmers setting up micro processing units
- KVKs & NGOs to train farmers - processing, quality & marketing of processed Agri-products. 50 lakh farmers, 5 years @ INR 1000 per farmer.>INR 500 Crores

Institutional Architecture (IA)

The key to success of these investments is centered around the institutional arrangements that are created to deliver on the design. The elements of the arrangements are given below-

1. The governance mechanism that is created to ensure Interdepartmental Co-ordination, policy formation, budget allocation, anticipating areas of overlap and resolving issues in a time bound manner
2. Implementation mode – given that all the three investment areas are cross functional in nature and require co-ordinated and timely action, the mode will need to go beyond the departmental structures. It will need to be a combination of ‘mission’ mode and stand-alone entities created specifically for these programs
3. Programme leadership and implementation partners – the selection of program leader and the implementation partners will need to reflect equity, market

orientation, beneficiary protection (especially in case of minor millets), etc. The human resources will need to be selected from public/private sector and where appropriate from the civil society organizations.

4. Reporting – this is critical to ensure that there is timely data available for proactive action and remedy. A web based portal is required to show live status, tracking of components, tasks, outputs, outcomes, issue alerts, etc.
5. Policy Design and feedback loops - Knowledge Consortium/Technical Groups would be required to evaluate programmatic progress, feedback to Governance, recommend policy re/design

It is proposed that two separate institutional architectures (IA) are formed (or existing structures adapted) to implement the proposed investments. One IA will support the Crop Cluster Business Units (CCBU) and the Micro-Entrepreneur Food Processing Units (MEFPU). The second IA will support the Minor Millet Cluster (MMC).

Institutional Architecture: IA-1 – CCBU & MEFPU

The core activities of IA-1 are aligned to enterprise creation and sustenance. These will be done through leveraging the existing government schemes at the grass root level. It is proposed the RUDA be restructured the institution to implement CCBU & MEFPU. RUDA (Rural Non-Farm Development Agency) was established in November 1995, by the Government of Rajasthan as an independent agency to promote the Rural Non-Farm Sector (RNFS) in the State. RUDA follows a sub-sectoral, integrated and cluster based approach for promoting rural micro enterprises for rural artisans. RUDA is registered under the Societies Registration Act giving it a certain autonomy and flexibility in its functioning. Over the last 14 years, RUDA has evolved as an innovative, creative and a highly professional agency to achieve its daunting but challenging mandate. It is already working in six sub-sectors –

1. Leather
2. Wool and Textile
3. Minor minerals
4. Handicrafts
5. Handloom
6. Khadi and Village Industries

There will be a need to re-structure the Objectives of RUDA to add Agribusiness and Micro-Food Enterprises. The proposed Crop Cluster Business Promotion Unit (CCBPU) that will service a cluster of 50-70 FPO & Micro-Entrepreneur Food Processing Units should be located under RUDA. Each CCBPU should at the minimum provide a set of services (like a Citizen Service Center) at the grass root level.

- Leverage Rajasthan state govt policies in Agribusiness, exports, MSME, Tribal Development, Rajeevika, etc. and Govt of India schemes

- Identify infrastructure gaps in the cluster and work with relevant departments to ensure infrastructure is available or rectified in a time bound manner
- Enable Financial linkage of entrepreneurs and FPO/FPC to financial institutions including available government schemes for credit and grants.
- Facilitate and incubate enterprise skill development of entrepreneurs & FPO/FPC.
- Deployment of digital technologies from farmgate to marketing.

The staffing of the CCBBU should be planned to provide the above services. At a minimum it should have staff that will provide services across enterprise development, agriculture supply chain development, finance, general administration and management, etc.

Institutional Architecture: IA-2 – Minor Millet Cluster (MMC)

The Minor Millet Cluster will require a very different institutional architecture as it will be primarily focused on the tribal population of the state – working from production to consumption, and leveraging the nutrition programs. The Minor Millet Cluster should be within the Agriculture Department or Rural Development department. The figure 7 below presents a schematic of the Institutional Architecture of the MMC.

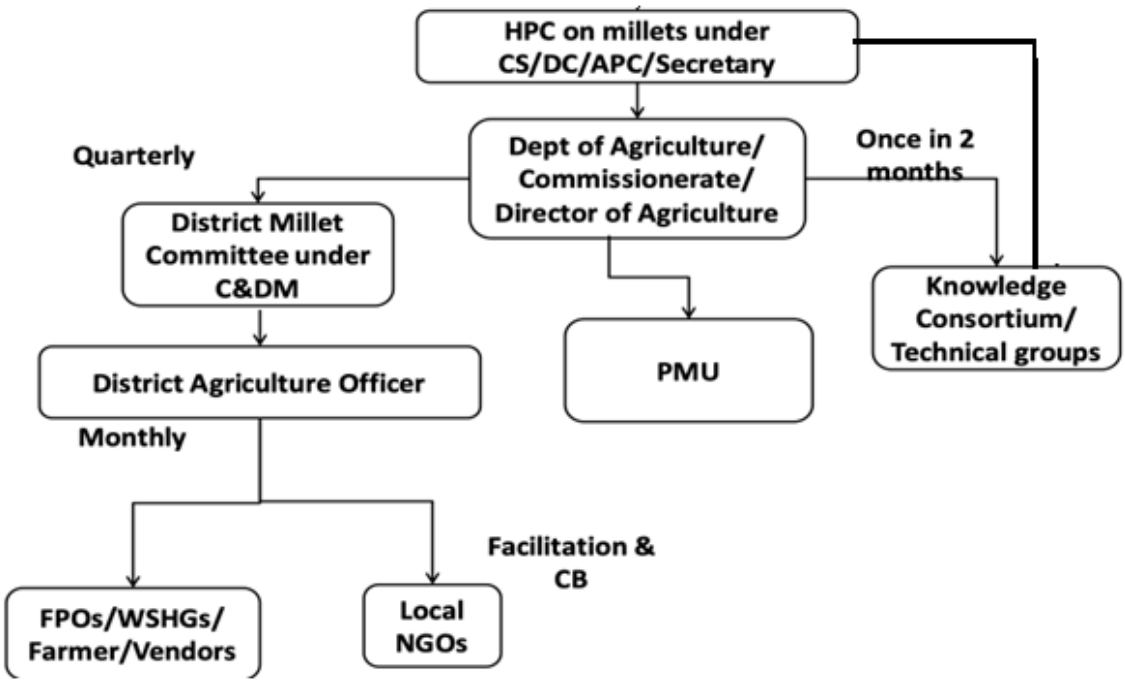


Figure 7: Institutional Architecture of Minor Millet Cluster

The roles and responsibilities of each of the key stakeholders within the above design are given below in table 6.

Table 6: Roles and Responsibilities of Key stakeholders in Minor Millet Cluster

Sl No	Department	Role and responsibity
1	High Power Committee under Chief Secretary/Development Commissioner/Agriculture Production Commissioner	1. It will set up knowledge management consortium for the millet initiative with representatives of CEEW, ICAR, SAU, FAO, RRA Network and others.
		2. It will form various sub committees/technical groups and empanel different experts and agencies and donors to provide the knowledge support in the design and development and periodic evaluation of the scheme.
		3. It will undertake periodic studies and provide guidance/suggestions/ collaborations.
2	High Power Committee under Chief Secretary/Development Commissioner/Agriculture Production Commissioner	1. Committee will meet once in six months to deliberate policy matters and facilitate inter-Departmental convergence.
		2. All policy formulation, rules and regulations and decision regarding inter departmental convergence shall be approved by the HPC.
		3. Approve the department wise and scheme wise allocation of funds for the millets intiative for convergence.
		4. It will review and approve collaborations suggested by CMETC
3	Department of Agriculture	1. It will regularly review the programme once in two months.
		2. It will also approve the allocation of funds for the Programme.
		3. It Will work as Nodal Department for the project.
4	Commissionerate/ Directorate of Agriculture	1. Commissionerate/Directorate of Agriculture is the nodal directorate for overseeing the monitoring and implementation of the initiative.
		2. It will set up a PMU for day to day project management
		3. It will approve the annual action plan for the project.

Sl No	Department	Role and responsibity
		4. It will review physical and financial progress of the activities of the Programme. It will review and approve the guidelines/operational modalities of the different components
		5. It will coordinate with technical subgroups formed under CM Economic transformation council.
		6. It will issue joint instructions from time to time to different district level officials of directorates/districts for better convergence and implementation of the activities
3	District Millet Committee under District Collector	1. District level millet committee will be formed under the Districtc collector with representatives from agriculture, SRLM, KVK, local NGO partners and others
		2. Committee will review the progress of the scheme on a monthly basis
		3. Committee shall issue instructions for convergence of different schemes with millet initiative.
		4. District Agriculture officer will be nodal head at district level. He shall ensure that block level review meetings of the project progress are done regularly.
		5. District Agriculture officer shall identify a local NGO to facilitate the field level implementation. FPOs/WSHGs will be actively involved in the process.
4	Local NGOs	1. One NGO may be empaneled for a cluster of 500 Ha. At least 7-10 community resource persons may be empaneled for one production cluster.
		2. NGO shall support in community mobilization, farmer to farmer extension, beneficiary selection, capacity building, awareness campaigns, cooking events, facilitating the set-up processing and value addition units, formation of FPOs, facilitate the procurement of millets etc. of the activities

ANNEXURE 1

ASSUMPTIONS FOR CROP CLUSTERS

S. No.	Crops	Establishment Cost/ FPO INR lacs	Post Harvest Infra cost/FPO INR Lacs	Value Addition, Marketing & Branding (INR lacs)	Working Capital (INR Lacs)	FPO Selling Price INR/1000 kg
1	Pomegrante	60	120	60	15	60000
2	Psyllium	60	130	60	15	60000
3	Oranges	60	100	60	15	30000
4	Garlic	60	100	60	15	45000
5	Coriander	60	75	60	15	80000
6	Aonla	60	100	60	15	20000
7	Fennel	60	**75**	60	15	90000
8	Fenugreek	60	75	60	15	60000
9	Kinno	60	100	60	15	20000
10	Tomato	60	100	60	15	15000
11	Cumin	60	75	60	15	125000
12	Potato	60	100	60	15	12000

Notes-

1. FPO Estblishment cost is for 3 years. This includes mobilization of farmers/ producers (1000 per FPO). Also includes FPO Administration infrastructure and human resources cost to run the FPO.
2. Post-harvest infrastructure cost is crop specific plant and machinery required for primary processing, the building and utilities required to house and run the equipment, warehouse and the maintainance cost for the infrastructure.
3. Value Addition etc. costs include capacity building for post-harvest handling, quality assurance and certification, etc. It also includes the cost of packaging and packaging development, marketing & branding and provision of samples for business development, etc.
4. Working capital is the amount required to finance operations.
5. FPO Selling price is INR per metric ton (1000 kilo).
6. It is expected that each FPO will be able to generate employment for 50 people – starting with post-harvest services and right up to sale of processed products.

ANNEXURE 2

Unit level economics for each farmer franchise for various crops indicate an income of INR 30,000 per entrepreneur per month. Based on the unit level economics, following is the summary of the investments, returns and net profits accrued by the entrepreneur/ franchises.

Details	Year 1	Year 2	Year 3	Year 4	Year 5	Total
No. of Processing units	**6,006**	**5,877**	**3,676**	**3,736**	**2,753**	**22,047**
Per unit investment	7.70					
Total Investment	46,269	45,271	28,316	28,777	21,206	**1,69,838**
Operational units	6,006	11,883	15,559	19,294	22,047	
Average Revenue per Operational unit	36	36	36	36	36	
Total Revenues	2,16,223	4,27,784	5,60,111	6,94,591	7,93,692	**26,92,402**
Net Profit per Entrepreneur/ franchise unit	4	4	4	4	4	
Annual net profit of Entrepreneur/ franchises after all costs and EMI payment	21,622	42,778	56,011	69,459	79,369	**2,69,240**
Benefits to farmers from better price realization, no transportation costs, no storage costs, reduced post-harvest losses	43,245	85,557	1,12,022	1,38,918	1,58,738	**5,38,480**
INR Lakhs						

Unit level capital and operational costs are borne by Entrepreneur/franchise. The financing will be arranged by Our Food with help of finance from Banks and NBFCs. Our Food's capital requirements for setting up DCs and operationalizing the ecosystem as a whole is expected to require external financing for Our Food for which Our Food shall raise finances on its own.

The project will benefit 22000+ farmers and improved farmer remuneration can benefit at least 100 farmers per franchise i.e. 22 lakh farmers in a span of 5 years. With an outlay of about INR 1,698 crores over 5 years, the total returns over this period are more than INR 26,924 crores and can create employment for nearly 88,000 people which includes farmer franchise staff and Our Food staff.

PROPOSED IMPLEMENTATION PLAN

Sr. No.	Activities	M1: June	M2: July	M3: Aug	M4: Sep	M5: Oct	M6: Nov	M7: Dec	M8: Jan	M9: Feb	M10: Mar
1	**Infrastructure**										
1.1	Mapping of PMGSY roads (PWD/RD)										
1.2	Establish a Packaging Development Center										
1.3	Develop and maintain a Marketing portal										
1.4	National Accreditation Board for Testing and Calibration Laboratories (NABL)										
1.5	Accredited Testing Centres for raw material and finished product quality										
1.6	Digitize the operations of top 300 FPO/FPC										
1.7	Creation of 'ITI' like institute for developing a cadre of passionate FPO leaders										
2	**Finance**										
2.1	FPO/FPC Credit Guarantee Fund										
2.2	MSME Credit Guarantee Fund										
2.3	Exporter Credit Guarantee Scheme										
3	**Miscellaneous**										
3.1	Fee waiver and single window clearance for micro-processing units at farm level										

Sr. No.	Activities	M1: June	M2: July	M3: Aug	M4: Sep	M5: Oct	M6: Nov	M7: Dec	M8: Jan	M9: Feb	M10: Mar
3.2	Single window clearance for distribution centers										
3.3	Waiver of fee on set up of electricity lines for the micro processing units										
3.4	Allocate land of about 5 acres at subsidized rates for set up of Distribution centers in each cluster										
3.5	Direct local banks and RRBs to extend loans and financial support including e-Warehouse receipt facility										
3.6	KVKs & NGOs to train farmers - processing, quality & marketing of processed Agri-products										

Institutional Architecture (IA)

The key to success of these investments is centered around the institutional arrangements that are created to deliver on the design. The elements of the arrangements are given below-

1. The governance mechanism that is created to ensure Interdepartmental Co-ordination, policy formation, budget allocation, anticipating areas of overlap and resolving issues in a time bound manner
2. Implementation mode – given that all the three investment areas are cross functional in nature and require co-ordinated and timely action, the mode will need to go beyond the departmental structures. It will need to be a combination of 'mission' mode and stand-alone entities created specifically for these programs
3. Programme leadership and implementation partners – the selection of program leader and the implementation partners will need to reflect equity, market orientation, beneficiary protection (especially in case of minor millets), etc. The human resources will need to be selected from public/private sector and where appropriate from the civil society organizations.

4. Reporting – this is critical to ensure that there is timely data available for proactive action and remedy. A web based portal is required to show live status, tracking of components, tasks, outputs, outcomes, issue alerts, etc.
5. Policy Design and feedback loops - Knowledge Consortium/Technical Groups would be required to evaluate programmatic progress, feedback to Governance, recommend policy re/design

It is proposed that two separate institutional architectures (IA) are formed (or existing structures adapted) to implement the proposed investments. One IA will support the Crop Cluster Business Units (CCBU) and the Micro-Entrepreneur Food Processing Units (MEFPU). The second IA will support the Minor Millet Cluster (MMC).

Institutional Architecture: IA-1 – CCBU & MEFPU

The core activities of IA-1 are aligned to enterprise creation and sustenance. These will be done through leveraging the existing government schemes at the grass root level. It is proposed the RUDA be restructured the institution to implement CCBU & MEFPU. RUDA (Rural Non-Farm Development Agency) was established in November 1995, by the Government of Rajasthan as an independent agency to promote the Rural Non-Farm Sector (RNFS) in the State. RUDA follows a sub-sectoral, integrated and cluster based approach for promoting rural micro enterprises for rural artisans. RUDA is registered under the Societies Registration Act giving it a certain autonomy and flexibility in its functioning. Over the last 14 years, RUDA has evolved as an innovative, creative and a highly professional agency to achieve its daunting but challenging mandate. It is already working in six sub-sectors –

1. Leather
2. Wool and Textile
3. Minor minerals
4. Handicrafts
5. Handloom
6. Khadi and Village Industries

There will be a need to re-structure the Objectives of RUDA to add Agribusiness and Micro-Food Enterprises. The proposed Crop Cluster Business Promotion Unit (CCBPU) that will service a cluster of 50-70 FPO & Micro-Entrepreneur Food Processing Units should be located under RUDA. Each CCBPU should at the minimum provide a set of services (like a Citizen Service Center) at the grass root level.

- Leverage Rajasthan state govt policies in Agribusiness, exports, MSME, Tribal Development, Rajeevika, etc. and Govt of India schemes
- Identify infrastructure gaps in the cluster and work with relevant departments to ensure infrastructure is available or rectified in a time bound manner
- Enable Financial linkage of entrepreneurs and FPO/FPC to financial institutions including available government schemes for credit and grants.

- Facilitate and incubate enterprise skill development of entrepreneurs & FPO/FPC.
- Deployment of digital technologies from farmgate to marketing.

The staffing of the CCBBU should be planned to provide the above services. At a minimum it should have staff that will provide services across enterprise development, agriculture supply chain development, finance, general administration and management, etc.

Institutional Architecture: IA-2 – Minor Millet Cluster (MMC)

The Minor Millet Cluster will require a very different institutional architecture as it will be primarily focused on the tribal population of the state – working from production to consumption, and leveraging the nutrition programs. The Minor Millet Cluster should be within the Agriculture Department or Rural Development department. The figure 7 below presents a schematic of the Institutional Architecture of the MMC.

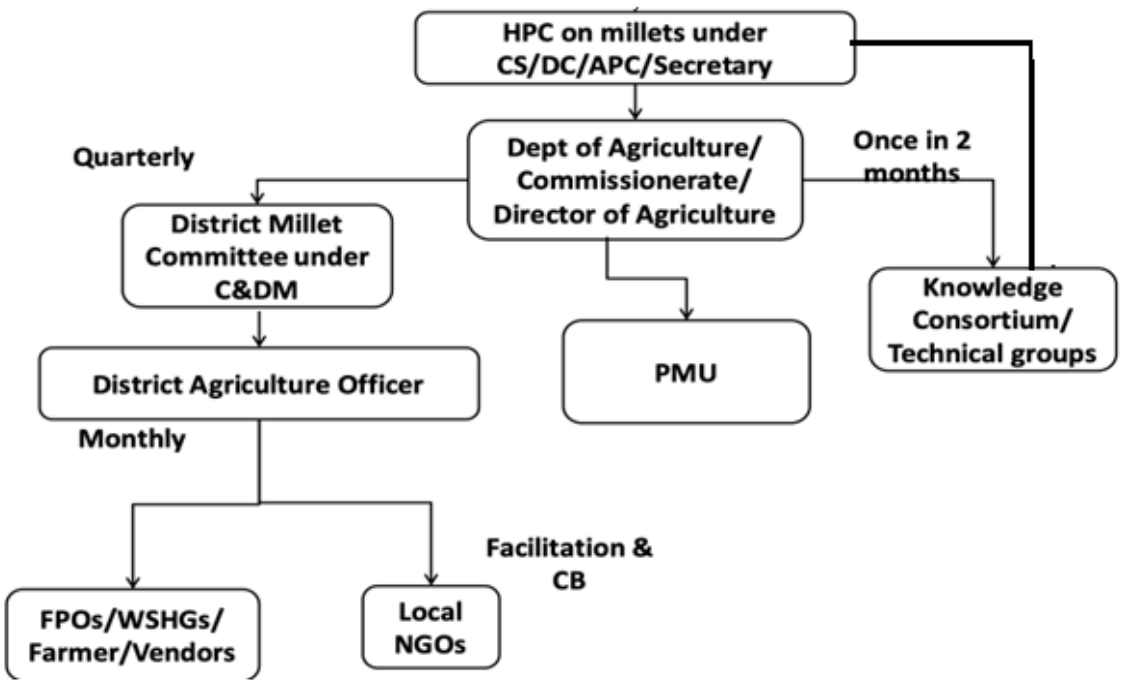


Figure 7: Institutional Architecture of Minor Millet Cluster

Roles and Responsibilities of Key stakeholders in Minor Millet Cluster

Sl no	Department	Role and responsibity
1	Chief Minister Economic Transformation Council	1. It will set up knowledge management consortium for the millet initiative with representatives of CEEW, ICAR, SAU, FAO, RRA Network and others.
		2. It will form various sub committees/ technical groups and empanel different experts and agencies and donors to provide the knowledge support in the design and development and periodic evaluation of the scheme.
		3. It will undertake periodic studies and provide guidance/suggestions/ collaborations.
2	High Power Committee under Chief Secretary/Development Commissioner/Agriculture Production Commissioner	1. Committee will meet once in six months to deliberate policy matters and facilitate inter-Departmental convergence.
		2. All policy formulation, rules and regulations and decision regarding inter departmental convergence shall be approved by the HPC.
		3. Approve the department wise and scheme wise allocation of funds for the millets intiative for convergence.
		4. It will review and approve collaborations suggested by CMETC
3	Department of Agriculture	1. It will regularly review the programme once in two months.
		2. It will also approve the allocation of funds for the Programme.
		3. It Will work as Nodal Department for the project.
4	Commissionerate/ Directorate of Agriculture	1. Commissionerate/Directorate of Agriculture is the nodal directorate for overseeing the monitoring and implementation of the initiative.
		2. It will set up a PMU for day to day project management
		3. It will approve the annual action plan for the project.

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		4. It will review physical and financial progress of the activities of the Programme. It will review and approve the guidelines/operational modalities of the different components
		5. It will coordinate with technical subgroups formed under CM Economic transformation council.
		6. It will issue joint instructions from time to time to different district level officials of directorates/districts for better convergence and implementation of the activities
5	District Millet Committee under District Collector	1. District level millet committee will be formed under the Districtc collector with representatives from agriculture, SRLM, KVK, local NGO partners and others
		2. Committee will review the progress of the scheme on a monthly basis
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