SMALLHOLDER
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INVESTMENT PROSPECTUS

WORKING PAPER
7

INDIA

MINOR MILLETS VALUE CHAIN IN MADHYA PRADESH AND RAJASTHAN

February 2021
safinetwork.org

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SAFIN is a network of institutions from different parts of the landscape of agricultural finance, who share a commitment to accelerate access to finance for small and medium enterprises in agricultural value chains. Our partners include financial institutions, philanthropies, social lenders, technical assistance providers, farmers' organizations, and development finance organizations. The network provides a pre-competitive space for these institutions to share learning, address strategic issues and knowledge gaps in a coordinated manner, and foster innovative solutions to address common challenges.

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SAFIN India Pilot Anchor

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Abbreviations

CSO	civil society organization
DFI	Development Finance Institution
FAO	Food and Agriculture Organization of the United Nations
FPC	farmer producer company
FPO	farmer producer organization
ICDS	Integrated Child Development Services
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFAD	International Fund for Agricultural Development
IIMR	Indian Institute of Millet Research
IP	Investment Prospectus
MDM	Mid-Day Meal
MP	Madhya Pradesh
MSMEs	micro, small and medium-sized enterprises
MVVN	Mahila Vitta Vikas Nigam
NABARD	National Bank of Agriculture and Rural Development
NBFC	non-banking finance company
NPA	non-performing assets
PDS	Public Distribution System
RBI	Reserve Bank of India
SFAC	Small Farmers Agri-business Consortium
SIDBI	Small Industries Development Bank of India
SMEs	small and medium-sized enterprises
SRLM	State Rural Livelihoods Mission
TL	term loan
WC	working capital

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Limitations and challenges

1. Given the coronavirus disease 2019 (COVID-19) pandemic, it was very difficult to reach out to government representatives, as they were busy attending emergency activities.
2. The time provided to carry out the exercise was short and was further constrained by the COVID-19-related restrictions and lockdown. Field visits could not be performed. Hence the findings could not be validated beyond the information provided through teleconferences.
3. Getting detailed information from private sector business partners was a challenge, as they generally are not willing to reveal key strategies.

1. Introduction

1.1 Purpose and focus of the prospectus

The Investment Prospectus (IP) is a follow-up to the *Scoping Analysis: Investment opportunities in five agriculture value chains in India* that was completed in December 2019. The five product groups analysed in the scoping study represent both established and emerging value chains, including: oilseeds, pulses, spices, coarse cereals and non-timber forest produce. The Smallholder and Agri-SME Finance and Investment Network (SAFIN) country partners outlined the key purpose of the Investment Prospectus, which is to explore the "development impact potential expected from improved access to finance for agri-SMEs [small and medium-sized enterprises] in a given value chain (where impact can be via improved incomes for small farmers, supporting crops in marginalized geographies, impact on nutrition) as well as clear government support to transformative investments in a given value chain" (SAFIN, 2019).

The scoping analysis was reviewed by SAFIN India partners and key local stakeholders during a validation workshop held in December 2019 in New Delhi. The attendees identified millets as the recommended value chain to be covered by an investment prospectus, with a specific geographical focus on the States of Madhya Pradesh and Rajasthan. This recommendation was based on the following selection criteria that were agreed upon by all stakeholders present at the workshop.

- **Low-hanging fruit:** Focus on a crop and region that offers a high chance of success, to build a positive track record for the IP process in India.
- **Agri-SME rich value chain:** Select a value chain and region that is reliant on and characterized by a high number of agri-SMEs.
- **Investable opportunities:** Consider state-level characteristics, such as the ease of doing business and the bankability of existing agri-SMEs.
- **Crop characteristics**: These should ideally include high nutritional value, climate-smart/natural farming practices, indigenous crop, and strong market potential.
- **Government priority:** The value chain should be recognized as a priority for the government, at the state and/or national level.
- **Interest from SAFIN partners:** The value chain and region should align with existing and/or future interest in terms of the portfolio activities of SAFIN partners.

Millets comprise major millets (including pearl millet, sorghum and finger millet) and minor millets (including proso millet, little millet, kodo millet, foxtail millet, barnyard millet and browntop millet). The terms "minor millets" and "small millets" have the same meaning and are used interchangeably in this document.

During the discussions with the India IP Steering Committee in June 2020, a recommendation was made to focus the IP document on minor millets. It was highlighted that major millets have well-established commercial value chains, while minor millets are rapidly gaining attention within the development and commercial agenda. Minor millets have been a neglected category among researchers and policymakers, and this has contributed to the marginalization of farmers who have traditionally depended on them for food security and income. "There is an increasing recognition of their favorable nutrient composition and utility as health food, in the context of increasing lifestyle diseases. Thus, apart from their traditional role as a staple for the poor in the marginal agricultural regions, they are gaining a new role as crops for healthy food and for the urban high-income people" (Bhag et al., 2010).

This input was subsequently validated with different stakeholders – including SMEs operating in the millet value chain, researchers and civil society organizations – convened for a preliminary meeting to launch the IP development process. Interviews with key stakeholders in India confirmed the importance of minor millets and the need to specifically address the post-harvest elements of the minor millet value chains in the identified states. The following factors were considered to sharpen the focus of the IP development.

- Opportunity for commercial development of the different millets.
- Potential long-term impact of investments on the producer and consumer value chains.

1.2 Overview of the prospectus' originator

ACCESS Development Services (ACCESS), a not-for-profit organization in India, is a member of SAFIN and the anchor agency for the IP development process in India.

ACCESS was set up in 2006 with support from the UK's Department for International Development (DFID) to promote sustainable livelihoods of the poor. ACCESS designed its initiatives to work in three tiers.

- Tier I – ACCESS works with communities on the ground to implement livelihood programme interventions and to incubate institutions and innovations.
- Tier II – ACCESS's work focuses on providing technical and professional support to various large-scale programmes, government agencies and other organizations.
- Tier III – ACCESS works towards creating sector-level consensus on development strategies as well as influencing policies.

The organization's two national knowledge and advocacy platforms – Inclusive Finance India and Livelihoods India – are well recognized and established to address ACCESS's Tier III strategic commitments.

ACCESS works in the areas of livelihoods promotion and financial inclusion through 34 ongoing (Tier I) programmes across 12 states in the country. ACCESS has covered over 290,000 households including farmers, artisans, weavers and microentrepreneurs, with a focus on vulnerable segments, including women and tribal groups. Since inception, ACCESS has focused on improving the livelihoods of small-scale and marginal farmers through integrated programmes for improving farm productivity; optimizing costs; facilitating access to inputs, technology, capital and markets; and for the collectivization of farmers to benefit from economies of scale. Since 2006, ACCESS has emerged as a leader in the promotion of farmer producer organizations (FPOs) / farmer collectives. Indeed, they had formed and incubated over 160 FPOs across five states up to the end of 2020.

As the anchor for SAFIN's IP development process in India, ACCESS supported the scoping study by providing research assistance to the consultant and organizing the validation workshop in December 2019 to share the findings of the study and seek suggestions from stakeholders on next steps. ACCESS has led the development of the IP on minor millets, which included identifying the consultant, convening meetings of the India IP Steering Committee, and providing technical and logistic support for interviews. ACCESS is well positioned to disseminate the IP document among local stakeholders, particularly financial sector institutions and government, and to take a lead in the follow-on efforts recommended in the present IP for national- and state-level advocacy.

1.3 List of definitions

MICRO, SMALL AND MEDIUM-SIZED ENTERPRISES (MSMEs)

The Government of India recently reviewed the existing definition of micro, small and medium-sized enterprises (MSMEs) and released revised investment limits for the MSME sector. The MSME sector has three subclassifications in India – micro, small and medium-sized. The micro-enterprises within the definition of MSME have no linkage to microfinance institutions (MFIs), as they are in fact much larger in size than the enterprises generally supported by MFIs. The MSME sector is under the overall guidance of the Ministry of Micro, Small & Medium Enterprises (Ministry of MSME), whose policies are implemented by the state governments based on their respective priorities and budgets.

Enterprises under this classification must be involved in either manufacturing or the provision of services – a purely trading enterprise is not allowed within the classification of an MSME. The Government of India requires MSMEs to meet "composite criteria" of investment and turnover (revenue). Table 1 presents the revised criteria for the classification of MSMEs that was announced in May 2020.

Table 1: Definition of MSME

Government of India classification	Composite criteria: investment and annual turnover	Micro	Small	Medium
Manufacturing and services	Investment (Indian rupees – Rs) Turnover (Indian rupees – Rs)	< 1 cr[a] < 5 cr	< 10 cr < 50 cr	< 50 cr < 250 cr

Segment	Nature of investment opportunity	Micro	Small	Medium
Post-harvest	Procurement and marketing, hulling, destoning, sorting and grading, food processing, storage, silos, flour mill	Investment Prospectus focus ✓		
High-end value addition	Starch, fermented products, malted foods, breakfast food, baked products, ready-to-eat food and snacks		✓	✓

Note on currency and conversions:

- [a] 1 crore (cr) Indian rupees (Rs) = Rs 10 million
- Assumed exchange rate: US$1 = Rs 75
- Rs 1 cr = US$133,333; Rs 5 cr = US$666,666; Rs 10 cr = US$1.33 million; Rs 50 cr = US$6.66 million; Rs 250 cr = US$33.33 million.

Table 1 also maps the different segments of the post-harvest minor millet value chain and the likely MSME classification within which these will fit as the ecosystem evolves. At present, the opportunity in minor millets for post-harvest value addition is in the microenterprise segment. As the market for higher value added products evolves, those businesses are expected to be classified in the small or medium-sized enterprise segment.

FARMER PRODUCER ORGANIZATIONS (FPOs)

The terms “farmer producer company (FPC)” and its common equivalent “farmer producer organization (FPO)” (used interchangeably in this document), are generic, including all the organizations incorporated or registered under Part IXA of the Companies Act or under the Co-operative Societies Act of the concerned States. The legal provisions under which a producer organization can be registered are (NABARD, 2015):

- Cooperative Societies Act / Autonomous or Mutually Aided Cooperative Societies Act of the respective state
- Multi-State Cooperative Society Act, 2002
- “Producer Company” under Section 581(C) of Indian Companies Act, 1956, as amended in 2013
- Section 25 of the Company of Indian Companies Act, 1956, as amended as Section 8 in 2013
- Societies registered under the Society Registration Act, 1860
- Public Trusts registered under the Indian Trusts Act, 1882.

An FPO can comprise of as few as 10 members and up to 10,000 members. Each FPO formation scheme has a norm for membership that needs to be complied with to access any benefits associated with the scheme. It should be noted that FPOs and MSMEs are independently defined structures with no overlap, even though an FPO with appropriate revenues could fit into the MSME classifications presented in table 1. For more details on the FPO landscape, see section 2.2.

1.4 Theory of change

The Green Revolution period in India primarily focused on investments that would deliver the highest amount of food security in the shortest time. Two cereals came under focus: wheat and rice. All value chain investments were targeted to support the production, processing and distribution of these two grains. Millets are part of the coarse cereal family. “Coarse cereals have been dubbed as poor man’s crops for long, and have remained neglected with respect to their appropriate position in the commercialized food system and investment in research and development. With the increasing concerns about adverse changes in environmental quality and its consequent negative effects on food and nutritional security and perceived need for increasing food production per unit resource investment for an ever increasing population, these coarse grains have good prospects of penetrating the food baskets of a wider range of consumers, both rural and urban, poor and rich, and in developed and developing economies” (Kaur, 2014).

CHALLENGES

Millets are highly nutritious cereals that are specifically suited to rainfed agriculture and have long been part of the traditional dietary regimen of local communities. They are more nutritious than wheat and rice, which are distributed by the government under the national food security programme (see section 2.4). Traditional home processing techniques for minor millets are laborious and mainly involve women. “Difficulty in processing is another reason why rural households have either discontinued or reduced the consumption of millets. Millet processing is associated with considerable drudgery and advanced processing technology has not reached rural areas.” (Bioversity International, 2019). Improved processing of minor millets has not been a focus area for research, either by the government or the private sector. Having achieved food security, Indian planners have focused attention on addressing the issue of unreliable agriculture outcomes in the face of climate change combined with the burden of malnutrition.

Most minor millet growers in the IP’s target geographies, the States of Madhya Pradesh and Rajasthan, are indigenous people with limited or no access to formal market networks. Millet consumption habits of growers have been replaced by wheat and rice made available at highly subsidized rates through the Indian government’s

Public Distribution System (PDS). A revival of the minor millet value chains, supported by improved processing techniques, will increase the potential for self-sufficiency of growers and help address the issue of malnutrition in India.

The transformational agenda related to the revival of the minor millet value chains is reliant on coordinated action by market players representing the entire value chain, combined with sustained government action in the precompetitive space. Enhancing consumer awareness and demand among both urban and producer families will require advocacy based on scientific proof of the nutritional benefits of a diet that includes minor millets. This requires that the government undertake and support research demonstrating the nutritional outcomes of minor millets and widely publicize the results. The promotion of minor-millet-based cuisine as a healthy diet will draw the interest of health-conscious urban upper-middle-class consumers as well.

The availability of finance for agricultural value chains has been a problem area as the sector is saddled with non-performing assets (NPA) (see chapter 4 for more details). Investments supporting gross capital formation in small farmer agriculture (e.g. irrigation, drip, protected cultivation, market access, infrastructure development) is not perceived as economically viable by traditional financial service providers (FSPs), which do not generally target this sector despite government efforts to support the extension of credit. Lending to smallholder farmers requires that demand be aggregated, which is a resource-intensive exercise fraught with risks emanating from poor data availability. In the case of minor millets specifically, the nascent nature of the value chain in its present stage makes attracting financing and investment all the more difficult.

INTERVENTIONS

Given these challenges, there is a need to undertake interventions that would nudge the ecosystem towards the development of appropriate policies favouring millet value chains and increased access to finance, as well as the development of supply chain activities closer to the point of production, and increased consumer offtake. At the state government level, advocacy work to prioritize millets production by setting up a state millets policy/mission will be critical to align government efforts, including incentivizing the promotion of farmer collectives focused on minor millets and attracting private sector attention.

Advocacy work targeting consumer awareness of the benefits of millets will be crucial to spur much-needed development of the supply chains by generating product demand. This in turn will incentivize private sector stakeholders (processors, branded product companies, retailers, etc.) to improve value chain efficiencies and invest in improved processing technologies. As key actors in the process of growing and strengthening the millets supply chain, FPOs and agroenterprises active in post-harvest segments of the minor millet value chain will require support in the form of financing and capacity-building (or incubation).

OUTCOMES

These actions should lead to increased access to finance by minor millet FPOs and agro MSMEs,[1] while the policy initiatives should result in developing linkages between FPOs, agro MSMEs and large institutional buyers and government programmes (e.g. Mid-Day Meal [MDM], Integrated Child Development Services [ICDS], PDS), as well to the private sector.

Sustained performance of FPOs and agro MSMEs should contribute to strengthening the FPO model of product aggregation and supply chain development. Consumer demand should revive the production supply chain of minor millets. Over the longer term, these outcomes should impact the nutritional outcomes in rural and urban India, as well as contribute to improved incomes and climate resilience of minor millet producers.

1 "Agro MSME" is the official Government designation and is effectively a synonym of the SAFIN term "agri-SME".

Figure 1: Proposed theory of change

CHALLENGES	Lack of Government policy focus on promoting minor millets	Lack of millet-processing technology	Low awareness of nutritional benefits of millets among consumers	Risk-averse financial institutions
INTERVENTIONS	Policy advocacy with State Government Incubation of, and technical assistance to FPOs and agro MSMEs	Advocacy for improving supply chain efficiencies and research and devel-opment in processing technology	Consumer advocacy	Advocacy with financial sector actors for financing of FPOs and agro MSMEs
OUTPUT	Creation of appropriate policies at state level to promote production of minor millets	Improved processing equipment with focus on productivity and nutrition retention of minor millet	Demand for millets and millet-based products	FSPs create credit assessment models reflecting the opportunities and risks of investments in FPOs and agro MSMEs
OUTCOMES	Creation of millet-specific schemes and programmes Creation of minor-millet-focused FPOs and agro MSMEs Public fund allocation for nutritional research on minor millets	Affordable and scalable processing technology for commercial purpose	Linkage of FPOs and agro MSMEs to large institutional buyers, government procurement and private sector	Investments in minor millet supply chains – particularly in FPOs and agro MSMEs
IMPACT	Increase in minor millets production and consumption leading to: • Enhanced incomes and climate resilience of minor millet producers • Improved nutrition and health outcomes in rural and urban India			

Agro MSMEs, agricultural micro, small and medium-sized enterprises; FPOs, farmer producer organizations; FSPs, financial service providers.

1.5 Executive summary

There is a clear need for India to transform its food systems from merely ensuring food security (i.e. the intake of a sufficient number of calories) to achieving nutritional security at the national level. Minor millets, a group of climate-resilient grains, present an opportunity to contribute to the transformative nutritional security agenda for both urban and rural consumers. Targeted investments in minor millet value chains would require significant coordinated action in the precompetitive space that will help overcome the hangover from the green revolution investments in wheat and rice food production and public distribution systems.

Madhya Pradesh produces one third of India's minor millets, most of which is produced in rainfed areas by smallholder farmers who are part of indigenous communities. There are considerable opportunities to add value to the raw grain for supplies to the state-run nutrition programmes, such as the MDM scheme, as well as for supplying health-conscious urban consumers looking for nutritious alternatives. Rajasthan, by contrast, is known as India's largest producer of pearl millets, but accounts for only 2 per cent of total production of minor millets. Therefore, the key opportunity in this state is to increase minor millet production areas and begin to generate tradable surplus volumes. Harnessing these opportunities will require concerted efforts primarily in the form of advocacy work to persuade the state's Agriculture Department and Department of Food and Civil Supplies to provide appropriate incentives, such as ensuring the purchase of production at a higher farm-gate price than is offered for wheat and rice. Core efforts will need to focus on enhancing seed availability of minor millets and improving market access, starting with increased demand from government food programmes.

In Madhya Pradesh, this IP presents investment opportunities that have been identified across three types of business entities. FPOs present an excellent vehicle to aggregate smallholder farmers' produce, bringing their production under one roof for primary processing and distribution. Similarly, "agro MSMEs (1)" can also be developed to undertake primary processing activities for retail and industrial distribution. There is an opportunity to develop another type of "agro MSME (2)" that will undertake secondary processing of minor millets for higher-paying customers. Overall, the IP recommends the establishment of 25 FPOs, 25 agro MSME (1)s and five agro MSME (2)s. All the investment opportunities identified in this IP are projected to be profitable and deliver positive internal rate of return (IRR) within a 5-year time horizon. Furthermore, the implementation of the IP recommendations is expected to catalyse investments of the order of Rs 1 billion (including equity, term loans and government support via subsidies) over the next 5-year period.

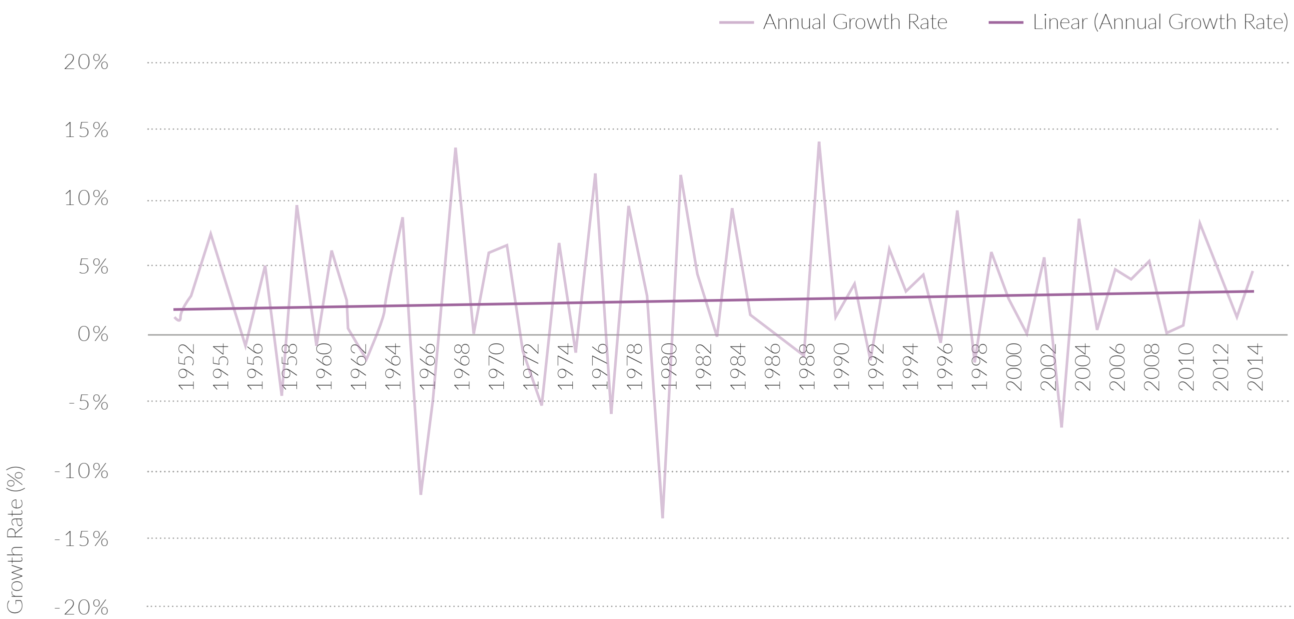
Two critical enablers are identified in the IP, which will be instrumental in helping unlock the investment potential of the highlighted opportunities. First, considerable advocacy work operating along four dimensions: public policy, consumer advocacy, financial sector advocacy, and supply chain development. The second enabler will be the provision of capacity-building services in the form of technical assistance and incubation. This support will be provided with the objective of establishing robust FPOs, and strengthening the business viability of agro MSMEs (1) and (2).

2. Overview of scoping report

2.1 Country overview

India is the world's most populous democracy with a population of over 1.3 billion people, of which over two thirds reside in rural areas. India is the world's third largest economy in terms of purchasing power parity (World Bank, 2018). The service sector dominates India's gross domestic product (GDP) with a share of over 56 per cent, while agriculture contributes a meagre 16 per cent. Yet, almost half of the country's labour force is dependent on agriculture for their livelihoods. The country is currently the world's second largest producer of agricultural commodities and has achieved tremendous success in building a food-secure nation. Nevertheless, the growth of the agricultural sector has been slow and volatile (see figure 2).

Figure 2: India's agriculture performance: slow and volatile growth (World Bank, 2018)



Smallholder farmers with less than 2 ha of land account for 85 per cent of all farmers in India, but effectively farm less than 40 per cent of the total agricultural land. Approximately 40 per cent of farm output is derived from rainfed areas. Climate change and erratic monsoon rains have disproportionately negatively impacted smallholders and farmers in rainfed areas of India.

The success of India's food security efforts over the past four decades transformed the country from a food-deficit to a food-surplus nation. This was made possible by the coordinated effort of various ministries of the central and state governments with private industries associated with agricultural development. Systematic steps taken to develop an efficient supply chain underpinned this coordinated approach. Ultimately, the domestic market that supply chains fed into was dominated by the Government-controlled public procurement and distribution system. However, the integration of private markets into an agricultural market run by the public sector has remained the weakest link in the evolution of India's agricultural economy.

The World Bank (2018) highlighted that "the efficiency and productivity of Indian agriculture needs to improve, and the sector needs to transition from its traditional food security orientation (with a cereal or calorie focus) to a modern food system resilient to climate change." Reardon et al. (2020) highlighted the transformation of the Indian Food Supply Chains (FSC) during the past two decades:

> « *The Indian food economy now is mainly urban, fed by long rural–urban supply chains. It is now 80% composed of non-food grains and thus fed by perishable FSCs, 60% post-farm-gate, and 85% dependent on small and medium sized enterprises (SMEs) that are dynamic and clustered near and in towns. It is 96% dependent on the private sector (with government managing only 4% of India's food). It is characterised by highly integrated rural hinterlands, peri-urban and urban areas, having tight and fluid connections in both directions.*

Smallholders and resource-poor farmers operate mostly in rainfed areas. Integrating them into the mainstream market requires institutional arrangements that will address issues of equity and reliability, while leveraging the resources of the government, civil society and the private sector. A suggested intervention would be the development of "agro- processing and other forms of agro-enterprise activity [that] provide a venue for the accumulation of skills and could stimulate product and process innovations that would strengthen the backward and forward linkages with the rest of the economy" (World Bank, 2018).

2.2 Status of farmer producer organizations in India

"Farmer producer companies" became legal entities in 2002 within the context of the Indian Companies Act of 1956. The FPO was introduced as a potential solution to address the politically sensitive issues around farmer land aggregation and the challenges of reaching out to geographically dispersed smallholder farmers. FPOs are designed to use collectivization as a means of aggregating smallholder farmers. However, the Indian Government launched the first piloted FPOs a decade after their introduction, in 2010-11. The pilot programme was led by the Small Farmers Agri Consortium (SFAC), an arm of the Ministry of Agriculture. After three years of running the pilot programme, the Indian Government developed guidelines to mainstream the development of FPOs across different schemes, in 2013-14. The different agencies involved in the promotion of FPOs are:

- The **Small Farmers Agri-business Consortium (SFAC)**
- The **National Bank of Agriculture and Rural Development (NABARD)**
- The **Rashtriya Krishi Vikas Yojana (RKVY):** The Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RAFTAAR) is a flagship agricultural development programme operating in the states targeted by the IP.
- **State Rural Livelihoods Missions (SRLMs):** Operating under the Rural Development Ministry, SRLMs adopted a strategy to promote FPO for livelihoods and an income enhancement programme for the rural women.

A number of programmes aim at promoting FPOs.

- The Government of India has sought to provide a level playing field for FPOs by treating them as equivalent to cooperatives in terms of their access to government assistance.
- A number of credit guarantee schemes and venture capital assistance funds have been created to support FPOs (e.g. NABARD's Producer Organization Development Fund [PODF])
- Many states have created FPO policies and guidelines that aim to promote business growth and infrastructure development.

Based on government guidelines from 2013, a period of three years was estimated to be required for the formation of an FPO, which includes the mobilization, grouping and training of farmers, as well as the formation of the legal entity. Accordingly, the financial support provisioned by the Government matched this three-year period. The expectation was that FPO operations would achieve stable business cycles that would allow them to build a bankable balance sheet and seek financial support from the commercial sector. According to a recent study by Azim Premji University (Govil et al., 2020), there were 7,374 producer companies registered as of 31 March 2019. Of these, 79 per cent had been in operation for three years or less, the formation of which was directly linked to the increased programmatic support from National Bank for Agriculture and Rural Development (NABARD) and SFAC during the 2016-2019 period. All registered FPOs do not actively undertake commercial activities. FPOs were estimated to include 4.3 million producer members, representing 5 per cent of the country's agricultural households.

Recognizing the potential of FPOs as a means to collectivize smallholder farmers, the Indian Government announced a programme to create 10,000 additional FPOs in its annual budget for 2020-21. The Government also took note of the experience of many of the FPO Promoting Institutions (PI) over the past seven years, and amended the guidelines in July 2020 to increase the formation and handholding support period of FPOs, as well as the financial support provided to FPO PIs, to five years (Government of India, 2020).

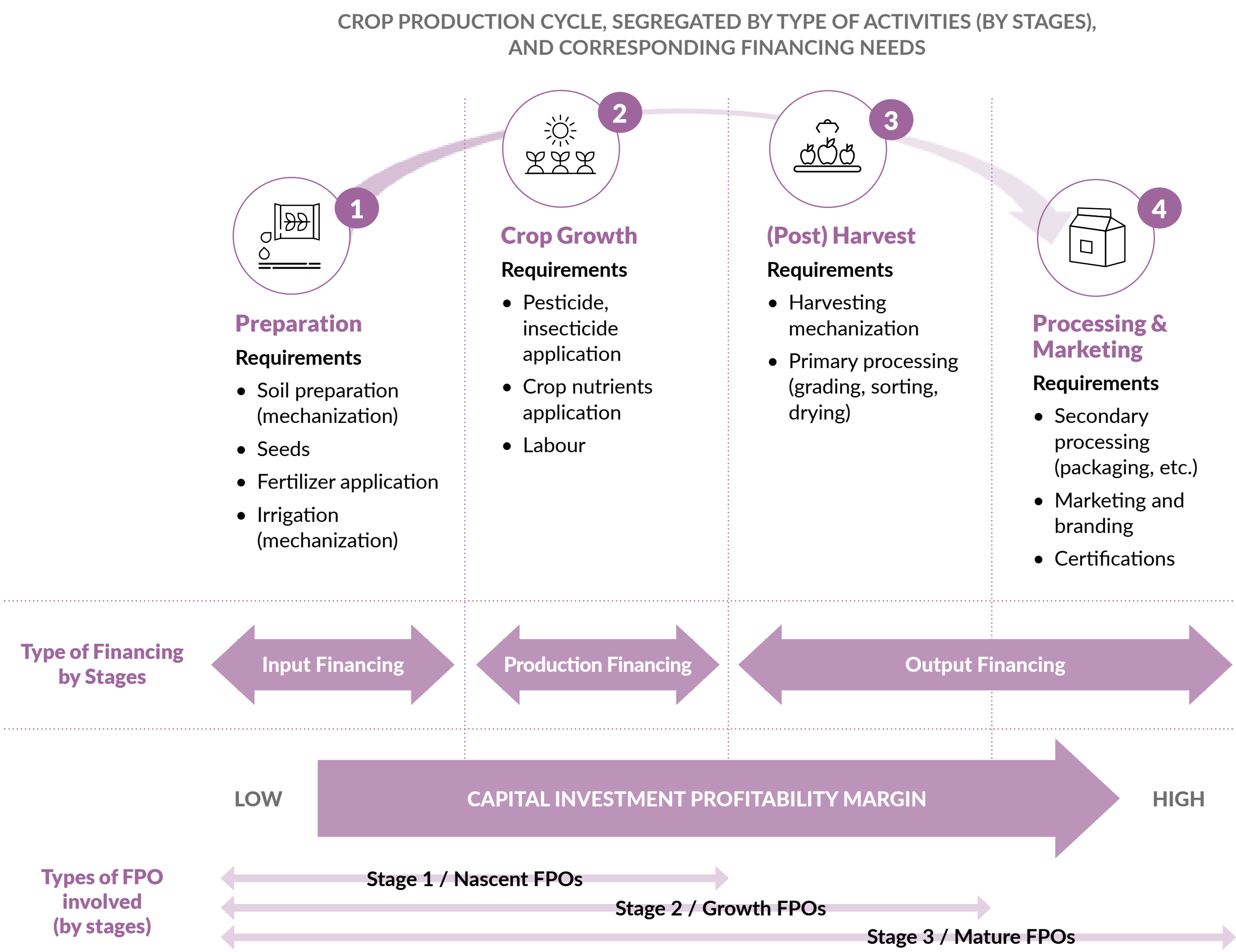
2.3 Financing farmer producer organizations

Given that a majority of FPOs have been active for three year or less, financing of such entities has been perceived as a risky venture by most financial institutions. A recent study commissioned by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ, 2020) estimated the total credit requirements of 5,100 FPOs to be around Rs 6,000 million (US$80 million). About 60 per cent of this requirement (US$48 million) was for 3,500 FPOs that are primarily engaged in the provision of input services. The 50 largest FPOs required a total of Rs 1,000 million (US$13 million), and medium-sized FPOs engaged in both input business and market linkages accounted for the remainder.

The start-up capital of FPOs is provided by the farmers who are shareholders. No other person or corporate entity is permitted to be a shareholder or investor in an FPO. A study by Azim Premji University identified that 86 per cent of the active FPO base of 6,926 have paid up capital of under Rs 1 million, and the median paid up capital was Rs 0.11 million (Govil et al., 2020). The study estimates that an agriculture business requires Rs 2 million to be established and an additional Rs 6 million to fund its operations. The current state of FPO capitalization is a long way from this requirement.

Figure 3 depicts three stages of FPO evolution – nascent, growth and mature – and illustrates the operating models, stages and types of FPO financing (GIZ, 2020).

Figure 3: FPO stages of evolution, operating models and financing needs (GIZ, 2020)



The financial and business management capacity of a vast majority of FPOs has traditionally been very poor. Aside from inadequate funding, the FPO staff and leadership teams have limited understanding or experience of business management. The list below, compiled from discussions with experts and the research cited above (GIZ, 2020; Govil et al., 2020), captures the key challenges of financing FPOs.

- Inadequate documentation and poor compliance track record.
- As a collective, there are no company-owned assets and therefore no collateral to provide.
- Smallholder production is unreliable, hence FPOs' aggregated trading volumes are erratic.
- Market linkages are weak and production quality is not uniform.
- Agricultural production is vulnerable to unpredictable events such as diseases and natural disasters (insurance is available only for individual farmers and not for FPOs).
- Given the historical challenges of contract farming initiatives in India, corporate actors are often reticent to engage with FPOs.
- There are no dispute-settlement mechanisms to ensure equity and fairness.
- Credit products and counterparty risk assessment tools are not adapted to farmer-based institutions.
- Credit history of FPOs is unknown.

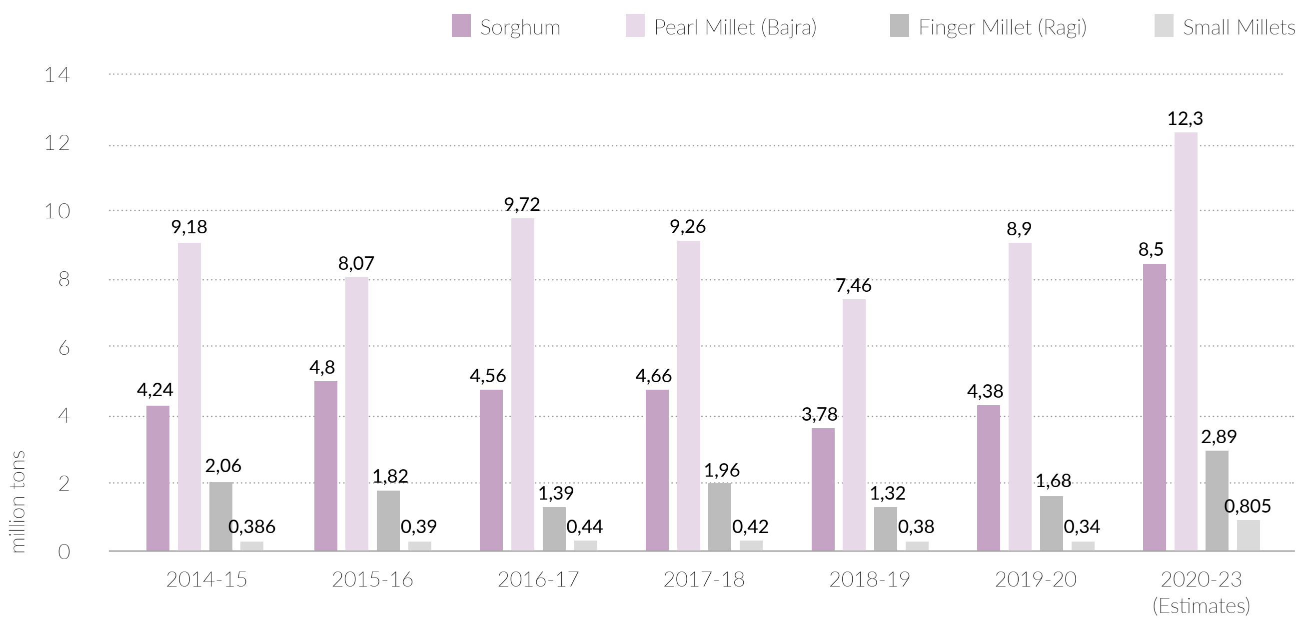
In summary, there is a clear need for extensive capacity-building of FPOs to help them develop into stable business entities. From a financing perspective, the ability to map FPO operating models, as well as to track and measure the underlying agriculture and financial activities in order to perform a reliable risk assessment, is both expensive and time consuming. Therefore, aside from the government-mandated priority sector lending (PSL) norms for banks, the financial sector would not address this segment on its own (see chapter 4 for details on agri credit).

2.4 Millet sector overview

Millets have been ignored in the Green Revolution agenda and have not found a place in the evolving food basket of the modern Indian consumer. As was noted in the theory of change (chapter 1), the Indian Government heavily subsidized the production and distribution of wheat and rice, leading many farmers move away from the production of millets, which they had traditionally cultivated. As the country rapidly moved towards irrigated agriculture, there was no support for the millet producers who were primarily rainfed area farmers.

Millets, classified as "coarse cereals" in India, comprise both major and minor millets. Pearl millet, finger millet and sorghum are categorized as major millets, which are grown over a vast area and benefit from well-developed commercial value chains. For both major and minor millets, the grains do not need to be de-hulled before they are processed for human consumption. There are six minor millets – foxtail millet, proso millet, little millet, kodo millet, barnyard millet and browntop millet. These millets are grown over much smaller areas (less than a tenth of the area of major millets). The production of minor millets has been plateauing over the past six years (figure 4).

Figure 4: India – trends in millet production (Source: FAOSTAT, 2019)



Minor millets are beginning to emerge on the radar of Government planners due to undeniable attributes, as they are: climate resilient, nutritionally dense, economically viable, and locally available/adaptable. Low water requirement; resilience to a variety of agroclimatic adversities, such as poor soil fertility, high temperatures and limited rainfall – make millets an ideal choice for rainfed areas (Kaur et al., 2014). In terms of nutrients, millets score better than rice and wheat on almost all parameters, which justifiably gives them the title of "nutri-cereals". Figure 5 presents a comparative nutrition profile of various cereals, with minor millets receiving high scores on most parameters.

Figure 5: Nutritional content of various cereals (Mera Terah Run, 2016)

Nutritional content in 100 gms of dry Grain	Protein (in gms)	Carbohydrates (in gms)	Fat (in gms)	Minerals (in gms)	Fiber	Calcium (in mgs)	Phosphorous (in mgs)	Iron (in mgs)	Energy (in kCal)	Thimain (in mgs)	Niacin (in mgs)
FOXTAIL	12.3	60.2	4.3	4	6.7	31	290	2.8	351	0.5	3.2
LITTLE	7.7	67	4.7	1.7	7.6	17	220	9.3	329	0.3	3.2
KODO	8.3	65.9	1.4	2.6	5.2	35	188	1.7	535	0.15	2
PROSO	12.5	70.4	1.1	1.9	5.2	8	206	2.9	354	0.41	4.5
BARNYARD	6.2	65.5	4.8	3.7	13.6	22	280	18.6	300	0.33	4.2
BROWN TOP	8.9	71.3	1.9	3.9	8.2	28	276	7.7	338	^	^
SORGHUM	10.4	70.7	3.1	1.2	2	25	222	5.4	329	0.38	4.3
PEARL	11.8	67	4.8	2.2	2.3	42	240	11	363	0.38	2.8
FINGER	7.3	72	1.3	2.7	3.6	344	283	3.9	336	0.42	1.1
PADDY RICE	6.8	78.2	0.5	6	1	33	160	1.8	362	0.41	4.3
WHEAT	11.8	71.2	1.5	1.5	2	30	306	3.5	348	0.41	5.1
QUINOA	14	64	6	^	7	36	457	4.6	368	0.36	^

Compiled from a study published by National Institute for Nutrition, Hyderabad and other sources for Quinoa and Brown top millet

GOVERNMENT INTERVENTIONS TO PROMOTE MILLETS

In 2018, the Indian Government elevated the status of millets to “nutri-cereals” through an executive order. Millets, earlier known as coarse grains, had been part of the National Food Security Mission (NFSM), albeit with limited resource allocation. To amplify the importance of millets, the Government of India declared 2018 as the National Year of Millets and simultaneously sent a proposal to the United Nations to declare 2023 as the “International Year of Millets” to promote greater production and consumption of millets. These steps are part of a series of definitive policy interventions by the Indian Government to systematically promote millets. Other initiatives include the following.

- **Initiative for Nutritional Security through Intensive Millet Promotion (INSIMP):** Launched in 2011/12 as a scheme to promote the improved production and post-harvest management of all millets (major and minor). INSIMP was funded for the promotion of millets as nutri-cereals under the Rashtriya Krishi Vikas Yojana (RKVY) - or the National Agriculture Development Program in English - a State Plan Scheme of Additional Central Assistance that was launched in August 2007 as a part of the 11th Five Year Plan by the Government of India.
- **The National Food Security Act (NFSA)** of 2013 (Government of India, 2013) seeks to “provide for food and nutritional security ... by ensuring access to adequate quantity of quality food at affordable prices.” The Act proposes to bring nearly 75 per cent of the rural population and 50 per cent of the urban population of India under the PDS.
- **The National Nutrition Strategy (NNS)** for “Nourishing India” was released in 2017 by NITI Aayog[2] of the Government of India with the aim of reducing all forms of malnutrition and aligning with the Sustainable Development Goals (SDGs) related to nutrition and health (NITI Aayog, 2017). The NNS recommends that the Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW) strengthen cereal productivity and production diversity – including the production of “coarse” cereals such as millets.

To further the development of millets in the country, the Indian Government launched the Sub-mission on Nutri-cereals under the National Food Security Mission in 2018-19. This sub-mission was initiated with an outlay of Rs 300 crores (US$40 million), with the following objectives.

- Development of a strategy for addressing issues concerning production, demand and research with a market-oriented approach.
- Increasing production of nutri-cereals through the expansion of production areas and sustainable productivity enhancements.
- Strengthening seed supply systems related to nutri-cereals.
- Enhancing post-harvest value addition at farm gate and enhanced market linkages.

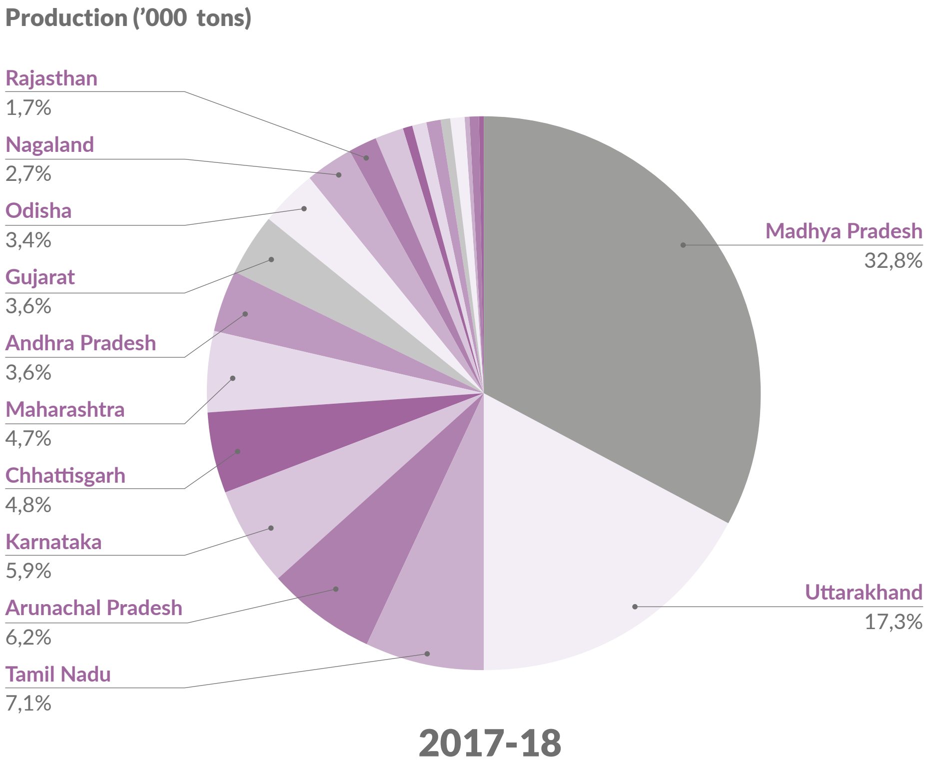
The Sub-mission on Nutri-cereals is in its early stages of implementation and the Government is actively soliciting inputs from different stakeholders to improve programme design, with the objective of significantly contributing to the national priorities of improved nutritional outcomes and enhanced farmer incomes.

2 NITI Aayog is a policy think tank of the Government of India, established with the aim of achieving sustainable development goals with cooperative federalism by fostering the involvement of state governments of India in the economic policymaking process using a bottom-up approach (https://niti.gov.in/).

2.5 Minor millets in Madhya Pradesh and Rajasthan

India's minor millet production landscape is highly contrasted (figure 6). Two states – Madhya Pradesh (MP) and Uttarakhand – accounted for 50 per cent of the country's total minor millet output in 2017-18 (i.e. 440,000 [metric] tons).

Figure 6: India's small millet production by state (2017-18) (ICRISAT, 2019)



Madhya Pradesh	144
Uttarakhand	76
Tamil Nadu	31.28
Arunachal Pradesh	27.3
Karnataka	26.01
Chhattisgarh	21.13
Maharashtra	20.83
Andhra Pradesh	16
Gujarat	15.73
Odisha	14.94
Nagaland	11.7
Rajasthan	7.34
Uttar Pradesh	5.85
Bihar	3.31
Himachal Pradesh	3.31
Jammu and Kashmir	3.08
Assam	3.06
Meghalaya	2.78
Sikkim	2.55
West Bengal	2.2
Tripura	0.39
Puducherry	0.19
Total (All India)	**438.99**

MP produced 144,000 tons, while Rajasthan produced 7,340 tons (or 2 per cent of total production) in 2017-18. MP and Rajasthan had 148,000 ha and 10,480 ha, respectively, under minor millet cultivation during the same period.

Table 2 captures the historical comparison (1983-84 and 2017-18) of minor millet production and cultivation area for the two states. In 1983-84, MP produced 394,300 tons on 1,446,500 ha and, over a 30-year period, lost 90 per cent of its minor millet production area with a corresponding 64 per cent drop in production. Similarly, Rajasthan produced 25,200 tons on 44,200 ha in 1983-84, and experienced a 71 per cent drop in production and 77 per cent in terms of the area under cultivation (Seetharam et al., 1989, pp. 40-41). This corresponds to the same period during which millet farming was side-lined because of the Green Revolution, whereby all incentives and investments were oriented towards achieving self-sufficiency in wheat and rice production.

Table 2: Small millet production volume and area under cultivation (tons/ha)

	1983-84		2017-18	
State	***Production***	***Area***	***Production***	***Area***
Madhya Pradesh	394 300	1 446 500	144 000	148 000
Rajasthan	22 200	45 200	7 340	10 480

MADHYA PRADESH

Over recent years, MP has been making significant efforts to recover the lost ground in minor millet production. In 2007, the state government launched the IFAD funded Tejaswini Project, which was implemented by Mahila Vitta Vikas Nigam (MVVN). In 2013, the project team initiated a programme to revive cultivation of two types of minor millets in 41 villages of the Mehadwani block of the Dindori district. Under the programme implemented through Nari Chetana Mahila Sangh, a federation of women-farmer self-help groups (SHGs), a processing unit was set up to overcome the drudgery of manual de-hulling through grain pounding. The project developed a brand name 'BHARTI' created by MVVN, and has promoted the sale of processed products (e.g. kodo-kutki rice grains and roasted flax-seed) by such federations (women's collectives). Four federations have already engaged in the production of millet-based energy bars ("kodo bars") in conjunction with the ICDS department.

Various departments of the MP Government have FPO promotion schemes. As of 31 March 2019, MP had 300 FPOs registered under the NABARD and SFAC schemes, of which 8 had minor millets listed as one of the traded commodities.

Given the historical production trends in MP (table 1), the state has huge potential for increasing the volume of minor millet production, thereby garnering a significant share of the market in the coming years. This would require focused and coordinated action by the state government departments to ensure that the value chain activities – from production to markets – are addressed in a systematic manner and supported by appropriate incentives at each step.

RAJASTHAN

Rajasthan state is known as India's largest producer of pearl millet. The Rajasthan Agriculture Competitiveness Project (RACP), funded by the World Bank, includes pearl millet as one of the focal value chains for development. Recognizing the importance of pearl millet in improving nutritional outcomes, HarvestPlus – a part of the CGIAR Research Program on Agriculture for Nutrition and Health – has supported the development of "iron pearl millet" for widescale adoption in the state. However, there are no formal government programmes to promote a revival of minor millets in the state.

Rajasthan has 200 FPOs under the NABARD and SFAC FPO promotion schemes, although none of them has minor millets listed as a focal commodity. The state government has developed a scheme for setting up agro-processing units – the Farm Gate Agro Processing and Agri-marketing scheme – which will subsidize up to Rs 2 million (US$30,000) for the establishment of an agrio MSME to undertake value addition activities, such as sorting and grading.

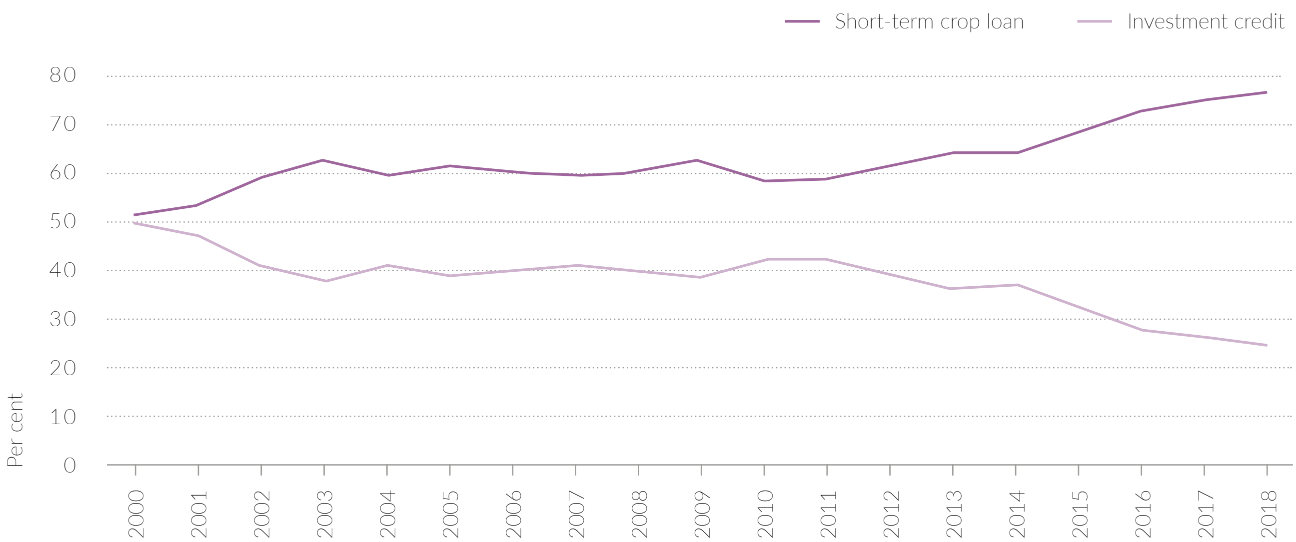
The key opportunity in Rajasthan is to return the minor millet production areas to the levels of activity achieved in 1983-84, thereby generating tradable surpluses. This will require concerted effort by the state's agriculture department to provide appropriate incentives, such as ensuring the purchase of production at a higher farm-gate price than is offered for wheat and rice. Core efforts will need to focus on enhancing seed availability of minor millets and improving market access, starting with increased demand from government initiatives, such as ICDS and MDM.

(Annex 2 describes millet promotion programmes in three states – Odisha, Telangana and Karnataka.)

2.6 Key gaps, challenges and areas of opportunity

The existing financial ecosystem in India (chapter 4) includes several provisions for enhancing the provision of credit to the agricultural sector (short-term and investment credit). As can be seen in figure 7, investment credit has followed a declining trend since 2000, while the gap between short-term (i.e. production) credit and investment credit has widened considerably since 2014.

Figure 7: Trends in production credit and investment credit (SAFIN, 2019)



This decline is particularly significant as it indicates that bank credit has been relatively scarce for investments aimed at value chain development, while most lending activities have targeted (short-term) production operations. According to data on non-food credit between 2013 and 2018 from the Reserve Bank of India (RBI), credit expansion for all sectors has reduced. Outstanding agricultural credit as a proportion of gross value added (GVA) was 51.5 per cent in 2018. If an input-to-output ratio of 3 is assumed in agriculture, outstanding credit is estimated to support about 20 per cent of value addition from harvest, which is a critical stage for value realization for farmers (SAFIN, 2019).

This gap in value chain financing contributes significantly to the stagnation of agricultural incomes. Further, inadequate post-harvest infrastructure also leads to greater food loss and waste, which ranges from 5 per cent to 30 per cent, depending on the product. Lower investments in post-harvest value chains therefore has a debilitating impact on smallholder farmers who already face considerable challenges.

As noted in the first chapter, 85 per cent of India's food supply chains are dependent on SMEs, many of which are one-person companies operating as seasonal businesses. These SMEs are generally located near towns and peri-urban centres. The formal financial footprint of these enterprises, which mostly operate informally, is very limited. Identifying and servicing these enterprises would require significant efforts and resources on the part of financial sector actors.

Cooperatives ("Coops"), which operate under specific laws in each state, dominate the rural landscape. While there is little difference from the operational standpoint between the two types of organizations, they differ in terms of compliance requirements, as FPOs operate under the national Companies Act. In terms of access to credit, Coops can tap into the existing cooperative credit infrastructure, the Primary Agriculture Cooperative Societies (PACS), which can interfere with the operations of Coops (sometimes with a political agenda), which have to comply with strict bureaucratic requirements. In India, Coops are generally seen as rigid institutions that are incapable of adapting to a changing agricultural environment. Therefore, there is an opportunity to further develop and support the more adaptable FPO model, which could heighten its profile and improve its perceived bankability in the broader credit system. Over time, it will be essential to increase the vertical integration of FPOs to cover processing and warehousing. Strengthening the links between FPOs and agro MSMEs will hasten the formalization of the value chains they operate in.

Private sector participation in the value chain is essential to create locally sustainable businesses. However, financial sector actors in particular should implement certain actions to more effectively service post-harvest value chain participants, such as improving their understanding of realities on the ground, designing credit products that are adapted to agricultural cycles, and creating appropriate risk assessment tools and credit rating mechanisms.

3. Mapping of key actors

A wide range of stakeholders have been consulted during the preparation of this IP, including SAFIN partners active in India, and other key actors involved in the development of smallholder farmer value chains. These stakeholders include financial institutions (both public and private), private sector companies involved in the minor millet value chain (covering consumer product, equipment and processing), civil society organizations involved in the promotion of farmer producer companies, and research institutions. This chapter focuses on the activities, and relevance to the opportunities identified in the theory of change, of stakeholders that are neither financial sector actors (chapter 4), nor SAFIN partners (section 3.2).

Figure 8: Stakeholder universe

PUBLIC		PRIVATE		CIVIL SOCIETY	
Government departments	• Department of Agriculture, Co-Operation & Farmers' Welfare • Department of Rural Development • Tribal Affairs Department • Women & Child Development Department • Department of MSME	**Food product companies**	• Millet product companies – primary product • Millet product companies – value-added product • Large consumer product company	**FPO promoters**	• SRIJAN • ASA • ACCESS • SEWA Mandir
Agriculture research, food technology and rural management	• Indian Institute of Millet Research • ICRISAT • M.S. Swaminathan Research Foundation (MSSRF) • IRMA • CFTRI • NIFTEM	**Millet processing equipment manufacturers**		**Business / enterprise incubation**	• IIMR-NUTRIHUB • ICRISAT Agri-business Incubation Services • a-IDEA NAARM Business Incubator • Startup Oasis • Villgro • ISEED- IRMA
SAFIN partners active in India					
	• IFAD • FAO • APRACA		• Rabobank • Oikocredit • Yes Bank • Palladium		• ACCESS • Technoserve

A three-point rating scale (high, medium, low) has been used to help prioritize stakeholder activities in terms of their potential relevance to contribute to the implementation of the IP's recommended actions.

High: Activities have immediate (0-24 months) relevance and importance for the implementation of the IP's recommended actions.

Medium: Activities will become important once the IP has been implemented and financing arrangements are secured (24 months and beyond).

Low: Activities have no immediate impact on the implementation of the IP. These actors will play a significant role over the long term in light of their influence within the millet ecosystem and potential to advance advocacy efforts.

3.1 Government departments

Several government departments are active in the development of enterprises within the food and agriculture sector. Given that minor millets are primarily produced by indigenous communities, the role of tribal welfare departments in each state is an important consideration.

Table 3: Stakeholders: government departments

Government Department	*Core activities*	*Relevance*	*Relevance to the opportunities presented in the Investment Prospectus (IP)*
Department of Agriculture, Cooperation and Farmers Welfare	Focus areas cover the range of activities linked to crop production, including allied agricultural activities, technology dissemination, and agricultural research and development linked to production. The department is also responsible for the implementation of all schemes related to the agricultural sector from the Government of India and state governments, as well as for agricultural marketing. However, it has a negligible focus on the implementation of post-harvest solutions.	High	The department is responsible for the implementation of farmer producer organization (FPO) schemes.
Department of Rural Development	Responsible for the development and welfare activities related to rural areas, with a focus on achieving sustainable and inclusive growth in rural India through a multipronged strategy for eradicating poverty by increasing opportunities for employment, providing social safety nets and developing infrastructure. The department is responsible for the implementation of the State Rural Livelihood Mission (SRLM) in each state. The SRLM is mandated to build rural value chains as a means of promoting sustainable livelihoods (i.e. moving beyond subsistence). A women-centric development agenda is key to the activities of SRLM. They promote women's self-help groups, which are federated in an effort to increase credit flows and economic activity. The department is also responsible for implementing FPO schemes in certain states.	High	The department has a broad-based focus that includes agriculture value chains, where it can bring together producer groups to aggregate production for trading.

Government Department	*Core activities*	*Relevance*	*Relevance to the opportunities presented in the Investment Prospectus (IP)*
Tribal Affairs Department	Dedicated to looking after the welfare of tribal/ indigenous communities, the department has a broad remit to implement a comprehensive approach to the development of tribal communities through policy, planning and coordination of programmes. The department also engages with non-governmental organizations (NGOs) in the implementation of programmes.	High	Given that minor millets are predominantly produced in tribal areas, the schemes of the Tribal Affairs Department could be used in convergence with other funding opportunities to establish post-harvest infrastructure for minor millets.
Women and Child Development Department (WCDD)	The core focus of the WCDD is the health and welfare of women, children and the "weaker" sections of society. The WCDD also acts on behalf of other departments as the state-level coordinator for the implementation of schemes related to the overall development of children and women, to ensure that their benefits reach the intended beneficiaries.	High	WCDD programmes such as Mid-Day Meal (MDM) and Integrated Child Development Services (ICDS) are already institutional customers of minor millet producers in MP. This role can be leveraged to expand the footprint of minor millet producers to include FPOs and agricultural micro, small and medium-sized enterprises (agro MSMEs).
Department of Micro, Small and Medium Enterprises	Responsible for promoting micro, small and medium-sized enterprises (MSMEs) at the state level and for implementing the schemes of the MSME Ministry of the Government of India.	Medium	Negligible focus on food and agriculture value chains.

3.2 SAFIN partners active in India

SAFIN partners in India are active in a wide range of activities linked to smallholder value chains. Some, such as the International Fund for Agricultural Development (IFAD), play an important role in supporting the development of agroenterprises. IFAD projects, which are linked to vulnerable groups and indigenous communities, have the capacity to attract catalytic finance that will help seed enterprises at the grass roots level. Other partners, such as Rabobank, can support by providing credit guarantee, as well as financing through their network of non-banking finance companies (NBFCs).

Table 4: Roles of SAFIN partners active in India

SAFIN partner	*Core activities*	*Relevance*	*Relevance to the opportunities presented in the Investment Prospectus (IP)*
International Fund for Agricultural Development (IFAD)	IFAD is an international financial institution and specialized agency of the United Nations dedicated to eradicating poverty and hunger in rural areas of developing countries. As the only multilateral development organization that focuses solely on rural economies and food security, IFAD funds and sponsors initiatives that improve land and water management, develop rural infrastructure, train and educate farmers in more efficient technologies, build resilience against climate change, enhance market accessibility, and more.	High	IFAD has recently (2018) completed Project Tejaswani in Madhya Pradesh (MP), which focused on tribal communities. Minor millets value chain development was one of the project's sub-activities, and likely yielded experience and lessons learned that could inform the implementation of recommendations made in the IP. IFAD can provide institutional support for long-term advocacy efforts related to supply chain development and improved nutritional outcomes for consumers.
Food and Agriculture Organization of the United Nations (FAO)	FAO is a specialized agency of the United Nations that leads international efforts to defeat hunger and improve nutrition and food security. It helps governments and development agencies coordinate their activities to improve and develop agriculture, forestry, fisheries, and land and water resources. It also conducts research, provides technical assistance to projects, operates educational and training programmes, and collects data on agricultural output, production and development.	Low	FAO could perform an evaluation of the performance of farmer producer organizations (FPOs) and agricultural micro, small and medium-sized enterprises (agro MSMEs), their linkages and impacts on smallholder farmers.
Asia-Pacific Rural and Agricultural Credit Association (APRACA)	APRACA is an international non-governmental organization composed mainly of central banks, agricultural banks, development banks, commercial banks, apex organizations and federations of financial institutions, rural development institutions, institutes and non-government institutions in the Asia-Pacific region involved directly in agricultural credit and rural development. Its main goal is to alleviate poverty in the Asia-Pacific region through rural and agricultural finance by facilitating cooperation as well as exchange of information and expertise among its member institutions.	Medium	APRACA could primarily support by contributing to advocacy efforts for improved access to finance for FPOs and agro MSMEs in the minor millet value chain.

SAFIN partner	*Core activities*	*Relevance*	*Relevance to the opportunities presented in the Investment Prospectus (IP)*
Rabobank and Rabobank Foundation	Rabobank is a cooperative bank with a focus on food and agribusiness that operates as an international financial services provider, active in the area of banking, capital management, leasing, insurance and real estate. Rabobank Foundation helps organizations, particularly cooperatives, achieve their goals of offering small-scale farmers access to financing, savings opportunities, knowledge and new markets.	High	Rabobank and the foundation provide a number of credit guarantee solutions in India, which could apply to loans provided to FPOs and agro MSMEs. They could also bring their non-banking finance company (NBFC) partner network to work with other stakeholders.
OikoCredit	OikoCredit operates via Maanaveeya Development and Finance Pvt Ltd., a non-banking finance company with a focus on agricultural sector development finance.	High	OikoCredit could provide project funding and contribute to the advocacy efforts aimed at enhancing access to finance.
Yes Bank	Yes Bank is a “full service commercial bank” providing a complete range of products, services and technology-driven digital offerings, catering to corporate, micro, small and medium-sized enterprises (MSMEs) and retail customers. Core activities linked to agricultural value chains include farmer lending and commodity loans.	Medium	Yes Bank could provide working capital and project lending targeting FPOs and agro MSMEs active in the minor millets value chain.
TechnoServe	TechnoServe is an international non-profit that promotes business solutions to poverty in the developing world by linking people to information, capital and markets.	Medium	No current activities linked to the millets value chain.
ACCESS Development Services	ACCESS is a not-for-profit company that offers specialized technical assistance with a focus on two specific areas: microfinance and livelihoods. ACCESS assists the growing microfinance sector through streamlined and structured services to emerging microfinance institutions and support of an enabling environment through the Microfinance Platform.	High	ACCESS has extensive experience using catalytic funding for long-term development of rural enterprises. As a well-established and connected entity in India, active in the promotion of FPOs, ACCESS could play a key role in coordinating contributions from all relevant stakeholders.

3.3 Agricultural research, food technology and rural management

Academic institutions have an important role to play in the development of the minor millet ecosystem. The Indian Institute of Millet Research (IIMR) and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) are two institutes that are specifically mandated to work on millets, while the others have broader mandates.

Table 5: Institutions involved in millets research and food technology development

Research institute	*Core activities*	*Relevance*	*Relevance to the opportunities presented in the Investment Prospectus (IP)*
Indian Institute of Millet Research (IIMR)	IIMR coordinates and facilitates millets research at the national level, including pearl millet and small millets, and provides linkages with various national and international agencies.	High	Production and productivity improvement through enhanced varietal development, agronomic practices, mechanization, etc. IIMR could also contribute to advocacy efforts.
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	ICRISAT is an international organization that conducts agricultural research for rural development, with an underlying emphasis on improving health, the environment and livelihoods.	High	Production and productivity improvement through enhanced varietal development, agronomic practices, mechanization, etc. ICRISAT could also contribute to advocacy efforts.
M.S. Swaminathan Research Foundation (MSSRF)	The Foundation aims to accelerate the use of modern science for sustainable agricultural and rural development. It focuses specifically on tribal and rural communities with a pro-poor, pro-women and pro-nature approach. MSSRF applies science and technology solutions to address practical problems faced by rural populations in agriculture, food and nutrition.	Low	MSSRF would be a good partner to support farmer producer organizations (FPOs) and agricultural small and medium-sized enterprises (agro MSMEs) in developing robust supply chains.
Central Food Technology and Research Institute (CFTRI)	CFTRI focuses on research in food science, engineering services, technology development, food protection and food safety.	Low	Validation of technology, and setting standards for food preparation and nutritional value.
National Institute of Food Technology Entrepreneurship and Management (NIFTEM)	NIFTEM is active in the areas of establishing food standards, businesses incubation and knowledge-sharing. It is also considered as an apex institution in the field of food technology and management.	Low	Enterprise development. Product development support.
Institute of Rural Management, Anand (IRMA)	IRMA is focused on developing management professionals who can bring about change (i.e. sustainable, ecologically friendly and equitable growth) by applying their management acumen at the grass roots level while influencing the public policy narrative at national and global levels.	Low	Assessment of FPO performance. Human resource development.

3.4 Civil society organizations (CSOs)

CSOs have been mandated by NABARD and SFAC to establish FPOs. All the CSOs active in this space have a deep understanding of the issues on the ground related to livelihood and community development, climate resilience and access to finance. They also have the ability to access donor funds that can serve to build enterprise capacities and enhance market linkages (inputs and final product sales).

Table 6: Roles of civil society organizations

Civil society organization	*Core activities*	*Relevance*	*Relevance to the opportunities presented in the Investment Prospectus (IP)*
Self-Reliant Initiatives through Joint Action (SRIJAN)	SRIJAN has developed a livelihoods cluster promotion model for small-scale and marginal farmers that includes six major components: development of community institutions, soil and water management, deployment of appropriate technology, access to finance, access to markets, and replication and policy influence.	High	SRIJAN is active in the tribal areas in Madhya Pradesh (MP) and Rajasthan. They also play a key role in promoting farmer producer organizations (FPOs) for the development of value chain activities. They could also play a role in coordinating the contributions of all relevant stakeholders in relation to the recommendations of the present IP, particularly the development of commercial entities for post-harvest handling of minor millets.
Action for Social Advancement (ASA)	ASA is a field-implementing organization for the promotion of farm-based livelihoods of small-scale and marginal farmers, with a focus on natural resource management.	High	ASA is active in the tribal areas in MP. They also play a key role in promoting FPOs. They could also play a role in coordinating the contributions of all relevant stakeholders in relation to the recommendations of the present IP, particularly in post-harvest handling of minor millets.
ACCESS Development Services	ACCESS is a not-for-profit company that offers specialized technical assistance with a focus on two specific areas: microfinance and livelihoods. ACCESS assists the growing microfinance sector through streamlined and structured services to emerging microfinance institutions and support of an enabling environment through the Microfinance Platform.	High	ACCESS has extensive experience using catalytic funding for long-term development of rural enterprises. As a well-established and connected entity in India, active in the promotion of FPOs, ACCESS could play a key role in coordinating contributions from all relevant stakeholders.
SEWA Mandir	SEWA Mandir focusses on the twin aims of improving lives and strengthening communities by engaging all members of a village in the process of self-governance, including decisions relating to, and the management of, development projects.	High	SEWA is active in the tribal areas in Udaipur district of Rajasthan. They could also play a role in coordinating the contributions of all relevant stakeholders in relation to the recommendations of the present IP, particularly in post-harvest handling of minor millets.

3.5 Business/enterprise incubation

Business incubators in the agricultural sector have been launched since about 2013, but their activities have been overshadowed by the developments of the broader information technology (IT) sector in India. Business incubators are usually not-for-profit entities that can operate as stand-alone entities, or as a dedicated arm of a larger institution. Incubators have the potential to play a significant role over the coming decade in the development of agro MSMEs and social enterprises in India and beyond. At present, however, they have medium relevance to the implementation of the IP.

Table 7: Business enterprise incubators

Business incubator	*Core activities*	*Relevance to the opportunities presented in the Investment Prospectus (IP)*
Indian Institute of Millet Research (IIMR) – Nutri hub	"Nutri hub" is the Department of Science and Technology (DST) – i.e. Government of India – supported technology business incubator hosted by the IIMR, Indian Council of Agricultural Research (ICAR), in Hyderabad. Nutri hub caters specifically to the needs of start-ups in the nutri-cereals sector.	New enterprise incubation, technology selection, product development, establishing quality standards.
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Agribusiness Incubation Services	ICRISAT leverages and aggregates programmes and services to promote agribusinesses and enhance partnerships through entrepreneurship development, innovation and value addition that can open up opportunities for farmers to take their products and technologies to a global market.	New enterprise incubation, technology selection, product development, establishing quality standards.
a-IDEA NAARM Business Incubator	A-IDEA, the Association for Innovation Development of Entrepreneurship in Agriculture, is a technology business incubator hosted by National Academy of Agricultural Research Management (NAARM) based in Hyderabad with specific focus on nurturing and developing enterprises in agriculture and allied activities.	Has a country wide reach and is an excellent resource for incubating millet-based value chains in the target states.
Startup Oasis	A Jaipur (Rajasthan) based business incubator working to develop early stage enterprises across wide domains with a strong focus on agriculture, as well as in supporting the development of women-led enterprises.	Working extensively in Rajasthan and Madhya Pradesh, Startup Oasis is an excellent resource for incubating millet-based value chains in the target states.
Villgro	One of the oldest social enterprise incubators in India. Villgro operates as a non-for-profit enterprise with funding from government, development institutions and for-profit enterprises. They work in partnership with several research institutions and focus on food and agriculture, health and education.	Excellent resource for developing millet-based enterprises in the target states.
iSEED – IRMA Incubator	The Incubator for Social Enterprises and Entrepreneurs for Development (iSEED) is run as a part of the Institute of Rural Management Anand (IRMA), and works with early stage enterprises with a clear focus on rural and social enterprises. iSEED brings to its incubation ecosystem extensive experience and expertise in providing support to social enterprises through networks, collaborative research, entrepreneurship training and capacity-building.	iSEED could be a potential resource for incubating millet-based value chains in the target states.

3.6 Private sector players

Two main categories of private sector actors are relevant to the implementation of the IP.

First are the food product companies that use raw millets for processing and onward sale to business customers and consumers. There are few of such entities and all operate as MSMEs. They have an important role to play as potential customers to the millet-producing FPOs considered in the present IP. On the other hand, large food companies – both Indian and multinational corporations – that trade raw cereals and/or sell cereal-based products have limited to no interest in developing the millets value chains, as the market is considered niche and nascent. Over time, as the value chain gains in prominence, these companies could be an important ally in the development of an advocacy platform to support supply chain interventions in minor millets and enhance consumer awareness of the nutritional benefits of minor millets. (See chapter 5 for more information on the advocacy platform.)

The second important private sector actor is the minor millet processing equipment manufacturers. There is a handful of these companies that have developed technologies to specifically handle minor millets. They are expected to play a very important role in the development of FPOs' and agro MSMEs' capacity to process minor millets.

Table 8: Details of relevant private sector players

Private sector	*Core activities and key players*	*Relevance*	*Relevance to the opportunities presented in the Investment Prospectus (IP)*
Millet product companies (micro, small and medium-sized enterprises [MSMEs]) – primary products	Processing, sales and distribution of minor millet products – such millet rice, flour. Includes companies such as Safe Harvest, Manyam Grains, Jenni Millet Products, Go Bharathi Millet.	Medium	Potential customers of millet farmer producer organizations (FPOs) and agricultural MSMEs (agro MSMEs). Could support in building long-term advocacy platform for millet consumption and supply chains.
Millet product companies (MSMEs) – value added products (Ready to Cook and Ready to Eat)	Processing, sales and distribution of value added products such as breakfast cereals, millet energy bars, branded products. Includes companies such as SLURP Farms, 24 Mantra, Health Sutra, Kottaram Agro Foods, Bagrrys', The Millet Company, Early Foods, Inner Being Wellness.	Medium	Potential customers of millet FPOs and agro MSMEs. Could support in building long-term advocacy platform for millet consumption and supply chains.
Equipment manufacturers	Engineering and project services for minor millet processing equipment. Includes companies such as Borne Technologies, The Millet Foundation, Perfura Technologies.	Medium	Could contribute to critical infrastructure and project design for minor millets processing units.
Large consumer product companies	Marketing and distribution of branded food products. Includes companies such as ITC, Hindustan Unilever, Kellogg's, Mars, Nestlé, Britannia.	Low	Could support in building long-term advocacy platform for millet consumption and supply chains.

Most of the key actors identified in table 8 have strong incentives to contribute to the overall development of the minor millet value chain in light of the commercial focus. However, individual interview discussions have revealed a reticence to pursue the IP agenda unless a structured advocacy plan for consumer awareness and supply development is formally in place. Private sector companies already operating in the minor millet value chain are keen to support a consumer advocacy agenda that is anchored in a public-private partnership framework. SAFIN partners active in India have an important role to play across the two main activities envisioned by the present IP: advocacy and access to finance. A mapping of private sector financial actors is presented in the next chapter.

4. Financial ecosystem

4.1 Overview

The national banking policy in India is designed to direct credit flows to sectors that would not otherwise be serviced by banks. These credit flows are categorised as priority sector lending (PSL). The Reserve Bank of India (RBI) mandates that PSL norms must be adhered to by a wide range of entities considered as a "commercial Bank including Regional Rural Bank (RRB), Small Finance Bank (SFB), Local Area Bank, and Primary (Urban) Co-operative Bank (UCB) other than Salary Earners' Bank licensed to operate in India by the Reserve Bank of India" (RBI, 2020a). The above category of entities are required to extend 40 per cent of their credit to borrowers within a defined priority sector category. Of the net bank credit of each bank, 18 per cent should be allocated to agriculture, and 10 per cent to weaker sectors. Other priority sector categories include small units in industry and service sectors, affordable housing, FPOs and microfinance.

To ensure that priority sector lending guidelines are implemented, the RBI launched "Lead Bank" Scheme (LBS) in December 1969 (Pathak, 2011). The underlying principle is the use of the "area approach" to ensure access to banking services is provided in defined rural areas. Each district in the country is assigned a specific bank that functions as Lead Bank and takes the leadership role in coordinating access to finance via the existing credit institutions. Activities of the Lead Bank are coordinated by a State Level Bankers Committee (SLBC), which is "an apex inter-institutional forum to create adequate coordination machinery in all States, on a uniform basis for development of the State" (RBI, 2020b).

NABARD is responsible for identifying the district-wide potential for development through bank credit. This is captured in the Potential Linked Credit Plans (PLPs), which are developed via a decentralized mapping exercise performed for each district. The PLPs serve as the basis for the development of individual credit plans for each bank. PLPs address a wide range of farm and off-farm activities, including support to FPOs.

Given the above context of ensuring credit availability for priority sectors, it is important to consider the quality of bank assets in the agricultural sector. According to NABARD's annual report (2019-20), commercial banks provided 77.2 per cent of total institutional credit flows to the agricultural sector; cooperative banks provided 10.9 per cent and regional rural banks provided 11.9 per cent of total credit. As can be seen from table 9, the ratio of gross non-performing assets (GNPA) for commercial banks and public sector banks as relates to agriculture lending increased by 50 per cent between 2016-17 and 2018-19 (NABARD, 2020).

Table 9: Quality of loans in the agriculture sector

Type of banks	*Gross non-performing assets (GNPA) ratio in agriculture loans (%)*		
	2016-17	2017-18	2018-19
Scheduled commercial banks	8.3	8.6	12.4
Public sector banks	8.5	8.9	13.5
Private sector banks	7.2	7.6	8.1

There are several challenges to financing FPOs (see chapter 2), most of which are related to the inadequacy of the institutions' balance sheets, governance, management, etc. Given the increasing sectoral GNPA ratio and the bankability issues associated with FPOs, it follows that the banking system is extremely reluctant to extend credit to such institutions.

This chapter focuses on the various financial sector players (public and private) that should be considered in relation to the opportunities described in this IP. A rating of "high," "medium" and "low" is assigned to each financial institution covered in tables 10 and 11, according to the relevance of their core activities, financial products and services to the actions recommended in chapter 5.

High: The institution has immediate (0-24 months) importance for the successful implementation of recommended action.

Medium: The institution's role may become important once the recommended action has been implemented and financing arrangements are secured (24 months and beyond).

Low: The institution has no immediate impact on the recommended actions. It may have influence over the millet ecosystem over the long term, including by strengthening the advocacy platform.

4.2 Public sector financial institutions

Public financial institutions have a critical role to play in the development of FPOs and agro MSMEs in the millets value chain. In addition to the requirement of providing 18 per cent of their net bank credit to the agricultural sector, these institutions are mandated to design and provide credit products covering project and working capital needs, which is complemented with developmental support for capacity-building.

Table 10: Details of public sector financial institutions

Bank	*Core activities*	*Relevance*	*Relevant products*	*Challenges and opportunities*
National Bank for Agriculture and Rural Development (NABARD)				
NABARD aims to promote sustainable and equitable agriculture and rural development through participative financial and non-financial interventions, innovations, technology and institutional development for securing prosperity.	Self-funded institution established under an Act of Parliament, which plays a combination of roles that include refinancing, supervision and development. NABARD supports various initiatives through grants and other programmes, and works in partnerships with local institutions such as non-governmental organizations (NGOs) and cooperatives, funding close to Rs 2000 cr. in developmental support. The institution generally provides support for the formation of farmer producer organizations (FPOs), capacity-building, training, etc., although its services are customized through each of its regional offices according to local context.	High	NABARD provides credit guarantees for loans sanctioned by public sector banks and NABKISAN. It also provides developmental grants to reduce project risk by improving expected outcomes.	NABARD is the country's leading development finance institutions (DFI) with specific focus on agriculture and rural development. It serves as a banker to local lending institutions, including non-banking finance companies (NBFCs). There is a potential opportunity to include the minor millet investment agenda into the overall sub-sectoral credit recommendations of NABARD. NABARD is one of the three implementing agencies appointed by the Government of India for the promotion of FPOs as per guidelines released in February 2020. Advocacy work recommended through the IP would aim to convince NABARD at the regional office level to focus on the promotion of new FPOs in the minor millets value chains in specific districts.
NABKISAN Finance Limited (NKFL)				
NABKISAN is a subsidiary of NABARD and operates as an NBFC. The main objective of the company is to provide credit for the promotion, expansion and commercialization of enterprises engaged in agriculture, and of allied and rural non-farm activities. NKFL provides support for livelihood/ income-generating activities by extending credit to panchayat-level federations, trusts, societies and Section 25 companies / microfinance institutions for on-lending to their member self-help groups (SHGs) and joint liability groups (JLGs).	To ensure the sustainability and economic viability of FPOs and other producer organizations (POs), including through the promotion of viable business activities such as the aggregation of produce, collective marketing, bulk procurement of inputs, primary processing. To address the credit requirements of FPOs/POs at various stages of development. To provide loans to FPOs/POs that are eligible for assistance from Small Farmers Agri-business Consortium (SFAC) in the form of equity/credit guarantees.	High	Offers products that apply to pre-production through post-harvest activities. Offers term loans and working capital loans to FPO and value chain players	NABKISAN is not a retail lender – it does not have any retail presence (i.e. branch network). Rather, it focuses on areas where it has comfort and people on the ground. NABKISAN does seek to make higher-volume loans to ensure the viability of the lending business. Therefore, it can lend directly to clusters, or through private sector intermediaries for on-lending. Representatives of NABARD on the ground are tasked with ensuring the coordination and complementarity of the its activities with those of NABKISAN.

Bank	*Core activities*	*Relevance*	*Relevant products*	*Challenges and opportunities*
NABSAMRUDHI Finance Limited				
NABSAMRUDHI is a subsidiary of NABARD and operates as an NBFC with a focus on lending to a wide range of entities for the promotion of enterprise development. It also provides loans to other NBFCs.	While the primary focus of NABSAMRUDHI is to make loans to enterprises in the off-farm sector, it does also provide loans to small and medium-sized enterprises (SMEs) and FPOs.	Medium	Offers term loans and working capital loans to SMEs, FPOs/POs and value chain players.	NABSAMRUDHI is not a retail lender – it does not have any retail presence (i.e. branch network). Rather, it focuses on areas where it has comfort and people on the ground. NABSAMRUDHI does seek to make higher-volume loans to ensure the viability of the lending business. Therefore, it can lend directly to clusters, or through private sector intermediaries for on-lending. There is a high level of complementarity between the developmental roles of NABARD and NABSAMRUDHI. Representatives of NABARD on the ground are tasked with ensuring the coordination and complementarity of the its activities with those of NABSAMRUDHI, which depends on NABARD for its presence on the ground.
Small Farmers Agri-business Consortium (SFAC)				
SFAC is focused on increasing incomes of small-scale and marginal farmers through the aggregation and development of agribusinesses. SFAC has pioneered the formation and growth of FPOs / farmer production companies (FPCs), which is now being implemented throughout the country. SFAC is progressing towards the development of an ecosystem for FPOs/FPCs that will help them become sustainable and viable over time.	SFAC offers schemes, such as equity grant and credit guarantee funds, targeting FPCs to improve the availability of working capital and the development of business activities. SFAC supports the development of small agribusiness through its Venture Capital Assistance (VCA) Scheme for value added processing and marketing linkages.	High	Supports the establishment of FPOs through the provision of equity grants and through project lending via VCA, which offers interest-free loans.	SFAC does not operate at in the retail market and depends on budgetary allocations from the Ministry of Agriculture for its funding requirements. SFAC works in tandem with NABARD and NABKISSAN for the implementation of its schemes.

Bank	*Core activities*	*Relevance*	*Relevant products*	*Challenges and opportunities*
Small Industries Development Bank of India (SIDBI)				
SIDBI was created through an Act of Parliament to support the development of the financial ecosystem for MSME financing.	SIDBI is a development financial institution in India with offices all over the country. Its purpose is to provide refinancing facilities and short-term lending to industries, and serves as the principal financial institution in the MSME sector. SIDBI also coordinates the functions of institutions engaged in similar activities.	Medium	Offers lending products for rural MSMEs, direct lending to MSMEs and refinancing for NBFCs.	SIDBI operates a programme focused on the promotion of rural enterprises and the development of entrepreneurship. To grow the supply of funding to the SME sector, it operates a refinancing programme known as the Institutional Finance programme. Under this programme, SIDBI extends term loan assistance to banks, small finance banks and NBFCs. SIDBI also lends directly to MSMEs.
Public sector banks				
Broad-based banking and financial services entities that interact with a wide range of clients across different sectors of the economy.	The core activities linked to agricultural value chains include farmer lending and commodity loans. Key players include the State Bank of India, Punjab National Bank, Indian Bank, Indian Overseas Bank, and Central Bank of India.	Medium	Working capital and project lending.	Public sector banks have an extensive network of offices and are well structured to reach out to the actors in the agricultural sector. However, there are currently no incentives within the ecosystem to encourage field offices to develop products targeting the specific needs of FPOs. The banks' internal systems are not adapted to adequately conduct risk appraisals for such institutions.

4.3 Private financial institutions and impact investors

A limited number of NBFCs have made attempts to service FPOs and agro MSMEs. As discussed in chapter 2, NBFCs often struggle to effectively map their business models and align their products with the specific needs related to agricultural activities and the underlying cropping cycles. Interviews conducted with NBFCs for the purposes of the present document reveal that Fin/AgTech tools could play a key role in improving the information available in relation to on-ground activities. This, in turn, should help improve the design of dedicated credit products, as well as reduce the costs relate to credit origination, monitoring and collection. Another area of focus for new technologies that deploy artificial intelligence (AI) and machine learning (ML) is to enhance the quality of credit assessment tools adapted to the agricultural sector, thereby moving beyond the perceived risk associated with the sector to a data-driven decision-making process for financial institutions.

Table 11: Details of private sector financial institutions and investors

Type of player	*Core activities and key players*	*Relevance*	*Relevant products*	*Challenges and opportunities*
Non-banking finance companies (NBFCs)				
NBFCs active in the agricultural lending space.	Core activities are focused on lending to farmer producer organizations (FPOs) and other agriculture value chain players for pre-production and post-harvest activities. Key players include Samunnati, Ananya Finance, Caspian, and Arryadhan.	High	Working capital and project-based lending (Samunnati)	NBFCs cannot take retail deposits and are not eligible for participation in programmes that include government subsidies. They typically avoid providing long-term loans, unless a credit guarantee is provided. Over time, NBFCs have evolved to provide a wide range of services to support their clients' performance, including through incubation, the facilitation of market linkages, and human resource development. They have also been known to leverage grant funding to fund capacity-building services for FPOs they invest in.
Impact investors – equity				
Target social enterprises that are expected to contribute to the development of specific value chains and to impact the base of the pyramid.	Investing in early stage social ventures, and often offering capacity building support. Key players include Omidyaar, Caspian, Aavishkaar, Ankur Capital, Unitus, Menterra, Omnivore, and FMO.	Medium	Equity, debt and grant	Impact investors have not made much headway in agri-based ventures. They could, however, be interested in participating in a collaborative effort that engages strong stakeholders with the ability to lower risks.
Commercial banks				
Broad-based banking and financial services entities that interact with a wide range of clients across different sectors of the economy.	The core activities linked to agricultural value chains include farmer and/or commodity loans. Key players include HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, RBL Bank, IndusInd Bank, and YES Bank.	Medium	Working capital and project lending	Commercial banks have an extensive network of offices that are accessible to most agricultural value chain players. However, there are currently no incentives within the ecosystem to encourage field offices to develop products targeting the specific needs of FPOs. Furthermore, the banks' internal systems are not adapted to adequately conduct risk appraisals for such institutions, and most institutions have concerns related to the potential effects of political action on their portfolios. To date, most commercial banks have focused their agricultural activities on the well-established dairy value chain, for which the risk-assessment process is well developed and understood.

5. Opportunity for investment and collaborative action

This chapter provides a detailed description of the opportunities for collaborative action by SAFIN partners and key local stakeholders to improve access to finance for FPOs and agro MSMEs in the minor millets value chain in the states of Rajasthan and Madhya Pradesh, as well the recommended financial solutions to be developed to address them in MP. Also included in the chapter is the proposed action plan for interventions required for the recommended investment and financing opportunities to materialize.

The transformative agenda outlined in the theory of change (chapter 1) provides an overarching framework to accelerate the development of the minor millet value chains. This agenda covers a 10-15 year time horizon. The advocacy portion of the agenda is expected to receive a significant boost from the declaration of 2023 as International Year of Millets.[3] The investment opportunities outlined in this chapter are more tangible elements of the theory of change with an immediate call for action.

Advocacy work will constitute the main efforts targeting the state of Rajasthan, where the priority will be to promote the growth of minor millet production areas. This work will therefore primarily target the state's Agriculture Department and Department of Food and Civil Supplies, to provide appropriate incentives, such as ensuring the purchase of production at a higher farm-gate price than is offered for wheat and rice. Core efforts will need to focus on enhancing seed availability of minor millets and improving market access, starting with increased demand from government food programmes.

In MP, investment opportunities in the minor millets sector are more forthcoming than in Rajasthan, but will nevertheless require the state government to set an agenda of making minor millets as priority area – starting with regions where these are prominent traditional crops. Advocacy with the MP state government is therefore an essential starting point for promoting a policy on minor millets for nutrition outcomes and enhancing farmer incomes. Among other favourable developments, this would pave the way for:

- promotion of FPOs focused on production and processing of minor millets through existing agricultural schemes and programmes;
- integration of millets in government procurements for midday meals, hostels etc., introduction of millets in PDS, etc.;
- allocation of resources for research on nutrition, improved millet-processing technology and product development.

5.1 Description of the opportunities

In 2017-18, India produced 420,000 tons of minor millets, 85 per cent of which was traded in the market, while the remainder was kept by the producers (see chapter 2 – "Millets in India"). This suggests that an opportunity presently exists to add post-harvest value to at least 357,000 tons (assuming continued production growth year on year). MP produces 33 per cent of India's minor millets, which translates to an opportunity to process (post-harvest) of at least 118,000 tons. While it appears that the overall market potential is relatively small, there is potential for it to grow under the right conditions. India currently processes less than 10 per cent of its agriculture output (by volume) and most of the activities can be classified as primary processing (CII-FACE, 2019). The proportion of higher-value added processing is much lower. The current infrastructure for processing minor millets is inadequate to meet the market requirements of clean, sorted and graded products with consistent quality.

3 FAO endorsed the Government of India's proposal to the United Nations General Assembly to observe 2023 as the International Year of Millets at the 160th session of FAO Council in December 2018.

In the context of supply chain development, three types of interventions and investment opportunities are recommended to address the financing of the “missing middle” post-harvest infrastructure. The first two investment opportunities involve the creation and development of FPOs / farmer collective organizations, as well as institutions categorized as agro MSMEs (1) dedicated to millets farming and processing. The third opportunity is related to institutions categorized as agro MSME (2) (see description below). The graphic presented in figure 9 captures the key challenges, proposed interventions and the outcomes related to these opportunities. Figure 10 offers an illustration of where each category of targeted recipient fits within the minor millets value chain. Investment details are discussed in section 5.2 and a detailed financial analysis, including an income statements and balance sheets, is presented in annex 1.

Figure 9: Summary of investment opportunities and outcomes

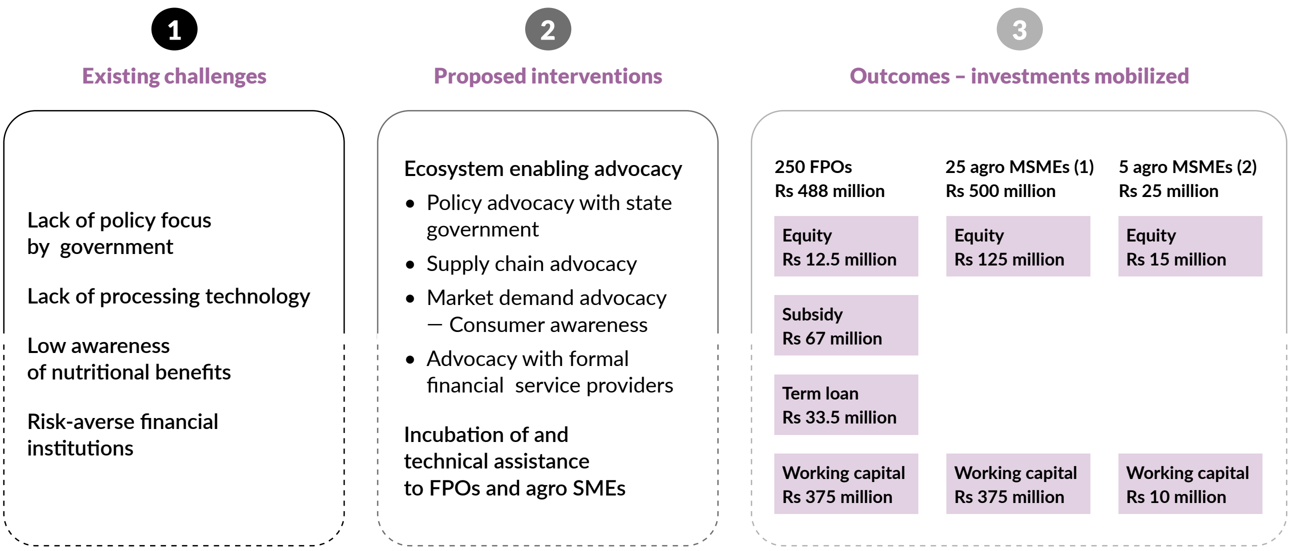
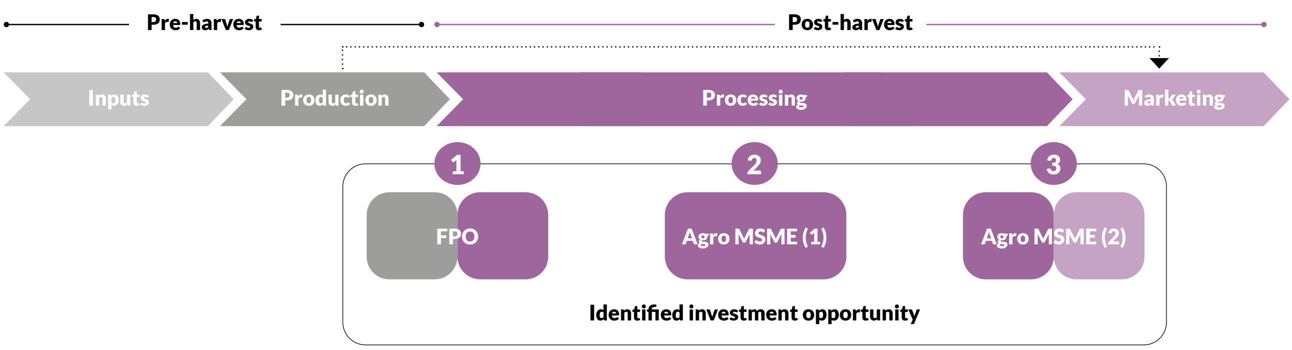


Figure 10: Identified investment opportunities within minor millets value chain



The operating model for each of the targeted recipients is described below.

1. **FPO / farmer collectives** – Core activities include aggregating production from member farmers and communities, as well as storage, handling, primary processing (cleaning, sorting grading, etc.) and packaging. Investment/financing targeting FPOs would serve to develop distribution channels for the packaged product. These channels would include institutional customer, including government schemes such as MDM and ICDS, as well as small retail and wholesale outlets in the vicinity (50-100 km radius) of the FPO operations for open market sales.
2. **Agro MSME (1)** – Core activities include procurement from FPOs and individual farmers, as well as primary processing value addition, including sorting, grading, cleaning and packaging. Investment/financing targeting FPOs would serve to develop distribution channels, including bulk business-to-business (B2B) sales. Retail and wholesale distribution may be undertaken as a secondary activity over the long term, both in local areas and urban centres.
3. **Agro MSME (2) investment opportunity** – Core activities include procurement from FPO and agro MSMEs (1), as well as storage, handling, secondary processing, and accessing distribution channels for consumer sales in branded or unbranded form. The products to be sold include millet flour, breakfast cereals, ready to cook mixes, cookies and health bars.

Table 12: Summary of operating models for the three investment opportunities

Value chain activity	FPO	Agro MSME (1)	Agro MSME (2)
Aggregation	✓	✓	
Procurement	✓	✓	
Storage, handling	✓	✓	
Processing – primary	✓	✓	
Processing – secondary	✓	✓	✓
Selling and distribution	✓	✓	✓
Branding			✓

Based on the proposed sizing for each individual unit (see details in annex 1) about 25 individual FPOs / farmer collectives and agro MSMEs (1) are projected to be launched in MP alone over an initial three-year period (assuming zero growth in production output based on 2017-18 levels).

There will likely be fewer agro MSMEs (2), as they will perform a higher level of value addition, selling consumer brands to be traded regionally (in some cases nationally), and are therefore expected to compete with established, medium-sized and large food companies – both national and multinational corporations. The successful development of agro MSMEs (2) requires a stable supply of goods procured from FPOs / farmer collectives and agro MSMEs (1), a professional business organization operating with a consumer focus, and a high level of consumer awareness of millets that is supported by extensive advocacy on the nutritional benefits of millet consumption. The projected investments in agro MSMEs (2) should focus primarily on product development, branding, marketing and distribution.

Extrapolating from the national trend mentioned above, whereby less than 10 per cent of total agricultural production is processed – including for its more successful value chains (e.g. dairy) – the projections assume that one agro MSME (2) will be developed for every nine businesses operating under FPO / farmer collective and agro MSME (1) models.

Table 13 presents the summary of the total revenues, investments (equity, debt and grants) for the first three-year period of each of the three investment opportunities covered above. These are aggregated numbers for 25 FPOs, 25 agro MSMEs (1) and 5 agro MSMEs (2).

Table 13: Revenue and investment flows for the three investment opportunities (Three-year horizon, Rs millions)

	FPO	Agro MSME (1)	Agro MSME (2)
Revenue	1,613	1,613	248
Investment	488	500	25

5.2 Feasibility analysis and design of the proposed financial solution

The feasibility analysis presented in table 14 gives the financial results for the proposed investment opportunities along with the funding requirements (equity, term loan, working capital, grant/subsidy). These estimations are for one unit each of FPO, agro MSME (1) and agro MSME (2). The key assumptions, as well as detailed income statement, balance sheet, and cash flow statement related to each investment opportunity are presented in annex 1.

Table 14: Feasibility analysis – one unit of each investment opportunity (Year 5, Rs millions)

Variable	FPO		Agro MSME (1)		Agro MSME (2)	
Processing	Own		Own		Outsourced	
Plant, machinery & building	4.46	($60k)[a]	4.46	($60k)[a]	0.4	($5k)[a]
Equity	0.5	($7k)[a]	5		3	($40k)[a]
Term loan	1.34	($20k)[a]	0		0	
Working capital	15	($200k)[a]	15	($200k)[a]	20	($270k)[a]
Equity grant	2.68	($40k)[a]	0		0	

Variable	FPO		Agro MSME (1)		Agro MSME (2)	
Rate of interest	9%[b]		9%[b]		15%	
Revenue (Y5)	56.84	($770k)[a]	56.84	($770k)[a]	31.44	($425k)[a]
Gross margins (% of revenue, Y5)	26%		26%		60%	
Opex (% of revenue, Y5)	7%		7%		51%	
Operating margin (Y5)	20%		20%		9%	
IRR (Y5)	118%		20%		30%	

[a] Rate of interest for FPO and agro SME (1), net of interest subsidy.
[b] US$ equivalent – exchange rate: US$1 = Rs 75.

The three proposed business models are projected to represent viable investment opportunities over a 3-5 year time horizon. Based on the feasibility analysis (table 14) and the projected sizing of each category of business, table 15 provides the total expected funding requirement across different types and sources for 25 FPOs/farmer collectives and agro MSMEs (1), and for 5 agro MSMEs (2). The amounts and allocation of funding types is based on interviews conducted with different financial institutions for the purposes of this IP.

Table 15: Total funding requirements (Rs millions)

Funding type	*Equity*	*Subsidy*	*Term loan*	*Working capital*
FPO / farmer collective	12.5	67	33.5	375
Agro MSME (1)	125	0	0	375
Agro MSME (2)	15	0	0	10

The expected sources for each funding type are described below, followed by a detailed funding matrix for each business model in tables 16, 17 and 18.

FUNDING SOURCES AND LIKELIHOOD OF AVAILABILITY

1. **Equity** – Corresponds to contributions from shareholders (e.g. external investors, or farmers in the case of FPOs), as well as matching equity grant or viability gap funding (capital subsidy) from the government.
2. **Debt** – Corresponds to a wide array of loans products available to businesses from the banking systems. Interest rates will vary, and are typically lower for loans from public sector banks compared with private banks, while NBFCs generally charge higher interest rates than commercial banks, unless they are government-owned. The rates provided in tables 16, 17 and 18 differentiate between term loans (TL) and working capital (WC).
3. **Credit guarantee** – This is a key instrument to incentivize lenders to work in sectors that are perceived to be more risky, such as food and agriculture. However, there are very few sources of credit guarantee available for FPO / agro SME lending. Examples of existing schemes have been launched by:
   - **NABARD:** In 2013/14, NABARD launched a Credit Guarantee Fund working through SFAC to provide cover to financial institutions (mostly commercial banks) that advance loans to FPOs without collateral.
   - **SIDBI:** Along with the Government of India, SIDBI set up the Credit Guarantee Trust for Micro & Small Enterprises (CGTSME). This partial collateral security model is aimed at covering the portion of credit facility not covered by collateral security in an effort to prioritize project viability.
   - **Rabobank Foundation:** Has set up a Portfolio Guarantee Program of US$3.5 million aimed at local financial institutions to lend to nascent FPOs in particular. Another such programme was set up in partnership with the United States Agency for International Development (USAID) for US$5 million, targeting FPOs and enterprises actively engaged in promoting sustainable agriculture activities.
4. **Availability of funds** – Describes the likelihood of funding being approved by the financial institution for the requirements of FPOs, agro SME (1) and/or agro SME (2). The "likelihood rating" is based on interviews with key stakeholders, where:

   Likely = The financial institution provides credit products that are likely to be accessible to such institutions.

   Unlikely = Based on past experience, the financial institution is unlikely to lend to a given class of borrowers.

FPOs – INVESTMENT MODEL

Table 16 summarizes the sources of funding and indicative costs from different providers for the setting up of FPOs / farmer collectives active in the minor millets value chain.

Table 16: FPO / farmer collective – sources of funding

Source of funds	*Public sector banks*		*Private banks*		*NABKISSAN*		*Private NBFC*	
Interest rates	10-14%		14-16%		12-14%		15-21%	
Credit guarantee	NABARD/SFAC		NABARD/SFAC		NABARD/SFAC		Rabo/DFC	
Fund usage	TL	WC	TL	WC	TL	WC	TL	WC
Funds availability	Unlikely	Likely	Unlikely	Likely	Likely	Likely	Likely	Likely

DFC, United States International Development Finance Corporation; NABARD, National Bank of Agriculture and Rural Development; NBFC, non-banking finance companies; SFAC, Small Farmers Agri-business Consortium; TL, term loans; WC, working capital.

The funding requirements for the 25 FPOs / farmer collectives that are projected to be created over three years is expected to primarily consist of the following.

- **Equity:** Contributions from farmer shareholders.
- **Grants:** Matching Equity Grants provided by the Government of India, state governments and agencies such as NABARD and SFAC. These grants are provided as subsidies for the purchase of equipment (e.g. processing units) with added start-up working capital to match working capital loans provided by banks and NBFCs. State government programmes will also cover the cost of technical assistance to be provided by NGOs in support of the FPOs.
- **Term loans:** Likely sourced from public sector NBFCs (e.g. NABKISAN) or private NBFCs (e.g. Samunnati).
- **Working capital loans:** There are more options available for working capital loans, which can be provided by public and private sector financial institutions, where the deciding factors for FPOs will include the interest rate charged and the ease of obtaining the loan.

AGRO MSME (1) – INVESTMENT MODEL

Table 17 summarizes the sources of funding and indicative costs from different providers for the setting up of agro MSMEs (1) active in the minor millets value chain.

Table 17: Agro MSME (1) financing model

Source of funds	*Public sector banks*		*Private banks*		*NABKISSAN*		*Private NBFC*	
Interest rates	10-14%		14-16%		12-14%		15-21%	
Credit guarantee	CGTSME		CGTSME		Rabo		Rabo/DFC	
Fund usage	TL	WC	TL	WC	TL	WC	TL	WC
Funds availability	Likely	Likely	Likely	Likely	Unlikely	Likely	Likely	Likely

CGTSME, Credit Guarantee Fund Trust for Micro and Small Enterprises; DFC, United States International Development Finance Corporation; NBFC, non-banking finance companies; TL, term loans; WC, working capital.

The funding requirements for the 25 agro SMEs (1) that are projected to be created over three years is expected to primarily consist of the following

- **Equity:** Contributions from shareholders, including promoters and entrepreneurs. Institutional investors could include impact finance institutions (e.g. Caspian, Aavishkaar, Unitus). Development financial institutions (DFIs) (e.g. SIDBI Venture Capital Fund, NABKISAN, NABSAMRUDDHI).
- **Term loan:** Likely sourced from private NBFCs, or from private and public banks if sufficient collateral can be presented.
- **Working capital loan:** Likely available from most financial institutions.

AGRO MSME (2) – INVESTMENT MODEL

Table 18 summarizes the sources of funding and indicative costs from different providers for the setting up of agro MSMEs (2) active in the minor millets value chain.

Table 18: Agro MSME (2) financing model

Source of funds	*Public sector banks*		*Private banks*		*NABKISSAN*		*Private NBFC*	
Interest rates	10-14%		14-16%		12-14%		15-21%	
Credit guarantee	CGTSME		CGTSME		N/A		Rabo/DFC	
Fund usage	TL	WC	TL	WC	TL	WC	TL	WC
Funds availability	Likely	Likely	Likely	Likely	N/A	Likely	Likely	Likely

CGTSME, Credit Guarantee Fund Trust for Micro and Small Enterprises; DFC, United States International Development Finance Corporation; N/A, not applicable; NBFC, non-banking finance companies; TL, term loans; WC, working capital.

The funding requirements for the five agro SMEs (2) that are projected to be created over three years is expected to primarily consist of the following.

- **Equity:** Contributions from shareholders, including promoters and entrepreneurs.
- **Term loan:** Likely sourced from most financial institutions other than public NBFCs.
- **Working capital loan:** Likely available from most financial institutions.

5.3 Enablers for catalysing investments

Based on the mapping of key stakeholders performed in chapters 3 and 4, it is clear that a wide range of actors can be engaged to provide the particular blend of financing, investment and support required to launch the three types of business models projected in this IP. However, these same actors may not currently be incentivized to invest in the minor millet value chains, which is still seen as quite small and risky. Therefore, the success of the investment opportunities presented above will strongly depend on two key enablers: (1) the implementation of a significant and coordinated **advocacy plan** targeting both public policy and markets (including consumers, value chain and financial actors) supported by (2) **capacity-building assistance** in the form of incubation and technical assistance. Figure 11 outlines the key enablers and explains how they will contribute to supporting the investment opportunities.

Figure 11: Proposed enablers for catalysing investments

ECOSYSTEM AND MARKET BUILDING

Advocacy	
Policy advocacy	Include minor millets in government programmes related to agriculture production, the formation of FPO, nutrition security and access to finance. Support (launch and fund) research on benefits of minor millets.
Market/consumer advocacy	Position minor millets as a healthy and sustainable source of nutrition. Support retailers in promoting minor millet products.
Supply chain advocacy	Promotion of research and technology development for processing minor millets, and for improving the shelf life of minor millet products (lab-to-market)
Financial sector advocacy	Incentivizing financial institutions to develop products and lending models adapted to the needs of FPOs and agro MSMEs.

INSTITUTION BUILDING

Technical support			
Intervention	Applicable to		Description
Incubation	**2**	**3**	Support from start-up enterprise incubators
Technical assistance through NGOs/CSOs	**1**	**2**	Mobilizing, organizing, capacity-building
Technical assistance investors / philanthropic capital	**2**	**3**	Grant-funded technical assistance facility to strengthen commercial viability

1. ADVOCACY

Public policy advocacy – Efforts will target the state governments of Madhya Pradesh and Rajasthan to advocate for the development of the minor millets value chain to be included as a critical item in their policy agendas. This will entail working to influence policy towards the design and implementation of a state-level millet policy/mission, similar to the ones existing in the States of Odisha, Karnataka and Telangana (see details in annex 2). A state-level policy would compel various government departments (e.g. Agriculture and Farmer Welfare, Rural Development, Food Processing, Public Distribution System, Women and Child Development) to actively promote minor millets as part of their respective agendas, thereby assigning specific incentives and targets related to the minor millets value chain in Government programmes and schemes, covering:

- agriculture production
- the formation of FPOs through nodal agencies (i.e. NABARD and SFAC)
- incentives for building up processing capacity
- the integration of minor millets in Government nutrition programmes, leading to its integration in the institutional procurement and public distribution systems
- the promotion of technological improvements related to minor millets processing, as well as research to improve the shelf life of minor millet products.

An impetus by the state government in these areas will promote an increase in minor millets production and marketing through FPOs, which in turn will incentivize entrepreneurs to set up processing plants. Given its influential role in the State Level Bankers' Committee, the Government will also be expected to guide banks to integrate lending to actors in the minor millets value chain into their credit plans.

Consumer advocacy – This will involve advocacy aimed at consumers and supply chain actors to raise awareness regarding the nutritional benefits associated with minor millets products and their potential to be marketed as health products. Consumer advocacy will be supported by institutions involved in conducting and publishing research on the nutritional qualities of minor millets (e.g. ICRISAT and IIMR).

Supply chain advocacy – Supply chain advocacy will focus on creating communities of practice among the manufacturers of millet processing equipment. The objective will be to build a knowledge base of processing and storage equipment required, while identifying available equipment, technologies under development, and opportunities for innovation. The group will work closely with research centres (including universities) and practitioners of millet product development and distribution. They will develop "how to" guides on minor millets processing, including manufacturing plant set-up and worker skill development tools.

Financial sector advocacy – Advocacy with financial institutions aims to promote financing to and investment in FPOs and agro MSMEs. This will primarily be conducted through round tables and sector events attended by representatives of banks and other financial institutions (e.g. NBFCs and investors), in partnership with apex institutions such as NABARD. In addition, advocacy efforts will seek to promote the development of risk assessment and credit rating frameworks, credit guarantee schemes and increased knowledge-sharing on innovative agri-lending products.

To advance these different advocacy agendas, an advocacy platform will need to be created, which should ideally operate as a not-for-profit public-private partnership. Membership of the platform will include relevant stakeholders presented in chapters 3 and 4, as well as farmer groups and consumer groups. The core objective of the advocacy effort will be to spur consumer demand for minor millet products. This, in turn, will be expected to create the needs and incentives for financing and investment across the supply chain.

There are several examples of platforms that support consumer advocacy and/or undertake end-to-end advocacy from supply chain to the consumer that can be draw from.

- The **National Dairy Development Board (NDDB)** ran a successful marketing campaign in the 1990s to promote the consumption of milk among urban consumers.
- The **National Egg Coordination Committee** (www.e2necc.com), a society that includes over 25,000 poultry member farmers, is specifically focused on promoting the marketing of eggs in India.
- **ICRISAT** is actively involved in promoting millets through its SMARTFOOD Campaign, both in India and in other countries (ICRISAT, nd).
- **Protein Foods and Nutrition Development Association of India** is a not-for-profit society that works across the spectrum of policy and of market advocacy (https://www.pfndai.org/objectives.html).
- The **Better Cotton Initiative (BCI)** (https://bettercotton.org/) is a global not-for-profit multistakeholder platform to promote sustainable cotton, working with a wide range of stakeholders from production to markets.

2. CAPACITY-BUILDING SUPPORT

Incubation – The Start-up Enterprise Incubators operating at IIMR and ICRISAT (see chapter 3 for more details) are good examples of the types of initiative equipped to develop and support a pipeline of enterprises working on minor-millet-based products. The funding for this activity would be sourced from the incubators' existing resources, as they operate as grant-funded NGOs.

Technical assistance (TA) – Technical assistance services are integral to government schemes (e.g. NABARD and SFAC), whereby funding is included to cover the cost of TA services delivered by CSOs or NGOs. TA components may also accompany funding from certain impact investment institutions that may be available to agro MSMEs (1).

5.4 Proposed next steps

To bring together the right group of stakeholders and facilitate the implementation of each step outlined in the theory of change, and ultimately deliver on the opportunities for investment described above, a lead coordinator must first be identified. This lead organization will work to ensure that the state government departmental apparatus works hand-in-hand with stakeholders in the private sector, as well as financial institutions (public and private), research institutions, and CSOs working with producer communities and FPOs.

Initial efforts will need to focus on "policy advocacy" and "market advocacy," both of which are crucial to creating a favourable environment for the launch of new FPOs and agro MSMEs (1) within the first 1-2 years, as well as for unlocking the flow of investments into the minor millet value chains. The eventual set up and investment into agro MSMEs (2) will follow soon after.

A number of significant breakthroughs have already been achieved in the development of the millets value chain in states such as Karnataka and Odisha, which are likely to directly benefit parallel efforts in the focus States of Rajasthan and MP. This includes the successful creation of a millets policy/mission at the state government level, from which key lessons regarding the design and implementation process can be drawn and applied to our focus states. In addition, these previous efforts have already raised the attention and awareness of key stakeholders (e.g. NABARD, SFAC, CSOs, bankers and other financial institutions), which will already be familiar with the value chain and its development potential. It will be important to leverage such benefits from previous efforts when conducting the advocacy portion of the work ahead. Below are the next steps that are envisaged over a period of 6-9 months following the release of the IP and the identification of a lead coordinator.

1. **Disseminate the IP report among key stakeholders** – state-level government departments, NABARD, SFAC, banks, NBFCs, FPO promoters / CSOs – by convening 1-2 state-level gatherings, in addition to one-on-one meetings.
2. **Advocate for setting up a state millet mission/policy** by engaging the Department of Agriculture and Farmer Welfare in both states. Also, engage the Food Security Mission (under the same department), where advocacy can focus on promoting millets as indigenous and nutritional food under the Government's FDS, as part of the proposed state millets policy.
3. **Identify the top five districts for the promotion of minor millets** and engage the regional and/or state offices of NABARD in the integration of minor millets within the State Potential Linked Plans, which will then be integrated into the state credit plans at the State Level Banker's Committee (SLBC).
4. **Engage NABARD headquarters** to advocate for the creation of special schemes (or a programme) to promote millets in specific states where indigenous communities are predominantly involved in production. A special scheme could be proposed for the development of the minor millets value chain, which would effectively promote the setting up of processing units by FPOs, and provide technical assistance for the improvement of production and market linkages.

5. **Engage banks and NBFCs** to raise awareness on the investment potential of the millets value chain and advocate for the development of credit appraisal methodologies adapted to FPOs and agro MSMEs.
6. **Create a state-level advocacy platform in MP**, including private sector players and NGOs for the promotion of smart foods / millets.
7. **Engage large private sector retailers** to advocate for the recognition of millets products as smart foods (e.g. creating dedicated sections in stores to promote awareness among consumers).
8. **Coordinate with research agencies** such as ICRISAT to focus advocacy efforts directed at state actors and consumers on the nutritional benefits of minor millets.
9. **Engage incubators** such as IIMR to lead supply chain development efforts with a focus on improving processing technology, research on nutrition and consumer recipe development, as well as capacity-building/ incubation of agro MSMEs (2).

Annexes

Annex 1: Detailed financial projections

This annex presents the detailed financial analysis related to the investment models proposed for FPOs / farmer collectives and agro MSMEs (1). All amounts are in millions of Rs (unless otherwise indicated) and reflect a five-year horizon. The tables presented below include:

1. Assumptions (tables 19 and 27)
2. Investments in equipment, plant and building (table 20)
3. Income statement (profit and loss statement) (tables 21, 24 and 28)
4. Balance sheet (tables 22, 25 and 29)
5. Cash flow statement (tables 23, 26 and 30).

Table 19: Assumptions for FPO / farmer collective and agro MSMEs (1) (Volume in metric tons [t]; value in Rs)

Assumptions	*Place/Unit*	*Remarks*
Commodity – small millets	Kodu, Kutki	
Place of operation (Madhya Pradesh)	Mandla, Dindori	
Time span for procurement	3-6 months	
Annual purchase volume (per t)	1 000	20% annual increase
Base purchase price (per t)	20 000	5% annual increase
Processing and storage space (cost of land not considered)	Processing = 1 000 sq ft; Storage = 2 200 sq ft	Owned
Cost of plant and machinery (million Rs)	2.46	Useful life 8 years
Cost of building (million Rs)	2	Useful life 15 years
Volume per truck (t)	10	
Cost of contractual labour (per worker per month)	10.000	
Labour productivity (4 workers in t/month)	500	
Salary cost (as a percentage of equipment, building and infrastructure cost)	0.1	8% annual increase
Packaging type	Jute bags	

Assumptions	Place/Unit	Remarks
Packaging size	50 kg	
Sales volumes (Mt)	350	Y2-Y5 (1 100, 1 325, 1 550, 2 150)
Sales volumes primary product (Mt)	42% of total sales	
Selling price (weighted average) primary product per Mt	37 672	5% annual increase

Table 20: Investments (including equipment, building and infrastructure)

Equipment, building and infrastructure cost	*Rs million*
Stage 1 processing	
Aspirator, grader, destoner, etc.	0.93
Stage II processing	
Huller, aspirator, etc.	0.84
Installation	0.37
Contingency	0.32
Total	**2.46**
Cost of building	2.00
Grand total	**4.46**

FINANCIAL RESULTS – FPO / FARMER COLLECTIVE

Table 21: Income statement – FPO / farmer collective (Rs millions)

Income statement	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	-	7.61	25.12	31.78	39.03	56.84
Cost of sales	-	6.42	19.00	23.83	29.09	41.81
Gross margin	-	**1.19**	**6.12**	**7.95**	**9.94**	**15.03**
Gross margin (%)	-	**16%**	**24%**	**25%**	**25%**	**26%**
Operating expenses						
Operating expenses	-	0.40	1.25	1.45	1.67	2.10
Interest expense (@12%)	-	0.98	1.96	1.96	1.96	1.96
Interest subvention (@3%)	-	(0.25)	(0.49)	(0.49)	(0.49)	(0.49)
Depreciation	-	0.18	0.18	0.18	0.18	0.18
Total operating expense	-	**1.31**	**2.90**	**3.10**	**3.31**	**3.75**
Earnings from operations	-	**(0.12)**	**3.22**	**4.85**	**6.63**	**11.29**
Operating margin (%)	-	**-2%**	**13%**	**15%**	**17%**	**20%**
Profit before income tax	-	**(0.12)**	**3.22**	**4.85**	**6.63**	**11.29**
Tax expenses (@27%)	-	-	0.86	1.30	1.78	3.03
Profit after tax (PAT) for the period	-	**(0.12)**	**2.36**	**3.55**	**4.85**	**8.26**

Table 22: Balance sheet – FPO / farmer collective (Rs millions)

Assets	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Cash in hand	0.06	1.50	0.74	1.90	3.04	11.27
Inventories	-	13.00	15.75	19.07	24.15	25.93
Accounts receivable	-	0.63	2.09	2.65	3.25	4.74
Total current assets	0.06	**15.13**	**18.58**	**23.62**	**30.44**	**41.93**
Long-term assets						
Plant, building, etc.	4.46	4.28	4.11	3.93	3.76	3.58
Total long-term assets	**4.46**	**4.28**	**4.11**	**3.93**	**3.76**	**3.58**
Total assets	**4.52**	**19.42**	**22.69**	**27.56**	**34.19**	**45.51**

Liabilities & equity						
Current liabilities						
Accounts payables	-	0.02	0.08	0.09	0.10	0.13
Long-term liabilities						
Project funding/debt	1.34	1.34	1.34	1.34	1.34	1.34
Working capital	-	15.00	15.00	15.00	15.00	15.00
Total liabilities	**1.34**	**16.36**	**16.42**	**16.43**	**16.44**	**16.47**
Equity						
Issued capital & share premium	0.50	0.50	0.50	0.50	0.50	0.50
Grant and subsidy	2.68	2.68	2.68	2.68	2.68	2.68
Retained earnings	-	(0.12)	3.10	7.95	14.57	25.86
Total equity	**3.18**	**3.06**	**6.28**	**11.13**	**17.75**	**29.04**
Total liabilities & equity	**4.52**	**19.42**	**22.69**	**27.56**	**34.20**	**45.51**

Table 23: Cash flow statement – FPO / farmer collective (Rs millions)

Cash flow from operations	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Net profit/loss after tax	-	(0.12)	2.36	3.55	4.85	8.26
Adjustment for non-cash charges						
Depreciation & amortization	-	0.18	0.18	0.18	0.18	0.18
Deferred income tax	-	-	0.86	1.30	1.78	3.03
Change in operating assets & liabilities						
Trade & other receivables	-	(0.63)	(1.46)	(0.55)	(0.60)	(1.48)
Inventories	-	(13.00)	(2.75)	(3.32)	(5.07)	(1.78)
Trade & other payables	-	0.02	0.06	0.01	0.01	0.03
Deferred revenues	-	-	-	-	-	-
Other charges (net)	-	-	-	-	-	-
Net cash from operations	-	(13.56)	(0.76)	1.16	1.14	8.23
Cash flows from investing activities						
Purchase of plant & equipment	(4.46)	-	-	-	-	-
Other investing Activities						
Net cash used in investing activities	(4.46)	-	-	-	-	-
Cash flows from financing activities						
New equity issued	0.50	-	-	-	-	-
Grant and subsidy	2.68	-	-	-	-	-
New debt	1.34	15.00	-	-	-	-
Net cash provided by financing activities	**4.52**	**15.00**	**-**	**-**	**-**	**-**
Change in cash & cash equivalent	**0.06**	**1.44**	**(0.76)**	**1.16**	**1.14**	**8.23**
Beginning cash	**-**	**0.06**	**1.50**	**0.74**	**1.90**	**3.04**
Ending cash	**0.06**	**1.50**	**0.74**	**1.90**	**3.04**	**11.27**

FINANCIAL RESULTS – AGRO MSME (1)

Table 24: Income statement – agro MSME (1) (Rs millions)

Income statement	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	-	7.61	25.12	31.78	39.03	56.84
Cost of sales	-	6.42	19.00	23.83	29.09	41.81
Gross margin	-	**1.19**	**6.12**	**7.95**	**9.94**	**15.03**
Gross margin (%)	-	**16%**	**24%**	**25%**	**25%**	**26%**
Operating expenses						
Operating expenses	0.17	0.40	1.25	1.45	1.67	2.10
Interest expense (@12%)	-	0.90	1.80	1.80	1.80	1.80
Interest subvention (@3%)	-	-0.23	-0.45	-0.45	-0.45	-0.45
Depreciation	-	0.44	0.44	0.44	0.44	0.44
Total operating expense	**0.17**	**1.52**	**3.04**	**3.24**	**3.46**	**3.89**
Earnings from operations	**(0.17)**	**(0.33)**	**3.08**	**4.71**	**6.48**	**11.14**
Operating margin (%)	**-**	**-4%**	**12%**	**15%**	**17%**	**20%**
Profit before income tax	**(0.17)**	**(0.33)**	**3.08**	**4.71**	**6.48**	**11.14**
Tax expenses (@27%)	-	-	0.69	1.26	1.74	2.99
Profit after tax (PAT) for the period	**(0.17)**	**(0.33)**	**2.39**	**3.45**	**4.75**	**8.16**

Table 25: Balance sheet – agro MSME (1) (Rs millions)

Assets	*Year 0*	*Year 1*	*Year 2*	*Year 3*	*Year 4*	*Year 5*
Cash in hand	0.37	1.87	1.23	2.52	3.77	12.12
Inventories	-	13.00	15.75	19.07	24.15	25.93
Accounts receivable	-	0.63	2.09	2.65	3.25	4.74
Total current assets	**0.37**	**15.51**	**19.08**	**24.24**	**31.18**	**42.79**
Long-term assets						
Plant, building, etc.	4.46	4.02	3.58	3.14	2.70	2.26
Total long-term assets	**4.46**	**4.02**	**3.58**	**3.14**	**2.70**	**2.26**
Total assets	**4.83**	**19.52**	**22.66**	**27.38**	**33.87**	**45.05**

Liabilities & equity						
Current liabilities						
Accounts payables	-	0.02	0.08	0.09	0.10	0.13
Long-term liabilities						
Project funding/debt	-	-	-	-	-	-
Working capital	-	15.00	15.00	15.00	15.00	15.00
Total liabilities	**-**	**15.02**	**15.08**	**15.09**	**15.10**	**15.13**
Equity						
Issued capital & share premium	5.00	5.00	5.00	5.00	5.00	5.00
Retained earnings	(0.17)	(0.50)	2.58	7.29	13.77	24.92
Total equity	**4.83**	**4.50**	**7.58**	**12.29**	**18.77**	**29.92**
Total liabilities & equity	**4.83**	**19.52**	**22.66**	**27.38**	**33.87**	**45.05**

Table 26: Cash flow statement – agro MSME (1) (Rs millions)

Cash flow from operations	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Net profit/loss after tax	(0.17)	(0.33)	2.39	3.45	4.75	8.16
Adjustment for non-cash charges						
Depreciation & amortization	-	0.44	0.44	0.44	0.44	0.44
Deferred income tax	-	-	0.69	1.26	1.74	2.99
Change in operating assets & liabilities						
Trade & other receivables	-	(0.63)	(1.46)	(0.55)	(0.60)	(1.48)
Inventories	-	(13.00)	(2.75)	(3.32)	(5.07)	(1.78)
Trade & other payables	-	0.02	0.06	0.01	0.01	0.03
Deferred revenues	-	-	-	-	-	-
Other charges (net)	-	-	-	-	-	-
Net cash from operations	(0.17)	(13.50)	(0.64)	1.28	1.26	8.35
Cash flows from investing activities						
Purchase of plant & equipment	(4.46)	-	-	-	-	-
Other investing Activities						
Net cash used in investing activities	(4.46)	-	-	-	-	-
Cash flows from financing activities						
New equity issued	5.00	-	-	-	-	-
New debt	-	15.00	-	-	-	-
Net cash provided by financing activities	**5.00**	**15.00**	**-**	**-**	**-**	**-**
Change in cash & cash equivalent	**0.37**	**1.50**	**(0.64)**	**1.28**	**1.26**	**8.35**
Beginning cash	**-**	**0.37**	**1.87**	**1.23**	**2.52**	**3.77**
Ending cash	**0.37**	**1.87**	**1.23**	**2.52**	**3.77**	**12.12**

FINANCIAL RESULTS – AGRO MSME (2)

Table 27: Assumptions – agro MSMEs (2) (Volumes in tons [t]; values in Rs)

Assumptions	*Place/Unit*	*Remarks*
Commodity – small millets	Kodu, Kutki	
Place of operation (Madhya Pradesh)	Mandla, Dindori	
Annual purchase volume (per t)	1 000	25 t annual increase
Base purchase price (per t)	40 000	4% annual increase
Salary cost	3 000 000	5% annual increase
Packaging type	Consumer pack	
Packaging size	0.5 & 1 kg	
Selling price – 0.5 kg pack per t (60% of total sales)	166 000	3% annual increase
Selling price – 1 kg pack per t (40% of total sales)	150 000	3% annual increase
Annual sales volumes (t)	75	25 t annual increase
Marketing expenditure	20% of revenue	
Distribution expenditure	14% of revenue	

Table 28: Income statement – agro MSME (2) (Rs millions)

Income statement	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	-	11.97	16.44	21.16	26.16	31.44
Cost of sales	-	4.88	6.66	8.53	10.50	12.56
Gross margin	-	**7.10**	**9.78**	**12.63**	**15.66**	**18.87**
Gross margin (%)	-	**59%**	**59%**	**60%**	**60%**	**60%**
Operating expenses						
Operating expenses	-	8.07	9.94	11.78	13.73	15.78
Interest expense (@12%)	-	-	0.15	0.30	0.30	0.30
Interest subvention (@3%)	-	0.08	0.08	0.08	0.08	0.08
Depreciation	-	8.15	10.17	12.16	14.11	16.16
Total operating expense	**-**	**(1.05)**	**(0.39)**	**0.47**	**1.55**	**2.71**
Earnings from operations	**-**	**-9%**	**-2%**	**2%**	**6%**	**9%**
Operating margin (%)	**-**	**(1.05)**	**(0.39)**	**0.47**	**1.55**	**2.71**
Profit before income tax	**-**	**-**	**-**	**-**	**0.16**	**0.73**
Tax expenses (@27%)	-	(1.05)	(0.39)	0.47	1.40	1.98
Profit after tax (PAT) for the period	**-**	**(1.05)**	**(0.39)**	**0.47**	**1.40**	**1.98**

Table 29: Balance sheet – agro MSME (2) (Rs millions)

Assets	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Cash in hand	-	1.21	1.72	3.07	4.49	7.05
Inventories	-	-	-	-	-	-
Accounts receivable	-	1.00	1.37	1.76	2.18	2.62
Total current assets	-	**2.20**	**3.09**	**4.84**	**6.67**	**9.67**
Long-term assets						
Office equipment	-	0.32	0.24	0.16	0.08	-
Total long-term assets	-	**0.32**	**0.24**	**0.16**	**0.08**	**-**
Total assets	-	**2.52**	**3.33**	**5.00**	**6.75**	**9.67**

Liabilities & equity						
Current liabilities						
Accounts payables	-	0.58	0.77	0.97	1.17	1.38
Long-term liabilities						
Project funding/debt	-	-	-	-	-	-
Working capital	-	-	1.00	2.00	2.00	2.00
Total liabilities	**-**	**0.58**	**1.77**	**2.97**	**3.17**	**3.38**
Equity						
Issued capital & share premium	-	3.00	3.00	3.00	3.00	3.00
Retained earnings	-	(1.05)	(1.44)	(0.97)	0.58	3.29
Total equity	**-**	**1.95**	**1.56**	**2.03**	**3.58**	**6.29**
Total liabilities & equity	-	**2.52**	**3.33**	**5.00**	**6.75**	**9.67**

Table 30: Cash flow statement – agro MSME (2) (Rs millions)

Cash flow from operations	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Net profit/loss after tax	-	(1.05)	(0.39)	0.47	1.40	1.98
Adjustment for non-cash charges						
Depreciation & amortization	-	0.08	0.08	0.08	0.08	0.08
Deferred income tax	-	-	-	-	0.16	0.73
Change in operating assets & liabilities						
Trade & other receivables	-	(1.00)	(0.37)	(0.39)	(0.42)	(0.44)
Inventories	-	-	-	-	-	-
Trade & other payables	-	0.58	0.20	0.19	0.20	0.21
Deferred revenues	-	-	-	-	-	-
Other charges (net)	-	-	-	-	-	-
Net cash from operations	-	(1.39)	(0.49)	0.35	1.42	2.56
Cash flows from investing activities						
Purchase of plant & equipment	-	(0.40)	-	-	-	-
Other investing Activities						
Net cash used in investing activities	-	(0.40)	-	-	-	-
Cash flows from financing activities						
New equity issued	-	3.00	-	-	-	-
New debt	-	-	1.00	1.00	-	-
Net cash provided by financing activities	**-**	**3.00**	**1.00**	**1.00**	**-**	**-**
Change in cash & cash equivalent	**-**	**1.21**	**0.51**	**1.35**	**1.42**	**2.56**
Beginning cash	**-**	**-**	**1.21**	**1.72**	**3.07**	**4.49**
Ending cash	**-**	**1.21**	**1.72**	**3.07**	**4.49**	**7.05**

Annex 2: Millet programmes in selected states

ODISHA

In 2017-18, Odisha accounted for 3 per cent of the country's total small millets production, equivalent to about 13,200 tons, most of which is cultivated in the state's tribal districts. Based on data from the Government of Odisha, production in 1999 totalled 18,850 tons, which amounts to a decline of nearly 30 per cent in the intervening years. To revive millets production in rainfed farming systems and increase household consumption, a flagship programme called the Special Programme for Promotion of Millets in Tribal Areas (Odisha Mission on Millets) was launched in 2017 by the Department of Agriculture of the Government of Odisha. The programme was launched in 7 districts of south Odisha and has since been extended to 14 districts, selected according to geographical considerations, as well as agroecological and cultural practices.

Major objectives of the programme include:

- including millets in state nutrition programmes, such as ICDS, MDM, Integrated Tribal Development Agency (ITDA), welfare hostels and PDS
- increasing household consumption of millet-based products by setting up decentralized processing units at panchayat and block levels
- improving productivity through organic inputs and agronomic practices
- increasing the availability of millet seeds through community-managed / community-owned seed centres with a focus on local seeds
- strengthening farmers cooperatives and FPOs to improve the marketing of millets.

Salient features of the Odisha Mission on Millets

- Duration: Seven years (2017-2024)
- Scale: 72 blocks, 14 districts
- Coverage: 5 million beneficiaries
- Budget: Rs 5,369.8 million, including:
  - Rs 3,130.6 million for procurement and distribution through government
  - Rs 2,239.2 million for productivity enhancement, setting up of 400 local-level millet processing units, establishment of FPOs and start-ups, and promotion of millet consumption through awareness campaigns, food events, etc.

KARNATAKA

Karnataka produces about 4 per cent of the country's small millets and has been aggressively promoting the revival of millet production and consumption. Since 2018, the Government of Karnataka has organized an annual International Trade Fair for Organics and Millets held in Bangalore, which has been a big draw for local and international visitors alike. These trade fairs have been organized in collaboration with the Indian Institute of Millet Research (IIMR), and the Indian Council of Agricultural Research (ICAR) institute. The urban population in Bangalore, a city dominated by professionals working in the international IT sector, has been particularly responsive to the fair's focus on healthy and nutritious food. The millet ecosystem in Karnataka has been positively impacted by the organization the trade fairs, which have since been replicated at the local district level.

TELANGANA

In 2019, the Government of Telangana issued guidelines for the implementation of an FPO scheme to build much-needed physical infrastructure (e.g. storage facilities, processing centres, marketing sheds, and custom hire centres) in tribal areas in partnership with NABARD and the Society for Elimination of Rural Poverty (SERP). The guidelines focus on two areas of activity (Government of India, 2020):

1. the identification of eligible tribal FPOs to provide infrastructure support to tribal areas
2. working capital support required by the tribal FPOs to be provided by SERP/NABARD through financial institutions, along with support for capacity-building.

According to the scheme, the infrastructure that is developed will become a community-owned asset. Each FPO is to receive Rs 6 million, consisting of 60 per cent subsidy grant, 30 per cent institutional finance funding from NABKISSAN, and 10 per cent contribution from the FPO. To date, 13 FPOs have been funded under the scheme (see table 31).

Table 31: FPO funding by Tribal Department, Government of Telangana

District	*Name of the Farmer producer organization (FPO)*	*Promoted by*	*Total project cost*	*Subsidy from Tribal Welfare Department (TWD) (60%)*	*Institutional finance (30%)*	*FPO contribution (10%)*
Adilabad	Utnoor FPC Ltd.	Centre for Peoples Forestry	4 009 000	2 405 400	1 202 700	400 900
Adilabad	Indervelly FPC Ltd.	Dhan Foundation	6 002 000	3 601 200	1 800 600	600 200
Adilabad	DTN FPC Ltd.	Dhan Foundation	6 000 000	3 600 000	1 800 000	600 000
Jayashankar Bhupalpally	Sammakka Sarakka FPC Ltd.	Vanasamaikhya	5 882 000	3 529 200	1 764 600	588 200
Jayashankar Bhupalpally	Sneha FPC Ltd.	Sneha NGO	5 880 000	3 528 000	1 764 000	588 000
Hadradi Kothagude	Supraja Agric Producer Co. Ltd.	CHARD	4 239 000	2 543 400	1 271 700	423 900
Bhadradi Kothagudem	Palleru FPO Ltd.	Outreach	4 272 000	2 563 200	1 281 600	427 200
Bhadradi Kothagudem	Vigneshwara FPC Ltd.	CHESTED	3 853 000	2 311 800	1 155 900	385 300
Nagarkurnool	Kollapur FPC Ltd.	Child Care Organization	5 835 000	3 501 000	1 750 500	583 500
Khammam	Haritha Agro Producer Co. Ltd.	CHARD	3 556 000	2 133 600	1 066 800	355 600

District	*Name of the Farmer producer organization (FPO)*	*Promoted by*	*Total project cost*	*Subsidy from Tribal Welfare Department (TWD) (60%)*	*Institutional finance (30%)*	*FPO contribution (10%)*
Khammam	Pandi Panta Agro FPC Ltd.	Jagruthi	6 000 000	3 600 000	1 800 000	600 000
Sangareddy	Davvur FPC Ltd.	ICRISAT	5 387 000	3 232 200	1 616 100	538 700
Sangareddy	Nagalgidda FPC Ltd.	ICRISAT	5 387 000	3 232 200	1 616 100	538 700
	Total		**66 302 000**	**39 781 200**	**19 890 600**	**6 630 200**

Source: NABARD Andrah Pradesh Regional Office (personal communication, July 2020).

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