GLOBAL ALLIANCE FOR Mass Entrepreneurship

syngenta foundation India

AGRICULTURE ENTREPRENEUR GROWTH

AE Performance Study

Global Alliance for Mass Entrepreneurship

Syngenta Foundation India

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Executive Summary

Executive Summary

Syngenta Foundation India (SFI) launched its Agri-Entrepreneur (AE) program in 2014. The AE model is an Entrepreneur Centric approach to address bottom line problems of the marginal agrarian community, where Each AE works with 150-200 farmers in a cluster of 2-3 villages and acts as a one-stop resource provider for the agricultural needs of small and marginal farmers.

Currently, there are 1763 AEs of including 265 women AEs, serving over 2, 00,000 farmers across Andhra Pradesh, Bihar, Jharkhand, Madhya Pradesh, Maharashtra and Odisha. The objective of the study was to understand and review the performance of AEs and identify the chief characteristics of AEs who performed well. The study methodology is based on the integration of quantitative and qualitative research methods.

Based on their performance, AEs were categorized as Fast, Solid and Slow Climbers. It was seen that 64% of the AEs were from the Fast and Solid groups, with performance measuring steady success to rapid growth.

The characteristics of fast climbers are seen to be higher educational levels (senior secondary and graduates), above the age of 25, some investment capacity however with fewer existing sources of livelihood, ability to mobilize the community or an existing relationship with local farmers and the risk appetite required to reduce time-to-market even with a small upfront investment in working capital.

A few immediate steps that can be taken to help AEs perform better and scale-up the program are collaborations with market off-takers, creating unique financial products to support ease of credit access to first time entrepreneurs, bringing in mentors with a diverse set of expertise and regularizing refresher trainings for the AEs. Along with that, promoting asset-light quick time-to-market is key for helping AEs achieve an early success is important for them to run a sustainable business.

Larger tie-ups and partnerships are critical for creating a route to a systemic change. Collaborations with entities such as Indian Institute of Entrepreneurship to create a network of trainers along with

curriculum interventions in diploma program for pushing entrepreneurship institutionally can be taken up. Schemes such as ASPIRE under the Ministry of Micro, Small and Medium Enterprises remains an unexplored area and it can be of value to partner with existing Livelihood Business Incubators (LIBs).

Annual incomes of AEs see a wide range if compared across locations and program maturity: average annual net profit of a good performer in Odisha is INR 3,75,000 where the program has been active since 2014 and in Bihar is INR 1,29,500 where the program has been active since 2017.

While socio-economic and ecological factors bring unique sets of strengths and challenges for AEs, the study assessed a set of common characteristics found across AEs from different locations that chiefly define a successful entrepreneur.

Among the fast climbers, a majority (46%) of respondents were graduates. Education has a positive impact on the performance of an AE as a result of better utilization of training provided, however, it was seen that 41% of the Solid climbers were senior secondary graduates and 29% were graduates. With regular specialized trainings, AEs with a lower level of education are also seen to perform well.

Highest percentage of Fast climbers (46%) is from the 25 – 30 age group. 50% of the AEs who are lesser than 25 years of age were seen to be Slow Climbers. It was seen that AEs who are married to an employed spouse perform better. Across all age groups, more number of AEs who have been previously employed exhibit better performance. It is seen that 76% of the better performing AEs took up specialized trainings. Hence, refresher trainings and trainings on different services and technologies should be a mandatory part of the program.

Input services is seen as the most remunerative services offered by AEs. . It is seen that Agri-Input services are provided by 36% of the AEs across all performance groups. These maybe supplemented with other services such as Market Linkage (16%) and Nursery Management (15%). A lower adoption of Market Linkage however is a significant challenge. A majority of Fast Climbers cited lack of Market Linkage as a challenge faced by them to further scale-up.

Only 18% of the AEs reported being completely dependent on the AE enterprise for their total income generation. Around 60% are able to generate more than 50% of their household income from avenues other than their enterprise. However a larger dependency on the AE Enterprise Program for income is seen to drive higher performance. A very small number of AEs reported having accessed formal loan for their business and in this context providing financial support in terms of seed money as a revolving fund or other unique products can help in giving their business an impetus.

Mentorship being a key factor determining AE performance warrants the need to focus on bringing in diversity in knowledge through AEMs and also a focus on equipping AEMs with the best available technologies and information. This will result in a diversified portfolio of the AEs leading to better performance. Additionally, AEMs with core expertise such as veterinary, poultry, agronomy, should regularly be asked to share knowledge with other AEMs across project locations. The strength of the model lies in continuous handholding for AEs and the knowledge that an AE is able to pass-on to the farmers.

Continuous evaluations will reveal a deeper understanding of AEs and their role as levers for creating a systemic change in Indian agriculture.

1 INTRODUCTION

1. Introduction

India Agriculture Landscape

The Indian Agriculture landscape has seen an overall impressive growth and gain since 1947. This laudable gain stands as a tribute to the determined effort by the Indian Government and the resilient farmers of India. However, economic indicators do not show an equitable and egalitarian growth in income of the farmers. With stressed factors of production, erratic climatic conditions and technology fatigue, smallholders remain in frequent distress.

The doubling of farmers' income approach was a required policy departure to an income based approach towards rejuvenating farmer income. Thus focusing on making agriculture function as a market led commercial enterprise. Fragmented agriculture value chain, larger number of intermediaries, post-harvest losses are some of the constraints, access to credit and advisory remain some of the key challenges that policy and institutional efforts must focus on.

The development of the agrarian rural economy is marred, amongst other factors, by the limitations of access to quality services. "Poor receive poor services", noted economist, Jean Dreze observed in Sense and Solidarity[1], highlighting this trend in services being received at the bottom of the pyramid. Lack of information and limited access to markets, quality inputs and credit have pushed agriculture of a small holder into only a means of subsistence.

In this context, Syngenta Foundation India (SFI) launched its Agri-Entrepreneur (AE) program in 2014. The AE model is an Entrepreneur Centric approach to address bottom line problems of the marginal agrarian community, where Each AE works with 150-200 farmers in a cluster of 2-3 villages and acts as a one-stop resource provider for the agricultural needs of small and marginal farmers.

[1] *Dreze Jean, Sense and Solidarity: Jholawala Economics for Everyone collection of essays*

Agri-Entrepreneur (AE) Model

The Agri-entrepreneur (AE) model is a simple model, where the untapped potential of unemployed rural youth is put to use. These rural youth are motivated to become Agri-entrepreneurs and engage 150-200 farmers in a cluster of 3-4 villages. They act as a one-stop service provider for the agricultural needs of small and marginal farmers.

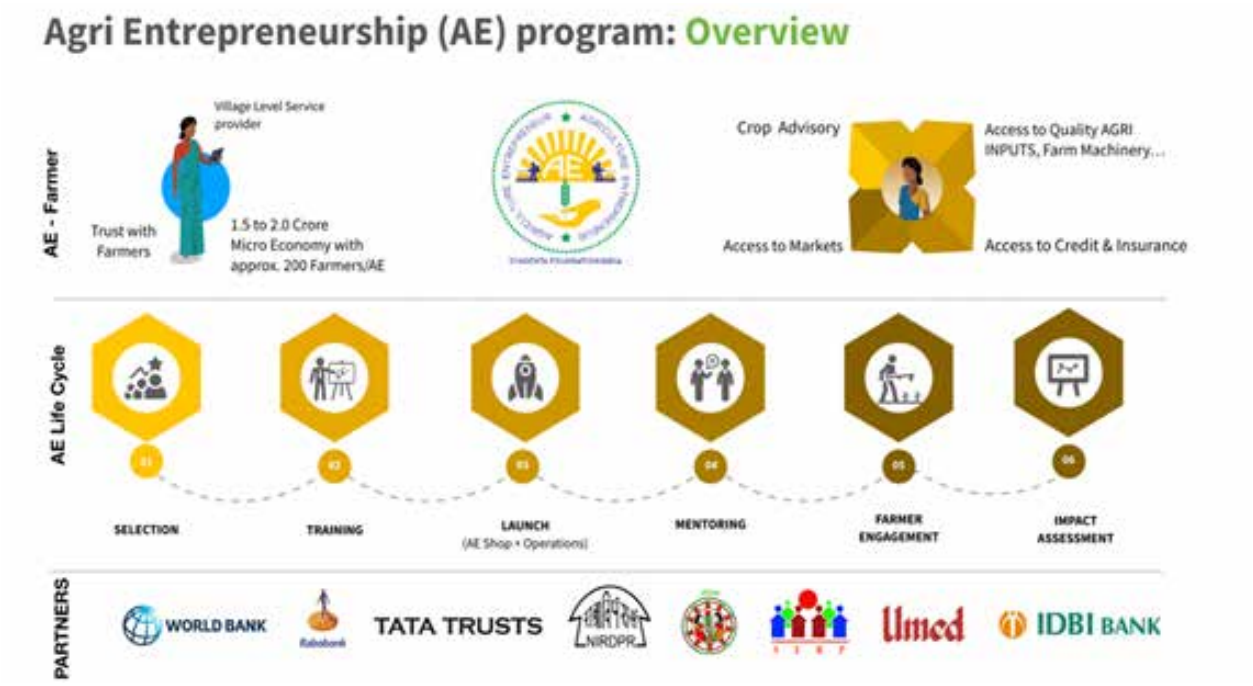
They bring together services such as credit and market linkage, access to high quality input and crop advisory for a group of farmers. An AE has to mandatorily be from one of the 2-3 villages in the cluster. AEs provide regular advisory to farmers which works as a way to cement a trusted relationship with farmers. AEs derive their revenue by providing the above services to farmers on a paid-service concept.

Interventions through the AE program that are focused on local needs and aspirations of both the farmers and the youth have resulted in not just increase in income but also in adoption of better agriculture practices.

Making of an AE

Tapping into unused potential of rural youth and turning them into agri-entrepreneurs sounds simple, but has a complicated process and rigour involved in making them successful. There are at least 5 steps involved in making of an AE

- Campaigning and Selection: In the region where AEs are to be deployed, a massive campaign is conducted to identify the unemployed rural youth who are class 12 pass. This is done with help of local organizations and panchayats. Once a set of 100-150 rural youth are identified, they are put through several tests such as basic written test, psychometry test and interviews to identify candidates with right attitude and business aptitude. The selection process also involves talking to their family members and panchayats to understand if the selected candidate has the social bent of mind to help small farmers.
- Training: Selected candidates join a 45 day residential training program. The curriculum of the training is a judicious mix of functional knowledge related to crops, basic aspects of agri business management and also on soft skills. The curriculum is prepared in-house by subject matter experts and the training is conducted using digital tools.
- Launch of AE: Post training completion, AEs are helped with setting up an agriculture enterprise (input shop, nursery, farm machinery rental shop or collection center for market linkages). This is also done based on the needs of the region. AE is also helped with a business plan and operationalize their enterprise.
- Mentoring: AE Mentor is a graduate in agriculture who manages 20 AEs on a day to day basis. AE mentor has 4-5 responsibilities and manages each AE for a period of 2 years. The principal job role of an AE is to help AE establish a business and help 150 small farmers. AE mentor helps AEs with access to credit from banks and financial institutions, connect to various partners such as input companies and farm machinery companies. AE mentor also ensures that AE is strictly adhering to processes which will help improve farmer's income. For instance, AE mentor makes sure that AE is only selling inputs which are of the best quality and are suitable to that agro-climatic zone.



AEs derive their revenue by providing the above services to farmers on a paid-service concept. To become an AE, candidates have to undergo a rigorous process. Selected candidates join a 45 day residential training program. The curriculum of the training is a judicious mix of functional knowledge related to crops, basic aspects of Agri Business management and also on soft skills. The curriculum is prepared in-house by subject matter experts and the training is conducted using digital tools.

Post training completion, AEs work on farmer data collection and based on the need of the region prepare a business plan and start their enterprise. Regular feedback, handholding and monitoring is carried out by AE Mentors who are responsible for the success of AEs.

AEs provide regular advisory to farmers which works as a way to cement a trusted relationship with farmers.

The program which is currently active across 7 States in India, is executed in partnerships with State Rural Livelihood Missions in Maharashtra, Bihar and Andhra Pradesh, International agencies and national partners like World Bank, Tata Trusts and other domain experts.

Currently 1763 AEs (Table 1) have been trained and positioned across these states. 265 of the total AEs are women. The present study was taken up with an objective to assess the performance of AEs in the field and assess the factors of success.

Table 1: Total number of AEs across SFI Project Locations

States	Total Number of AEs
Andhra Pradesh	65
Bihar	262
Jharkhand	110
Madhya Pradesh	61
Maharashtra	1181
Odisha	84
Total	**1763**

Impact at Scale

The initiative has been designed with an objective of improving the incomes of small farmers and an AE is a means to this end objective. The AE initiative has demonstrated significant benefits for small farmers as well as rural youth. Some of the impact studies conducted in the last two years have revealed multiple benefits to small farmers both economically and socially.

To take this model to scale, a new company called AEG Foundation has been formed recently. This is a joint venture between Syngenta Foundation India and the Tata Trusts to scale-up the AE model. AEG Foundation has an ambitious plan to develop 100,000 AEs over the next five years and help 20 million small holder farmers in India.

1.1 Objectives of the Study

The AE Program has been active across different project locations since 2014. Over 5 years, through various independent evaluations, it is seen that AEs deliver agriculture development of smallholders despite disparity in agro-climatic conditions, infrastructure availability and access to markets.

It is noteworthy that AEs are delivering impact while running their businesses, thus making this model easy to scale due to its self-sustaining nature and reduced dependency on continuous external capital infusion.

Poised for scaling-up, it is important that the replicable strengths of the program design are identified. Thus, this study aims to understand the performance of AEs, assess the reasons of success by identifying characteristics of a successful AE and further suggest changes in program design in line with the overall vision of scaling-up.

2

SUMMARY OF FINDINGS

2.Summary of Findings

Agri Entrepreneurs under SFI are spread across diverse states, each project location thus faces its own set of unique challenges and also poses a set of unique strengths. To reduce the impact of diversity all AEs were ranked based on their geographies and business maturity to arrive at AEs under different categories of performance.

It was seen that 44% of the AEs were Fast Climber, 22% were Solid Climbers and 34% were Slow Climbers. A further detailed study was conducted with a sample of AEs to identify different factors that impact performance along with finding the characteristics of a successful AEs.

The key factors are given below:

1. **Education**: Among the fast climbers, a majority (46%) of respondents were graduates, whereas in the solid performers a majority (41%) of the respondents were senior secondary students. While higher educated AEs are seen to have a higher probability of success, the program is suited for candidates with lower educational qualifications as well.

2. **Age, Marital Status and Previous Work Experience**: Age is seen to be a determining factor for previous work experience and marital status, hence it is seen to play an important role in the performance of an AE. Highest percentage of Fast climbers (46%) is from the 25 – 30 age group. 50% of the AEs who are lesser than 25 years of age were seen to be Slow Climbers. It was seen that AEs who are married to an employed spouse perform better. Across all age groups, more number of AEs who have been previously employed exhibit better performance. However, it cannot be assessed that previously unemployed AEs are poor performers, as the candidates in the 'slow climbers' performance group do not exhibit such variance. Thus, the program design is well suited to be extended to both employed and unemployed youth, with the previously employed youth having a higher probability to success.

3. **Motivation for joining the program**: AEs across all age groups reported interest in entrepreneurship, working close to home and being able to help the community as the top three reasons for selecting the program. However, a higher percentage of Fast Climbers and Solid Climbers reported their interest in agriculture as a reason for joining the program

4. **Specialized Trainings**: A larger number of Fast climbers (76%) are seen to have undergone specialized trainings. Higher educated AEs are likely to benefit more from the Skill Based trainings (Figure 9) thus resulting in not only leveraging from an existing higher skill level but further upgradation of skill for better performance. It is seen that specialized trainings are driving performance of an AE, as the percentages of AEs reporting 'having undergone training' increases with the increase in the level of performance group.

5. **AE income as part of the household income**: Only 18% of the AEs reported being completely dependent on the AE enterprise for their total income generation. Around 60% are able to generate more than 50% of their household income from avenues other than their enterprise. However a larger dependency on the AE Enterprise Program for income is seen to drive higher performance.

6. **Investments**: A majority of AEs who received the seed money are now Fast Climbers. Seed money which is either given as a grant or on zero interest rates is also seen as crucial given low number of off-takers of formal loan (18% of total). However, this is not to imply that seed money is necessary for success as 57% of the Fast Climbers did not receive the seed money and have yet performed well based on their own investment capacity.

7. **Advisory and Adoption by farmers as solution providers**: 95% of Fast Climbers, 82% in Solid Climbers and 71% of Slow Climbers are seen as solution providers. The largest section of AEs who provide advisory twice a month reported farmers reaching out to them frequently for advice. It can be seen thus farmers are seeing AEs as solution providers and this can be one of the factors driving performance.

8. **Business Challenges**: The most significant challenge cited by all AEs across the performance group is of Capital. However, for Fast Climbers, Market Linkage and License remain the other challenges. On the other hand, Knowledge was reported as a significant challenge by slow performers.

Recommendations: Characteristics of a Successful AE

The chief characteristics of a successful AE are seen to be:

1. Skill levels: An AE with a higher skill level is likely to perform better. While the study suggests that Graduates are seen to be the best performers, it is seen that candidates with Senior Secondary education level are also performing steady performance. Hence, an individual trained in specialized skills even with a lower education level is likely to perform well.

2. Previous work experience and age: Previous work experience with the community is seen to be an important factor for AE performance as it helps in mobilizing farmers and creating a strong base of customers. Being between the age-group of 25 – 30 years is seen to be the most appropriate age for an AE to get a good start to their business.

3. Spouse employment: Spouse employment is seen as an important factor for increasing risk appetite. Hence, candidates with working spouses are better poised for success.

4. Source of Household Income: It is seen that dependency on the Enterprise for the household income drives greater growth. Hence, for an AE who comes from a household with a lesser sources of livelihood will perform better under the program.

5. Fast adopters and risk taking appetite: AEs have to be fast adopters. A reduced time to market is important for success. Reduced time to market can be achieved if an existing relationship with the community is leveraged. AEs should have the risk appetite to take up the initial investment by themselves. This does not imply that a large sum is required to initiate the business operations. AEs with small investment capacities with an upfront investment in working capital as opposed to assets are likely to be successful even when formal credit is not accessed.

Going forth, to further strengthen the program a few steps can be taken. The steps mentioned here are divided as per the program scale-up objective.

The scale-up has 5 core objectives. These are:

1. Improving Livelihoods for 20 million farmers
2. Creating gainful employment for 100,000 rural youth
3. Installing a 'Development Highway'
4. Market Place for Start-ups
5. System Change in Indian Agriculture led by data driven Ag

These objectives can be looked at from the point of view of AE Program design and process and also from a larger policy perspective for creating systemic change.

AE Program Design and Process Changes for Successful AEs

At a program design level, there are various small alterations that can help in building stronger micro-entrepreneurs.

While the program has created successful entrepreneurs, a few steps can be taken for providing the candidates a greater chance of success.

1. **Refresher and Skill Building Trainings**: It is seen that a candidate with a higher level of education has a higher probability of success. This is reflected in AEs with a higher education level being more prompt towards taking additional capacity building trainings as well. Hence, refresher trainings and trainings on different services and technologies should be a mandatory part of the program.

   As it is carried out in the residential training, assessments should be carried out to ascertain the skill level and the impact of the training on AEs. This will help in pushing various solid climbers up the ranks to improve performance.

Soft-Skills should be a focused area in the refresher trainings. It is seen that approachability for farmers is important for them to not just register with the AEs but also for getting trained and accessing services by the AEs.

2. **Diversity in AEMs**: While the study suggests that an AE input store remains the key service and also the most remunerative service that is provided by 54 of the respondents, a service portfolio diversification is key to help in overcoming challenges of business cyclicity. AE Mentors should bring in varied expertise to push a service diversification. As is seen across Maharashtra and Jharkhand, a diversified set of AEMs will help in taking up different services. Additionally, AEM trainings are a key way to transmit information to AEs.

3. **Asset-light Operationalization**: It is pertinent that a focus is laid on business operationalization within the first three months after AE training and farmer data collection. An asset-light model, where AEs start out with generating revenues, rather than investing in purchase of assets should be taken up. A quick win goes a long way in helping AEs continue with their business.

4. **Financing and Investments**: The initial capital push is critical for the success of entrepreneurs. This does not need to be in the form of a grant. Across the Bihar project, the seed money is provided as an interest free loan to AEs, where AEs can pay the amount back to the Jeevika VOs in equal installments. A provision for such support is critical for a shorter time-to-market. It is also seen that unique financial products can help in increasing access to credit. Portfolio guarantee funds can be leveraged through contributions from government and non-government actors. While this is being explored at a program level, smaller groups of AEs along with local partners to operate as Portfolio Guarantee Funds at a project level should be explored.

5. **Forward Linkage**: Market Access capabilities must be developed amongst AEs along with program level tie-ups for sale of produce have to be created to ensure a close loop of services being provided by the AEs. While 18% AEs provide Market Access services, going forth, as part of crop planning exercise, while Input companies are reached out to for supply of inputs, retailers should also be involved for establishing forward linkages. A Cadre of AEMs or consultants needs to be created for facilitating the uptake of Market Access as a service.

Systemic Change

Based on the overall understanding of the program, to create a systemic change, the existing ecosystem, public and private must be leveraged. SRLMs serve as a point to add immense value as VRPs and SEWs can be trained for entrepreneurship. This is a mutually beneficial step as it gives the large number of farmers who are connected with the SRLM, access to technology and advisory and it is easier on the pockets of the exchequer by creating salaried VRPs as sustainable entrepreneurs.

While this approach has been leveraged in Bihar, Andhra Pradesh and Maharashtra it is pertinent to take an approach towards being a part of Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM).

Additionally, A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship (ASPIRE) under the Ministry of Micro, Small and Medium Enterprises remains an unexplored area and can be of value to partner with existing Livelihood Business Incubators (LIBs)

Indian Institute of Entrepreneurship (IIE) offers short terms diplomas across various streams. A **network of trainers** can be created with the help of IIE who can then support government institutes to provide AE training to students enrolled in agri diploma courses across institutes.

3

STUDY PROCESS AND DESIGN

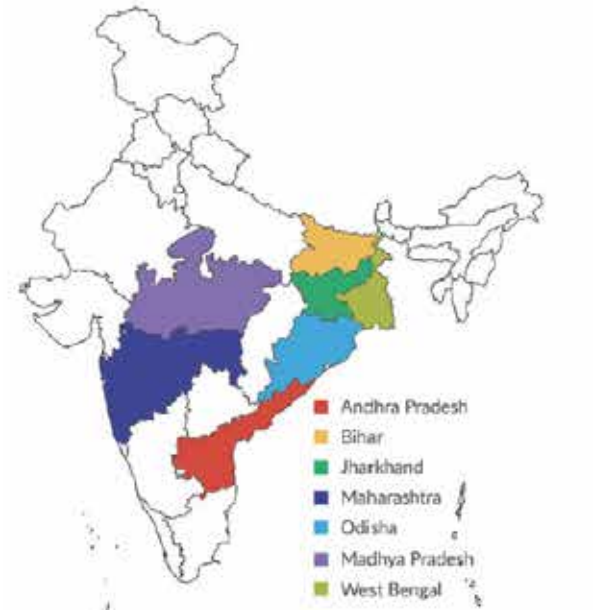
3. Study Process and Design

This chapter elucidates the study process and design. The sub chapters presented under the following headlines i) Description of study area, ii) Study-approach (source and nature of data used), iii) Research design process flow and methodology and iv) Limitations of the study.

3.1 Study Area

The study covered 6 states of SFI operations; Maharashtra, Odisha, Andhra Pradesh, Madhya Pradesh, Jharkhand and Bihar. Details of Project Locations and States are provided in Annex 1.

Image 1: India Map highlighting States of SFI presence (States covered under the study, Andhra Pradesh, Bihar, Jharkhand, Maharashtra, Odisha and Madhya Pradesh)



3.2 Study Approach

The study was designed to understand the factors of success, growth and needs of an AE. A key role in overall AE operations is played by the AE Mentors. Hence, they were made a part of the study as well. However, a more detailed analysis regarding AEMs will be taken up going forward. The process followed for each stakeholder is given below.

1. **Agri-Entrepreneurs** : Detailed interviews of AEs have been taken to understand the problems
2. **AEMs**: personal interviews to understand from their perspective, how this program has made extension services efficient.

This enabled the development of a holistic understanding towards the execution, benefits, strengths and challenges experienced by AEs.

The present study is based on the integration of quantitative and qualitative research methods. For quantitative data, prescribed structured questionnaires were designed and used for drawing profiles of AEs. For qualitative data, case studies were leverage and discussions with AE Mentors were taken up.

The qualitative understanding of the program gathered from on-ground case studies was instrumental in the hypothesis creation. We used the quantitative data to validate the hypothesis that was based on qualitative data. Additionally, discussion with AEMs also helped in validation of the hypothesis.

The study for AEs was carried out in 2 phases, the details of these are mentioned below:

Phase 1: To understand AE performance, the aim of Phase 1 was to categorize AEs into three distinct performance groups. Phase 1 followed a quantitative method to categorize the AEs based on a scoring pattern that was designed keeping in mind the various exogenous factors that impact an AE's performance. AEs who have spent more than three agriculture cycles were considered to further make the data comparable and improve data integrity. Of the total 1763 AEs, over 1200 had started operations by March 2019 from which 460 had been in business for more than two agriculture cycles.

The scoring pattern was applied to these 460 AEs and they were further categorized into the performance groups.

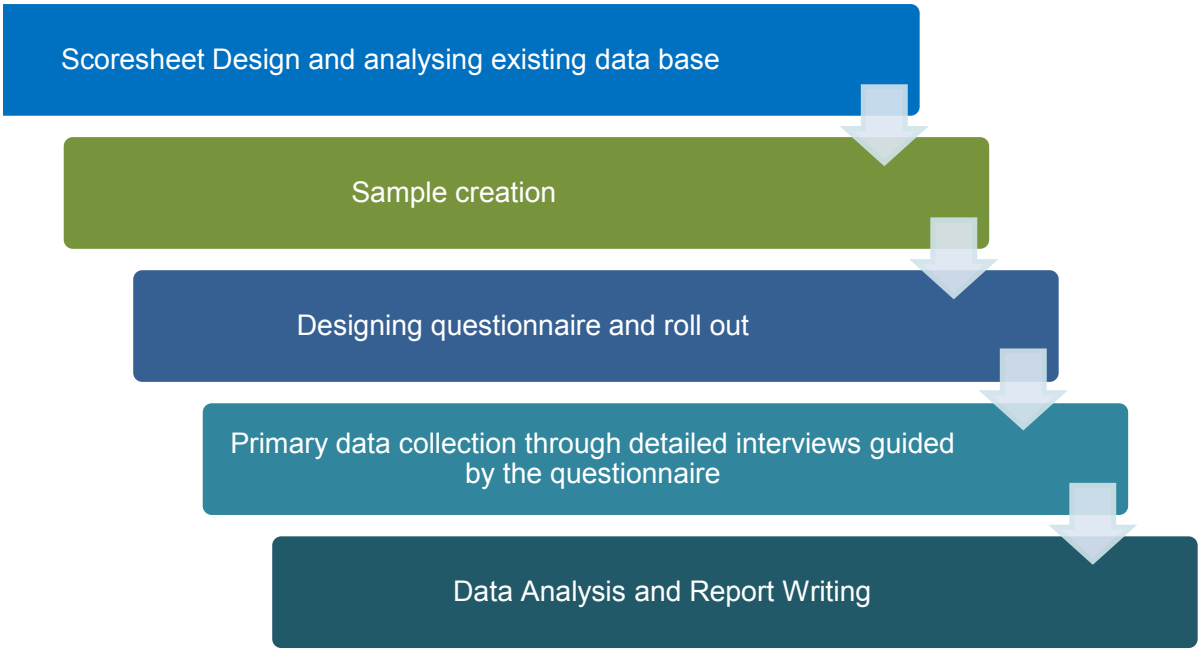
Phase 2: Phase 2 was initiated with a sample selection. The process of selection of sample AEs is given in Table 1 and 2. The aim was to arrive at an accurate, unbiased sample from different project locations. 132 AEs were selected across Andhra Pradesh, Bihar, Jharkhand, Madhya Pradesh, Maharashtra and Odisha. With a representative sample of the AEs from the selected States and Districts, the study has attempted to satisfy the general criteria of objectivity, credibility, and reliability, internal and external validity of the present study.

3.3 Research Design: Process Flow and Methodology

Research Design Process Flow

This section gives an outline of the Study process. The figure given below (Fig 2) illustrates the logical structure of the study process, which is further discussed in detail in the methodology section.

Fig 2: Research Design Process Flow



Research Design: Methodology

As per the design of the research, AEs were studied across two phases. Phase 1 was carried out to understand the overall performance of AEs and Phase 2 was conducted with the aim of understanding the characteristics of AEs across different performance groups.

Performance Groups

It is seen that while most AEs are being able to deliver the desired outcome of the program, the performance is varied within and across project locations. Thus, to capture the difference in performance, AEs were categorized into three distinct groups.

Categorization was done with a matrix of 5 key variables and with weightages been given to each variable to further make an accurate assessment of the AEs performance. The weights were decided based on the importance assigned to the variable based on the program vision and goal.

As is mentioned before, the program aims at promoting agriculture development of smallholders through a sustainable youth Agri-Entrepreneurship model. As per the AE Model, agriculture development is based on smallholders getting access to multiple services and technical know-how through a self-sustaining model. Thus, five key indicators for measuring the performance are seen to be:

1. Business Sustainability of an AE
2. Number of Farmers Serviced
3. Transfer of Knowledge

4. Portfolio of Services
5. Time to market

The table (Table 2) given below gives the scoring schema for the categorization. Prior to scoring, all AEs were clubbed into sections defined by business maturity and geographical location. It is commonly seen that due to market connectivity, fragmented and small landholdings, average income of farmers in Jharkhand is lower than average income of a farmer in Ahmednagar. Similar variation exists across locations. Hence, to treat the impact of exogenous factors, AEs were grouped together after which each section was scored separately.

Table 2: Scoring schema for phase 1 for assessing performance groups

S.No	Variables	Options	Type of Indicator		AE Life-cycle	Scoring	Weights
1	Business Transactions (Annual)		Region Specific	Reference Numbers	Operational for first 6 months - INR 40,000	For above Median = 3	45
	Service-wise Transactions				Operational for 1 year - INR 60,000	For Average performance = 2	
					Operational for 1.5 - 2 years - INR 1,00,000	For below Median performance = 1	
					Operational for greater than 2 years - > INR 150,000		
2	Number of Farmers Registered	a. less than 50 b. 50-100 c. 100-150 d. 150-200 e. More than 200	Region Specific		Farmers are registered during the first 2-3 months of operations. Hence farmer registration is not dependent on AE Lifecycle.	For above Median = 3 For Average Performance = 2 For Below Median = 1	20

3	Number of Services Provided		Consistent across program	Reference Numbers	- Operational for first 6 months: 1 Commercial Service - Operational for 1 year - 2 year: 2 Commercial Service - Operational for greater than 3 years: Greater than or equal to 3 commercial services	1 if as per reference number 0 If not as per reference number	10
4	Time to Market		Region Specific		Time to market differs as per project location and geography.	For above Median = 3 For Average = 2 For Below Median = 1	5
5	Regular Advisory - Frequency of conducting farmer advisory sessions	Weekly/On demand	Consistent across program		To be carried out atleast once a week or on demand	3	20
		Twice in a month				2	
		Once in a month or infrequent				1	

Based on the total score received, AEs were divided into three categories. These are:

1. Slow Climber (Slow)
2. Solid Climber (Solid)
3. Fast Climber (Fast)

Table 3: Scoring card and definition of the performance groups

AE Category	Score Range	Description
Slow Climber	95 – 140	A slow climber AE is seen to be one who has either started a business or is in the process of starting out an enterprise. An AE who has started out a business, achieved a turnover and also a net profit can be slow climber if he or she was unable to do so in the stipulated time period. A slow climber will not have a diversified business portfolios and not be providing different services. Their income will be lower than the median income that is being achieved by AEs in their region and tenure. A slow AE will also have lower farmer registration.
Solid Climber	140 – 190	A medium climber is an AE who is not providing multiple services to farmers, however is earning average income. Business transactions while carried out, for a solid climber may not have necessarily resulted from a large farmer base. These AEs exhibit potential to grow with handholding and mentoring. However, these AEs exhibit entrepreneurial spirit.
Fast Climber	190 - 280	An AE with a score greater than 190 is classified as a Fast Climber. A fast climber would have started a business in the stipulated time period by leveraging existing trusted network of farmers and assistance offered by Stakeholders and SFI team members. This AE will be providing regular services to farmers

Sample Selection and Assessment Methodology

Phase 1 resulted in categorizing the AEs based on the scores received into three distinct categories - Fast, Solid and Slow Climbers. A sample of 132 AEs was selected from the categorized AE list based on principals of stratified random sampling methods.

Detailed interviews were carried out with the selected sample of AEs using pre-designed questionnaires to determine the characteristics of AEs across different performance groups.

The questionnaire aimed at understanding the following:

1. Demographic details of AEs
2. Nature of work prior to the AE program
3. Motivations for joining the AE program
4. Farmer Registration and Regularity of Farmer Advisory
5. Training undertaken
6. Service Portfolio and

7. Investments
8. Business Operations
9. Dependency on AE Mentors
10. Additional Training Requirements

3.5 Limitations of the Study

The study at this stage assumes that AEs generally achieve one step after another step as listed in the parameters but may not be practically the case with all the AEs. But it has to be seen in the perspective that, this is just a categorization to further study of those AEs who have been put under various interval classes.

4

ANALYSIS AND WORKINGS

4. Analysis and Workings

Quantitative and Qualitative information was collected from the following three different sources. That is,

1. From the total population of AEs trained
2. From the selected sample AEs
3. Case studies

4.1 Phase 1

Phase 1 aimed to categorize AEs into distinct groups based on their performance on the key identified variables. To assess their performance on these variables it was important to consider the time that they have spent under the program. Therefore, only AEs who have spent greater than 3 complete Indian agriculture seasons or a time period greater than 9 months were considered for the scoring. Thus from a total of 1763 AEs, 1352 AEs (Table 4) had launched their enterprises by March 2019. 460 AEs (Table 5) had spent more than 9 months under the program and were thus considered for the categorization.

Table 4: Number of active AEs till March 2019

States	Number of Active AEs
Andhra Pradesh	60
Bihar	200
Jharkhand	110

States	Number of Active AEs
Madhya Pradesh	46
Maharashtra	883
Odisha	53
Total	**1352**

Table 5: State-wise distribution of AEs for scoring

States	Number of AEs for scoring
Andhra Pradesh	59
Bihar	95
Jharkhand	35
Madhya Pradesh	19
Maharashtra	217
Odisha	35
Grand Total	**460**

A total of 460 AEs from Andhra Pradesh, Bihar, Jharkhand, Madhya Pradesh, Maharashtra and Odisha were thus selected for the scoring (Table 6). Of the total AEs, 6% (29) were female AEs. From the total women AEs 59% were Fast Climbers.

It is to be noted that SFI has a significant presence across Maharashtra and Maharashtra AEs form close to 45% of the sample that was used for scoring. However, new projects (less than 9 months) from Maharashtra and other locations were not included as a part of the scoring phase.

As mentioned in section 3.3, the scoring was carried out on quantitative variables, thus existing databases were leveraged for the data required. Based on the scoring scheme it can be seen that 44% of the total AEs are a part of the Fast climber performance group, 22% and 34% were distributed across Slow and Solid Climber Categories.

Fig 3: Distribution of AEs across performance groups

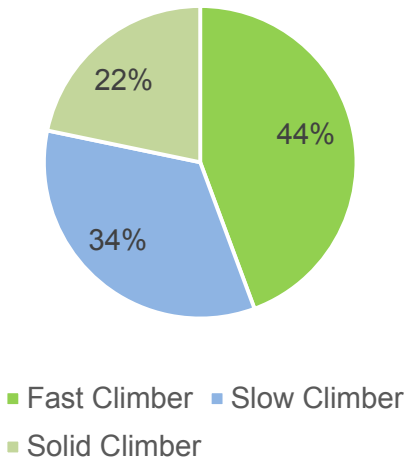


Table 6: Distribution of AEs across performance groups and states

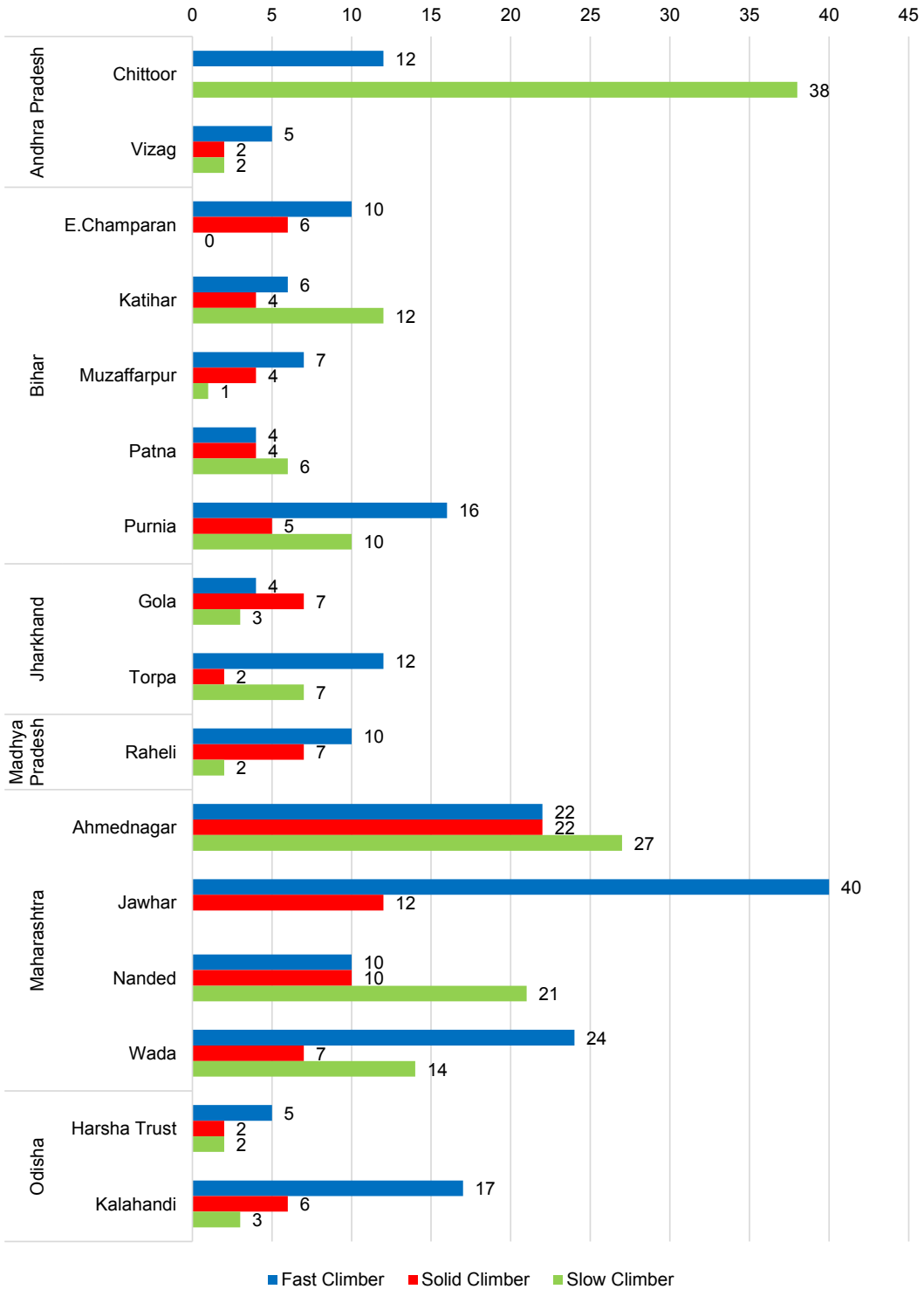
AE Category	Andhra Pradesh		Bihar		Jharkhand		Madhya Pradesh		Maharashtra		Odisha		Total
Fast	17	29%	43	45%	16	46%	10	53%	96	44%	22	63%	204
Solid	2	3%	23	24%	9	26%	7	37%	51	24%	8	23%	100
Slow	40	68%	29	31%	10	29%	2	11%	70	32%	5	14%	156
Total	59		95		35		19		217		35		460

Based on the performance group analysis, a sample of 132 AEs was selected. Using stratified random sampling techniques, equal number of AEs were randomly selected across the three performance categories, that is, across Slow Climbers, Solid Climbers and Fast Climbers. To ensure a large coverage, AEs from different categories were selected from different project locations.

The list of project locations is mentioned below:

1. Ahmednagar
2. Chittoor
3. E.Champaran
4. Patna
5. Purnia
6. Muzaffarpur
7. Katihar
8. Khunti
9. Ramgarh
10. Sagar
11. Jawhar
12. Nanded
13. Wada
14. Kalahandi
15. Visakhapatnam

Fig 4: Statewise distribution of AEs across performance groups and project locations



4.2 Part 2: Analysis from detailed cohort study

As per the research design 132 AEs across different performance groups were to be studied based on their project locations. A total of 120 responses were received. The distribution of responses received is given in the table below (Table 7). Of the total respondents, 7 were female (6% of total respondents) and 113 were male respondents. Given the low number of female respondents (Table 8), the analysis has been carried out without disaggregation on gender. Additionally, a separate detailed study has been conducted for Women AEs where the characteristics of a successful AE have been mapped.

Table 7: Distribution of respondents across performance groups and States

AE Category	Andhra Pradesh	Bihar	Jharkhand	Madhya Pradesh	Maharashtra	Odisha	Total
Fast	5	4	5	5	18	5	42
Slow	-	7	2	1	21	1	32
Solid	-	6	7	6	20	7	46
Total	5	17	14	12	59	13	120

Table 8: Distribution of respondents across states and gender

AE Category	Andhra Pradesh	Bihar	Jharkhand		Madhya Pradesh	Maharashtra		Odisha
	Male	Male	Female	Male	Male	Female	Male	Male
Fast	5	4	2	3	5	1	17	5
Slow	-	7	1	1	1	1	15	1
Solid	-	6	2	5	6	-	18	7
Total	5	17	5	9	12	2	50	13

1. Education

As per the AE model selection criteria, AEs should have attained a basic level of education (preferably 10th standard graduate). Given the scarcity of employment in rural areas, it is seen that some post graduates have also enrolled for entrepreneurship. It is important to note that as described in Figure 5, among the fast climbers, a majority (46%) of respondents were graduates, whereas in the solid performers a majority (41%) of the respondents were senior secondary students and second largest sub-group (29%) was of graduates. One can infer that while education is crucial for success, it is not an explanatory variable for it and does necessarily ensure success. However, higher education AEs have a higher probability of success at entrepreneurship.

Fig 5: Distribution of AEs across performance groups and education attained

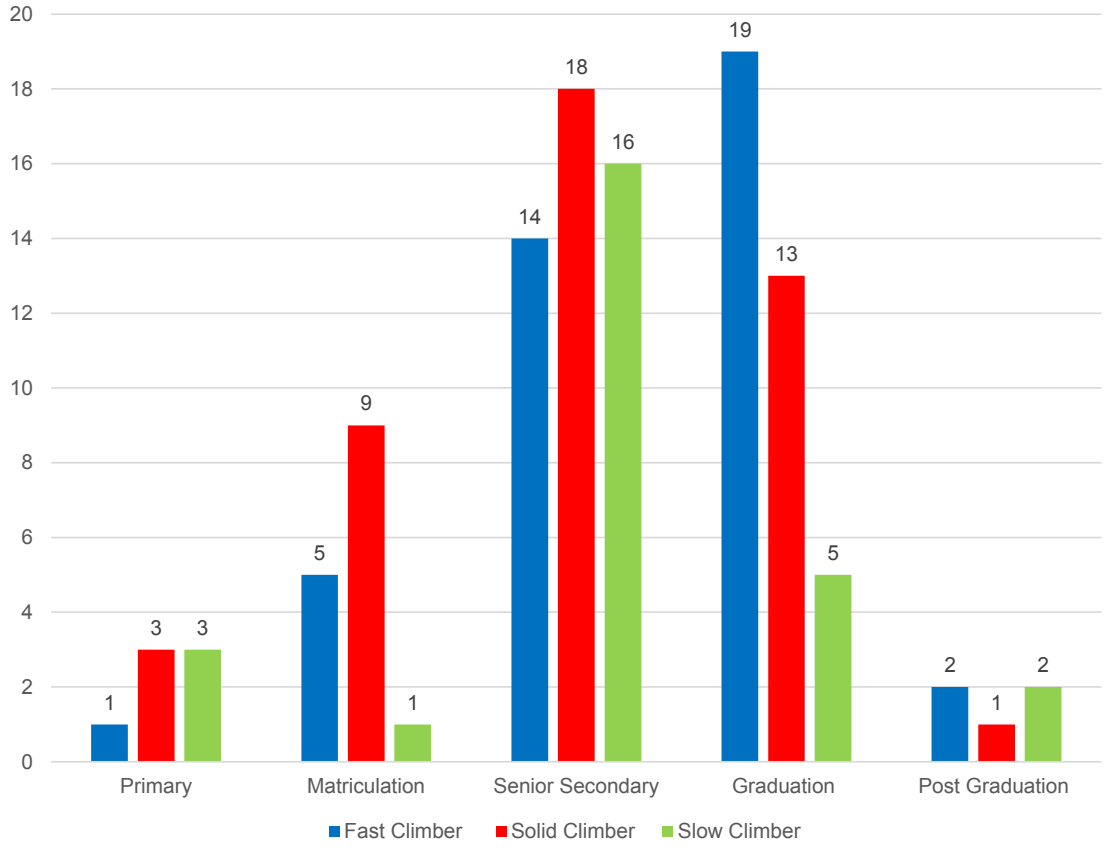


Table 9: Distribution of AEs as per Education Attained across performance groups and States

Education	Andhra Pradesh	Bihar			Jharkhand			Madhya Pradesh			Maharashtra			Odisha		
	Fast	Fast	Solid	Slow	Fast	Solid	Slow	Fast	Solid	Slow	Fast	Solid	Slow	Fast	Solid	Slow
Graduation	2	2	2	3	1	1	1	3	2	1	9	7	-	-	-	-
Primary	-	-	-	-	1	2	-	-	-	-	-	1	3	-	-	-
Matric	-	-	2	-	3	1	1	1	3		1	1	-	-	2	-
Senior-Secondary	3	2	2	4	-	2	-	1	1	-	6	9	12	2	4	-
Post-Graduation	-	-	-	-	-	1	-	-	-	-	1		1	1	-	1
Total	5	4	6	7	5	7	2	5	6	1	17	18	16	3	6	1

Case Study 1: Mangra Bengra (Torpa, Jharkhand)

Mangra Bengra is a Fast Climber AE from Torpa Block of Jharkhand. He supplies inputs to farmers and was instrumental in establishing a Solar Irrigation Plant in the village. The irrigation plant has enabled farmers to cultivate land that was otherwise left fallow.

Bengra who is a Graduate in Arts, worked at a BPO in Ranchi earning INR 3,000 a month. However,

on understanding the potential of agriculture he joined the AE Program and assisted farmers in getting renewable and cheap energy to their farms. He convinced a group of 23 farmers to collect money and invest in a solar irrigation plant. Farmers put together a total sum of INR 2, 00,000. This in itself is a commendable feat. He advises farmers on what to grow and this group of farmers was able to earn a total of over INR 14.5 Lakhs of additional income from 10.65 acres of land that had been left fallow. Bengra's income has increased to up to INR 16,000 both from his land and input supply.

"With a higher educational background, AE's capacity to train and convince farmers is significantly higher. Better educated AEs find it easier to make the best of opportunities that are provided to them. They are more curious and this results in better knowledge being transferred to farmers. Farmers also trust them easily. Their higher skills earn them recognition from other organisations also thus increasing the number of trainings they receive." Shares Gajanan Rajurkar, Project Lead, Jharkhand, Syngenta Foundation India.

2. Age

New literature now suggests that average age of a successful entrepreneur is 42, where entrepreneurs can leverage the many years of core experience. However, as per the details shown in the table below (Figure 6), it can be seen that Fast Climbers were dominated by people in the age group of 25 – 30.

It is worth noting that entrepreneurship in agriculture requires a behavioral change as it is rooted in market-led decision making and extension, all of which is new to smallholders. This requires a fresh approach and ideas in agriculture. Openness and Extraversion are negatively associated with age[2], it can be inferred that this adoption is challenging. Hence, for first time smallholder agri-entrepreneurs, a lower age bracket is seen to be more suitable for success.

While more number of AEs in the higher age brackets exhibit average performance, it is evident that AEs under the age of 25 are less likely to be successful.

[2] *https://www.ncbi.nlm.nih.gov/pubmed/18808245/*

Fig 6: Total Number of AEs across different Age-Groups

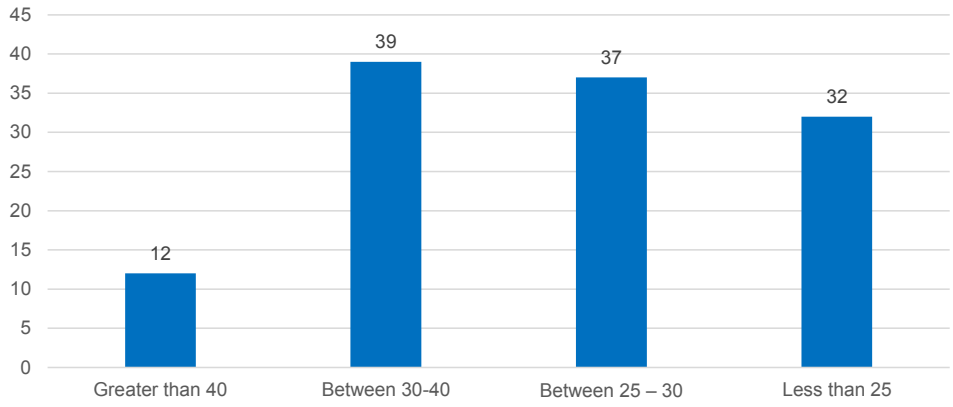
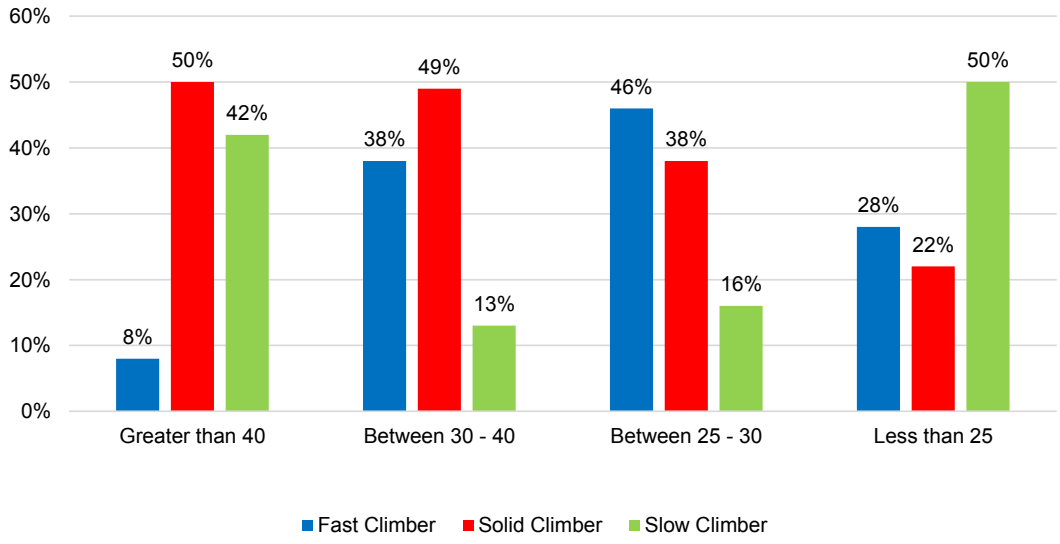


Fig 7: Distribution of AEs across performance and age groups



"For an AE in the age group of 25-30, experience from other avenues is just enough and aspirations are high. While experience of AEs above 30 is strong, however, aspirations are seen to be lower as they have tasted more failure for a longer time period. At our Pune center we encourage candidates who are younger than 25 to seek other opportunities as well and then come back to us after 2-3 years of experience. This exposure brings about maturity. AEs between the ages of 25-30 are open to new ideas and see exponential rise in performance." – Ravindra Katre, Program Lead, Skill Upgradation of Rural Youth in Agriculture, Syngenta Foundation India

Fig 8: AE distribution across age and State

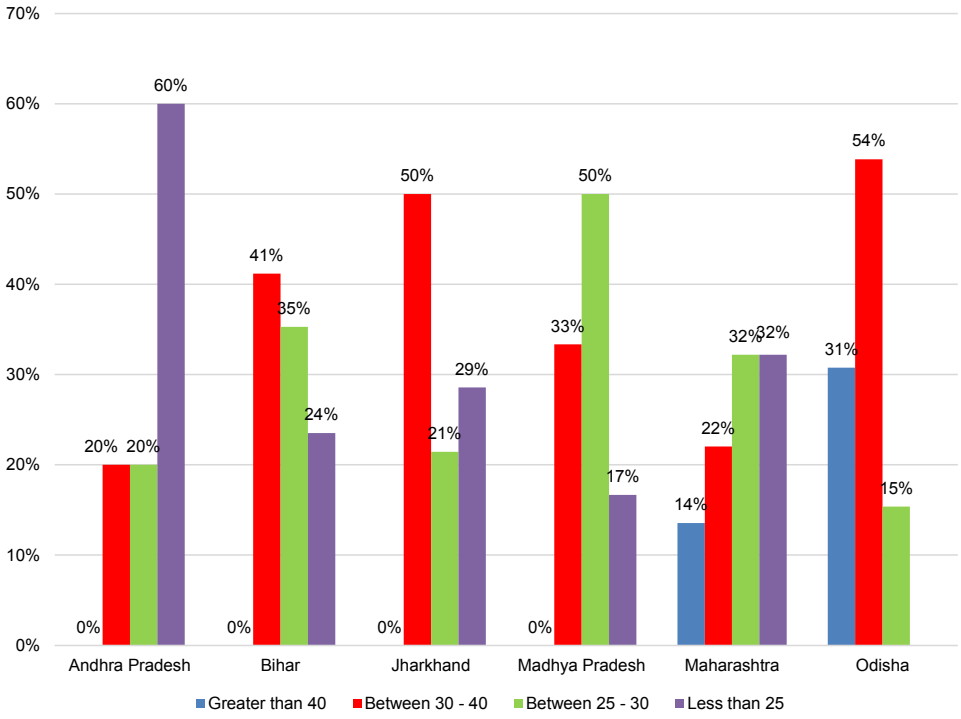


Table 10: Distribution of AEs across performance group and project locations

States	Categories	Greater than 40	Between 30 - 40	Between 25 - 30	Less than 25
Andhra Pradesh	Total		3%	3%	9%
	Fast Climber		3%	3%	9%
Bihar	Total		18%	16%	13%
	Fast Climber		8%		3%
	Solid Climber		5%	11%	
	Slow Climber		5%	5%	9%
Jharkhand	Total		18%	8%	13%
	Fast Climber		5%	3%	6%
	Solid Climber		10%	5%	3%
	Slow Climber		3%		3%

States	Categories	Greater than 40	Between 30 - 40	Between 25 - 30	Less than 25
Madhya Pradesh	Total		10%	16%	6%
	Fast Climber		3%	8%	3%
	Solid Climber		8%	5%	3%
	Slow Climber			3%	
Maharashtra	Total	67%	33%	51%	59%
	Fast Climber	8%	13%	27%	6%
	Solid Climber	25%	15%	16%	16%
	Slow Climber	33%	5%	8%	38%
Odisha	Total	33%	18%	5%	
	Fast Climber		8%	5%	
	Solid Climber	25%	10%		
	Slow Climber	8%			

It is also seen (Table 10) that AEs in less than 25 age bracket have performed well in Jharkhand, Andhra Pradesh and Madhya Pradesh. It is in Maharashtra where candidates under the age of 25 are not faring well in business. It can be seen that rural unemployment in the above mentioned three states is 7.1, 3.6 and 3.6 respectively[3]. This is higher than unemployment in Maharashtra (3.3). Thus, while it can be inferred that due to fewer opportunities available, candidates who are lesser than 25 years of age are also likely to perform well in areas with higher unemployment rates ,the inference will require further probes.

The relationship of an AE's low age and performance thus can be dependent on the socio-economic factors in a geography hence must be kept as flexible.

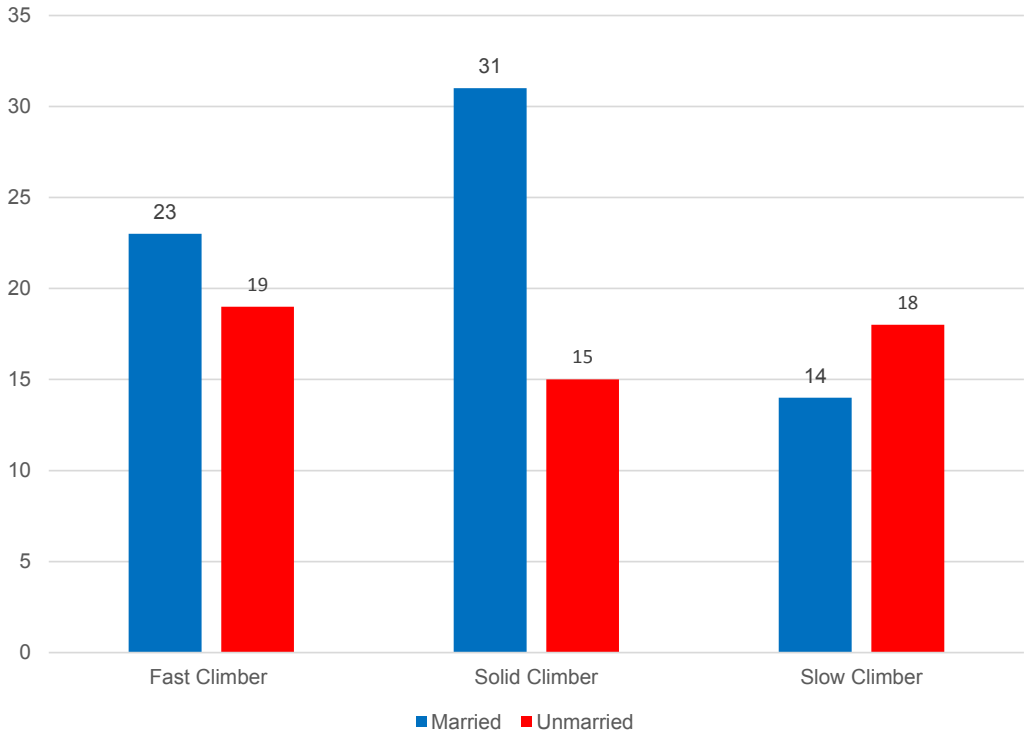
3. Marital Status

In a study conducted by International Journal of Managerial Studies and Research[4], findings revealed that the entrepreneur's entrepreneurial attitudes are strongly influenced by their age, income, marital status and type of ownership. The study concludes that an Entrepreneur's marital status is a determining factor in access to finance. It is also seen that married status has an influence on the financial success of small business owners, because they exhibits respect, higher, social status, and important networking capabilities representative of social capital. Figure 9 given below gives a peak into this nuance.

[3] *https://en.wikipedia.org/wiki/List_of_states_and_union_territories_of_India_by_unemployment_rate*

[4] *https://www.arcjournals.org/pdfs/ijmsr/v4-i10/8.pdf*

Figure 9: Distribution of AEs across perfromance groups and marital status



Since it is seen that Marital Status is a factor for Entrepreneurship Characteristics, understanding this further is of value. On assessing a relationship between the Occupation of a Spouse and performance group it was found (Table 11) of the total married respondents (56%), It is seen that 46% of the spouses are unemployed. However, there is seen to be a substantive interdependence of positive business outcomes if the spouse is employed. Intra-household wealth transfer, risk diversification, role model effect and positive knowledge transfers are seen to add to the performance of an entrepreneur. [5]

It is seen in the table below that a large number of employed spouse are working in agriculture. While a lower percentage of Spouses in Fast Climbers (29%) are unemployed, amongst Slow and Solid Climbers this percentage ranges from 40% - 50%. It can be inferred that an employed spouse is thus beneficial for the performance of an entrepreneur.

Table 11: Distribution of spouse's occupation across performance groups

Occupation	Fast Climber	Solid Climber	Slow Climber
Agri-allied business	1	1	1
Agriculture	13	18	6
GramSathi	-	1	

[5] *https://www.forbes.com/sites/davidkwilliams/2012/08/19/the-entrepreneurial-spouse-the-vital-role-of-the-significant-other/#7a5f05bb30e6*

Occupation	Fast Climber	Solid Climber	Slow Climber
Labour and Agriculture	1	-	-
NGO	2	-	-
Non-farm business	1	1	-
SHG and Agriculture	1	-	-
SHG and VO	-	1	-
Unemployed	8	15	8
Grand total	27	37	15

4. Employment Status before association with the AE Program

Table 12: Distribution of AEs across performance groups, age groups and employment status

Employment Status	Greater than 40			Between 30 - 40			Between 25 - 30			Less than 25			Total
	Fast	Solid	Slow	Fast	Solid	Slow	Fast	Solid	Slow	Fast	Solid	Slow	
Unemployed	0	2	0	3	6	0	8	4	3	4	3	9	42
Employed	2	4	5	12	13	5	9	10	3	5	4	7	79

Before joining the program, over 65% of the respondents reported being employed. It is to note that employment can vary across working with State Rural Livelihood Mission at a payscale of INR 1500 – 3000 a month and also running small enterprises, such as kirana stores or small scale service providers, repair shops, salons etc. It is also seen that a large part of the AEs are employed as agricultural labourers, hence incomes are small and working conditions are tough for sustenance. A Fast Climber AE between the age group of 30 – 40 is likely to have been employed, thus leveraging previous work experience.

It can be seen that amongst the average and good performers, previous employment can be seen to be a strength. Across all age groups, more number of AEs who have been previously employed exhibit better performance. However, it cannot be assessed that previously unemployed AEs are poor performers, as the numbers in the 'slow climbers' performance group do not exhibit such variance. Thus, the program design is well suited to be extended to both employed and unemployed youth, with the previously employed youth having a higher probability to success.

Case Study 2: Rahul Kumar, Muzzafarpur, Bihar

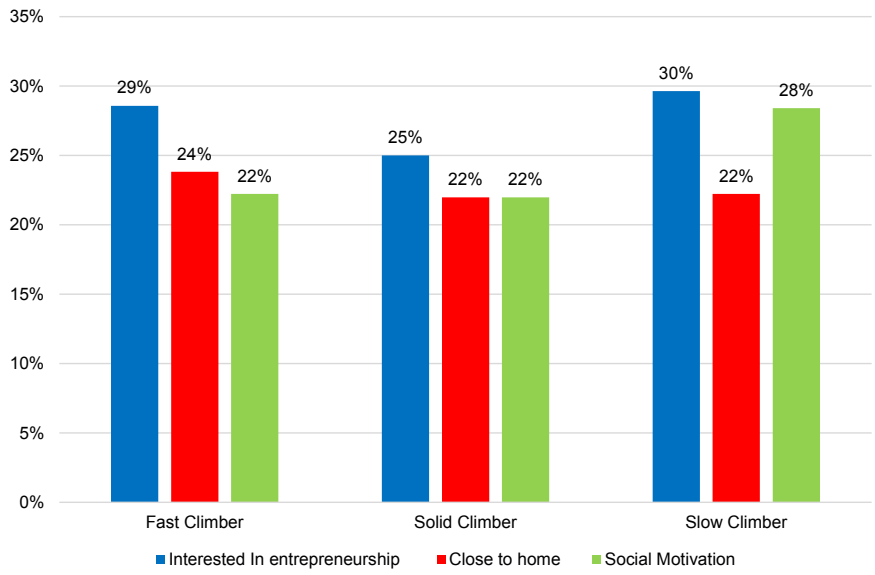
Rahul Kumar joined the Syngenta Foundation India's Agri Entrepreneur program in the February of 2018. Prior to becoming an AE, Rahul was working as a SEW (Skilled Extension Worker) since 2012 with Jeevika. Farmers in his village Adhawara did not have easy access to market, a major reason for which was the lack of transportation and lack of inputs.

As an SEW his job includes supplying market input at INR 1200-1500/month to the farmers. Jeevika nominated him along with 12 other farmers from his village for the AE program. Rahul now operates an Input Store in his village. By supplying Paddy seed to the farmers he earned around INR 25000-28000 in just 15-20 days. Rahul also started working as an agent for "Spice money"; a digital platform which links farmers' account to the wallet holder's account through Aadhar recognition.

5. Top Three Reasons for Joining the AE Program

The aim behind assessing this figure was to establish if there is a difference in reasons for joining across performance groups. This understanding can help in positioning of the program to attract the right candidate as it helps in determining the features of the program that seem to be most attractive to successful entrepreneurs and also the motivation and aspiration of AEs across performance groups.

Fig 10: Distribution of AEs across reasons to join the program



Unsurprisingly, it can be seen that the most significant reported reason for joining is a candidates' 'interest in entrepreneurship'.

It can be seen that while for the above mentioned, the distribution is largely the same, the difference in the performance group, can be seen from their difference in 'social motivation' as a reason for taking up the program. With social motivation what is implied in the study is, a reasonable effort made towards benefitting the community.

While Fast Climbers and Solid Climbers are also seen to be socially motivated, it can be seen that more number of Slow Climbers reported a social motivation. A high degree of this motivation is probably seen to hamper their progress as entrepreneurs.

An important factor is reported when we move to looking at the numbers at depth. Amidst the top three reasons reported, there is a difference between the solid climbers and slow climbers in their 'Interest in Agriculture' (Refer: Table 13). Higher number of better performing AEs reported an interest in agriculture. Hence, it is crucial that an interest in agriculture is evaluated at the time of selection.

"In a village you will find people happily staying there even if they earn INR 7,000 a month. They are driven by the need of staying with family members. Most AEs have a strong sense of being with their communities. Their objective is to stay with their family members, live a good life and work for the farmers around them. Generally you see that youth who is primarily motivated by income, leave the villages." – Yuvraj Madheshwar, Senior AE Mentor, Nanded, Maharashtra

Table 13: Distribution of AEs across performance groups and Reasons to join AE Program

Reasons for becoming an AE	Fast Climber		Solid Climber		Slow Climber	
Interested In entrepreneurship	36	29%	33	25%	24	30%
Close to home	30	24%	29	22%	18	22%
Social Motivation	28	22%	29	22%	23	28%
Could not find a job	8	6%	10	8%	2	2%
Inspired by another AE	5	4%	5	4%	2	2%
Interest in Agriculture	13	10%	13	10%	6	7%
Additional money required	6	5%	13	10%	6	7%

AE enterprise income as a proportion of total household income

It is important to note that only a few AEs have reported looking at entrepreneurship as a way of securing additional money. The primary reason seen for this is other avenues of total household income generation. Around 60% (Table 14) are able to generate more than 50% of their household income from avenues other than their enterprise. Only 18% of the AEs reported being completely dependent on the AE enterprise for their total income generation.

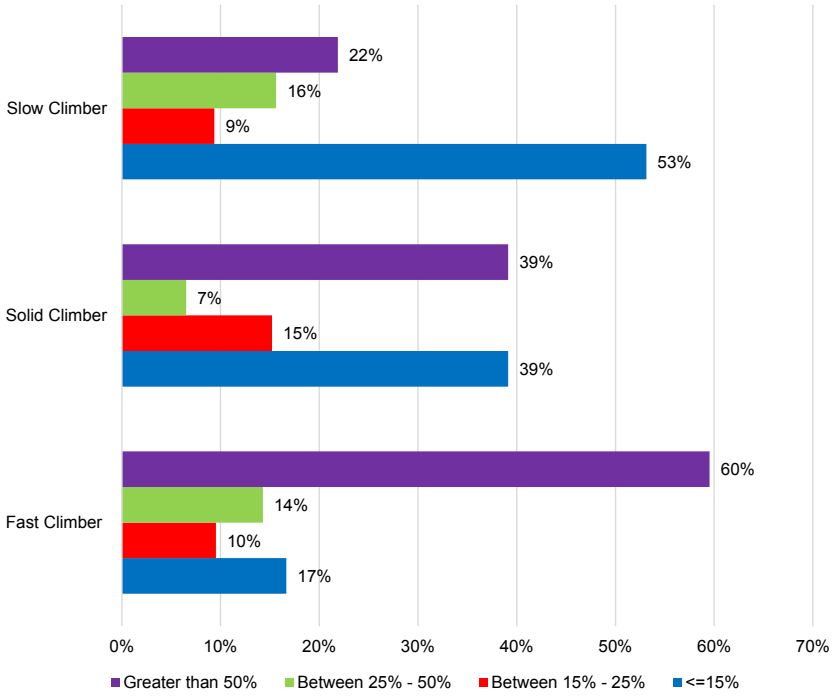
Hence entrepreneurship is primarily working as a diversification of existing income portfolio. The average annual income, without adding the AE Enterprise Income is seen to be INR 1, 20, 396 this is higher than the national average of rural annual income of INR 96,708.[6] Implying that most AEs are in a higher total household income earning bracket. AEs are selected based on investment capacity as they make all investments independently.

However, complete dependency is seen to be a driver for better performance (Figure 11).

Table 14: Distribution of AEs as per ratio of total household income to income from AE Enterprise

Income from AE Enterprise as a proportion of Annual Household Income	Number of AEs
Less than 15%	42
16% - 25%	14
25% - 50%	14
Greater than 50%	50
Total	120

Fig 11: Distribution of AEs across proportion of household income from AE enterprise and performance



[6]*https://www.thehindubusinessline.com/economy/income-of-farm-households-23-higher-than-non-farm-homes-nabard-survey/article24703915.ece*

6. Specialized Training

62% of the respondents have reported undertaking a specialized skill training as a part of the program (this is training conducted other than the residential training taken at the onset of program participation). As a part of the AE Model, there is a consistent effort to provide skill up-gradation across various fields of agriculture and agriculture-allied businesses.

It is seen that this effort has helped in regular training of a majority of respondents. A larger number of Fast climbers (76%) are seen to have undergone specialized trainings (Refer Table 15).

Table 15: Distribution of AEs across performance groups and training undergone

AE Category	No	Yes	Percentage
Fast Climber	10	32	76%
Solid Climber	15	29	66%
Slow Climber	14	13	48%

There is seems to be a linear relationship between training undergone and the performance of the AEs. It is evident from Table 15 that specialized trainings are driving performance of an AE, as the percentages of AEs reporting 'having undergone training' increases with the increase in the level of performance group.

Case Study 3: Rita Devi, Gola, Jharkhand

Rita Devi battled to feed her family from the proceeds of her quarter-acre farm and her husband's erratic wages from laboring. "There is terrible hardship and anxiety trying to support a family on INR 3,000 per month", she says.

Rita's circumstances have now altered dramatically, thanks to Syngenta Foundation India's (SFI) Agri-Entrepreneurship Program. She enrolled in the program and also chose to do an additional training in seed production. Seed Production is done by highly skilled personnel as it requires good knowledge and high precision.

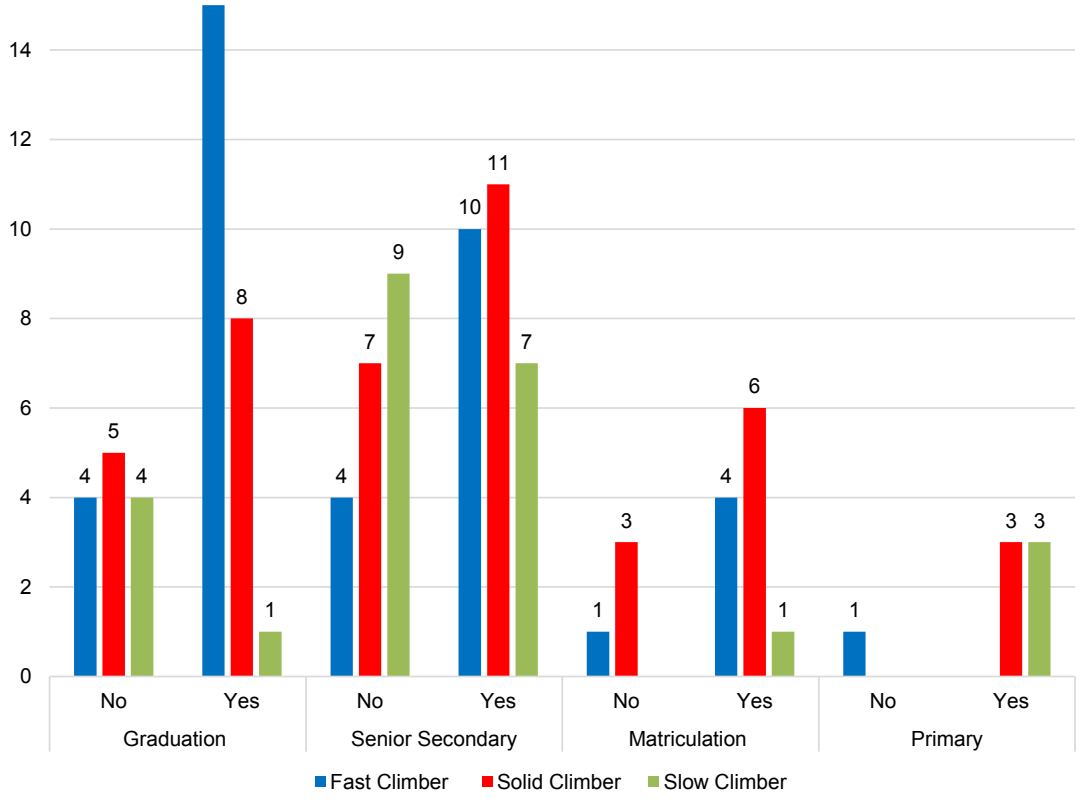
SFI partners with IDBI Bank to offer low interest credit to AEs and smallholders. With this support and guidance she raised the money to start a seed production unit. She earned INR 160,000 in her first season. A further INR 20,000 came from cultivating vegetables.

Neighbouring farmers noticed her change in fortunes. Rita's farm is now a local 'Center of excellence' where she provides high quality advisory to farmers. Her farm is also a venue for educational visits by farmers, NGOs and other organisations eager to learn from her experience.

Existing skill-level and training

In understanding the relationship between existing skill level and further skill up-gradation a unique phenomenon is clear. Higher educated AEs are likely to benefit more from the Skill Based trainings (Figure 12) thus resulting in not only leveraging from an existing higher skill level but further upgradation of skill for better performance.

Figure 12: Distribution of AEs across training Undertaken and Performance groups



Type of specialized training by project location and performance groups

Table 16 given below illustrates that more AEs in the Fast Climber performance groups across all states have taken different types of trainings.

Table 16: Types of Training undertaken by AEs across performance groups and Project Locations

AE Category	A.P	Bihar	Jharkhand	Madhya Pradesh	Mahara-shtra	Odisha	Grand Total
Fast Climber	5	1	3	5	15	3	32
Agronomy	2	-	2	-	10	2	16
Business Planning	1	-	-	-	2	-	3

AE Category	A.P	Bihar	Jharkhand	Madhya Pradesh	Mahara-shtra	Odisha	Grand Total
Digital Financial Services	1	1	-	-		-	2
Entrepreneurship	-	-	-	-	-	1	1
Irrigation	1	-	-	-	-	-	1
Nursery	-	-	1		1	-	2
Poultry	-	-	-	-	1	-	1
Soil Testing	-	-	-	5	-	-	5
Solid Climber		1	5	6	11	6	29
Agronomy	-	1	4	-	9	4	18
Business Planning	-	-	-	-	1	-	1
Horticulture	-	-	-	-		1	1
Marketing, Agronomy	-	-	-	-	1	-	1
Nursery	-	-	1	-	-	-	1
Poultry	-	-	-	-	-	1	1
Soil Testing	-	-	-	6	-	-	6
Slow Climber		1	1	1	9	1	13
Agronomy	-		1	-	8	1	10
Goatery	-	-	-	-	1	-	1
Irrigation	-	1	-		-	-	1
Poultry	-	-	-	1	-	-	1
Grand Total	5	3	9	12	35	10	74

It is critical that an emphasis needs to be laid on up-gradation of skill of AEs. It is seen that lower level of existing skill might be an impediment for AEs to use the knowledge appropriately. Thus, unique methodologies (more hands-on exposure visits) will have to be devised for AEs across all skill levels to be able to perform well.

7. AEs as solution providers

Advisory is a critical aspect of the AE Model. All AEs are mandated to register farmers after the completion of their training. The model prescribes that each AE should work with 150 – 200 farmers and AEs are advised to train farmers at a regular intervals, thus differentiating themselves from

other retailers and also for sharing the right practices on-ground. The study further probes into the frequency and regularity of trainings being conducted across performance groups (Table 15). . This is also seen in relation with the performance group to assess if AEs in a lower performing group are not being approached often by farmers.

Table 17: Distribution of AEs across performance groups and frequency of trainings conducted

AE Category	Frequency of Farmer Trainings conducted by AEs			
	Twice a month	Once a month	On Demand	Only Once
Fast Climber	61%	3%	32%	5%
Solid Climber	38%	14%	49%	0%
Slow Climber	24%	14%	62%	0%

In Table 17, Number of times farmer training is conducted by AEs across performance groups is seen in relation to AE's being seen as a solution provider (farmers reach out to me for solutions) or not being seen as a service provider (farmers do not reach out me for solutions).

It can be seen that a high number of farmers are reaching out to AEs for solutions. Given the low access to information on new technology[7] AEs across all performance groups are being looked at as solution providers, with AEs in the higher performing groups reporting higher figures.

95% of Fast Climbers, 82% in Solid Climbers and 71% of Slow Climbers are seen as solution providers.

Table 18: Frequency of farmer training conducted by AEs across performance groups and approachability

Frequency of Trainings conducted by AEs	Fast Climber				Solid Climber			Slow Climber		
	Twice in a month	Once in a month	On demand	Only once	Twice in a month	Once in a month	On demand	Twice in a month	Once in a month	On demand
Farmers do not reach out to me for solutions			6%				19%		5%	24%
Farmers reach out to me for solutions	62%	3%	24%	5%	38%	14%	30%	23%	10%	38%

8. Seed Money and Investment Pattern

AEs as per project location are given an initiation fund of INR 30,000 to kick-start their enterprises. While this is not a norm and is dependent on various parameters, the importance of seed money can be seen in Figure 13. A majority of AEs who received the seed money are now Fast Climbers. However, this is not to imply that seed money is necessary for success as 57% of the Fast Climbers did not receive the seed money and have yet performed well.

[7] *http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/7280/filename/7281.pdf*

Fig 13: Percentage of AEs across performance groups as per recepit of seed money

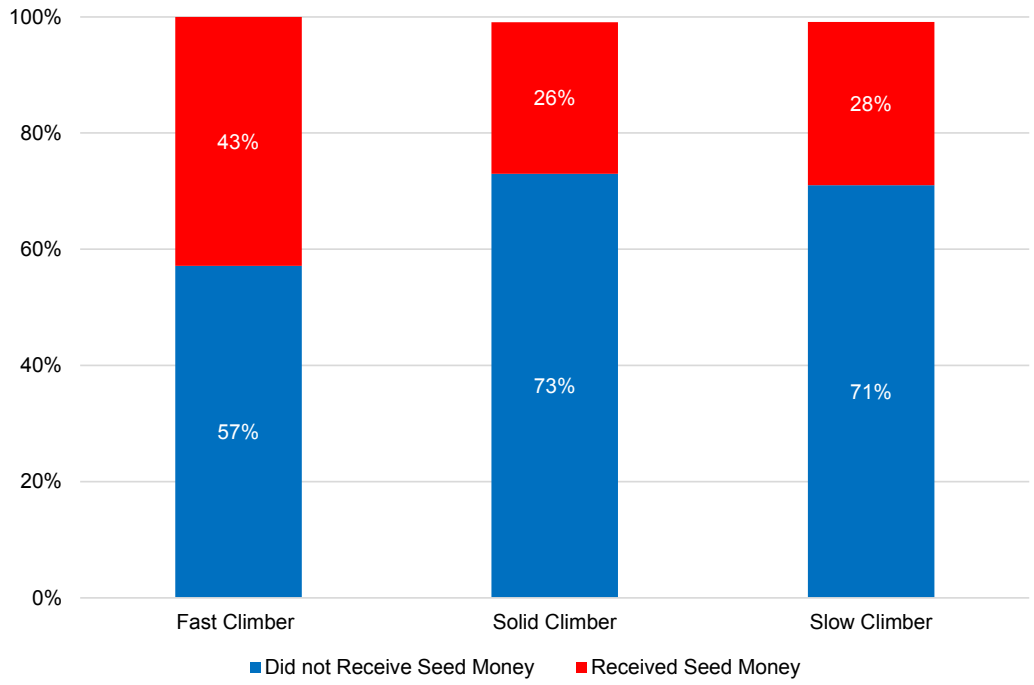


Table 19: Usage pattern of seed money across performance groups

Seed Money Usage	Fast Climber	Solid Climber	Slow Climber
Purchasing Raw Material	72%	58%	44%
Purchasing Equipment	28%	42%	56%

Case Study 4: Nirgosh Mandre, Ahmednagar, Maharashtra

Nirgosh Kailesh Mandre always dreamt of starting an enterprise in his village. After completing his education when Nirgosh returned home, he was met by various financial challenges. Being marginal onion farmers, Nirgosh's family faced tremendous risk from erratic market prices of the crop.

Nirgosh worked in the quality department of a refrigerator company and had to put in 12 hours of work every day for INR 12,000 monthly. This led to a lot of physical and mental stress. On coming home for a festival, Nirgosh learnt about the AE Program.

He promptly interviewed for the program and joined the residential training. After the training

he started helping farmers and advising them with right agronomy practices. These had a positive impact on their income resulting in the foundation of a trusted relationship.

Given the paucity of capital, he started very small and started his store by stocking only 5 packets of each product. Having earned the trust of over 100 farmers, Nirgosh could grow his business quickly by reinvesting a large portion of what he earned. Within a year his turnover has increased to 7 – 8 lakhs.

Nirgosh further diversified his business and set up a Dal Mill with the guidance of SFI's on-ground team. He procures the produce at fair prices and this has made his mill beat the competition in the village.

"There is always a long queue at his mill. Everybody wants to sell their produce here because of his excellent service. If you come during peak season, you will always find farmers here," says a beneficiary farmer.

With both the businesses now running successfully, Nirgosh's total turnover is of INR 10, 00,000 – 12, 00,000. This is a three times jump in his family income.

"I visit atleast 20 farmers every week and travel as far as 15 kms to meet them. Their progress is essential for the success of my business and my community," says Nirgosh.

It is important to note that a higher percentage of Fast Climbers use the seed money as an investment in Raw Material as opposed to the creation of fixed assets. It can be referred that revenue in the first months of enterprise initiation goes a longer way in the sustainability of business. Seed money which is either given as a grant or on zero interest rates is also crucial given low number of off-takers of formal loan (18% of total).

Loans taken by AEs as first time entrepreneurs from banks fall under the Mudra scheme, however it is seen that increasingly the disbursements of these loans has fallen below target. Across the country there has been a rise in NPAs under the category of these loans. With the RBI releasing a caution note for loans under the Mudra Scheme the disbursement has significantly come down. [8]

As low credit access thwarts a micro-entrepreneurs ability to invest in their business, certain unique products to ease the process of banks providing loans to first time entrepreneurs can be created. USAID suggests that Investors in India are comfortable with a first loss structure: a financial mechanism that is used to repay any defaults before our credit guarantee is utilized thus reducing the overall credit risk exposure. [9]

Table 20: Distribution of Loan Off-takers based on performance groups

Loan	Fast Climber	Solid Climber	Slow Climber
I have not taken a formal loan	74%	78%	75%
I have taken a formal loan	26%	15%	6%

[8] *https://www.thehindubusinessline.com/money-and-banking/mudra-loans-miss-target-by-27000-crore-in-fy19/article26924496.ece*

[9] *https://www.usaid.gov/india/program-updates/apr-2019-changing-landscape-development-finance-india*

9. Service Portfolio

As part of the AE Model, AEs are required to provide a bouquet of services to marginal farmers. There are a total of 12 key services that AEs provide across all locations. Figure 14 given below exhibits details of the percentage of AEs providing various services. It is seen that Agri-Input services are provided by 36% of the AEs across all performance groups. These maybe supplemented with other services such as Market Linkage (16%) and Nursery Management (15%)

Nursery Management is an important service to help address the cyclicity of agri-businesses and also provide high quality products to farmers ensuring better yield. It is also a low cost business with high ROI.

Fig 14: Distribution of different services being provided

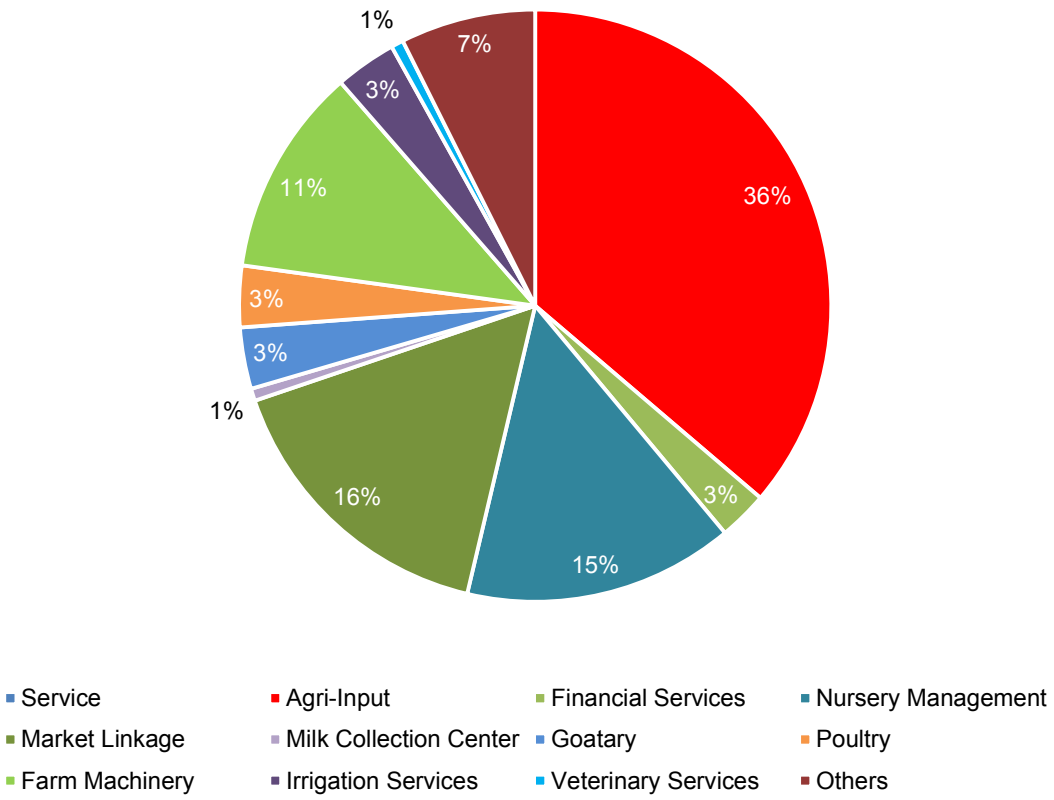


Table 21: Number of services provided by respondents in various performance groups

Number of Services	Fast Climber	Solid Climber	Slow Climber
1 Service	30	32	30
2 Services	7	6	1
Greater than 2 Services	5	8	1

In Table 21 given above, the distribution across performance groups and number of services being provided, it can be seen that largely the pattern remains similar across performance group. A majority of AEs provide 1 service (Agri-Input in majority). While more number of Fast Climbers provide more than 1 service, however, it cannot be inferred that more number of services is a necessary explanatory variable of performance as the number of AEs providing 1 service is more or less similar across categories.

The table given below (Table 22) is a disaggregated representation of types of services provided across States.

Table 22: Services being provided across states based on responses received

State	AI	FS	NM	ML	MC	Go	Po	IS	VS	Others
Andhra Pradesh	5									
Bihar		1	1	1						
Jharkhand	12	3	7	8		4	8	4		
Madhya Pradesh			11	12	1					
Maharashtra	24		1	3		1	9	1		9
Odisha	13		2						1	2

Table 23: Abbreviations for Services used in Table 20

Service	Abbreviation
Agri-Input	AI
Financial Services	FS
Nursery Management	NM
Market Linkage	ML
Milk Collection Center	MC
Goatary	Go
Poultry	Po
Farm Machinery	FM
Irrigation Services	IS
Veterinary Services	VS

Agri Input services are the most remunerative for an AE to provide. A high number of AEs providing Agri-Input Services is also reflected in the kind of mentorship support that is being provided as can be seen in Table 24 given below.

Low levels of mentorship being provided in Market Linkage is probably resulting in lower number of AEs (18%) providing market linkage as a service. Market Linkage is a key service that must be added to the portfolio of AEs as it is a large service gap faced by farmers.

Twelve years ago, the National Commission on Farmers said that a regulated market should be available to farmers within a radius of 5 km (corresponding market area of about 80 sq km). The committee noted a very significant variation in the density of regulated markets across the country that ranged from 116 sq km in Punjab to 11,215 sq km in Meghalaya. In fact, the all-India average area served by a regulated market is 496 sq km as against 5 km radius as outlined above[10].

In such a context a cadre of AE Mentors/consultants must be established to help more AEs take up Market Linkage activities as they are both remunerative and bridge a strong need for farmers.

Table 24: Mentorship received across services and performance groups

Services	Fast Climber	Solid Climber	Slow Climber
Agri Input	57%	67%	45%
Financial Services	4%	4%	0%
Nursery Management	6%	4%	3%
Market Linkage	14%	9%	14%
Others	18%	16%	38%

10. Business Operationalization

Table 25: Time to Market across performance groups

Time to Market	Fast Climber	Solid Climber	Slow Climber
Did not achieve a turnover in the first three months	14%	15%	31%
Achieved a turn-over in the first three months	76%	75%	53%

Time to market is a critical aspect of good performance. Opening a store early ensures good performance progressively in the first three months, however, after a cliff point, it is seen that more time spent without an opened store will result in a fall of probability for good-business performance.

A focused attempt is made to ensure that AEs are able to start their operations within the three months after a healthy study of their market area for potential and type of enterprises. Business Planning is a critical aspect in the first months of business operations. Table 25 represents that a majority of good performing AEs (76%) were able to operationalize their business in the first three months.

[10] *https://www.downtoearth.org.in/news/agriculture/6-reasons-why-india-has-failed-to-solve-the-riddle-of-agriculture-marketing-62712*

Time-to-Market must be a focus for scale-up keeping in mind the importance of exhaustive business planning along with compliances.

Challenges faced in operations

To ascertain challenges a Likert scale for 8 challenges was provided to AEs. A top 3 box analysis was carried out on the responses to understand the most significant challenges that are faced on-ground by AEs.

While Capital remains a significant challenge reported by AEs (also mentioned in point 8 about seed money and investment pattern) across all performance groups, farmers being unresponsive is seen to be another critical challenge for Solid Climber. It is seen that a higher number of Fast Climber AEs conducted more frequent farmer trainings A higher number of Fast Climbers are also seen as solution providers and are approached by farmers. Solid Climbers and Slow Climbers should conduct regular farmer meetings. Knowledge is also seen as a challenge for Slow Climbers. Hence, AEs should be provided with regular refresher trainings which should be then provided to the farmers by the AEs at a regular interval. e).

Slow Climbers not taking part in specialized trainings and fewer farmers reached out to slow climbers for solutions could suggest a gap in knowledge being an impediment for increasing farmer engagement affecting performance.

Table 26: Most Significant challenges reported by AEs across Fast Climbers

Challenges (Top3 Box)	Fast Climber
Capital	27%
Market Linkage	17%
Seed Licenses	14%
Competition	14%
Unresponsive Farmers	11%
Lack of Opportunity	6%
Household Responsibility	6%
Knowledge	5%

Table 27: Most Significant challenges reported by AEs across Solid Climbers

Challenges (Top3 Box)	Solid Climber
Capital	28%
Unresponsive Farmers	16%
Competition	12%

Challenges (Top3 Box)	Solid Climber
Licenses	11%
Linkage	11%
Lack of Opportunity	11%
Knowledge	5%
Household Responsibility	5%

Table 28: Most Significant challenges reported by AEs across Slow Climbers

Challenges (Top3 Box)	Slow Climber
Capital	40%
Knowledge	18%
Unresponsive Farmers	10%
Licenses	8%
Linkage	8%
Lack of Opportunity	8%
Competition	5%
Household Responsibility	5%

5

ANNEXURE

5. Annexure

Maharashtra

Agriculture is the mainstay of the state of Maharashtra. Maharashtra's economy is predominantly agrarian. It is the main occupation of the people. Both food crops and cash crops are grown in the state. Principal crops include rice, jowar, bajra, wheat, pulses, turmeric, onions, cotton, sugarcane and several oil seeds including groundnut, sunflower and soybean.

The state has large areas, under fruit cultivation of which mangoes, bananas, grapes, and oranges are the main fruits. However, the state agriculture is predominantly rain-fed agriculture (only 18% of Gross Cropped Area is irrigated) and scattered rainfall across regions with one-third area receiving scanty rainfall – State has 24% of drought-prone area of the country.

Phase 1 and 2 of the study included AEs from Ahmednagar, Beed, Palgarh, Nashik and Nanded Districts from Maharashtra.

Image 2: Maharashtra Map (Districts covered in the study, Ahmednagar, Beed, Palgarh, Nashik and Nanded)

Odisha

Odisha is an agrarian state with Agriculture and Animal Husbandry sector contributing 21.11% to Net State Domestic Product (NSDP) in 2007-08 (Q) at 1999-2000 prices and providing employment directly or indirectly to 70% of total work force as per 2001 Census. The share of Gross State Domestic Product (GSDP) from Agriculture and Animal Husbandry during 2007-08(Q) at constant price (1999-2000) is 19.51%. Evidently, Agriculture plays a critical role in the economy of the state and livelihood of majority of its populace.

The State has cultivated area of 61.80 lakh ha out of which 29.14 lakh ha. is high land, 17.55 lakh ha medium land and 15.11 lakh ha low land. The coverage under Paddy during Kharif is about 41.24 lakh & during Rabi 3.31 lakh ha .

In the present agricultural scenario, the marginal farmers, constituting more than 50 % of the farmers, either own or rent a piece of land for cultivation. Because of the endemic poverty, they generally cultivate their crops with little inputs and hence crop production is low. In this backdrop, besides enhancing their capacity, increase in productivity per unit land area and cropping intensity hold the key to agricultural development.

Across the two phases of the study, three Districts of Odisha, Kalahandi Nabrangpura and Rayagada were a part of the study.

Image 3: Odisha Map (Districts covered in the study;Kalahandi, Nabrangpura and Rayagada)

Andhra Pradesh

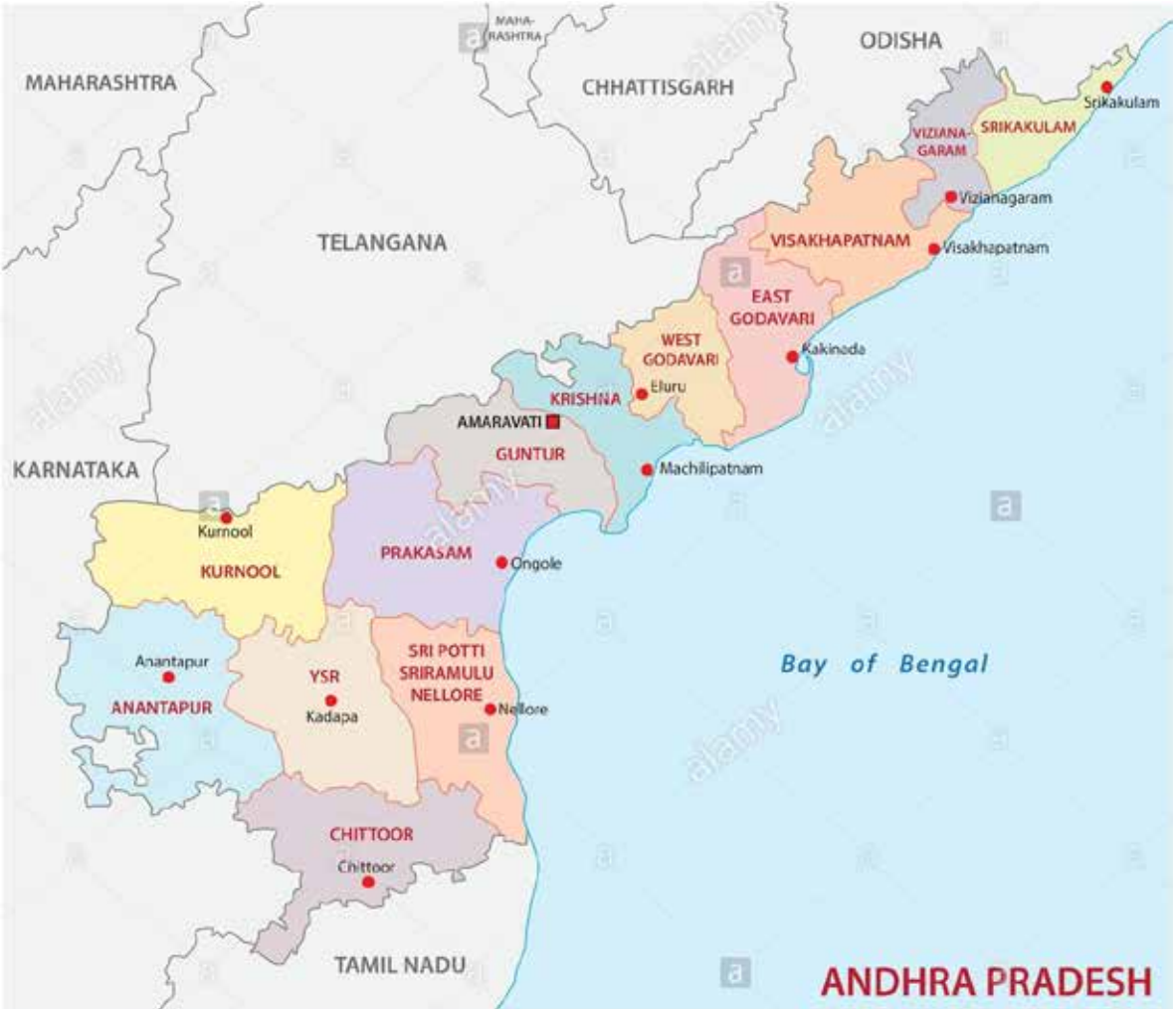
Agriculture has been the chief source of income and main occupation for the state with 60% of population engaged in agriculture and related activities. Rice is the major food crop and staple food of the state. Other important crops are sugarcane, cotton, mango, tobacco, Maize, pulses etc. Four important rivers of India, the Godavari, Krishna, Penna, and Tungabhadra flow through the state, providing irrigation. Recently, crops used for vegetable oil production such as sunflower and peanuts have gained favour. There are many multi-state irrigation projects in development, including Godavari River Basin Irrigation Projects and Nagarjuna Sagar Dam.

Andhra Pradesh was among the very few states in the country which went in for the Green Revolution in rice cultivation in the 1970s. Agricultural income in the state was 54.599 billion (US$790 million) at constant prices (2012–13).

However, Continuous dependence on old varieties has pushed the farmers into a tough situation of stagnant yields and increasing cost, ultimately cutting into their income.

Three districts were covered under both the phases of the study; Chittoor, Anananthapuramu and Visakhapatnam.

Image 4: Andhra Pradesh Map (Districts covered in the study; Ananthapuramu, Chittoor and Visakhapatnam)



Madhya Pradesh

Madhya Pradesh, with its large area, enjoys diverse climatic and soil conditions suitable for a broad range of agricultural products. Agriculture sector in Madhya Pradesh forms the backbone of its economy. It contributes almost one-fourth of the Gross State Domestic Product (GSDP) and is the main source of employment for over 65 percent of the population and constitutes about 60- 75 percent of the rural income.

Agricultural GDP, over eight years to 2015, increased, on average, 10.9% per annum, the highest in India and higher than the national average of 4.3%.Despite the growth, the state has been plagued by farmers' protests. The trigger for the unrest was bumper crops in 2017, which led to a 30-50% drop in prices of cash crops like onion, green peas, potato and garlic that farmers were encouraged to cultivate under crop diversification.

Inequality in incomes — agricultural income in MP (Rs 6,210) lagged national income (Rs 6,426) from 2002 to 2012 despite increase in farm earnings, suggesting other earnings from farm labour and non-farm earnings did not rise fast enough, Mint reported on June 16, 2017.

SFI operations in Madhya Pradesh are at a nascent stage. District Sagar was covered under the Study.

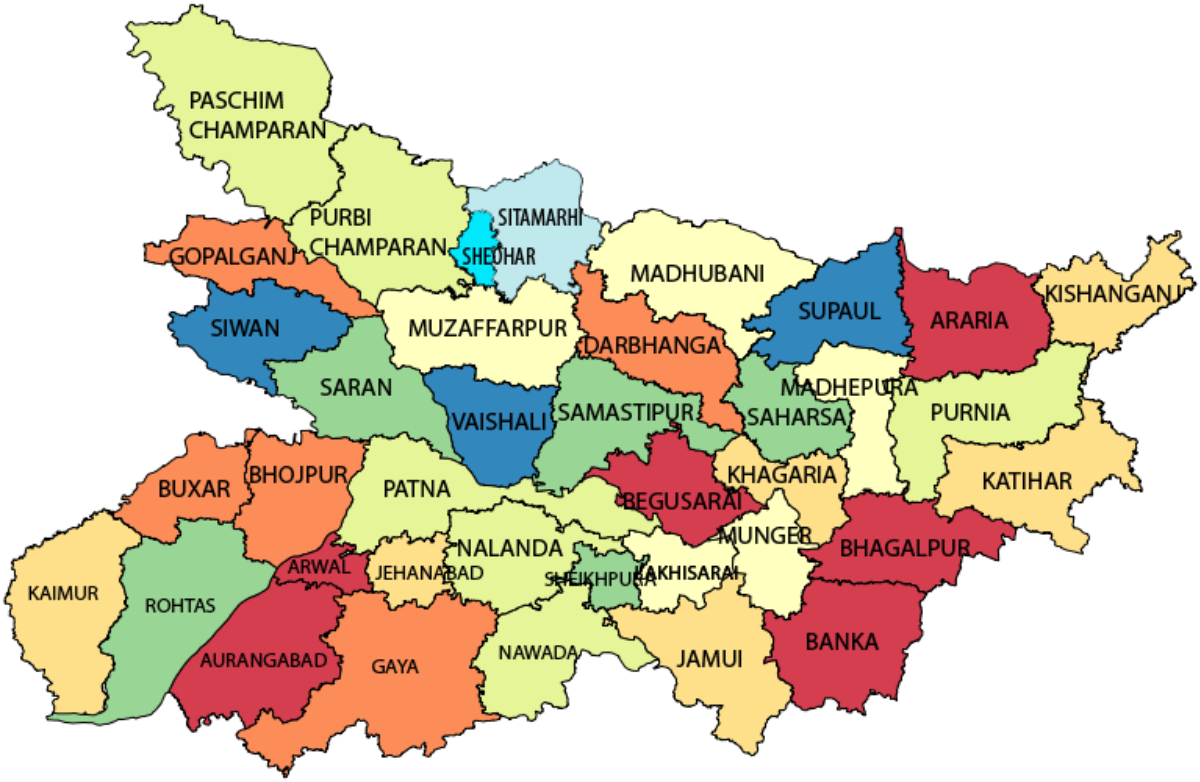
Image 5: Madhya Pradesh Map (Districts covered in the study; Sagar)

Bihar

Agriculture is the key to the overall development of the State economy. Agriculture is the backbone of Bihar's economy 77% of workforce and generating nearly 24.84% of the State Domestic Product. The percentage of population employed in agriculture production system in Bihar is estimated to 77%, which s much higher than the national average. Nearly 24.84% of GDP of the state (2011-12) has been from agriculture sector (including forestry and fishing).

Barring maize and pulses productivity of various farm produce in Bihar is much below the national average. Though the area under cultivation is shrinking, there is tremendous scope for income generation, by improving productivity.

Image 6: Bihar Map (Districts covered in the study; Patna, Muzaffarpur, E.Champaran, Katihar and Purnia)



The Agriculture production can only be increased through enhanced cropping intensity, change in cropping pattern, improvement in seeds of high yielding varieties, cultivation practices and with the availability of better post-harvest technology etc.

SFI is working with the State Rural Livelihood Mission in Bihar across Patna, Muzaffarpur, E.Champaran, Purnia and Katihar, all of which are covered under the study.

Jharkhand

In the field of agriculture, the Jharkhand government is doing a lot of important work in the interest of the farmers. Despite the Ranchi plateau region, the land here is suitable for agriculture. Here mainly people are dependent on rain in the form of Sichanai, but the river, the river is used. Many programs are being run by the government to promote agriculture.

Image 7: Jharkhand Map (Districts covered in the study; Khunti, Ramgarh, Ranchi and Gumla)

The lower area provides suitable conditions for paddy cultivation. Provides high altitude gardens, millet and vegetable gardens and conditions for cultivation. The forest cover of the total area of the forest is 20.99%. The main crops grown in the district are rice and pulses. Only 8.30 percent of agricultural use has irrigation facilities and major sources of irrigation are good and canal.

Despite good rainfall, the cropped area and cropping intensity are low. The level of technology adaptation is also poor leading to lower productivity. The cultivable area is estimated around 3.8 million ha but the net sown area is 2.56 million ha and only 12% of cropped area is under irrigation.

The total cultivable land in the State is 52% as compared with 55% of the country, but only 43% area of this is under net sown area compared to national average of 76%.The State as a whole suffers from several critical gaps in agriculture and allied sectors though a number of opportunities exists to make the state self-sufficient in agricultural production.

Districts covered under the study from Jharkhand are, Khunti, Ranchi, Ramgarh and Gumla.

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