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Agro-enterprise development through Self Help Groups: Empirical insights from Sikkim

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ABSTRACT

In this paper we attempt to provide some empirical evidences of how adoption of agro-enterprises can be stimulated using finance and livelihood training via collective institutions like Self-Help Groups. Using a representative sample of 416 women SHG members drawn from all four districts of the north-eastern state of Sikkim, we find that the livelihood training workshops offered by the Self-Help Group Promoting Institutions (SHPIs) played a critical role in enabling the women members venture into agro-based microenterprises. In an emerging economic environment regulated by globalization and market integration, promotion of rural agro-enterprises can potentially address the problems of disguised unemployment in agriculture and lead to better price realization of agricultural produce.

1. Introduction

Agriculture in the north-eastern state of Sikkim serves as a key source of rural employment by engaging approximately 41 percent of the labour force (GOI, 2011). Terrace cultivation, season centric production cycle, dependence on monsoons, use of crude agricultural implements, and mixed farming practices are some of the defining features of the state's agriculture. About 80 percent of the operational holdings are small and marginal (Agricultural Census, 2016). As a result, for majority of rural agricultural households the income generating potential out of agriculture is limited. Moreover, a complete state-wide shift to organic farming in recent years, despite being a desirable initiative on grounds of ecological sustainability, has reportedly resulted in a secular decline in crop productivity, marketed surplus, and consequently agricultural incomes. Under such a backdrop promotion of agro-enterprises can be a suitable instrument to boost rural incomes and employment and serve as an engine of rural development. Agro-enterprises are business initiatives related to production of crops for food and fiber, livestock rearing, aquaculture, ranching, food processing and other varieties of farm activities. Diversities in landscape and climate as well as fertile land across the state provide a huge scope for cultivation of a variety of cereals, horticultural crops, floriculture, and livestock. In an environment of market liberalization and globalization, promotion of agro-enterprises can enable the farmers establish effective backward and forward linkages, access remunerative marketing channels, and can significantly enhance their earning potential. Lack of capital and technical knowledge, however, are often the key constraints in preventing farmers to make a move towards starting an enterprise. In this regard, the Self-Help Group (SHG) movement can provide a complementary support. Of late, the SHG movement has focussed on imparting livelihood skills to the women SHG members through several capacity building training workshops to encourage judicious utilization of borrowed funds towards sustainable income generating activities (Prasad & Choubey, 2022). Generation of sustainable livelihoods by way of enabling women SHG members venture into rural micro-enterprises is a key aspect of the government's flagship programme namely the Swarnajayanti Gram Swarojgar Yojna (SGSY), conceived over two decades ago, which was later restructured into a more holistic and broad-based programme called the National Rural Livelihoods Mission (NRLM) in the year 2011. The basic idea of NRLM is to augment the livelihood portfolio of vulnerable households through provision of both resources and skills to enhance their existing vocations as well as to improve their capabilities for venturing into newer more remunerative opportunities. Since the SHG drive is primarily

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a rural phenomenon, it is plausible that a significant share of the micro-enterprises operated by the women members are related to agriculture and allied activities. Such agro-enterprises are perceived to hold a significant potential in terms of enhancing rural livelihoods, particularly in the face of increasing globalization and market integration where production is becoming more and more regulated by market forces (World Bank, 2003). Despite its critical importance in enhancing rural incomes and eradicating poverty, the issue of SHG induced agro-enterprise development has received very little academic attention. Our paper attempts to explore the nature and pattern of agro-enterprises operated by the women SHG members in the mountainous state of Sikkim. Additionally, we also evaluate the efficacy of capacity building training programmes provided by the SHPIs in terms of supporting the women members venture into such enterprises and operating them at a viable scale.

2. Materials and Methods

Study area

Sikkim, the smallest state in India's north-eastern region, has a population of roughly 0.67 million (GOI, 2019) and a geographical spread of 7096 square kilometers. It is a landlocked mountainous state bordered by Nepal, Tibet, Bhutan, and West Bengal. The state's economy is mainly dominated by the secondary and tertiary sectors which contribute around 59.38 percent and 30.19 percent to its GSDP respectively; while the primary sector contributes a little over 10 percent (Government of Sikkim, 2020).

Sample and Data

All women members who are enrolled with an SHG for a period of at least three years in the state of Sikkim constitute our sampling frame. We found multi-stage cluster sampling to be the most suitable procedure to draw a representative sample as our target population is not uniformly distributed across the four districts of the state.
One block was chosen from each of the four districts using simple random sampling; one Gram Panchayat Unit (GPU) was then chosen randomly from each of the selected blocks, creating a group of four GPUs. Two villages from each of the selected GPUs were chosen at random, resulting in a total of eight villages. All SHGs that have been operating in these villages for at least three years were chosen as the final cluster of SHG members. Our sample constituted of women respondents who had been members of these SHGs for at least three years. This method produced a sample of 416 women SHG members from 40 SHGs operating in the selected villages. The detailed sampling scheme is shown in Fig.2. The primary survey was completed in a period of six months, from June to November, in the year 2019.

Source: Census of India (2011)

Figure 1. Administrative Map of the state of Sikkim with its four districts

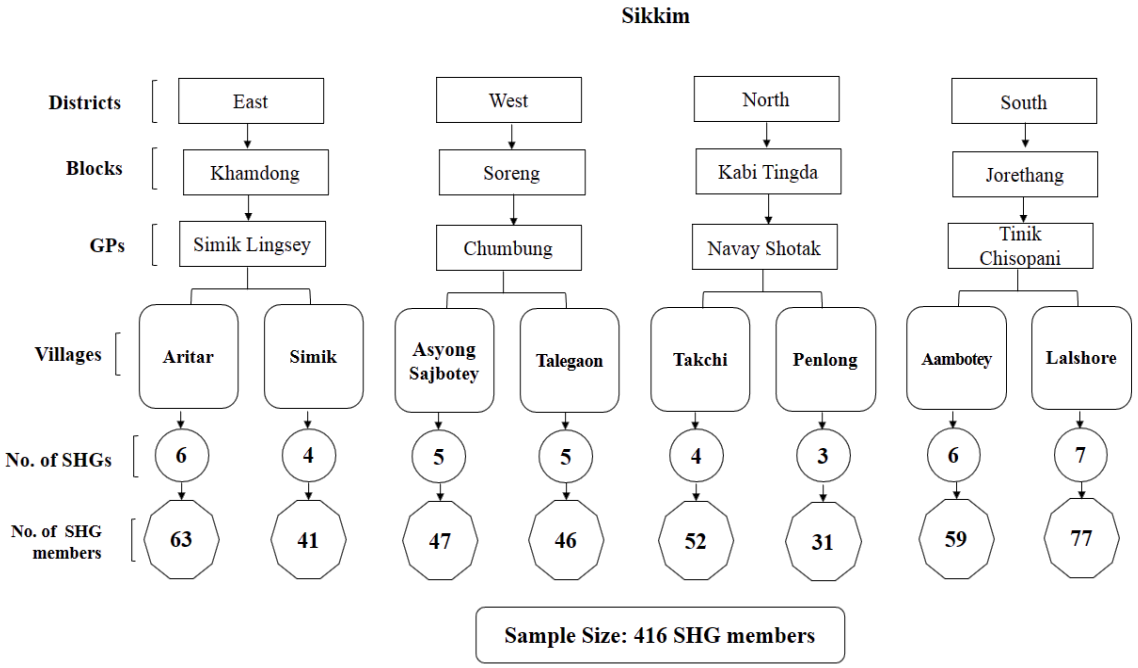


Figure 2. Sample Design

Model specifications:

As one of our objectives is to evaluate the efficacy of livelihood training programmes provided by the SHPIs, we split our sample of women SHG members into two parts— 'trained' and 'untrained.' SHG members who have attended at least one of the livelihood training programmes are categorised as 'trained members;' on the other hand, those not attending any of such programmes are classified as 'untrained members. In order to verify if there is a statistically significant difference among these two categories of members across several chosen parameters, we have used a popular statistical tool known as 'Pearson's chi-square test.' Pearson's chi-square test is a statistical tool used widely to detect the relationship between two categorical variables. Following (Field et al., 2012) it can be specified as:

$$\chi^2=\sum \frac{\left(\text{observed}_{ij}-\text{model}_{ij}\right)^2}{\text{model}_{ij}} \quad \ldots\ldots\ldots\ldots\ldots\ldots(1)$$

where, ***i*** and ***j*** correspond to the i^{th} row and j^{th} column respectively. The frequencies in the contingency table are referred to as observed data as shown in equation 1.

$$\text{model}_{ij}=E_{ij}=\frac{\text{row total}_i \times \text{column total}_j}{n} \quad \ldots\ldots\ldots\ldots(2)$$

where, ***n*** indicates the total number of observations. Row total and column total, as shown in equation 2, is the sum of frequencies row wise and column wise in the contingency table.

However, while estimating the relationship between different farming activities among trained and untrained members, we observe that in some cases the resulting contingency table has an expected frequency less than five. Hence in such cases, we have used Fisher's exact test which can be specified as:

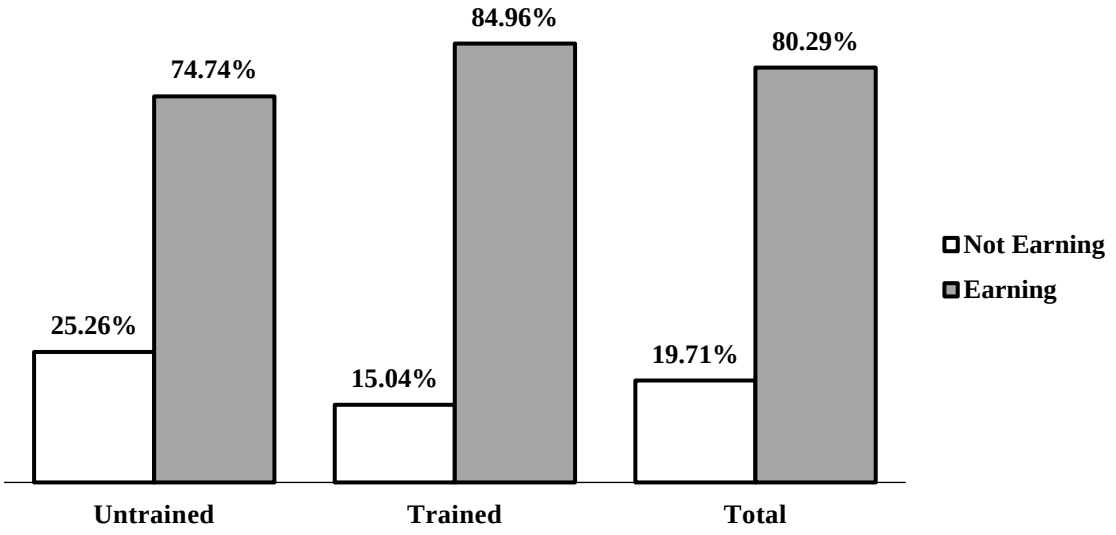
$$p=\frac{(a+b)!(c+d)!(a+c)!(b+d)!}{a!b!c!d!n!} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$$

where p *is the* p-value, **a, b, c, d** are different values in the frequency table and **n** is total number of observations.

3. Results and Discussion

Earning Status:

Fig.3 gives a glimpse of working status of sample women SHG members of Sikkim. As stated earlier, members are divided into two groups based on their attainment of training and otherwise.



χ^2: 6.811; p-value: 0 .007

Source: Author's Calculation

Figure 3. Earning Status of women SHG Members of Sikkim

Overall 80.29 percent of the sample women members report to be earning via a variety of rural economic activities while the remaining 19.71 percent were found to have no personal source of earning and were mostly confined to household chores. A similar observation was found across the two categories of trained and untrained women members, although the percentage of earning members in the trained category was found to be comparatively higher ($\chi^2 = 6.811$, $p = 0.007$).

Source of earning:

The sample SHG members reporting to be earning were found to be engaged in a wide variety of rural farm and non-farm occupations. For analytical convenience, we have grouped the reported occupations into four major categories as shown in Table 1.

It is observed that about 65 percent of such women members were employed in agriculture and animal husbandry which is quite plausible given the rural setting of our study area. The remaining 35 percent of such SHG members were engaged in a wide variety of non-farm activities related to petty business and services in the informal sector. Across the two categories of 'trained' and 'untrained' members, we observe that the percentage of trained women members engaged in agriculture and animal husbandry is slightly higher compared to their untrained counterparts ($\chi^2 = 24.053$, $p = 0.00$).

Farming Activities pursued by women SHG members:

After having observed that a major share of the women SHG members are engaged in agriculture and animal husbandry practices, it was of interest to investigate the composition of farm-based activities pursued by them. Table 2 provides a

Table 1. Source of earning of SHG members of Sikkim

Source of Earning	Total	Untrained	Trained	χ^2	p-value
Agriculture (Crop Farming)	86 (25.75)	28 (19.72)	58 (30.21)	24.053	0.000
Livestock Rearing	131 (39.22)	59 (41.55)	72 (37.50)		
Petty Business	75 (22.46)	24 (16.90)	51 (26.56)		
Petty Services	42 (12.57)	31 (21.83)	11 (5.73)		
All	334 (100.00)	142 (100.00)	192 (100.00)		

Figures in parenthesis indicate the percentage of frequency in each category

Source: Author's Calculation

comprehensive detail of farm activities along with the percentage of members engaged in each of them. It is noticed that activities like ginger farming, turmeric farming and processing, cultivation of seasonal vegetables and cereals are widely pursued. On the other hand, within animal husbandry, cattle rearing and poultry are the most popular. The pattern of activities pursued is similar across the two categories—'trained' and 'untrained' of the SHG members (Fisher's exact test = 18.848, p=0.04).

Farm based training programmes provided by the Self-Help-Group Promoting Institutions:

Of late, the government has launched several programmes to combat poverty using the SHGs as institutional conduits. Providing skill-based training to women SHG members to enable them venture into new self-employment activities or to upgrade their existing livelihood activities to enhance their earnings is one of the policy initiatives undertaken by the government under its flagship program on National Rural Livelihoods Mission (NRLM). A significant portion of our sample respondents revealed that they have pursued one or more of such training programmes which mostly provided skills on a wide number of farm and rural non-farm economic activities. The training programmes were carried out in collaboration with several provincial and central government agencies and lasted for about one or two weeks, or on rare occasions, for about a month. Most of such training sessions were conducted in close vicinity of the village of residence of the SHG members. On rare occasions, when the training was imparted at distant urban locations; the entire commuting expenses as well as the logistic arrangement was managed by the SHPI. Table 3 provides a list of farm-based (agriculture & livestock) training programmes that have been implemented in the sample SHGs in Sikkim.

Table 2. Farming activities pursued by SHG members of Sikkim

	Total	**Untrained**	**Trained**	**Fisher's exact test**	**p-value**
Agriculture					
Vegetable farming	12 (5.53)	3 (3.45)	9 (6.92)	18.848	0.04
Broom binding	4 (1.84)	- (0.00)	4 (3.08)		
Cardamom plantation	4 (1.84)	3 (3.45)	1 (0.77)		
Farming cereals	10 (4.61)	6 (6.90)	4 (3.08)		
Ginger farming	28 (12.90)	7 (8.05)	21 (16.15)		
Mushroom	5 (2.30)	3 (3.45)	2 (1.54)		
Turmeric farming	15 (6.91)	6 (6.90)	9 (6.92)		
Turmeric processing	8 (3.69)	(0.00)	8 (6.15)		
Livestock					
Cattle farming	80 (36.87)	37 (42.53)	43 (33.08)		
Goatary	13 (5.99)	6 (6.90)	7 (5.38)		
Piggery	5 (2.30)	1 (1.15)	4 (3.08)		
Poultry	33 (15.21)	15 (17.24)	18 (13.85)		
All	**217 (100.00)**	**87 (100.00)**	**130 (100.00)**		

Figures in parenthesis indicate the percentage of frequency in each category

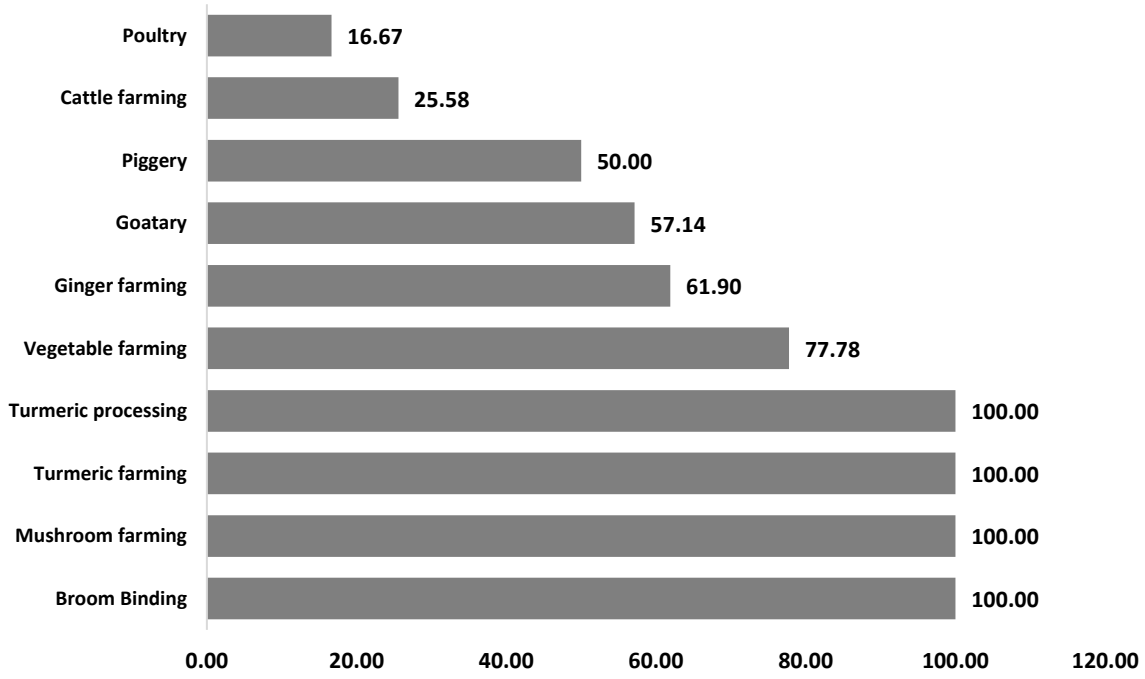
Source: Authors Calculation

Table 3. List of farm-based training programmes provided to SHG members of Sikkim

Agriculture	**Livestock**
Vegetable cultivation	Cattle farming
Broom binding	Goatary
Ginger farming	Piggery
Mushroom rearing	Poultry
Turmeric farming	
Turmeric processing	

Fig.4 shows the percentage of SHG members who pursued the skill-based training offered by the SHPI, ventured into that particular activity, or, if already pursuing, up-scaled their activity, and were able to operate the micro-enterprise profitably. Of the SHG members who attended the training programme on poultry farming, about 16.67 percent of such trainees reported to have benefitted from the programme. Similarly, about 25.58 percent, 50 percent, 57.14 percent, 61.90 percent, and 77.78 percent of the SHG members who pursued training programme on cattle farming, piggery, goatary, ginger farming and vegetable farming respectively reported to run the venture profitably. It is remarkable to note that all the members who pursued training programme on turmeric farming and processing, mushroom cultivation, and broom binding were able to run the respective microenterprise successfully and reported to earn profits out of the vocation.

The apparent success of the broom binding training programme can be attributed to the wide availability of the naturally growing broom grass, locally known as *Amriso or Amlisho*, which apart from serving as a crude check against landslides and cattle feed bears the crop as a cluster of spikes which can be bound into broom sticks. Our sample SHG members reported that, after acquiring the skill set on broom binding, they were able to increase their earnings by two-to-three times by selling broom sticks to the local dealers compared to the previous scenario where they used to sell the raw broom crop. On the other hand, the activities--turmeric farming and processing, and mushroom cultivation, despite being completely new initiatives, were widely adopted as a result of several incentives provided by the SHPIs like distribution of free seeds, setting up of a turmeric processing unit, establishment of an effective backward and forward linkages etc.



Source: Author's Calculation

Figure 4. Trained SHG members who benefitted from training in different farming activities

Financial Assistance through SHGs:

Our field study clearly demonstrates the efficacy of SHG financing in promoting agro-entrepreneurship among the women members. A perusal of Fig.5 reveals that about 67 percent of the SHG members used their borrowing for pursuing agro-based enterprises; about 26 percent of the members used the borrowed funds for meeting consumption requirements; the remaining seven percent of the members, however, reported of not taking any loans out of the SHG corpus.

4. Conclusion

The primary motivation of our paper was to find empirical evidences on the SHPIs and SHG driven promotion of agro-entrepreneurship across the women SHG members spread across the four districts of Sikkim. We find that a majority of the women members—to the extent of more than 80 percent—were engaged in economic activities to supplement their household income. Of these economically active women members about 65 percent were found to be pursuing a wide variety of micro-enterprises related to agriculture and animal husbandry. The sample SHG members also reported to have attended and benefitted from several livelihood training programmes organized by the SHPIs. These training programmes mostly focussed on capacity building and developing professional acumen in areas related to crop diversification, food processing, animal husbandry etc. Besides benefitting from training, a majority of SHG members (around 67 percent) also reported to have borrowed from the SHG fund to take up agro-enterprises. On the policy front, an interest subsidy to those SHG borrowers who take up agro-enterprises may stimulate its further proliferation in rural areas. Livelihood training and capacity building workshops for the rural youth should be encouraged. Collective bodies like Farmer-Producer-Organisations (FPOs) should be supported financially and encouraged to take up agro-enterprises on a priority basis. With proper planning and nurturing, agro-enterprises can be developed as instruments to reap dividends out of the recent state-wide shift to organic farming.

5. Acknowledgement

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6. Conflict of interest

On behalf of all the authors the corresponding author states that there is no conflict of interest.

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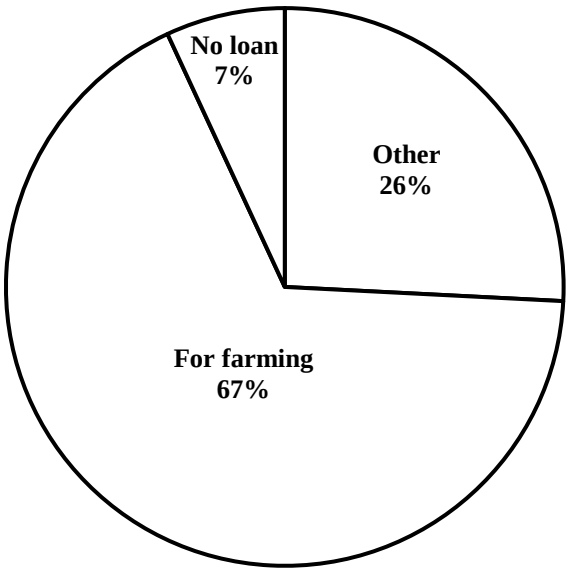

Source: Author's Calculation

Figure 5. Status of Financial assistance through SHG for farming activities

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