Identifying the Present Constraints Hindering Investment Decision in Agriculture: A Case Study of Dimapur District, Nagaland

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Abstract

The study aims to identify, evaluate, and recommend solutions for different constraints farmers face while investing in farms. The primary data was collected from 200 farm households using a three-stage random sampling approach pertaining to the year 2020-21. The constraints were divided into five main groups: assets and resources, awareness and flexibility, socioeconomic, institutional and infrastructural, and miscellaneous constraints. 'Hilly terrain with steep slopes' with GMS (Garret Mean Score) of 58.07, was identified the highest under resource and asset constraints. The farmers' limited awareness and adaptability issues was most severe concerning 'lack of risk-bearing capacity' with GMS of 60.39. Moreover, with GMS of 61.59, data on socioeconomic constraints points to 'low crop yield' as one of the major obstacles in agricultural investment. Further, 'poor road connection' was identified as barrier with GMS of 58.53 under institutional and infrastructural constraints. Under miscellaneous constraints, highest problem was reported on 'destruction of field by wild and stray animals' with GMS of 54.67. Constraints highlighted in the study was interconnected and require a comprehensive approach to enhance farmers' investment capabilities. Essential developed policies specifically for hill agriculture were required for considering ways to mitigate the difficulties in farm investment.

In India, sustained agricultural growth has been a critical component of the development strategy since its independence to address the problem of food availability and accessibility simultaneously. For the country's agricultural sector to thrive sustainably both investments must be consistently increased. Specifically, investment in agriculture leads to the overall improvement of the rural sector through increasing physical capital, enhancing agricultural production capacity, growth of know-how and human resources, and developed infrastructure facilities in rural areas and increase equipment for production and post-production activities. Capital formation and adoption of improved technology result from investment. This requires the flow of investment from both the public and private investment in the sector. Both types of investment are required to assured better coordination between the farming community on one hand and infrastructural development on the other hand from the public sector. This in fact paves the way for a higher sustainable growth in the agricultural sector [1]. To serve better the objective of poverty alleviation, investment in agriculture helps to increase farm production and productivity [2]. Farmers must so immediately increase their capital investment from their savings. Evidence at the national level indicates that this component has been either stagnant or falling. Therefore, it merits attention to maximizing savings and on-farm investment by the farmers [3]. Reforming law and policies so as to increase poor people's access to markets, services, and land is likely the top priority for agricultural development in developing countries. Therefore, it requires fostering an environment encouraging an increase in private investment in agriculture and agricultural services.

The agriculture sector in Dimapur District, Nagaland, holds significant potential due to its favorable climatic conditions, fertile soil, and strategic location as the commercial hub of the state; however, investment in this sector remains limited due to a range of interrelated constraints. Infrastructural deficiencies such as poor rural road networks, inadequate storage and cold chain facilities, and unreliable electricity supply hinder both production and market access. Financial constraints, including limited access to formal credit, high collateral demands, and the absence of effective crop insurance, make investment risky for both farmers and external investors. Institutional issues such as weak implementation of government schemes, unclear land ownership records, and limited agricultural extension services further compound the problem. Additionally, social and cultural factors, including traditional land tenure systems, reluctance to adopt modern techniques, and out-migration of youth from farming, create additional barriers to agricultural development. Market-related challenges, such as price volatility, dependence on middlemen, lack of minimum support price mechanisms, and minimal value addition infrastructure, reduce profitability and discourage investment. These constraints collectively deter both private and public investment, despite the district's untapped potential. Addressing these barriers requires an integrated approach that combines policy reform, infrastructure development, financial inclusion, institutional strengthening, and farmer capacity

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building to create an enabling environment for sustainable agricultural investment in Dimapur.

Agriculture is one of the risky professions with uncertain outcomes and a variety of risks faced by Indian farmers over the whole growing season [4-5]. In a developing country, investment decision among small scale farmers is hindered by credit market constraints and incomplete insurance and when provided with insurance against catastrophic risk it induces the farmers to find resources to increase expenditure on farms [6]. Problems such as poor extension, gaps in the supply chain for high-quality seeds and plant propagation, lack of institutional finance in many states, and lack of investment in agriculture and technology are the fundamental underlying causes of the underdevelopment of agriculture [7]. Factors such as access to credit, volatile market prices, inadequate infrastructure, and inefficient government support significantly affect the financial viability of agricultural operations [8].

Considering the importance of agriculture in the State's economy, there is an urgent need to increase its production and productivity through investment. Therefore, it is critical to identify the problems and challenges the farmers face that impede the flow of investment. The Present study aims to understand and analyze various constraints the farmers face for making investment decisions in their farms and suggest measures for resolving them.

MATERIALS AND METHODS

This research was carried out in Dimapur district of Nagaland, one of the potential agricultural districts in the State. A three-stage random sampling technique was used for the selection of blocks, villages and sample farm households. In the first stage, out of four rural development blocks, two blocks were chosen, namely Medziphema and Nuiland block. In the second stage, two villages were selected from each block: Tsiepama and Molvom from Medziphema block and Nihokhu and S. Hetoi villages from Nuiland block. In the third stage, 200 farming households were chosen randomly as the sample units (i.e., 50 households from each village). Semi-structured questionnaires were used as the data collection technique with face-to-face interviews to gather both quantitative and qualitative data. The current study has identified 23 major constraints which were broadly classified under five categories: (i) Resources and assets, (ii) Awareness and adaptability, (iii) Socio-economic, (iv) Infrastructural and Institutional, and (v) Miscellaneous constraints.

Method of data analysis

To identified and ranked the constraints Henry Garret's ranking technique was applied. Method of conversion is as follows:

$$\text{Percent position} = \frac{100(Rij - 0.5)}{Nj}$$

Where;
R_{ij} = Rank given for i^{th} item by j^{th} respondent
N_j = Numbers of items ranked by j^{th} respondents

Percent position is then converted into score using the Garret table (Table 1) referring to table given by Garret and Woodworth [9]. Then for each constraint the score of individual respondents is added together and then total value of scores and mean value was calculated. The constraints with the highest mean value were considered the highest rank.

Calculation of garret value

The calculation of Garret value for different number of variables ranked by the farm households are shown below:

Table 1 Percent positions and garret values

S. No	100 (Rij-0.5)/Nj	Calculated value	Garret value
1	100 (1 - 0.5)/4	12.5	73
2	100 (2 - 0.5)/4	37.5	56
3	100 (3 - 0.5)/4	62.5	44
4	100 (4 - 0.5)/4	87.5	27
1	100 (1-0.5)/5	10	75
2	100 (2-0.5)/5	30	60
3	100 (3-0.5)/5	50	50
4	100 (4-0.5)/5	70	40
5	100 (5-0.5)/5	90	24
1	100 (1-0.5)/6	8.33	77
2	100 (2-0.5)/6	25	63
3	100 (3-0.5)/6	41.67	54
4	100 (4-0.5)/6	58.33	46
5	100 (5-0.5)/6	75	37
6	100 (6-0.5)/6	91.67	23

RESULTS AND DISCUSSION

The extent of these problems varies among farmers, which were discussed and presented under the following sub-headings:

Resources and assets constraints

The availability of resources determines the farmers' capability of capital investment. (Table 2) reveals that the most severe problem, as expressed by the farmers, was 'hilly terrain with steep slopes' with GMS of 58.07. The State topography being a hilly terrain, make it challenging to adopt modern farming techniques such as construction of irrigation, farm mechanization and harvesting of water structures, etc. This results in hindering investment decision of farm household. The second constraint with GMS of 56.72 was 'existence of leased land' with insecure land ownership. In many parts of the study area, agricultural land was generally owned by some

particular clan or village community, especially in the case of jhum fields. This common land ownership system discourages individual farmers from investing in permanent infrastructure and thus hinders the flow of investment. Moreover, lack of collateral was one of the reasons for not availing bank credit for majority of the farmers. Also, with leased land ownership, the sense of ownership and eagerness to invest are hindered. Lack of tenure security in the farming sector constraints farmers'

access to credit, farm investments, technology adoption and sustainable agricultural development and productivity [10]. The third and fourth constraints were 'size of holding being small and fragmented' and 'lack of required inputs and technology' suitable for hilly agriculture with GMS of 43.75 and 41.17, respectively. Roy [11] also reported small and scattered and shortage of critical inputs as the major constraints thwarting investment in agriculture.

Table 2 Resources and assets constraints

Resource/assets constraints	Rank given by respondents				Total	Average score	Rank
	1st	2nd	3rd	4th			
Small and fragmented size of holding	2044	2240	2332	2133	8749/200	43.75	3
Hilly terrain with steep slopes	8103	1680	616	1215	11614/200	58.07	1
Existence of leased land	3869	5096	2244	135	11344/200	56.72	2
Lack of technology and required inputs	584	2184	3608	1917	8293/200	41.47	4

Source: Computed from field survey, 2020-21

Awareness and adaptability constraints

The magnitude of the farmers' awareness and adaptability constraints was highest on the 'lack of risk-bearing capacity' of the farmers, with GMS of 60.39. Small farmers with meagre income to sustain their livelihood were reluctant to take up investment activities associated with higher expected returns, as these involve the risk of failure. The problem was consistent to findings [12] on work done in U.P, India. The second constraint was 'lack of entrepreneurial skills and willingness to adopt new farming practices' among most farmers, with GMS of 51.42. The lack of enthusiasm to learn and flexibility to adapt new methods by putting down

traditional practices hinders investment decision. The third constraint farmers express was 'lack of awareness and deprivation of government programmes' with GMS of 46.43. Under the study area, many farmers lack awareness and knowledge of different schemes provided by the government, and thus deprived of availing benefits. The fourth constraint, as expressed by farmers was 'inadequate research and extension support' with GMS of 41.82. Most of the farmers in the study area complain about poor extension services with regard to agricultural practices and technologies. Inadequate expenditure on extension services resulted in a slow progress of agricultural growth that increases livelihood insecurity for a sustainable development to people solely depending on agriculture [13].

Table 3 Awareness and adaptability constraints

Awareness and adaptability constraints	Rank given by respondents				Total	Average score	Rank
	1st	2nd	3rd	4th			
Lack of awareness and deprivation of government programme	1533	2520	4180	1053	9286/200	46.43	3
Lack of entrepreneurial skills and adaptability	2409	4760	2332	783	10284/200	51.42	2
Inadequate research and extension support	3212	896	1232	3024	8364/200	41.82	4
Lack of risk bearing capacity	7446	3080	1012	540	12078/200	60.39	1

Source: Computed from field survey, 2020-21

Socio-economic constraints

The socio-economic status of a farmer is an important determining factor for enhancing investment in agriculture. The (Table 4) reveal that 'low crop yield' was one of the important economic constraints for investment in agriculture, with GMS of 61.59. Poor farming technology results in low labour efficiency and low crop productivity. The second constraint expressed by the farmers was 'low saving' with GMS of 55.61.

Farmers' propensity to invest depends on their savings and income level, which was found to be low in the study area. 'Less working population' in farm ranks third with GMS of 53.91. The subsistence farming and rugged hilly terrain limits the ability to invest in farm machinery, thus leading to increased labour requirements and labour cost. The high labour cost due to shortage of labour supply was another problem the farmers face [14].

Table 4 Socio-economic constraints

Socio- economic constraints	Rank given by respondents						Total	Average score	Rank
	1st	2nd	3rd	4th	5th	6th			
Low level of income	1694	1953	2808	2990	888	138	10471/200	52.36	4
Less saving	1694	2898	3942	2070	518	0	11122/200	55.61	2
Less working population in farms	2618	2457	2052	2208	1332	115	10782/200	53.91	3
Large family size	847	1701	702	736	3219	1058	8263/200	41.32	5
Crop yield is low	6314	2961	1134	1012	666	230	12317/200	61.59	1
Involvement in other subsidiary occupation	2233	630	162	184	814	3036	7059/200	35.29	6

Source: Computed from field survey, 2020-21

Infrastructural and institutional constraints

Under infrastructure and institutional constraints, 'poor road connection' was reported as an important constraint the farmers faced in the sample area, with GMS of 58.53. Poor road connectivity in rural areas often creates problems for the farmers in moving the produce from the fields, which may also be one of the reasons for low cropping intensity in the State. With poor road connectivity, carrying the produce to the market was costly, and generally, during the rainy season, it becomes more difficult. The second constraint reported by the farmer was 'no proper market for selling the crops' with GMS of 53.75. Farmers in Nagaland faced various marketing challenges mainly because of geographical remoteness, inadequate marketing shed, presence of intermediaries, low production, etc. This results in unfavorable prices, where farmers are compelled to dispose of their produce at meager prices in the market. In this context, Solo and Kikhi [15], study on 'An overview of the farming system in Nagaland' reported absence of an organized marketing system with fluctuating market prices results in massive losses for the farming community,

which most of the crops go waste. The third constraint reported was 'lack of irrigation facilities' with GMS of 52.04. The high dependence on the monsoon rain with no proper irrigation facilities and water harvesting system results in low productivity. The fourth constraint reported was 'low government assistance' with GMS of 48.46. Most of the farmers were not availing any benefits from the government and do not reach the eligible farmers indicating that it was not spread equally at the grass root level in the state.

The fifth constraint reported by the farmer was in nature of credit, which is 'inconvenient loaning process where credit is not timely available' (GMS of 36.49). This problem was also reported by Sahoo *et al.* [16], who stated that this problem needs immediate attention to minimize the problems in availing credit for the farmers. Farmers faced substantial transaction costs for availing loans as they needed to visit the bank frequently, documentation was required, high interest rates, and timely credit was unavailable. Therefore, the banks dealing with farm credit should be accessible, making credit procedures more straightforward and readily available to encourage the farmers to increase their farm investment.

Table 5 Infrastructural and institutional constraints

Infrastructure and institutional constraints	Ranks given by respondents					Total	Average score	Rank
	1st	2nd	3rd	4th	5th			
No proper market for selling the crops	4050	2400	2700	880	720	10750/200	53.75	2
Poor road condition	8100	1260	1050	240	1056	11706/200	58.53	1
Lack of irrigation facilities	1575	4500	1500	2640	192	10407/200	52.04	3
Government assistance is low	825	3180	3550	1440	696	9691/200	48.46	4
Inconvenient loaning procedure and credit not timely available	525	660	1200	2800	2112	7297/200	36.49	5

Source: Computed from field survey, 2020-21

Miscellaneous constraints

Among the miscellaneous constraints, 'destruction of the field by wild and stray animals' was the most crucial with GMS of 54.67. The second constraint was 'certain capital goods and machinery are not fitted' in hilly jhum areas (GMS of 52.36). The third constraint was 'unfavorable weather conditions' with

GMS of 50.14. Weather conditions profoundly impact crop production because unfavorable weather can destroy crops, leading to rodent infestation and the outbreak of many diseases. The deficit rainfall during the study year had adversely affected both jhum and wet rice cultivations with poor germination of seeds and growth of crops.

Table 6 Miscellaneous constraints

Miscellaneous constraints	Ranks given by respondents				Total	Average score	Rank
	1st	2nd	3rd	4th			
Yield and prices are uncertain	2190	1736	2332	2322	8580/200	42.9	4
Unfavourable weather condition	1898	4032	3476	621	10027/200	50.14	3
Certain capital goods are not fitted for hilly regions	5840	2128	748	1755	10471/200	52.36	2
Destroy the fields from wild and stray animals	4672	3360	2200	702	10934/200	54.67	1

Source: Computed from field survey, 2020-21

CONCLUSION

The study observed that presently under different categories hilly terrain, existence of leased land, lack of risk bearing capacity, lack of entrepreneurial skills and adaptability, low crop yield, poor road condition, no proper market for selling the crops and destroy of fields from wild and stray animals are the primary obstacles faced by farmers for making agricultural investment decisions. To address this, there is a need to increase terrace fields in steep jhum fields as it involves application of modern machineries and implements that can increase the decision of making agricultural investment among farm households. With this, individual ownership of land is an

important indicator for investment decision. There is a need to slightly shift towards horticultural crops instead of solely depending towards traditional crops in the state. This change in cropping pattern has also been a recent change in the state and proven successful in hilly states like that of Himachal Pradesh and Kashmir. Additionally, proper research programs suited to the region and information, especially on adopting suitable technologies, should be made available to the farmers. All these problems are interconnected and require a comprehensive approach to enhance farmers' investment capabilities. Therefore, it is crucial to formulate separate policies for hill agriculture that address the challenges identified in this study and strengthen farmers' investment capabilities.

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