

Various Socio-Economic Constraints for The Development of Mountain Agriculture in Zaskar Trans-Himalayan Region

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Abstract: In the Himalayas, food security of communities primarily depends on local agricultural productivity and food purchasing power. Subsistence agriculture, which is forest based, constitutes the main source of rural food and livelihoods. However, due to constraints of socio-economic, terrain and climate, agricultural productivity is low, resulting in large food deficits and leading to a considerable proportion of the adult male population migrating from the region in search of employment and livelihoods. The present paper is focused on various socio-economic constraints for the agricultural activities in the region. The survey of 237 household has been conducted. has been found that there is lack of financial institutions, labour problem, migration and lack of farmer organizations are some socio-economic constraints in the area.

Keywords: Labour, Migration, Institutions, Constraints, Socio-economy

Introduction

The economy in the Himalayas largely depends on the agriculture sector. This is beset with the problems of a poor and deteriorating and resource base, fragmented land holdings, lack of irrigation facilities, improper land use pattern, lack of appropriate technology and inadequate credit and marketing facilities. Besides these, poor and inadequate infrastructure and lack of arrangements for the supply of new inputs like the high yielding variety (HYV) seeds, fertilizers, pesticides etc. are the other constraints in increasing the agricultural production. Credit agencies such as commercial banks for cooperative credit societies, which are supposed to overcome this deficiency, have gradually disappeared. Marketing facilities for seasonal, perishable crops such as tomatoes, potatoes, beans, capsicum, chillies etc. are also not adequate. Similarly, the role of village level workers, agricultural development officers, veterinarians etc. has not been properly recognized. These crucial functionaries also did not have an adequate

rapport with the farmers to tackle their problems.

Therefore, lack of proper inputs plays a big role in the backwardness of the agricultural practices in the Himalayas. The problem of “off farm sources of income being an important element in the farmers income” has been identified as the major one. The irrigated lands are the well-terraced land and even in the rain-fed areas, terracing of the cultivated land is common. But due to population pressure, lands upto 65% slope and above have been brought under cultivation without adopting adequate conservation measures. The main objective of agricultural planning and development in the hills should not be just self-sufficiency in food, but a proper conservation of land and water resources so that the land is available for a long-term productive use. Water being plenty in the hills, the only problem is its collection, management and harvesting. Thus all land-based activities should be planned on the “watershed’ concept for sustainable development of natural resources.

In the Himalayas, food security of communities primarily depends on local agricultural productivity and food purchasing power. Subsistence agriculture, which is forest based, constitutes the main source of rural food and livelihoods. However, due to constraints of terrain and climate, agricultural productivity is low, resulting in large food deficits and leading to a considerable proportion of the adult male population migrating from the region in search of employment and livelihoods. Remittances from the migrants and local employment contribute to community purchasing power which may be used to buy food from the open market and government controlled Public Distribution System (PDS). Depletion of natural resources, changing climatic conditions, the recent economic recession and sharply fluctuating food prices have not only decreased local food production but also reduced employment opportunities locally as well as outside the area, rendering the entire region highly vulnerable to food insecurity.

Traditional agriculture is the major and dominant activity in the hill economy, which confronts multiple risks and uncertainty. The low yield of food and cash crops, fodder, fuel and other minor forest produce and stagnant growth are the critical pull factors of agrarian economy

and in particular the household food security. The scattered land holdings, traditional mode of production, low use of modern inputs and lack of market incentives caused the ecosystem highly poverty ridden.

Study area

Nomenclature of Zaskar comes from the local word “Zangskar” meaning white copper. Zaskar is basically a Buddhist area with a small Muslim population. It covers area of some 7000 Km² and is situated at an elevation between 3500 and 7000 meters above the mean sea level. Its climate is very severe and it remains cut off from the rest of the world from November to June when only limited helicopter service is its only link with outside world. The region remains snow-covered during winters and movement of people comes to nearly stand still even within the region. Winter is severely cold and nearly no outdoor activity is possible for four to five months. People live in small houses build of stone, mud and wood. Human beings and domestic animals share the same cooking-cum-sleeping room on ground floor during winter months. Domestic animals are grazed on natural pastures in summers but have to be stall-fed during winters. Fig.1 shows the location map of the project area.

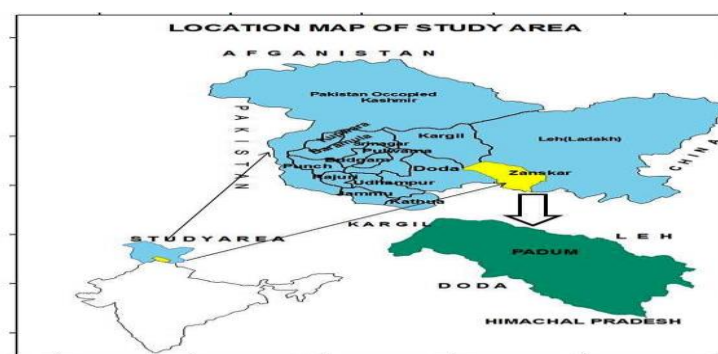


Fig. 1

The villages are mostly situated along the two main tributaries of Zaskar River. The first one, the Stot, has its source near the Pensi-La (4400m.) . The second branch is formed by two main tributaries known as *Kurgiakh-chu* with its source near the Shingo-La and *Tsarap-chu* with its source near the Baralacha-La. These two rivers unite below the village of Purne to form the Luknak River also named *Lingti* or *Tsarap*. The Luknak-Chu then flows northwestwards along a narrow and precipitous gorge towards the Padum village where it unites with Stot River to form Zaskar River.

The Great Himalayan Range is to the south west and it separate Zaskar from Kishtwar and Chamba districts. To the northeast lies Zaskar Range separating Zaskar from Leh district. Zaskar River is the only drainage outlet for whole Zaskar region. It cuts a deep and narrow gorge through the Zaskar range.

This topographical configuration makes access to Zaskar difficult from all sides. Communication with the neighbour Himalayan areas is maintained through mountain passes or along Zaskar River. The river freezes during winter months and provide a route to Leh district. This is called *Chader* route. People track on this route during winter from December to first week of February to reach Leh. The easiest approach is from Kargil through Suru Valley and Pensi La. It is along this route that only road to Zaskar was built in 1979 to connect Padum with Kargil. Remoteness of this region also explains why only a few western travelers have visited this area until recent times. Tibetologist Alexander Csoma de Kőrös was the first Europeans to visit Zaskar in

1823. Moreover, because of its strategic location of entire Ladakh region close to border with Pakistan and China, Zaskar was declared a restricted area and was reopened to foreigners only in 1974.

Discussion

Objectives:

The main objectives of present paper is focused on the analysis of various socio-economic constraints for the agricultural development in Zaskar Trans-Himalayan region.

Database and methodology

The present paper is based on observation of primary and secondary data sources. The primary survey has been conducted in relevant data to meet the objectives of study have been obtained from both primary and secondary sources. Information pertaining to tourism related issues was not available; therefore, in order to familiarize with the area and to know about these aspects, the researcher conducted four months survey through questionnaires of 237 households in 24 revenue villages of Zaskar in 2014 and 2015.

The paper is based on the analysis of various parameters of tourism related factors acquired through questionnaires. All collected information were tabulated and compiled for further analysis. Statistical techniques have been used to analyze various kinds of data. GIS software Arc 9.1 has been used to prepare various types of maps.

The followings are socio-economic constraints for the promotions of agriculture in Zaskar.

1. Financial Institutions and loan facilities.

2. Migration Problems

3. Labour Problems

4. Lack of Farmer Organization

1. Financial Institutions and loan facilities

Credit is considered one of the important facilities for modern agriculture. It is considered here essential to analyze the impact of credit on the rural economy especially agriculture and allied activities. Credit is temporary power of purchasing power. It is the external sources of capital for investment. Institutional credit enables farmers to use various modern inputs to the recommended levels and thereby increase agricultural production and employment opportunities. The purpose of crop loan is to meet the working capital requirement of small and marginal farmers especially for the purpose of seeds, fertilizers, machines and pesticides etc. There was increase the purchase of modern inputs for agriculture development after borrowing loan from banks. In Zanskar there is only one financial Institution i.e Jammu and Kashmir Bank. This bank is situated at Padum, which located at the centre of the Zanskar area. The farmers have very limited knowledge about the credit provided by the banks. In interview it came to light that only limited farmers have availed the facilities of bank loan. Farmers usually don't like to borrow money from bank because of high interest. From table 1 and figure 2, it can be analysed that Tungri/ Thagen village have availed the maximum loan among all villages. In this village five farmers have availed loan. Three farmers have availed loan from Jammu and Kashmir bank, one farmer from money lender and one farmer

from other source. In Zangla village four farmers have taken loan, two have availed from the J and K bank, one from money lender and one from other source. Almost no village farmers have availed any kind of loan. It can be concluded that out of 237 household only 28 farmers have availed the loan, which is only 12 percent of the total household surveyed. Rest of 88 percent farmers have not availed any kind of loan. 16 farmers have availed loan from Jammu and Kashmir Bank, 09 farmers from money lenders and 03 farmers from other sources. Kissan Credit Card Scheme (KCCS) of Jammu and Kashmir Bank is most popular scheme in Zanskar for loan.

2. Migration problems

Migration of population has been a recurrent phenomenon since the dawn of human history. Though its form has changed but remains as very dominant phenomenon in the global social system. In modern days also people migrate from underdeveloped areas to the developed ones in search of better employment and opportunity. There are far reaching consequences of migration of male labour force on their place of origin. Rural out-migration tends to exert a downward pressure on agricultural labour per capita. However, this does not automatically lead to reduced agricultural incomes because the loss in household labour may be, and often is, compensated by improvements in other areas, such as increased access to capital. The outcomes of migration therefore depend on the broader agro-ecological, economic, and institutional context. In Zanskar youths and workforce are migrating to Leh and other places in search of job and education. Migration of workforce directly affecting agricultural

system in Zanskar. In Zanskar all the family members are engaged in agricultural activities. But because of Poor educational institutions and lack of higher education facilities also forcing youths of the region to migrate outside for better education.

In table 2 and fig. 2, 3, 4 and 5 shows the number of household who have responded about the migration and associated problems in the villages. During the survey questions were asked from the farmers regarding migration.

Sno	Village	Total households	No. of households having taken loan	Agency from which loan availed..		
				Bank	Money lender	Others
1	Zangla	34	4	2	1	1
2	Hamiling	2	0	0	0	0
3	Padum	18	0	0	0	0
4	Salapi	11	1	1	0	0
5	Sani	11	0	0	0	0
6	Rantaksha	5	2	2	0	0
7	Ating	5	3	1	1	1
8	Remala	2	0	0	0	0
9	Phey	11	0	0	0	0
10	Tongde	10	0	0	0	0
11	Ufti/ Pibiting	24	2	1	1	0
12	Tungri Thagan	11	5	3	1	1
13	Tesa/Khasar	3	1	1	0	0
14	Karsha	19	0	0	0	0
15	Langmi/Raging	2	1	1	0	0
16	Abran	22	0	0	0	0
17	Akshow	8	2	1	1	0
18	Pipcha	5	1	0	1	0
19	Testa	11	2	1	1	0
20	Raru-Moony	7	2	2	0	0
21	Shunshadey	8	1	0	1	0
22	Ichar	2	0	0	0	0
23	Kargyak	3	1	0	1	0
24	Chah	3	0	0	0	0
Total		237	28	16	9	3

Table 1. Shows loan avail by farmers in Zanskar.

Sources: Primary Survey (2014-15)

Through this table, it can be analyzed that out of total 237 household, 171 households have responded that migration has affected farming system in Zanskar. This contributes 72 percent of the total households surveyed. Only 66 households (28 percent) are responding that migration has not affected agricultural activities in the villages. Interestingly, it can be further analyzed that the only two villages Zangla and Tongde 18 (53 percent) out of 34 household and 07 (70 percent) out of 10 households respectively, responding that their agricultural activities are not affecting by migration. In rest of the villages, maximum are getting affected by migration in their farming activities.

From the same table, it is also analyzed that the villagers does not want to stop the migration. They feel that migration is good for them. In this survey 118 (49.8 percent) farmers out of 237 farmers are saying that the migration should be stopped. At the same time 119 (50.1 percent) farmers are responding that migration should not check. It is mainly because of further migrants workforce have good opportunities in other parts of Ladakh. They sent good amount of money as remittance. In Zangla, Ufti Pibiting, Tungri, Karsha and Abran people in a very high percentage have responded that migration should not stop. Farmers in these villages are very positive for migration. It is only in those villages which are far from the center are less interest in migration.

It can also be inferred from the same table that the migration has lead labour shortages during farming activities. Every households reveal that they face shortage

of labour because of migration in the villages. 153 respondents (65 percent) are saying that they are facing labour crises during the farming season. It is only 11 respondents (5 percent) who are saying that they are not facing labour shortage. And 73 respondents (31 percent) have mentioned that they cannot say anything about it.

3. Labour Problems

Labour is one of the important input in farming. In mountain areas there is tendency of migration to plains areas in search of employment and better earning. This lead to crises of workforce during farming season.

Table 3 and Figure 6, it can be analyzed that every village face labour shortage. In this table 202 farmers (85 percent) out of 237 household face problem of labour in Zanskar region. It is only 35 farmers (15 percent) who are not facing labour problem. Through same table it can be analysed that in Zangla village 11 household are saying that they are not facing labour shortage for the agricultural activities. In Hamiling, Remala, Akshow, Pipcha, Raru Money, Ichar, Kargyak and Chah facing acute labour problem. In these villages all respondent mentioned that they are facing labour crises.

In some villages farmers have low labour shortage. In Langmi Regin (50 percent), Shunshadey (38 percent), Tesa Khasar (33 percent), Zangla (32 percent, Rantaksha (20 percent) and Ating (20 percent) respondent have mentioned that they are not facing labour shortage.

Has Migration affected cultivation any way? If yes Give details (how)?						Do you Think Migration should be stopped	Do you think Migration has led to labour shortage in the village?			
Sno	Village	Total household	Yes	No	Yes	No	Yes	No	Can Not Say	Total
1	Zangla	34	16	18	14	20	28	2	4	34
2	Hamiling	2	2	0	1	1	2	0	0	2
3	Padum	18	17	1	16	2	10	0	8	18
4	Salapi	11	10	1	9	2	2	1	8	11
5	Sani	11	6	5	10	1	6	0	5	11
6	Rantaksha	5	5	0	4	1	5	0	0	5
7	Ating	5	4	1	2	3	3	0	2	5
8	Remala	2	2	0	1	1	2	0	0	2
9	Phey	11	8	3	3	8	9	0	2	11
10	Tongde	10	3	7	10	0	7	0	3	10
11	Ufti/ Pibiting	24	16	8	8	16	10	5	9	24
12	Tungri Thagan	11	9	2	2	9	10	0	1	11
13	Tesa/Khasar	3	2	1	2	1	0	0	3	3
14	Karsha	19	18	1	2	17	14	0	5	19
15	Langmi/Rering	2	2	0	1	1	2	0	0	2
16	Abran	22	15	7	7	15	16	0	6	22
17	Akshow	8	7	1	4	4	8	0	0	8
18	Pipcha	5	5	0	5	0	3	0	2	5
19	Testa	11	8	3	6	5	5	0	6	11
20	Raru-Moony	7	6	1	4	3	2	0	5	7
21	Shunshadey	8	4	4	2	6	6	0	2	8
22	Ichar	2	2	0	2	0	0	2	0	2
23	Kargyak	3	3	0	1	2	0	1	2	3
24	Chah	3	1	2	2	1	3	0	0	3
	Total	237	171	66	118	119	153	11	73	237

Table 2 shows village wise various problems associated with migration

Sources: Primary Survey (2014-15)

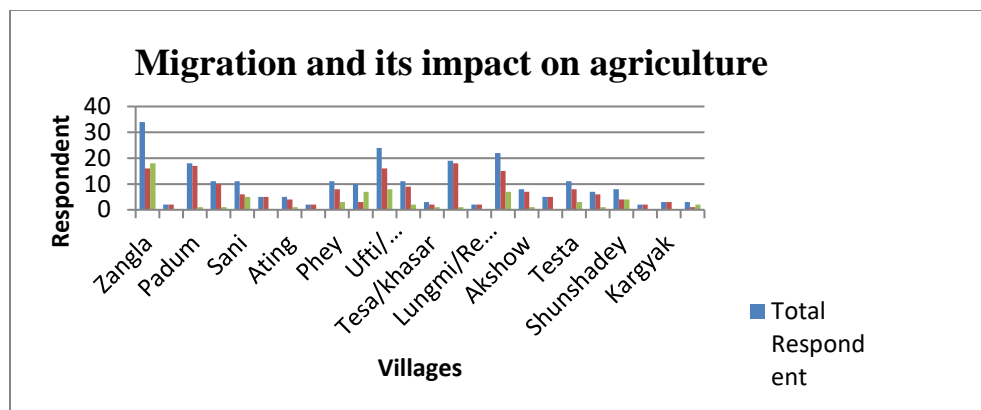


Fig. 2 Migration and its impact on agriculture.

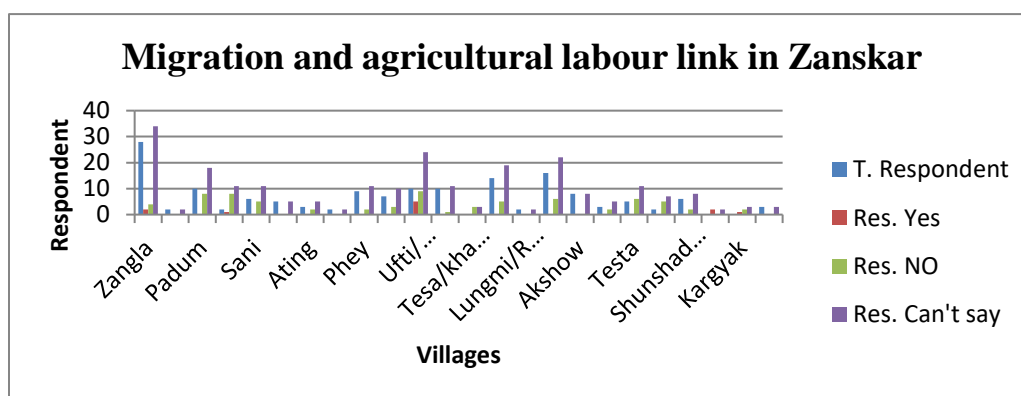


Fig. 3 Migration and agricultural labour links.

In Zanskar there is acute labour shortage during peak season of farming. The main farming season is the harvesting time from August to September. In these months farmer required maximum labour for harvesting, thrashing and stocking of agricultural outputs. Youths of this region have very little interest for farming activities because of poor output and fewer cash crops. So they migrate to other region to involve themselves into service sectors and businesses. Ladakh is a tourist place. During the months of August and September tourist arrived maximum in Ladakh which coincide with peak farming time. Youths from Zanskar engaged in tourist related activities like managing, guiding, helper and cocking

etc. This is the main reason that people face labour problem in prime farming time.

The correlation coefficient is found between the two variables proportion of labour problem and migration in different villages. The result shows that there is no linear significant relationship between the variables. The coefficient of correlation is - 0.282. Its suggest the labour problem is not because of migration of the working age group. It is also associated with so many other factors. The one of the main factor is Zanskar experience very short working season and during that time farming activities also begin. So, basically the area faces labour shortage.

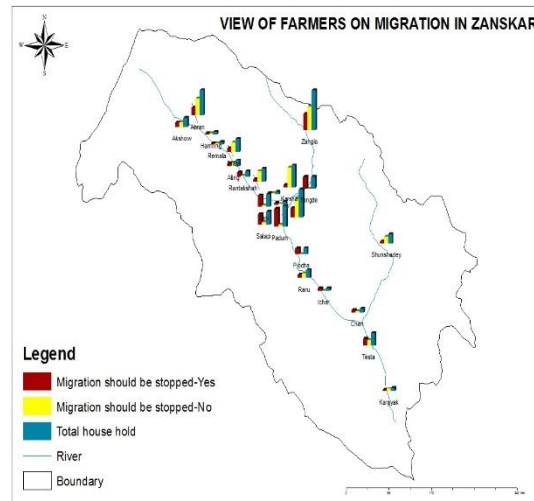


Fig. 4

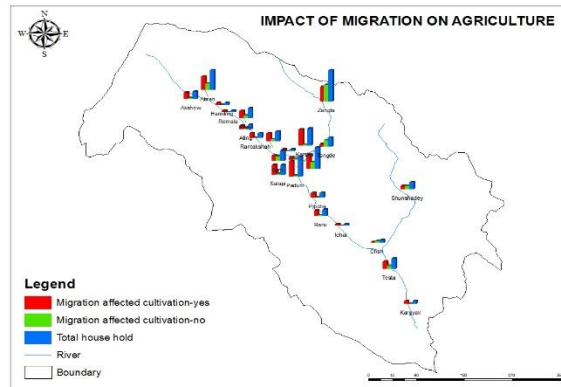


Fig. 5

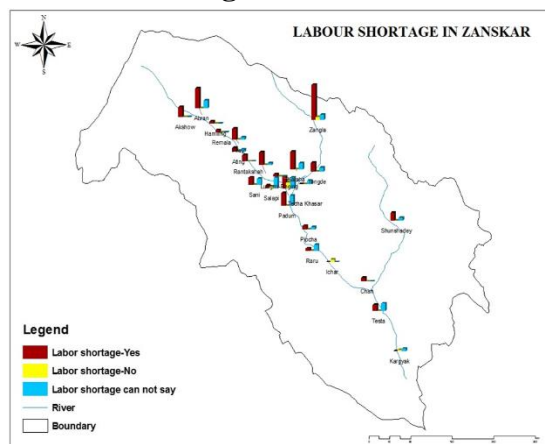


Fig. 6

Sno	Village	Total households	% age		No	% age	Total
1	Zangla	34	23	68	11	32	
2	Hamiling	2	2	100	0	0	2
3	Padum	18	16	89	2	11	18
4	Salapi	11	10	91	1	9	11
5	Sani	11	9	82	2	18	111
6	Rantaksha	5	4	80	1	20	5
7	Ating	5	4	80	1	20	5
8	Remala	2	2	100	0	0	2
9	Phey	11	9	82	2	18	11
10	Tongde	10	9	90	1	10	10
11	Ufti/ Pibiting	24	20	83	4	17	24
12	Tungri Thagan	11	10	91	1	9	11
13	Tesa/Khasar	3	2	67	1	33	3
14	Karsha	19	18	95	1	5	19
15	Langmi/Reging	2	1	50	1	50	2
16	Abran	22	20	91	2	9	22
17	Akshow	8	8	100	0	0	8
18	Pipcha	5	5	100	0	0	5
19	Testa	11	10	91	1	9	11
20	Raru-Moony	7	7	100	0	0	7
21	Shunshadey	8	5	63	3	38	8
22	Ichar	2	2	100	0	0	2
23	Kargyak	3	3	100	0	0	3
24	Chah	3	3	100	0	0	3
	Total	237	202	85	35	15	237

Table 3 shows village wise labour problem.
Sources: Primary Survey (2014-15)

4. Lack of Farmer Organization

Over the past one decade, the extent to which formal farmers or producers organizations can contribute to increasing the effectiveness of agricultural technology development and awareness. During the 1970s and 1980s it became widely recognized that farmers themselves are an

important source of agricultural innovation. Much attention was paid to developing new methods of trying to incorporate them into the research and extension system. However it soon became apparent that these new methods, though valuable, had serious limitations: the operational costs of working with farmers on a large scale were high, and

farmer participation was rarely a systematic part of the process of technology development and transfer.

Working with groups seemed to offer a partial solution. Many donor-funded projects looked to improve their effectiveness and efficiency through sponsoring the formation of groups to meet their immediate project objectives. At the same time, Training and visit extension systems began to move from working with individual often isolated contact farmers to working with groups.

In Lahul and Spiti of Himachal Pradesh there is a group called Lahuli Potato Association (LPA). The prime motive of this farmer organization is to promote, manage seeds and finding appropriate market for the potato of Lahul and Spiti. This organization has worked very effectively for promoting potato of this region.

Table 4 and fig.7 shows the village wise farmers who are member of farmer organization in Zanskar. It can be inferred from the table that only 11 (5 percent)

farmers are member of farmer organization out of 237 farmers. This number is nominal. It is only in Zangla (12 percent) village where four farmers are the member of such group. In this survey it is shown that 226 (95 percent) farmers are not a member of farmer organization.

In Zanskar there is no any single farmer organization which works for the promotions of agricultural interest of this region. Only few farmers have become the members of Self Help Group (SHG). This is one of the social constraints for the promotions of agricultural sector. In fact during interview there are some farmers who are willing to form such organization. This can be concluded that people have least interest and aware to form farmer organization. In fact only very few people wish to form such organization so that they can solve problems in a group. Some of the farmers are member of some NGOs and Self Help Group.

Table 4 shows farmers who are member of farmer organization

Sno	Village	Total households	Yes	% age	No	% age
1	Zangla	34	4	12	30	88
2	Hamiling	2	0	0	2	100
3	Padum	18	1	6	17	94
4	Salapi	11	1	9	10	91
5	Sani	11	0	0	11	100
6	Rantaksha	5	0	0	5	100
7	Ating	5	0	0	5	100
8	Remala	2	0	0	2	100
9	Phey	11	1	9	10	91
10	Tongde	10	1	10	9	90

11	Ufti/ Pibiting	24	1	4	23	96
12	Tungri Thagan	11	1	9	10	91
13	Tesa/Khasar	3	0	0	3	100
14	Karsha	19	0	0	19	100
15	Langmi/Reging	2	0	0	2	100
16	Abran	22	1	5	21	95
17	Akshow	8	0	0	8	100
18	Pipcha	5	0	0	5	100
19	Testa	11	0	0	11	100
20	Raru-Moony	7	0	0	7	100
21	Shunshadey	8	0	0	8	100
22	Ichar	2	0	0	2	100
23	Kargyak	3	0	0	3	100
24	Chah	3	0	0	3	100
Total		237	11	5	226	95

Sources: Primary Survey (2014-15)

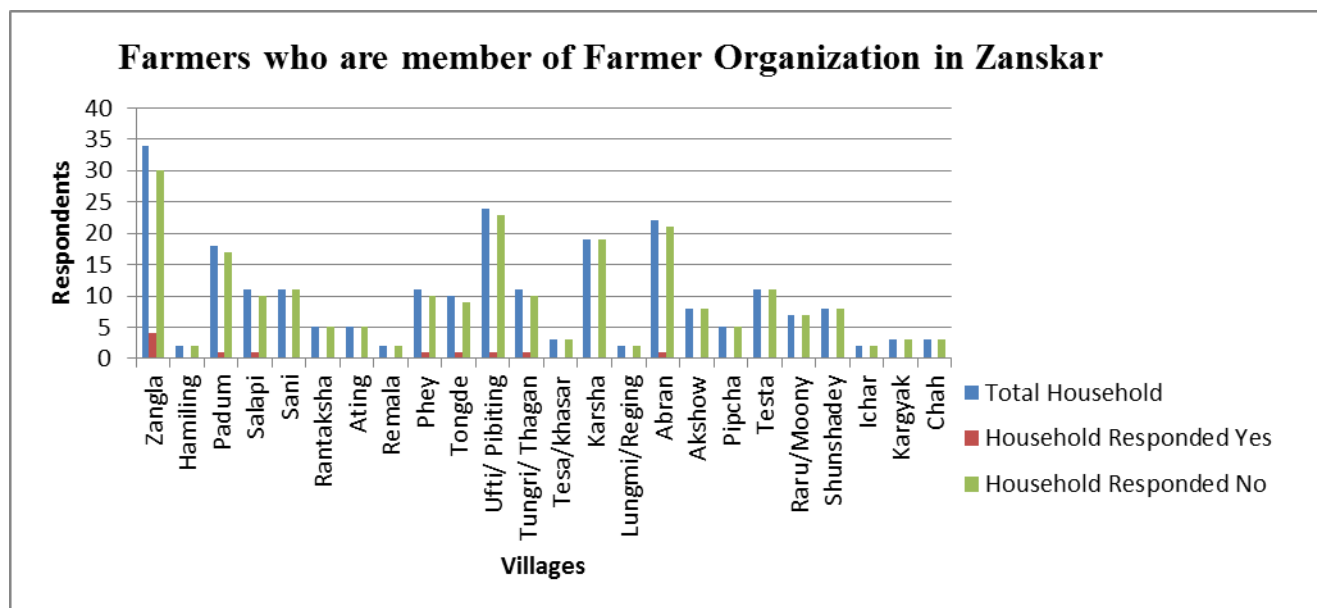


Fig. 7 Farmers who are a member of farmer organization.

Conclusion

Finally it can be concluded that socio-economic factors are the constraints for the prosperity and development of agriculture in Zanskar. There are very limited farmers who

are aware about the loan facilities for the farmers through Kissan Credit Card Scheme. More over only one banking institution is working there, which is not sufficient for such a expended region and population.

Youths are migrating outside in search of job and business because of that farmers face labour shortage during pick farming season. Farmer interest to form an organization for common goal is very limited and only few farmers are the member of such organization.

Non access to financial institutions is one of the important economic constraints in the region for the development of agriculture. One bank is insufficient for such a large number of populations and wide geographical region. There is require are at least two more financial institutions for fulfill demand of local people. Maximum of farmers are ignorant about the advantage of financial institutions so awareness is required for the farmers.

Migration has affected the farming activities in the region. During field visit it is came to know that the some farmers who have old family members left in the village have kept their some portion of land uncultivated because of migration of main working age group to cities. It is also conclude that migration is considered good for the improvement of income of the house because of huge remittance. Because of migration during farming season villagers face labour shortage in the village.

Youths of Zanskar region have less interest in farming activities as compare to their parents. This is mainly because of poor agricultural output and low income from agriculture. They are migrating outside in search of jobs in service sector. This lead to labour shortage in the villages and ultimately it is one of the important socio-economic constraints for development of agriculture.

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