

Environmental Limitations, Socio-Economic Status and Constraints of Tribal Economy in Outer Himalayas - A Study of Pangi Valley in Himachal Pradesh

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ABSTRACT The paper is mainly focused on studying the environmental limitations, socio-economic status, the state of art of agriculture and the constraints inhibiting the overall development of the valley. The fruits of development such as modern technology, improved methods of cultivation and market facilities are not reaching the people because of environmental and socio-cultural reasons. The paper suggests some remedial measures for the above situation.

Tribals are scattered in different states of India and the hill state of Himachal Pradesh, too, has its share of tribal populations. The tribal areas of the state account for about 42 per cent of the total geographical area though the population comprised therein is only about 4 per cent. These areas are situated in a contiguous belt in the north and north-east of the state, in the outer Himalayas, beyond high mountain passes and are almost cut-off from the rest of the world during prolonged winters. Such areas are characterized by highly undulated hilly snow-bound terrain, low level of economic activity, meager transportation and communication.

The present study is confined to the remotest tribal area of Himachal Pradesh which is not at all connected with the motorable road. In such areas, any attempt to improve the socio-economic status of tribals would entail the development of tribal agriculture. This calls for identification of the constraints which hinder the agricultural growth. This study is, therefore, focused on studying the environment of the area, socio-economic status of the tribals, the state of art of agriculture, extent of spread of modern farm technology and the constraints inhibiting the overall development of the valley.

METHODOLOGY

Pangi tehsil of Chamba district (Himachal Pradesh) was purposively selected for the study keeping in view the overall backwardness of the region. The area is such that it remains covered with snow not less than 4-5 months in a year. The means of communication are very poor. The valley completely lacks the vehicular road and remains cut off from rest of the world for atleast six months. People have to walk on foot, crossing the Sach pass which is not less than 4,516 metres above mean sea level. The goods are to be transported either on head loads, mules or sheep and goats. The cultivation is mainly carried out in summer season.

A two-stage stratified random sampling design was adopted for the selection of the sample. The farmers were stratified into two categories viz; small and large on the basis of size of holding using cumulative cube-root ($\sqrt[3]{}$) frequency method. Ultimately, a sample of 115 farms consisting of 63 small, and 52 large household was drawn out with simple random sampling without replacement.

The primary data required for the study were collected on pre-tested schedules by survey

method. The secondary data were obtained from various publications and offices of the State Government.

RESULTS AND DISCUSSION

1. Environmental Features

a) *Location and Physical Features:* Pangl tehsil is situated in the north of Chamba district surrounded by high mountain ranges and the lowest of the five passes by which valley is connected with the rest of the country is about 4,300 metres high. One has to cross-over these high mountains enter into the valley. These passes remain closed for human traffic for practically half of the year. The valley is also with Zanskar and Padder areas of Jammu and Kashmir state through certain passes but most of these passes, due to heavy snowfall, remain closed for a greater part of the year.

b) *Climate:* The area is situated in the alpine pastoral zone which remains under snow cover for about 5-6 months in a year. The altitude of the valley varies between 1,650 to 7,000 metres above mean sea level. The inhabited area reaches upto 4,000 metres. The summer is extremely mild and pleasant while owing to scanty rainfall the humidity is low throughout the year. The valley is subject to severe winter and heavy snowfall which restricts the movement of the people during winter season. However, the snow accumulated during winter enriches the soil and causes a regular flow of water in the streams and springs.

c) *Land Utilization:* During 1988, about 86 per cent of the total geographical area was reported to be under forests whereas nearly 10 per cent area was under permanent pastures and other grazing lands. The net area sown was around 1.5 per cent and about 20 per cent of the area was sown more than once. Most of the cultivated area in the Pangl tehsil remains covered with snow during winter season and as such normally one crop is grown in a year.

d) *General Information:* The general information about Pangl tehsil contained in table 1

reveals some interesting facts. The density of population was quite thin whereas male-female ratio was satisfactory. Scheduled tribes accounted for nearly 88 per cent of the total population. In the valley the villages were quite small and only one village was found to be having population above 500 persons.

Table 1 : General information about Pangl Tehsil, District Chamba

S. No.	Item	Unit	Particulars
1.	Area	sq. km	1653.7
2.	Population	Number	12,256
	a) Male	Number	6,401
	b) Female	Number	5,855
3.	Male - Female Ratio	Number	1:1.09
4.	Density of Population,	Persons/ sq. km	7.41
5.	Proportion of Scheduled Tribes to total population	Per cent	87.89
5.	No. of villages	Number	106
7.	Proportion of inhabited villages to total villages	Per cent	57
8.	Average size of a village	sq. km	15.6
9.	No. of villages by population ranges		
	a) <200	Number	29
	b) 200-499	Number	30
	c) 500-999	Number	1
10.	Proportion of workers to total population	Per cent	52.49

Source : Annual Tribal Sub-Plan, 1989-90

e) *Social Structure:* Pangl valley is being inhabited by two main tribes viz; *Pangwala* and *Bhot*, *Pangwala* alone constitute the major local population. They are God-fearing and superstitious tribe, have tremendous faith in supernatural power and their predominant religion is *Hinduism*. The *Bhot* who inhabit the interior of the valley follow *Buddhism*. They are under the predominant influence of *Lamas* (Tibetan monks).

Marriage is considered as essential institution among *Pangwala*. The people do not marry kinsmen within five degrees on the mother's side and ten degree on the father's side. The

various forms of marriage prevailing among Pangwala are *Janji* or *Jani* and *Topi Lani* which is practiced in case of widow marriage. There are some other kinds of marriages prevailing among Pangwalas such as marriages by exchange, by service and by capture. Monogamy is the general rule. Divorce is admissible in all castes residing in Pangl.

2. Socio-Economic Factors

a) *Socio-economic Status* : The socio-economic status of Pangwala tribe in Pangl valley of Himachal Pradesh is given in table 2. The table reveals that a family of 6 members was common in the study area. About three-fourths of the family members, in general, were considered to be as workers. It is interesting to note that nearly 74 per cent of the workers were designated as farm workers. The literacy rate of the tehsil was lower than the state average. It was only 34 per cent as compared to 42 per cent for the state as whole. The operational holding, per farm, was less than one hectare. The number of milch animals, per household, was just below two i.e. 1.86. The per capita income was worked out to be only Rs. 1,224 and the outstanding debts were to the tune of Rs. 481 per household. In general, the figures concerning socio-economic status revealed that Pangwala tribals were not in a sound state of affairs as compared to their counterparts in state as such.

b) *Cropping Pattern* : On account of peculiar topography, heavy snowfall and absence of monsoons only about 16 per cent of the area was sown more than once. Although there are two cropping seasons viz., *Kharif* and *Rabi* yet the cycle is completed in 14 months i.e., from April-May to June-July next. The important cereals grown in the valley are wheat, barley and maize. These crops are grown in November and harvested in June-July. Potato and maize accounted for sizeable area during *Kharif* season. In the study area, more emphasis was given on potato since the climatic conditions of the area are much suited to the cultivation of this crop. In addition to this phullan, bhangri and

cheena are the local crops grown in the study area (Table 3).

Table 2 : Socio-economic status of tribals in Pangl Valley

S. No.	Particulars	Size of farm		All farms
		Small	Large	
1.	Family-size (No.)	5.94	6.23	6.07
2.	Proportion of workers in a family (%)	74.15	79.01	76.34
3.	Proportion of farm workers to total workers in a family (%)	69.23	80.58	74.36
4.	Literacy rate (%)	30.19	39.96	34.33
5.	Land holding (ha.)	0.77	1.49	1.09
6.	Operational holding (ha.)	0.65	1.23	0.91
7.	Per capita land	0.13	0.24	0.18
8.	Milch animals (No.)	1.28	2.56	1.86
9.	Sheep and goats (No.)	7	13	9
10.	Draft animals (No.)	1.16	2.10	1.58
11.	Total assets (Rs.)	15,257	30,130	21,982
12.	Per capita income (Rs.)	972	1,531	1,224
13.	Outstanding debt (Rs.) per family	392	589	481

Source : Survey of 115 households in Pangl Valley

Table 3 : Cropping pattern and average yields on tribal farms in Pangl Valley

Crop	Size of farm		All farms
	Small	Large	
Maize	9.59(17.51)	10.68(15.57)	10.08(16.63)
Potato	16.72(92.41)	10.69(90.24)	13.89(91.42)
Lentil	3.93(5.95)	5.40(5.36)	4.49(5.68)
Bhangri	6.89(13.34)	5.42(12.17)	6.22(12.81)
Phullan	8.68(8.03)	7.82(7.10)	8.29(7.60)
Cheena	5.06(10.02)	3.75(9.25)	4.46(9.67)
Wheat (L)	20.86(12.78)	23.86(12.26)	22.11(12.54)
Wheat (HYV)	10.29(17.86)	16.41(17.43)	13.52(17.66)
Barley	15.04(16.28)	13.55(15.46)	14.36(15.91)
Others	2.82	2.42	2.58
Total	0.78	1.39	1.06
cropped area (ha.)			
Cropping intensity (%)	120	113	116

Note: The figures in the parentheses represent the average yield, per hectare in quintals

A close perusal of the table reveal that cropping pattern was all the way dominated by food crops which clearly reflects the subsistence nature of farming in the study area.

c) Extent of Adoption of Modern Technology: A glance at table 4 reveals that improved farm technology, prevalent in mid or foothills of the state, had not percolated in this tribal area. Only about 14 per cent of the total cropped area was under HYVs and that too only in wheat crop. Line sowing, which is an important component of improved technology, was almost absent. The use of chemical fertilizers was very low and the fertilizer consumption was to the tune of only 8 kg N per hectare. The use of chemicals was just nil. Only about 7 per cent of the farmers were found to be making use of water harvesting techniques. It is interesting to note from the table that none of the farmers were following the recommended cropping pattern. This can be attributed to conservative behaviour and rigid social structure of tribals. Nearly one-third of the sampled farmers were found to be unsatisfied with the economic benefits associated with improved technology. This may be because of their adverse experience in some particular season which raises doubts about the marked technology recommended for that area.

3. Problems and Constraints in the Adoption of Improved Farm Technology

Various problems and constraints inhibiting the adoption of improved farm technology on tribal farms of Pangi Valley were studied, quantified and presented in table 5. The major constraints identified were:

- i) inadequate and untimely supply of farm inputs
- ii) small and scattered land holdings
- iii) lack of recommended technology for an area
- iv) shortage of irrigation and
- v) inadequate credit facilities in the study area. Some other major problems included scarcity of labour during peak periods and lack of

proper extension facilities to break the conservativeness of the tribals.

Table 4: Extent of adoption of improved farm technology in Pangi Valley

Particulars	Size of farm		All farms
	Small	Large	
Per cent of sown area under irrigation (%)	10.56	11.59	11.02
Per cent of cropped area under HYVs (%)	12.29	16.41	14.15
Per cent of farmers using HYVs (%)	12.73	14.46	13.51
Per cent of farmers adopting line sowing	Nil	3.85	1.74
Per cent of farmers using chemical fertilizer	15.21	18.37	16.64
Fertilizer consumption (N-kg/ha)	17.13	18.95	17.94
Per cent of farmers using chemicals (%)	Nil	4.50	2.03
Per cent of crossbred cows to total cows (%)	12.81	15.72	14.12
Per cent of farmers using water harvesting techniques (%)	4.76	9.61	6.95
Per cent of farmers following recommended cropping pattern	Nil	Nil	Nil
Improved technology not profitable	36.50	32.69	34.77

Source: Survey of 115 households in Pangi Valley

Keeping aside the geographical and social constraints associated with this most secluded tribal area, the other major constraints are i) Absence of transportation facilities and poor means of communication, ii) Lack of electricity, iii) Inadequate and inefficient staff in Government offices iv) Lack of marketing facilities and v) Low level of literacy.

4. Measures to boost Overall Development in the Valley

The agricultural development is a prerequisite to the overall development of an area. Therefore, emphasis has to be on the development of agriculture in order to facilitate the overall economic development of the tribal area.

i) Infrastructure: The infrastructural facilities like roads and communication, electricity and basic amenities must be accorded

top priority in tribal planning for the overall economic development of the valley. This would certainly gear up the pace of development of subsistence agriculture in the valley.

Table 5 : Problem and constraints in the adoption of improved farm technology

S. No.	Particulars	Size of farm		All farms
		Small	Large	
1.	Inadequate and untimely supply of farm inputs	72	83	77
2.	Small and scattered holdings	76	58	68
3.	Lack of credit facilities	64	60	62
4.	Recommended technology not known	71	63	67
5.	Lack of irrigation	66	58	62
6.	Seed and fertilizer depot too far	62	68	65
7.	HYVs do not perform well	57	61	59
8.	Scarcity of labour during peak period	52	60	56

ii) *Extension Services*: For the purpose of dissemination of advanced farm technology agricultural extension services should be strengthened and streamlined. This is one of the most important tasks to be taken up by the state government by employing crop doctors in the valley and to make sure that even the simplest technology is being trickled in the valley. This may lead to commercialised farming and thereby development on many fronts.

iii) *Farm Inputs*: The Government should ensure the availability of critical farm inputs in sufficient quantities well in advance of the next cropping season. Besides the Government should ensure production as well as consumption loans on subsidised rate of interest.

iv) *Soil and Water Conservation*: The soil and water conservation measures also need due consideration because of small, fragmented scattered and slopy holdings. The water harvesting technology, in the study area, through the construction of water storage structures should

be exploited as the irrigation through other sources may take a huge amount of expenditure and time.

v) *Social Forestry*: The forest trees like *Quercus dilatata* and *Quercus semicarpifolia* should be planted in the area in addition to the pine, deodar and other forest trees. These trees are good for fuel fodder and soil conservation measures.

5. Concluding Observations

Keeping in view the topography and the fragility of hilly, snow-bound environment, together with lack of basic infrastructural facilities, the economic conditions of tribals can be improved by adopting the measures suggested to improve the state of agriculture in the valley. In addition to this intensification of the resource-base cottage industries including carpentry, carpet making, weaving and spinning of woollens, tailoring and wool processing units can be strengthened. The state Government should frame its policies in such a way so that the major constraints inhibiting the agricultural development are removed at an earliest. Once the major constraints like lack of transportation and other basic infra-facilities are overcome, the spectacular development in the valley is expected.

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