Chapter 4

Land Use and Land Reforms

Introduction

There are spatial variations in terms of the general land use pattern of the different areas because of the diversities in landform and rainfall in various regions. It is essential to shift from general to particular areas where agriculture plays a vital role as a means of livelihood for majority of the people in.

Land use is an important subject particularly relevant to agricultural geography. According to J.L. Buck, land utilization is the satisfaction which the farm population derives from the type of agriculture; develop the provision for future production and contribution to national needs (Zuated 1951). Land use is also related to conservation of land from one major use to another general use (Nanvati, 1951). Land use is a geographical concept since it involves specific areas. The study of land use forms a significant part of geography and has assumed a place of pride in the field of applied geography. According to Symons (1978) the land use study forms the spearhead for the advance of geography into the applied sciences as maps of land use have been recognized as essential tools of regional planning and development (shodhganga.inflibnet.ac.in).

Classification of Land Use/Land Utilization Pattern in Sikkim

Realizing the need of land utilization statistics for the state, the stock-wise survey was initiated in 1990-91 and the land utilization statistics of Sikkim of 1995-96 was published by the Department of Agriculture, Government of Sikkim. The land utilization statistics constitutes the basis of planning and development in agriculture and allied sectors. Crucial linkages do exist between the land utilization statistics and the economic growth of the state. Based on these data the potential land use plans could be drawn for more efficient and proper utilization to realize increased production of food, fodder, fuel, etc. in future. Obviously, the land is the most important natural resource, and requires a focused agenda encompassing the critical aspects of preservation, conservation and utilization for ever-growing needs and economic benefits of man (Bhutia, 2006).

According to the survey report of 1995-1996, published by the Department of Agriculture, Government of Sikkim, the nine fold classification of land utilization was adopted to generate data on area distribution under various classification of land use viz., forest, land put to non-

agricultural uses, barren and uncultivable land, permanent pastures and other growing lands, miscellaneous tree crops and groves not included in the net area sown, cultivable waste land, fallow lands other than current fallows, current fallows, and net area sown.

Table 4.1: Old and New Classification of Land

Sl. No.	Old Five Fold Classification	Sl. No.	New Nine Fold Classification
1.	Forest	1.	Forest
2.	Area not available for cultivation	2.	Land put to non-agricultural use
3.	Other Cultivated land excluding current fallow lands	3.	Barren and Uncultivable land
4.	Fallow Lands	4.	Permanent Pastures and other Grazing Lands
5.	Net Area Sown	5.	Miscellaneous tree crops and groves not included in the Net Area Sown
		6.	Cultivable waste
		7.	Fallow land other than current fallows
		8.	Current Fallows
		9.	Net Area Sown

Source: Subba, 2008

From the above table (4.1), it is seen that in the old classification land was classified into five categories only, viz. forest area not available for cultivation, other cultivated land excluding current fallows, fallow lands, and net area sown. However, in the new classification of land, it has been increased to nine fold i.e. forest, land put to non-agricultural use, barren and uncultivated land, permanent pastures and other grazing lands, miscellaneous tree crops and groves not included in the net area sown, cultivable waste, fallow land other than current fallows, current fallows and net area sown.

Sikkim being located in the Eastern Himalayas has a major chunk of its area under the snowy peaks and mountains ranges, including dense forests, the National Park and the restricted area for defense purpose. Hence, out of the total geographical area of 709,600 hectares, nearly 75 percent of the state's area (around 46 percent under the snowy peaks and ranges and about 29 percent under the dense forests) has not been taken into account in this survey of land utilization. Reporting area for land utilization statistics amounts to 24.58 percent of the total geographical area of Sikkim. The survey shows the distribution of reported area under various classifications of land use block-wise. The total arable land (the net area sown plus the current fallow and other lands) is estimated to be 95,136 hectares, i.e. 56.03 percent of the total reporting area. Around 50,708 hectares of land is under forests, constituting 29.74 percent of the reporting area. Land put to non-agricultural uses adds up to 2,607 hectares or 1.53 percent; barren and unculturable land 9,886 hectares, or 5.81 percent; permanent pastures and other

growing lands 4,371 hectares or 2.56 percent; land under miscellaneous tree crops and groves 5,436 hectare, or 3.19 percent; and culturable land 2,389 hectare, or 1.41 percent of the total reporting area (Bhutia, 2006). It is the first attempt to come up with this extensive survey about land utilization pattern in Sikkim.

Agriculture is the backbone of Sikkimese economy. More than 70 percent of the population depends upon agriculture and related activities to maintain their livelihood. Prior to 1975, the uncertainties of land tenure rights, negligible public investment and over dependence on traditional technologies had made cultivation in Sikkim very expensive. The economy was further obstructed by low productivity, negligible marketable surplus and other institutional backwardness. This was further affected by shifting cultivation in some important geographical pockets and unsuccessful structure of agricultural administration. However, after merger with Indian Union, with limited area of cultivated land, smaller land holdings, difficult hilly terrain, varied agro-climate condition prevailing at short distances, low farm income and lack of adequate supportive infrastructures for agriculture expansion, the state has slowly yet indigenously, achieved sustenance to its food obligations.

The Fifth Plan (7976-77 to 1980-81) document of Sikkim mentioned, "agricultural stagnation is the main impediment on the rate of growth of the economy" which restricted the peoples' purchasing power and in addition such stagnation also limited the scope for industrialization (Economic Survey, 2006-07:13).

In spite of limited cultivated land in Sikkim, agricultural development could make considerable progress in the last three decades. Introduction of new crops such as wheat, rajma (beans), rape and mustard (oil seeds), extension of more areas under high yielding and improved varieties, increased use of fertilizers and pesticides, and expansion of area under double or multiple cropping have played crucial role in converting agriculture into a viable venture from a mere subsistence farming (DESME, 2006-07:13-14).

No definite systematized land utilization classification is being followed in Sikkim. The old system of land utilization is still being followed in the state. In this system, cultivable land has been classified into three broad groups:

1.) Wet field - comprises all paddy fields,
2.) Dry field - comprises all un-irrigated field
3.) Banjo - waste land, and
4.) Cardamom field - all fields under cardamom crop.

The paddy field and dry field is again divided into three circles as per the notification issued in 1974, depending upon the fertility of the land. The fertile field comes under 'A' circle, moderately fertile in 'B' circle and less fertile in 'C' circle. Cardamom field is again divided into 'A' 'B' and 'C' circle depending upon the fertility of the land, irrespective of slope and

elevation, and land compensation are paid accordingly. The notification issued by the state is given below:

Notification No.156-Dated 5.7.1974

It is notified for the information to the general public and all concerned that in view of all round increase of the market value of the land and agricultural crops, the rate of the land compensation for acquisition has been revised as under with effect from 1.4.1974.

Table 4.2: Notification pertaining to agricultural land compensation

Kind of Land	**Circle 'A' Per Acre of Land**			**Circle 'B' Per Acre of Land**			**Circle 'C' Per Acre of Land**		
	I	I	III	II	III	II	III	II	III
Paddy Field	Rs.5000	Rs.3800	Rs.2500	Rs.4000	Rs.3000	Rs.2000	Rs.3200	Rs.2200	Rs.1600
Paddy Field	Rs.1800	Rs.1400	Rs.900	Rs.1600	Rs.1200	Rs.800	Rs.1200	Rs.900	Rs.600
Paddy Banjo	-	-	Rs.700	-	-	Rs.600	-	-	Rs.500

Source: Subba, 1984.

Cardamom: - I - Rs.6000/- II - Rs.4000/- III - Rs.2500/- IV - Rs.1500/-

The above table shows that the agricultural land has different values and price according to the productiveness, slope and elevation of land. Even the paddy field has been divided into three different categories A, B and C according to market value/compensation. If the land is acquired by the government, then value/compensation is given to the villagers according to categories of land revised in 1974.

The first scientific survey of land in Sikkim was carried out in 1950-58, using the British measurement system of acres and miles. The second, 1976-83 survey is till date the last land survey carried out after Sikkim became a constituent state of India. The metric system of hectares and kilometers was used, and the survey covered all the areas of Sikkim. This was a critical survey, because previous land records had undergone several changes due to partition, mutation, registration and acquisition by the government, private parties and others (Lama, 2001).

The last cadastral survey in Sikkim was done during the 1950-58: according to that survey the following table has been prepared. The particular survey is being updated now and some of the portions, which could not be covered earlier time, are being covered now. Sikkim however, has no permanent field agency to find out the data and up-date these data from year to year.

Table 4.3: Area under Different Land Use in Sikkim ('000 Ha)

Land Type	Area as per 1958-60 Survey Operation	
	Mean ± S.D.	**Standard Error**
Forest	262.14±40.0499	16.3503
Barren & Uncultivable	204.80±52.8469	21.5746
Permanent Pastures	102.40±33.3946	13.6332
Land under Misc. Tree crops and Groves	4.00±2.0976	.8563
Land Under cultivation	81.23±23.4861	9.5881
Other Including Unaccounted	69.39±14.2688	5.8252
Total	723.96±54.4683	22.2366

Source: Subba, 1984.

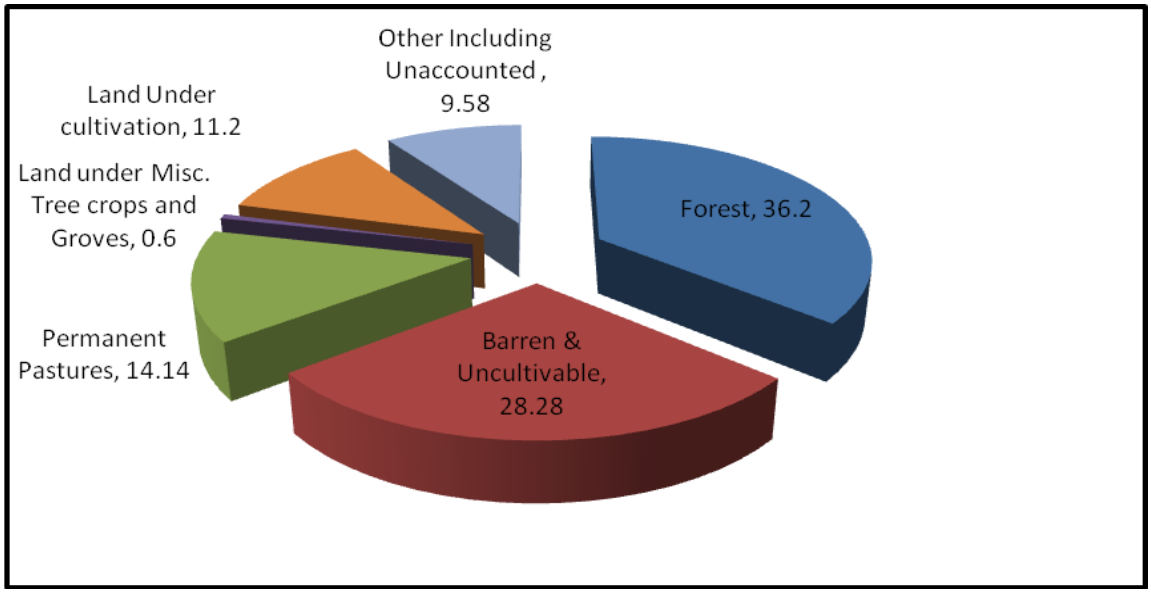


Figure 4.1 Area under Different Land Use in Sikkim ('000 ha) as per 1958-60 Survey

The table 4.3 and figure 4.1 show area under different land use in Sikkim in ha as well as in percentage, their significant mean ±S.D. and standard error. The highest available land type is under Forest, the mean ±S.D. 262.14±40.0499, percentage mean ±S.D. 36.20±21.7990 and its corresponding error is calculated as 16.3503 and 8.8994. The second highest available land type is barren & uncultivable and it has significant mean ±S.D 204.80±52.8469, percentage mean ±S.D 28.28±17.2394 and its corresponding error is calculated as 21.5746 and 7.0379.

After forest and barren & uncultivable come permanent pastures with mean ±S.D 102.40±33.3946, percentage mean 14.14±13.4461 and its corresponding error 13.6332 & 5.4893. Land under cultivation (81.23±23.4861 & 11.20±8.1240 and 9.5881 & 3.3166) comes in fourth position which clearly indicates shortage of available land under cultivation.

Table 4.4: Land use Pattern under Operational and Non-Operational Holdings in Sikkim (1976-77 to 2000-01)

Sl. No.	Land Type	1976-1977		1980-1981		1990-91		1995-1996		2000-2001	
		Ha	%	Ha	%	Ha	%		%	Ha	%
1.	Net area sown	64,927	9.15	78,321	11.04	63,254	8.91	62,043	8.74	63,250	8.91
2.	Area under current fallow	501	0.07	4,428	0.62	3,906	0.55	5,078	0.71	3,910	0.55
3.	Other uncultivated area excluding fallow land	4,925	0.69	4,560	0.64	10,820	1.53	9,807	1.38	10,830	1.53
4.	Fallow other than current fallow	944	0.13	9,474	1.34	9,204	1.30	29,573	4.16	9,200	1.30
5.	Cultivable waste land	1,153	0.16	681	0.10	9,807	1.38	2,389	0.33	9,810	1.38
6.	Land not available for cultivation	6,613	0.93	11,604	1.64	14,300	2.02	1,2494	1.76	14,300	2.01
Total		79,062	11.14	109068	15.37	111301	15.96	121384	17.08	111300	15.68

Source: Pradhan, 1998, DESME, 2002& Gazetteer of Sikkim, 2013.

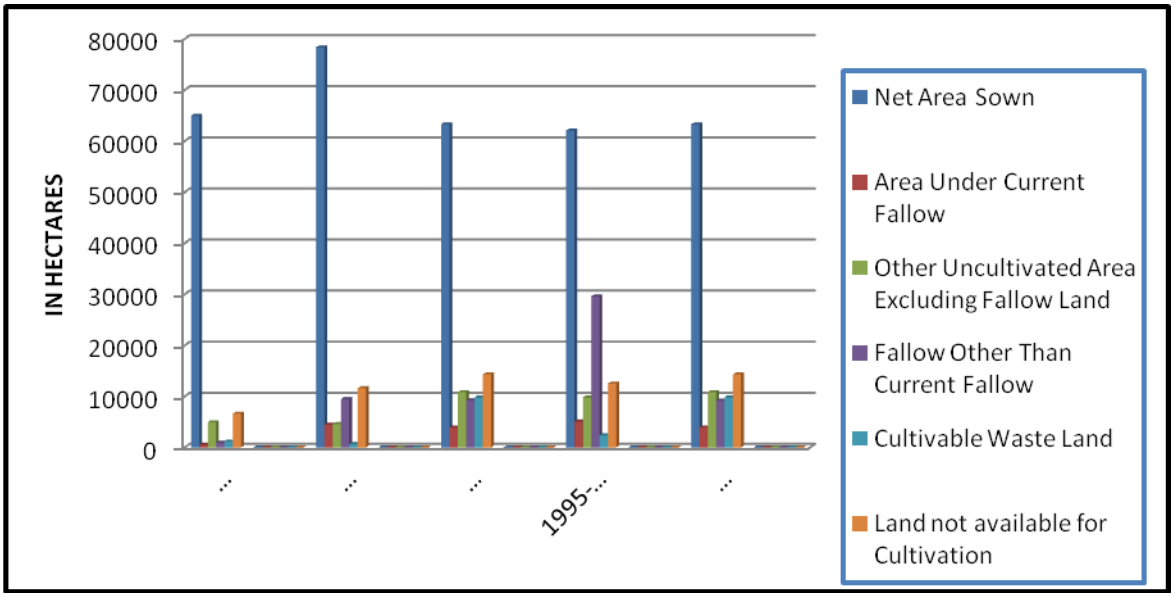


Figure 4.2: Land use Pattern and Land under Operational and Non-Operational holdings

The table and figure given above indicate that the net area sown initially gained some area in 1980-81 (11.04), but thereafter it remained almost stagnant in 1990-91(8.91), 2000-01(8.91) and 1995-96 (8.74). The fallow other than current fallow land increased sharply during the year 1995-96. The land not available for cultivation remained more or less same since 1980-81.

There has been a marginal decrease in net sown area since 1990-91 but almost threefold increase in fallow land other than current fallow. Due to lack of irrigational facilities, manpower etc. many farmers kept their land unutilized for more than one year. Between 1995-96 and 2000-2001 some progress has been seen in the utilization of fallow land other than current fallow because state government took initiatives and motivated farmers to convert such land for agricultural use.

Table 4.5: Land Use Pattern: East and West District of Sikkim 2005-06 (in Ha)

SL. No.	Particulars	East District Mean ± S.D.	Standard Error	West District Mean ± S.D.	Standard Error
1.	Irrigated Land	2532.14±15.2315	6.2182	2119.5±18.7082	7.6376
2.	Un-Irrigated Land	9475.46±22.6008	9.2267	10433.45±20.6203	8.4182
3.	Non-Agricultural Use	3277.15±20.8518	8.5127	1832.06±14.6013	5.9609
4.	Forest/Jungle/Bushes	9112.07±7.6941	3.1411	2433.31±18.9208	7.7244
5.	Grass Land	3795.76±25.0120	10.2111	4525.00±16.3340	6.6683
6.	Barren Land	1652.96±25.2982	103279	1219.74±22.3875	9.1396
7.	Uncultivated Fallow Land	8178.6±28.3125	11.5585	2529.11±20.1891	8.2421
8.	Cardamom Field	787.21±29.4006	12.0027	840.16±26.1839	10.6895
	Total	38811.35±19.9599	8.1486	25932.33±19.5448	7.9791

Source: DESME, 2006-07.

Table 4.6: Land Use Pattern: North and South District of Sikkim 2005-06, (in Ha)

SL. No.	Particulars	North District Mean ± S.D.	Standard Error	South District Mean ± S.D.	Standard Error
1.	Irrigated Land	886.97±29.1890	11.9163	2104.62±23.8914	9.7536
2.	Un-Irrigated Land	3959.84±22.9172	9.3559	15435.74±18.3738	7.5011
3.	Non-Agricultural Use	1903.13±25.9306	10.5861	2754.33±24.5519	10.0233
4.	Forest/Jungle/Bushes	2383.77±28.2772	11.5441	2519.7±23.1948	9.4692
5.	Grass Land	6752.15±20.8710	8.5205	4515.00±26.0537	10.6364
6.	Barren Land	63.29±19.2249	7.8485	1209.11±29.0860	11.8743
7.	Uncultivated Fallow Land	1023.01±20.5621	8.3944	2086.54±29.1273	11.8911
8.	Cardamom Field	1030.21±20.3666	8.6146	1003.67±21.2602	8.6794
	Total	18002.37±2.0816	9.0148	31628.71±20.9666	8.5596

Source: DESME, 2006-07.

The above tables (4.5 & 4.6) illustrate the significant mean S.D and standard errors in the land use pattern in different districts of Sikkim. The significant mean clearly indicates that most of the cultivated land in all the districts of Sikkim is un-irrigated. The South district has highest un-irrigated land compared to other districts of Sikkim. Actually South district is drought prone area. The irrigated land, non-agricultural use, barren land, cardamom field are in the same level in South district. But the West and North districts have fluctuating land use pattern. The North district has maximum area under grass land, while the East district has the highest share of uncultivated fallow land. The existing pattern of land use of Sikkim has been shown in figure 4.3.

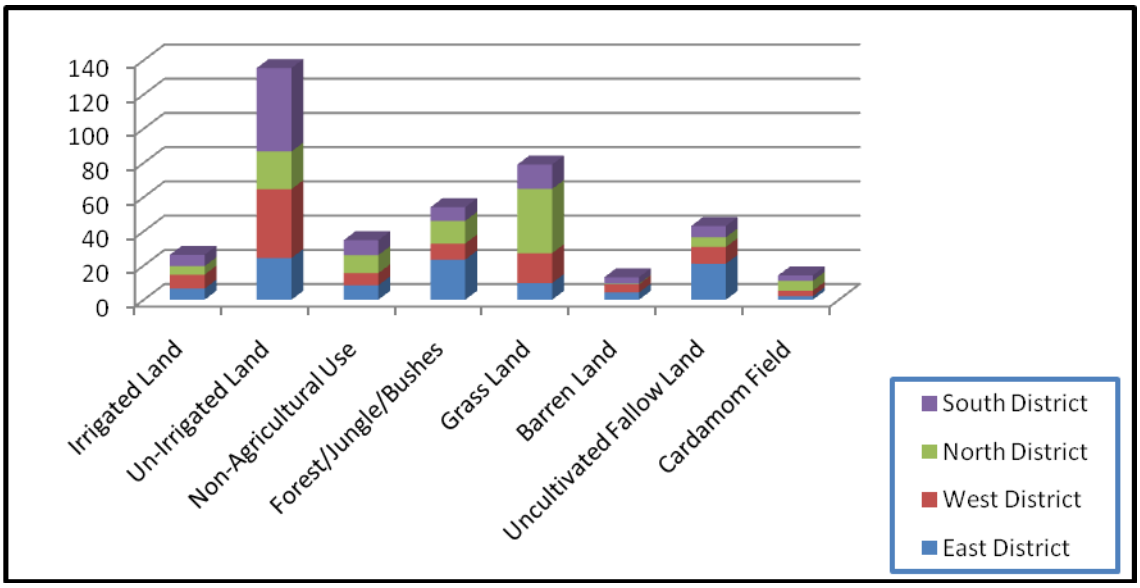


Figure 4.3: District-wise Distribution of Land Use Pattern, Sikkim 2005-06, (in Percent)

Of the total geographical area of 7096 sq. km, 82.31 percent is under the administrative control of the Forest, Environment and Wildlife Management Department. The land available for cultivation was 12.3 percent in 1990-91 including current and fallow land. In 2010, the net cultivated area was around 79,000 ha (11.13 percent) including the large cardamom plantations. The state is yet to develop a comprehensive land use policy. Since 2000 the net cultivated area decreased significantly due to conversion of agricultural land into non-agricultural use for development activities, such as establishing pharmaceutical industries and hydropower project infrastructures (Gazetteer of Sikkim, 2013).

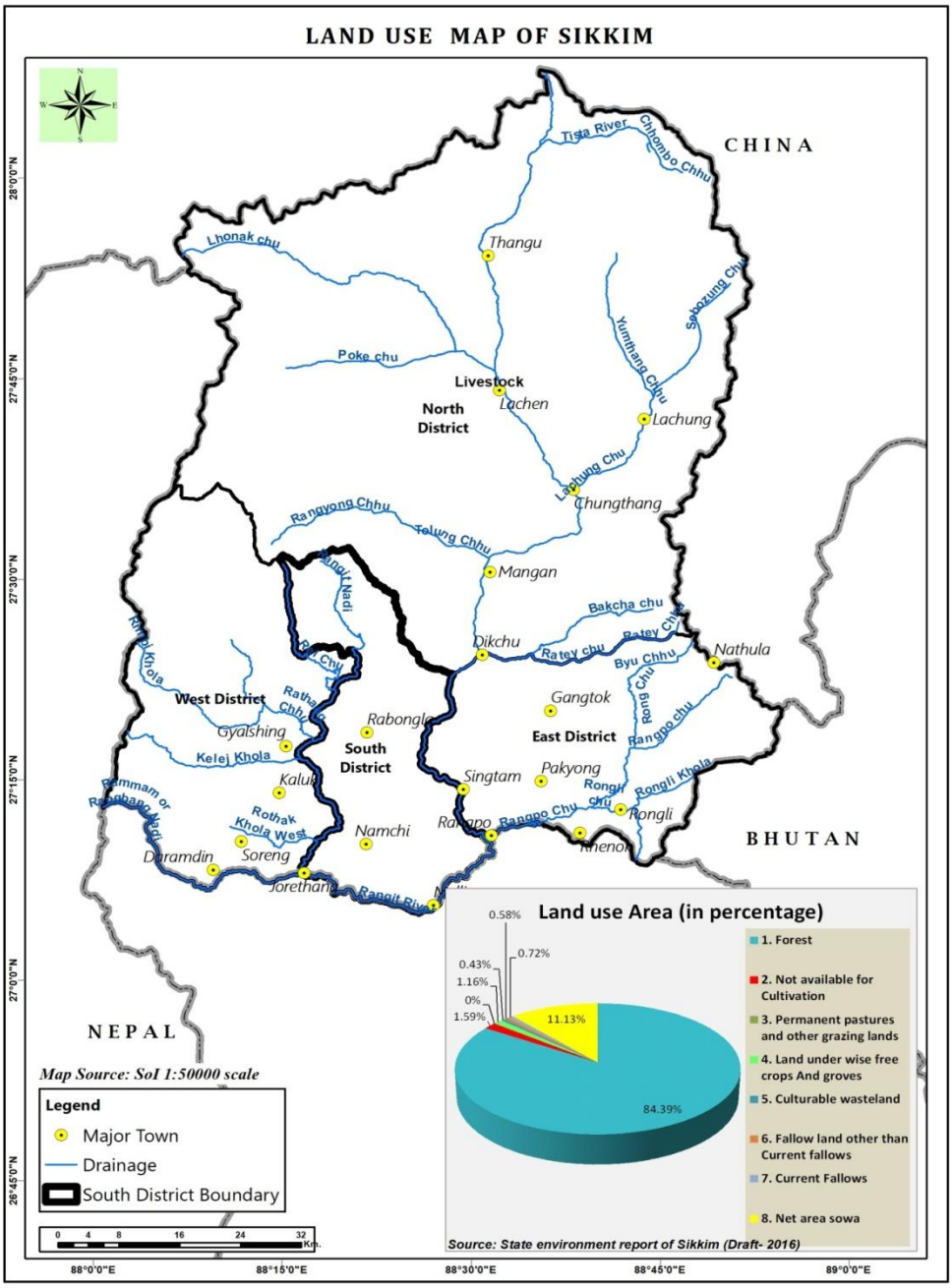
Table 4.7: Land Use in Sikkim, 2016

Sl. No.	Land Use	Area in (ha
1.	Forests	5,84000
2.	Not available for cultivation	11,000
3.	Permanent pastures and other grazing lands	0
4.	Land under Misc. Tree crops and groves	8,000

5.	Culturable wasteland	3,000
6.	Fallow land other than current fallows	4,000
7.	Current fallows	5,000
8.	Net area sown	77,000
	Total	6,92,000

Source: State of Environment Report Sikkim (Draft) -2016.

Map No. 12



The State of Environment Report Sikkim 2016 has mentioned eight types of land use pattern in Sikkim viz. forests, not available for cultivation, permanent pastures and other grazing lands, land under misc. tree crops and groves, culturable wasteland, fallow land other than current fallows, current fallows and net area sown. The highest land use has been seen in forests because of 'green mission as well as ten minutes to earth' which encourage the people for the plantation of different trees in every physical surrounding in Sikkim, that's why Forests covers 84.39 percent of land. Among the other land use pattern net area sown has occupied 11.13 percent of land in Sikkim. But the permanent pastures and other grazing lands seem to be zero due to ban of grazing of animals in Sikkim.

Since the area under study is in the South district of Sikkim, the exclusive land use pattern in the district in various years (2001-02, 2005-06 and 2014-15) is given below:

Table 4.8: Land Use Pattern of South District (2001-02 &2005-06)

SL. No.	**Particulars**	**2001-02**	**Standard Error**	**2005-06**	**Standard Error**
		Hectares Mean ± S.D.		Hectares Mean ± S.D.	
1.	Irrigated Land	21667±24.4540	9.9833	2105±22.8648	9.3345
2.	Un-Irrigated Land	16350±22.9869	9.3843	15436±25.5812	10.4435
3.	Non-Agricultural Use	1614±17.6522	7.2064	2754±27.0776	11.0544
4.	Forest/Jungle/Bushes	1457±25.9461	10.5924	2520±26.6833	10.8934
5.	Grass Land	1284±25.4244	10.3794	1209±18.4173	7.5188
6.	Barren Land	2386±26.0998	10.6552	2087±25.3535	10.3505
7.	Uncultivated Fallow Land	642±19.2769	7.8697	1004±21.0902	8.6100
8.	Cardamom Field	4400±25.2586	10.3318	4515±20.8134	8.4970
	Total	49800±21.9545	8.9628	31630±34.5079	14.0878

Source: DESME, 2004-05, 2006-07.

The table 4.8 shows the land use pattern of South district during 2001-02 & 2005-06, in terms of irrigated land, un-irrigated land, non-agricultural use, forest/jungle/bushes, grass land, barren land, uncultivated fallow land and cardamom field and their significant mean ±S.D. and standard error. According to the figure and table, in the year 2001-02, irrigated land was

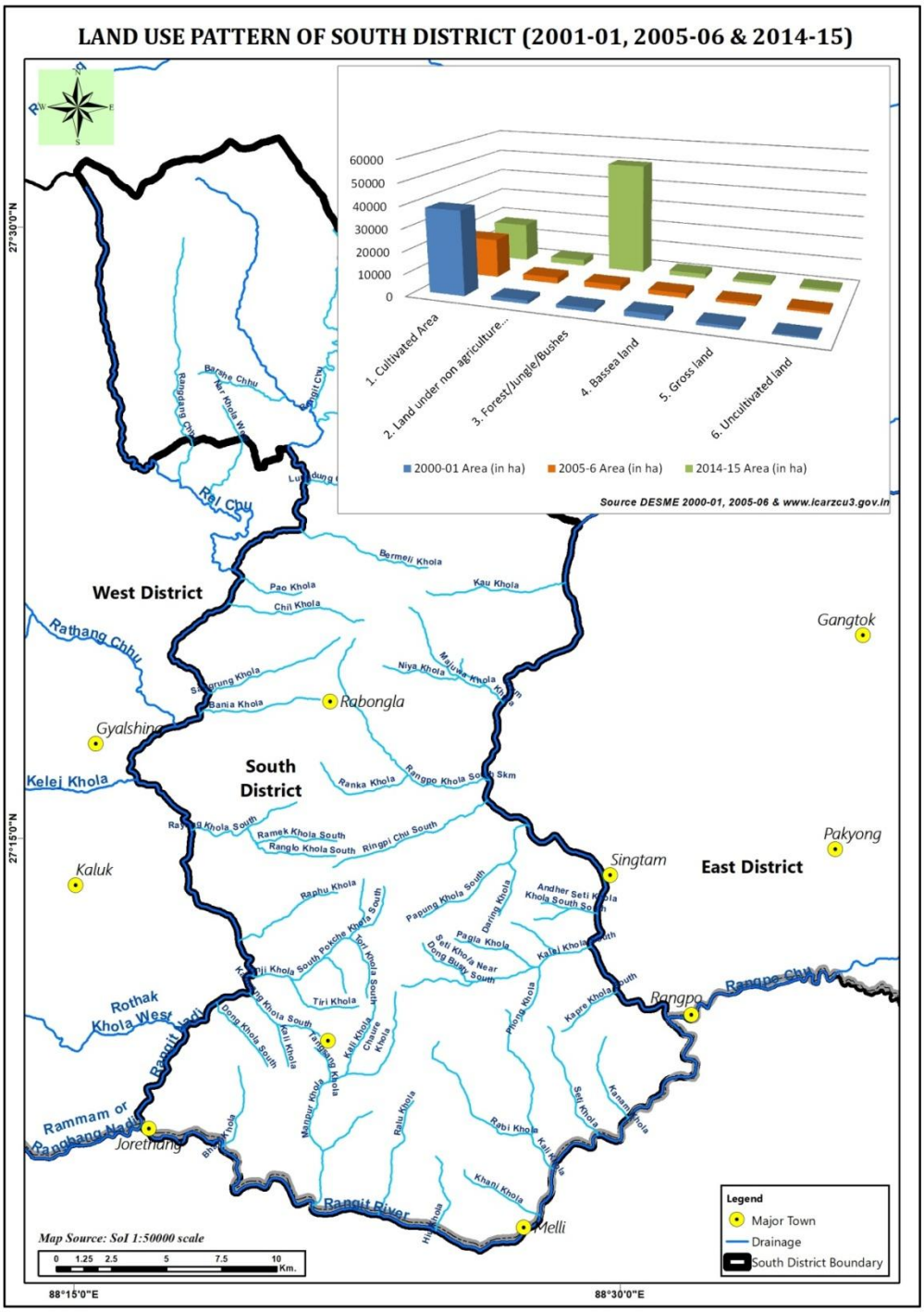
highest (91.14%), having the mean ± S.D. 21667±24.4540 and its corresponding error 9.9833. But, in 2005-06, the irrigated land was found to be only (8.86%) and the mean ± S.D. 2105±22.8648 and its corresponding error calculated were 9.3345. It seems the total land under cultivation might have increased, but those were mostly un-irrigated. Besides, in some areas, water sources were drying up, thereby causing decrease in irrigated land The un-irrigated land in 2001-02 was 51.44% having the mean ± S.D. 16350±22.9869 and its corresponding error 9.3843. But in 2005-06, the un-irrigated land is found to have decreased (48.56%), the mean ± S.D. 15436±25.5812 and corresponding error calculated as 10.4435. The cardamom field in 2001-02 was 49.36% and the mean ± S.D. 4400±25.2586 and corresponding error calculated as 10.3318. But in 2005-06, the cardamom field increased to 50.64% and the mean ± S.D. 4515±20.8134 and corresponding error have been 8.4970. The other categories are barren land (2001-02: 2386±26.0998, 2005-06: 2087±25.3535), land under non-agricultural use (2001-02: 1614±17.6522, 2005-06: 2754±27.0776), forest/jungle/bushes (2001-02: 1457±25.9461, 2005-06: 2520±26.683) and lowest available of land use is uncultivated fallow land (2001-02: 642±19.2769, 2005-06: 1004±21.0902).

Table 4.9: Land Use Pattern of South District (2014-15)

SL. No.	Classification of land	Area (Ha)		Percentage (%)	
		Mean ± S.D.	Standard Error	Mean ± S.D.	Standard Error
1.	Cultivated Area	17540.36±13.2060	5.3913	23.39±14.9933	6.1210
2.	Land under non-agriculture use	2754.33±24.8676	10.1521	3.67±2.1061	.8598
3.	Forest/Jungle/Bushes	50405.99±28.1069	11.4746	67.21±25.0439	10.2241
4.	Barren Land	2086.54±32.6925	13.3466	2.78±1.5439	.6303
5.	Grass Land	1209.11±21.8723	8.9293	1.61±.9879	.4033
6.	Uncultivated Land	1003.67±32.8268	13.4014	1.34±.8671	.3540
	Total	75000.0±52.1536	21.2916	100.00±25.3456	10.3473

Source: www.icarzcu3.gov.in.

Map No. 13



The economics of South district is mostly connected with agriculture that gives the source of livelihood and economic security of sizable local population. It is estimated that more than 70 percent of rural population depends on agriculture and allied sectors for economic, food and nutritional security. The table 4.8 and figure 4.6 show the land use pattern of South district.

The highest available land use is forest/jungle/bushes having (67.21%). The second highest available of land use is cultivated area (i.e. 23.39 %). After forest/jungle/bushes and cultivated area comes land under non-agriculture use (3.67%). Other land uses such as barren, grass and uncultivated lands are negligible.

Land Use Pattern in the Study Area (Gram Panchayat Units)

For an intensive study of prevailing land use pattern in South district, fifteen Gram Panchayat units (GPUs) have been randomly selected. These GPUs have been grouped in three sets according to elevation. The Set I consists of the GPUs of Namphing, Legship, Rong-Bul, Tarku and Turung-Mamring. The Set II has the GPUs of Sadam-Suntaley, Tinik-Chisopani, Namthang-Maneydara, Assangthang and Wok-Omchu, while Set III consists of Borong-Phamthang, Barfung-Zarung, Paiyong, Tinik-Rayong and Perbing-Dovan.

The table 4.10 shows the overall land use pattern in the GPUs of Namphing, Legship, Rong-Bul, Tarku and Turung-Mamring (Set I).

Table 4.10: Land Use Pattern in GPUs Set I (Namphing, Legship, Rong-Bul, Tarku and Turung-Mamring)

SL. No.	Particulars	Hectare
1.	Irrigated Land(*Khet)*	265.70
2.	Un-Irrigated Land(*Sukha bari)*	1639.00
3.	Culturable Waste (*Banjo*)	897.70
4.	Cardamom (*Alainchi bari*)	107.33
	Total	2909.73

Source: VDAP, 2011.

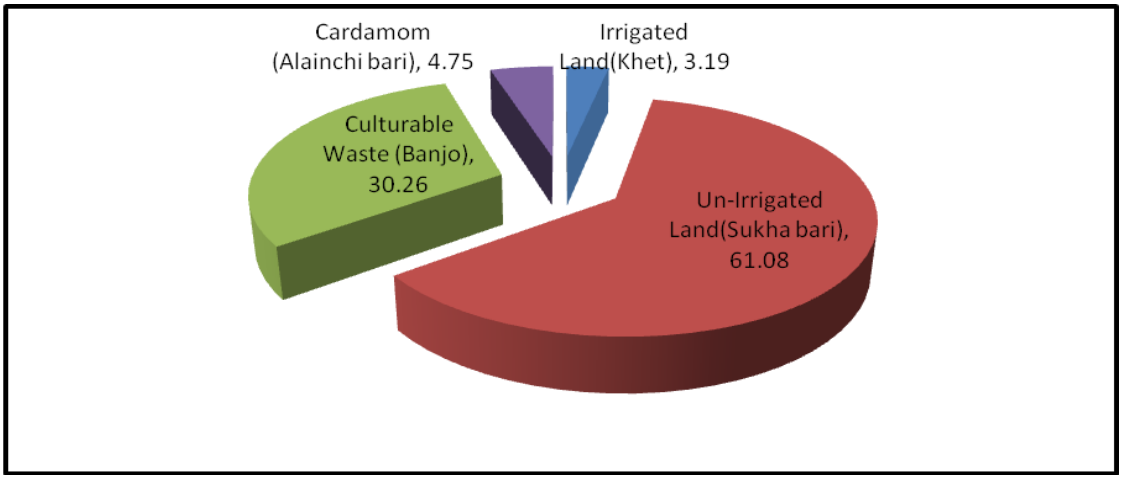


Figure 4.4: Land Use Pattern of GPUs Set I (Namphing, Legship, Rong-Bul, Tarku & Turung-Mamring)

The figure illustrates the land use pattern of five GPUs, namely Namphing, Legship, Rong-Bul, Tarku and Turung-Mamring of South district. The land use has been classified as irrigated land (*khet)*, un-irrigated land (*sukha bari)*, culturable waste (*banjo*) and cardamom (*alainchi bari*). The highest available of land use is found as un-irrigated land (*sukha bari)* having (56.33%) due to scarcity of water even in rainy season. The second highest available land use pattern is culturable waste (*banjo*) having 30.85 % of land. This high percentage of waste land may be attributed to acute scarcity of water and lack of man power. The irrigated land (*khet)* and cardamom fields (*alainchi bari*) account for only 9.13% and 3.69% respectively. The findings of the primary data collected in the current study corroborate with the secondary data in terms of un-irrigated land (*sukha bari)* as the dominant land use pattern in the study area.

Table 4.11: Land Use Pattern of GPUs Set II (Sadam-Suntaley, Tinik-Chisopani, Namthang-Maneydara, Assangthang and Wok-Omchu)

SL. No.	Particulars	Hectares
1.	Irrigated Land (*Khet)*	156.70
2.	Un-Irrigated Land (*Sukha bari)*	2448.00
3.	Culturable Waste (*Banjo*)	1212.80
4.	Cardamom (*Alainchi bari*)	190.20
	Total	4007.70

Source: VDAP, 2011.

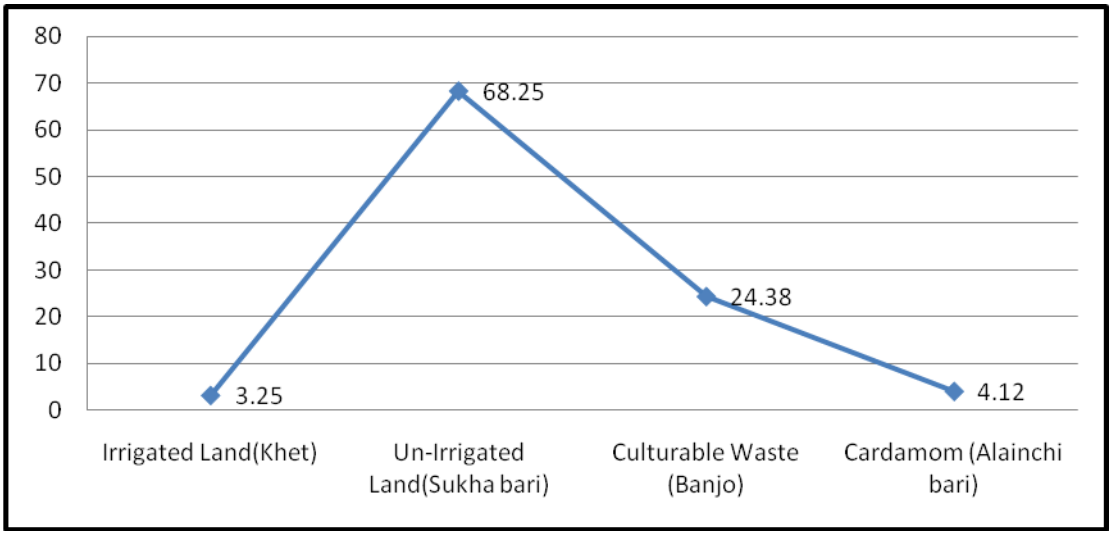


Figure 4.5: Land Use Pattern of GPUs Set II (Sadam-Suntaley, Tinik-Chisopani, Namthang-Maneydara, Assangthang and Wok-Omchu)

The figure 4.5 shows the land use pattern of five GPUs Sadam-Suntaley, Tinik-Chisopani, Namthang-Maneydara, Assangthang and Wok-Omchu of South district The highest available land use is un-irrigated land (*sukha bari)* accounting for 61.08%. The second highest available land use is culturable waste (*Banjo*) having 30.26 %. After un-irrigated land (*sukha bari)* and culturable waste (*banjo*) come cardamom (*alainchi bari*) having 4.75%. The irrigated land (*khet)* is 3.91% only. The findings of the primary data collected in the current study corroborate with the secondary data in terms of un-irrigated land (*sukha bari)* as the dominant land use pattern in the study area.

Table 4.12: Land Use Pattern of GPUs Set III (Borong-Phamthang, Barfung-Zarung, Paiyong, Tinik-Rayong and Perbing-Dovan)

SL. No.	Particulars	Hectares
1.	Irrigated Land(*Khet)*	156.30
2.	Un-Irrigated Land(*Sukha bari)*	3284.00
3.	Culturable Waste (*Banjo*)	1173.00
4.	Cardamom (*Alainchi bari*)	198.42
	Total	4811.72

Source: VDAP, 2011.

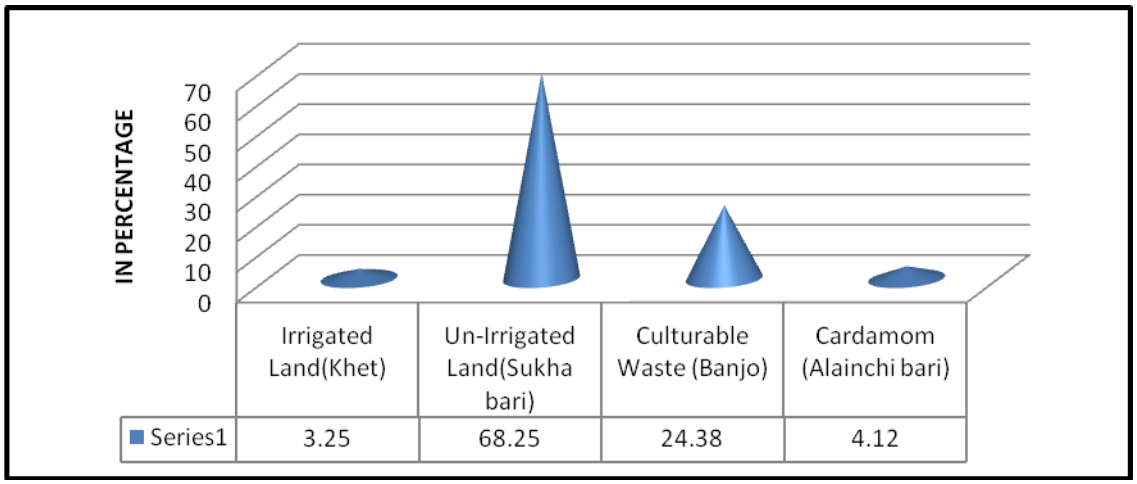


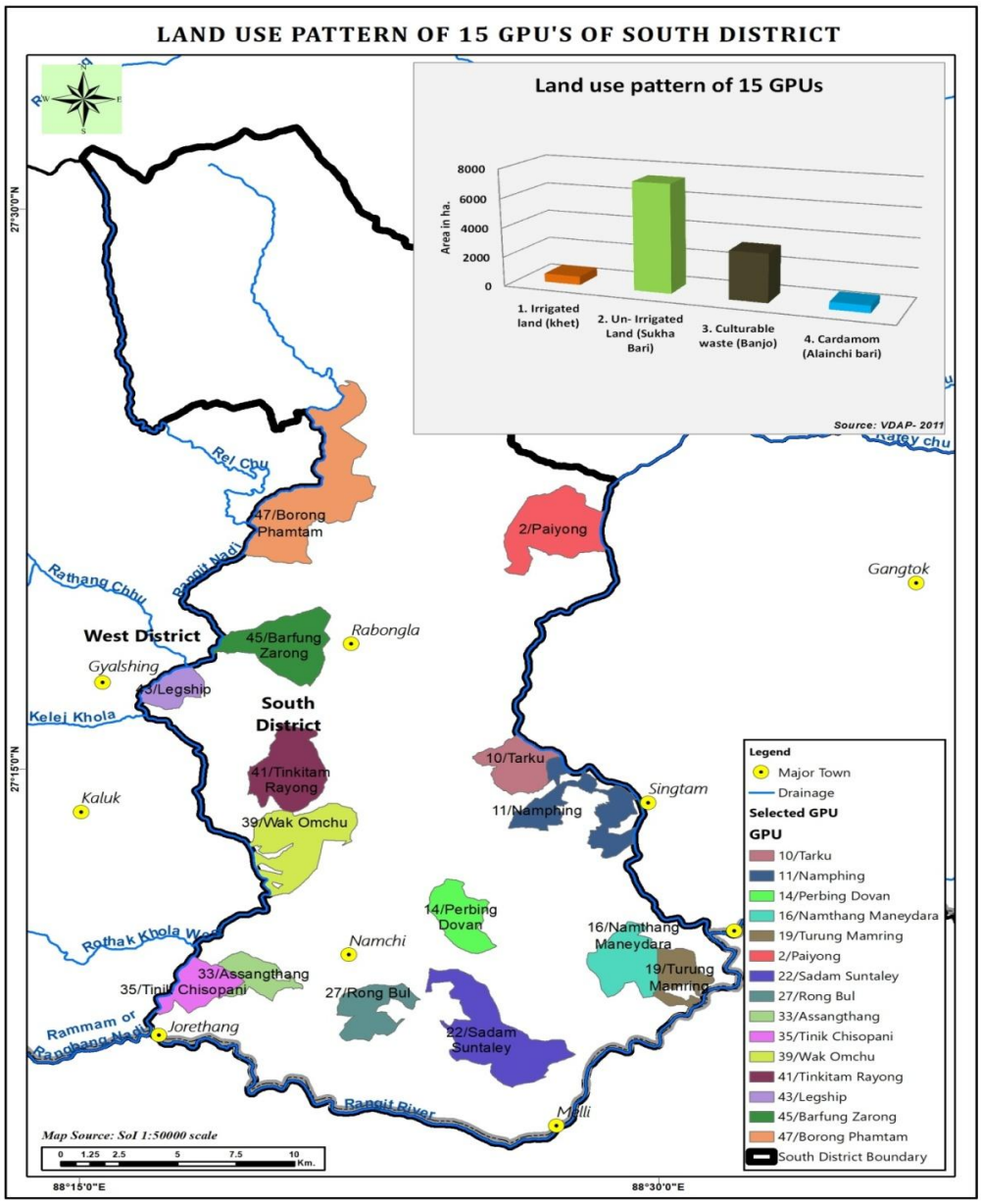
Figure 4.6: Land Use Pattern of GPUs Set III (Borong-Phamthang, Barfung-Zarung, Paiyong, Tinik-Rayong and Perbing-Dovan)

The above table 4.12 depicts the land use pattern of five GPUs Borong-Phamthang, Barfung-Zarung, Paiyong, Tinik-Rayong and Perbing-Dovan of South district,. The highest available land use pattern is of un-irrigated land (*sukha bari)* with 68.25%. This could be due to scarcity

of water and landforms features. The second highest available land use pattern is of culturable waste (*banjo*) with 24.38 %. After un-irrigated land (*sukha bari)* and culturable waste (*banjo*) comes cardamom (*alainchi bari*) with 4.12% and irrigated land (*khet)* with 3.25% respectively. The findings of the primary data collected in the current study corroborates with the secondary data in terms of un-irrigated land (*sukha bari)* as the dominant land use pattern in the study area.

In all three sets of GPUs, un-irrigated land *(sukha bari)* is the dominant land use component and the results of primary survey confirm the secondary data.

Map No. 14



Land Reform in Sikkim

Changes in the land ownership is basic concept in land reform system, particularly when it embraces giving land to the people who actually get acquainted with it and taking it away from the people who occupy large areas for their benefit.

Changes in the agrarian structure may broadly be of two types: first, changes in agrarian relation which may occur in an indirect manner in response to spontaneous operation of socio-economic process: second, changes brought about as a result of direct investment may assume the form of land legislation and its implementation through governmental action. All these kinds of attempts to alter the agrarian structure may be characterized as land reforms (Joshi; 1976).

Different approaches were taken for land reform during Chogyal's regime in Sikkim. But only the feudal group was enjoying the different benefits within a region. The poor people were frustrated with landlordism, and then the educated elite group came up with a mission to overcome social oppression, economic exploitation and political dictatorship as well as to improve the status of peasants, and some associations were formed. Some of the important ones were the Praja Sudharak Samaj led by Tashi Tshering, Praja Sammelan led by Gobardhan Pradhan and Dhan Bahadur Tewari, and the Praja Mondal led by Kazi Lendup Dorji. Tashi Tshering was the leading exponent of the peasant rights and primarily under his inspiring leadership, on December 7, 1947, these three associations formed the Sikkim State Congress which submitted to the Maharaja a charter of demands comprising of three points: abolition of landlordism, introduction of responsible government and Sikkim's accession to India. The Chogyal considered only the first and second proposals and he advised the state congress to drop the third proposal. Meanwhile, he took pains to politicize the demands with the help of orthodox traditional forces consisting of the Kazis and the hereditary landlords of Sikkim. These forces organized the Sikkim National Party in 1948. The land reforms committee has made a significant breakthrough by bringing into the public eye major aspects of land reforms in Sikkim. The suggestions were humble, but their implementation was fraught with problems. It goes without saying that if the recommendations were given effect they were likely to bring about far-reaching changes in the traditional society of Sikkim (Dhamala & Bhowmick, 1985). If the recommendations were accepted by the Chogyal, then the scenario would have been different in Sikkim.

A brief outline of the recommendations of the committee may be discussed in three important aspects:

1) Abolition of private estates and monastery estates,
2) Tenancy reforms and
3) Ceiling on holdings.

Since 1975, the Government of Sikkim has enacted legislations such as the Sikkim Cultivators Protection Act 1975, the Sikkim Agricultural Land Ceiling and Reforms Act 1978, and the Sikkim Land (Requisition and Acquisition) Act 1978. An analysis would reveal that these acts are intended to fulfill three purposes:

a. Elimination of intermediaries in the land management system,
b. Enforcement of ceiling law in respect of land holdings and distribution of surplus land, and
c. Protection of tenancy rights (Dhamala & Bhowmick, 1985).

Sikkim being agriculture-based state, land has its own meaning which acts as a source of livelihood greatly from its quantity, type and altitudes which are usually different from one another. In an agricultural society like Sikkim the farmland has been determined by a primary key like wealth, stability and governance. A good number of people mostly live in rural areas of Sikkim and most of them sustain their life through agriculture if they are to make a living at all.

While patterns vary greatly from place to place, it is generally true that where a few individuals (as it was in Sikkim) own a large share of land, the same individuals dominate local politics and through their roles as lenders, landlords and employers also control the economic lives of their neighbours (Gupta (1992).

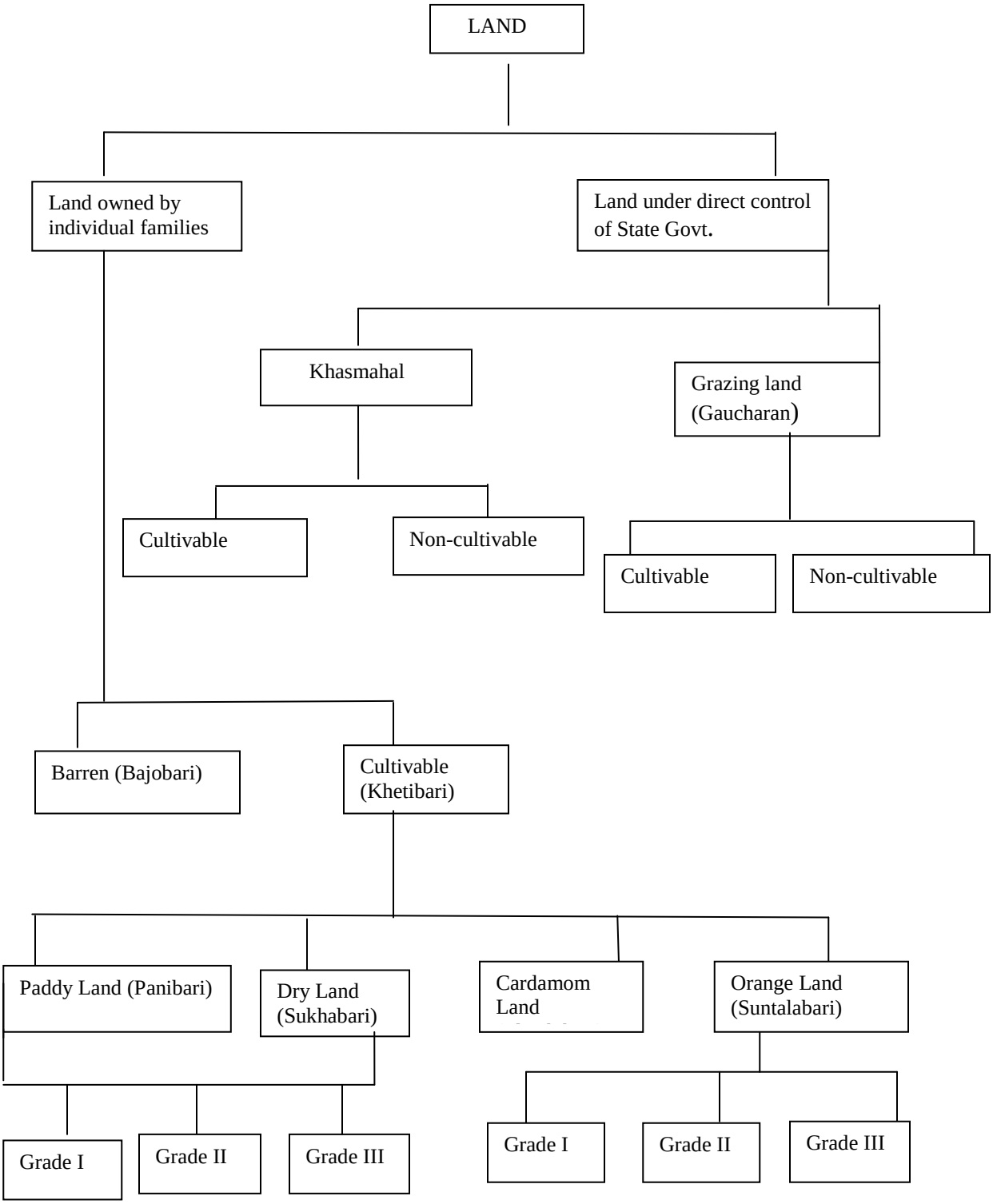
Until the merger of the state with the Indian Union it remained as a feudal state under the regime of temporal and theocratic Bhutia rulers known as Chogyals. At that time, the following land ownership/management pattern was prevalent. Traditionally all lands belonged to the Chogyal which were divided as *illakas* and entrusted under the management of landlords, the Kazis and other aristocrats (the members of the ruling families). Besides, almost half of the land was vested with Chogyals and his family as private estate which mainly consisted of cardamom growing areas and rich forests (Das, B.S.; 1938; 9), .The advent of British into Sikkim and their introduction of modified lease system developed lessee landlordism in the region. As a result there emerged a three-tier land ownership pattern: Private Estate, Land owned by the five big Monasteries; and Public Estate, i.e. land distributed to the lessee landlords. After the abolition of lessee system in 1950 the private estates and monasteries estates continued as usual while public estates came directly under the control of Land Revenue Department (Datta, 1992).

After 1951, land settlement programme was introduced and 108 estates were demarcated and designated which were divided into following three categories:

1) Government estates (90), which included the old leased land areas as well as the private estates of the Kazi and Thikadar families; 2) Monastic estates (5), and 3) Royal family estates (13).

Thus, approximately 85 percent of the land would be under government estate, 11 percent under royal family estate, and 4 percent under monastic estate. However, after the merger of Sikkim with India the land settlement pattern has changed. The classification of land which has been shown in the flow chart is an attempt to delineate the type, quality and pattern of land settlement in today's Sikkim (Datta, 1992).

Figure 4.7: Schematic presentation of Classification of Land



(*Note: The words within the parentheses denote Nepali colloquial terms*)

Source: Datta, 1992

According to the survey and settlement report of 1958, out of a total 27,694 holdings in Sikkim 3658 were within the private estate constituting 13 percent of the total number of holdings.

Ceiling on Land Holding

The ceiling on land holdings seeks to take away unequal distribution of landed property and it hindrances the social and economic development of the state. Concentration of property in the hand of a few is bound to badly affect agricultural production and social structure as well. As per the settlement report of 1958, out of 2, 23,314 acres of agricultural land, 66,727 acres were possessed by 8 percent of the families. It is clearly seen, this small section being financially strong and socially influential were likely to exercise the power in the decision making process of the government. In order to bring in land re-distribution, the need for imposing a ceiling on land can hardly be over-emphasized. The committee however recommended that in the early stages of land reforms the ceiling may be kept at such a level that those landowners who have been enjoying limitless area of land in contravention of government orders may be allowed to retain such an amount that they are in a position to lead a decent living from the income of the land within the ceiling. In other words, the committee did not acknowledge any drastic change. With the predominance of political power enjoyed by the landowning class of Sikkim, any drastic change is likely to frustrate the objective of land reform itself (Dhamala & Bhowmick, 1985).

After changes in land regulations were introduced in 1949, the State of Sikkim issued a Notification, No.3082/L.R. in 1954, which has some progressive elements of land reforms and provides for the maintenance of economic holdings.

The lower ceiling of land holdings is ensured by the provision of the 'sale of land in execution'. It states:

"No Court will sell or transfer a holding or any part of a holding of a primary holder in execution of a decree, whether revenue or civil, if by such sale or transfer the said holding will become less than five in acres in area… provided that sale of land to meet government dues will be excluded from the purview of this notification" (Lama, 2001, 45).

This notification also fixed an upper ceiling through 'restrictions on purchase', according to which 'No person who already has a holding or holdings exceeding 20 acres in area may purchase land sold in execution of a revenue or civil decree.'

In a mountainous state like Sikkim, the all India land ceiling of 12 acres, which is a blanket ceiling irrespective of topographical variations, is difficult to implement. It might be more appropriate to fix land ceiling, on a case to case basis using methods suitable to the terrain.

After the merger of Sikkim in 1975, the government intervened mainly to provide legislative measures against the termination of cultivation rights and for the continuity of cultivation by existing cultivators. This was done in view of the problems faced by the tillers of the soil, who cultivated land owned by others under precarious terms and conditions (Lama, 2001:45).

Ceiling on Agricultural Land

The State Government may from time to time by notification declare that with effect from the date mentioned in the notification (hereinafter in this Act referred to as the notified date) no person shall be entitled to hold any agricultural land in excess of the ceiling limit in the State of Sikkim and all lands in excess of ceiling limit shall vest in the State in accordance with and under the provisions of this Act and the rules and notifications made there under. The date mentioned in every such notification shall be the commencement of the agricultural year. Every such notification shall also be published in such manner as may be prescribed.

1. The ceiling limit shall be determined according to the following principles, namely:
   i) In the case of an adult unmarried person or a person who has no family or a person who is the sole surviving member of any family, six and half standard acres,
   ii) In the case of a person having family members, twelve and half standard acres.
   iii) In the case of a person having a family consisting of more than five members, twelve and half standard acres and further two standard acres for each member in excess of five, so, however, that the aggregate of the ceiling limit for such person shall not, in any case, exceed twenty and half standard acres.

2. For the purpose of determining the ceiling limit under clause (i), lands held individually by the person concerned and the other members of such family, shall be deemed to be held by one person having a family.

3. For the purpose of determining the ceiling limit of any person holding agricultural lands, who is a member of a joint family, the share of such a person in the joint family shall be deemed to be the extent of land which would be allotted to such person had such lands been divided or partitioned, as the case may be, on the notified date.

4. i) In the case of monastery or other religious institution mentioned in Group A: Sixty standard acres;

ii) In the case of monastery or other religious institutions mentioned in Group ‘B’ of the Schedule: Twenty-five standard acres; provided that the STATE Government may, by notification, include any other monastery or religious institution in the Schedule.

5. In the case of tea garden, orchard, livestock and poultry farm, dairy, mill, factory, workshop, any local authority, any corporation, any educational institution or any other

institution established exclusively for a charitable purpose, any co-operative society, any company registered under any law for the time being in force, so much of land as in the opinion of the State Government is required for such tea garden or orchard or livestock and poultry farm or dairy or mill or factory or workshop or local authority or corporation or institution or co-operative society or company.

6. The State Government may, in such manner as may be prescribed by notification, classify all agricultural lands in Sikkim into different Circles according to elevation and altitude and may also classify agricultural lands within each such Circle into different classes to quality, produce, productivity and the like and shall specify in such notification what quantity of land in each such class shall be treated as equivalent to one standard acre for the purpose of determining the ceiling limit under this section.'

7. Transfer of land: No person holding agricultural land in excess of the ceiling limit immediately before the notified date shall transfer any such land or part thereof by way of sale, mortgage, gift, lease or otherwise until he has furnished a statement under Section 8 and a notification regarding the excesss land held by him has been published under sub-section (1) of Section II; and any such transfer in contravention of this provision shall be demand to be null and void (Law and Legislative Department, 1978).

Detection of Excess Land

It is possible to detect excess land on the basis of ceiling on land holdings. No doubt, it is very difficult task for the administrative machinery in any underdeveloped country, not to speak of the administration in Sikkim with its given level of efficiency. According to the settlement Report of 1958, the total cultivated area was 2, 23,314 acres. The pattern of distribution of cultivated land is shown below: (Dhamala & Bhowmick, 1985).

Table 4.13: Pattern of Distribution of Cultivated Land (Three Estates)

Sl. No.	Kind of Land	Private Estate	Monastery Estate	Regular Estate	Total Percentage
1.	Panikhet (irrigated)	5,075.80	2,696.78	20,974.56	28,747.14(13%)
2.	*Sukhabari (Unirrigated)	20,378.56	15,213.80	122,886.70	158,479.06(70%)
3.	Banjo (Barren)	4,020.45	1830.35	16.787.19	22,637.99(10%)
4.	Cardamom	2,369.61	2,254.18	8,826.85	13,450.64(7%)
	Total	31,844.42	21,995.11	169,475.30	22, 3314.83(100%)

Source: Dhamala & Bhowmick, 1985.

*Sukhabari (unirrigated) included orange groves, which had 221.20 acres in holding in the private estates, 106.23 acres in monastery estates and 1,483.14 acres in regular estates)

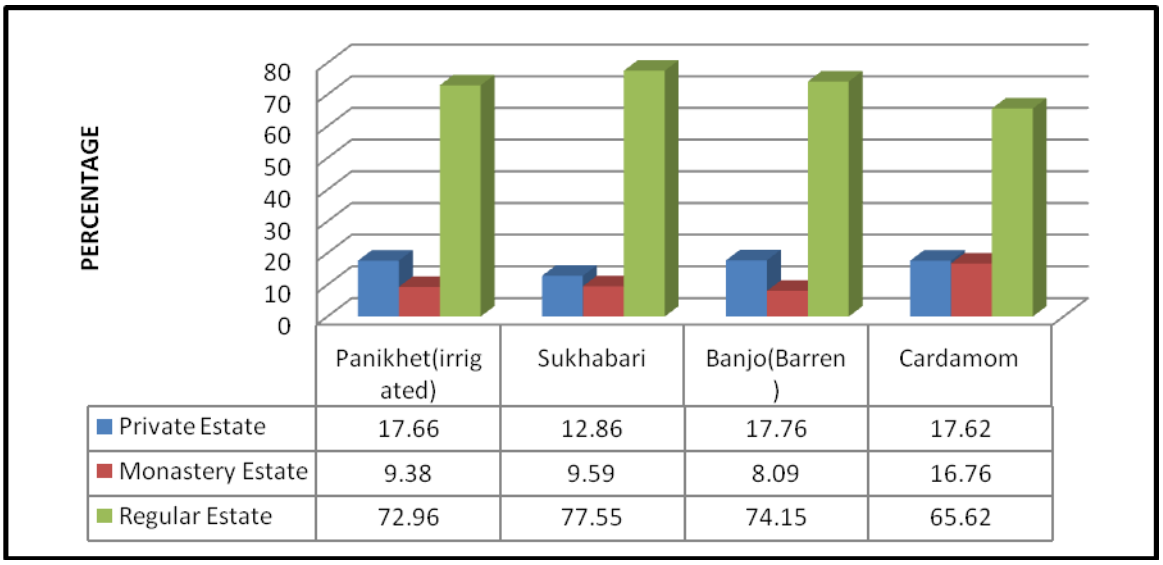


Figure 4.8: Percentage wise Distribution of Cultivated Land among three Estates

Table 4.14: Pattern of Distribution of Cultivated Land

Sl. No.	Kind of Land	Total Land Mean ± S.D.	Standard Error
1.	Panikhet (irrigated)	28,747.14±23.5287	9.6055
2.	Sukhabari (Unirrigated)	158,479.06±33.1481	13.5326
3.	Banjo(Barren)	22,637.99±23.1516	9.4516
4.	Cardamom	13,450.64±19.4010	7.9204
	Total	22, 3314.83±21.1471	8.6332

Source: Dhamala & Bhowmick, 1985.

The table 4.14 shows the pattern of distribution of total cultivated land during 1958 in Sikkim and the mean± S.D. and standard error are also indicated. The highest is available sukhabari (unirrigated) land with significant mean ± S.D. of 158,479.06±33.1481 and its corresponding error calculated as 9.6055. The second highest available land is the panikhet (irrigated) land with mean ±S.D. of 28,747.14±23.5287 whereas the corresponding error calculated is 9.6055. After sukhabari (unirrigated) and panikhet (irrigated) comes banjo (barren) land with a significant mean ± S.D. is 22,637.99±23.1516 and the corresponding error calculated as

9.4516. The lowest available is that of cardamom land in Sikkim which has the mean ±S.D. 13,450.64±19.4010.

In the past, the government of Sikkim has been engaged in detection of excess land which may be distributed among the landless people. There had been no settlement reform after 1958. Hence, the Land Revenue Department has faced difficulties in carrying out the task of detecting excess land above the ceiling. Nevertheless, the land revenue department has given a tentative estimate of the excess land likely to be acquired for distribution among landless peasants (Dhamala & Bhowmick, 1985).

Regarding the size of holdings in Sikkim, the Government of Sikkim would have to depend on the settlement Report of 1958. The average area of holding is 8.06 acres. The holdings are still larger in comparison with those in India which are less than 2 acres. (Dhamala & Bhowmick, 1985).

Land Holding Pattern

Agricultural holdings are disseminated in altitude between 300 to 3000 meters. The largest parts of the cultivable lands are terraced and farmers have inhabited on these holdings while practicing regular cropping system. Both marginal and small holdings put together comprise about 50% of all operational holdings and 41% of the total cultivated area.

Table 4.15: Area in Operation Holding and Under Tenure and Tenancy Status in Sikkim

Sl. No.	Operational Holdings of Land (Ha)	1980-1981		1990-1991	
		Mean ± S.D.	Standard Error	Mean ± S.D.	Standard Error
1.	Individual Holdings	102975±42.6808	17.1794	106996±36.9323	15.0775
2.	Joint Holdings	4120±44.4162	18.1328	3027±19.5550	7.9833
3.	Institutional Holdings	1973±40.0050	16.3319	1297±41.6653	17.0098
	Total	109068±28.0499	11.4513	111302±47.4046	19.3528

Source: H.R Pradhan, 1998.

The table 4.15 shows that there is significant increase in total land in ha under individual operational holdings in the year 1990-1991 (significant Mean ± S.D 106996±36.9323) compared to 1980-1981 (significant Mean ± S.D.102975±42.6808), but the area under joint and institutional holdings decreased substantially.

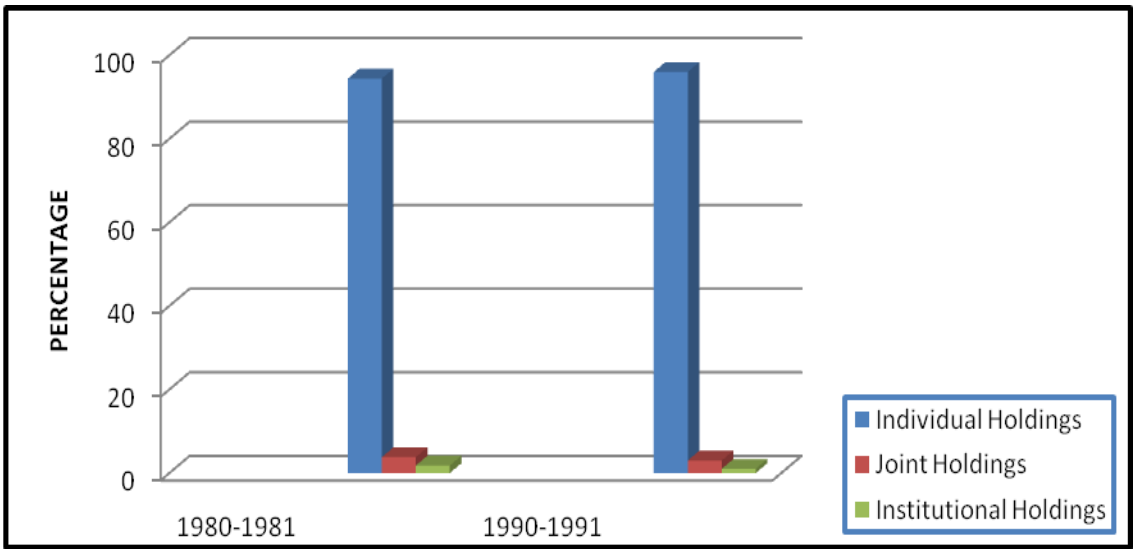


Figure 4.9: Area in Operation Holding and Under Tenure and Tendency Status (in Percentage)

The figure 4.9 illustrates areas under operation holding and tenancy status of Sikkim during 1980-81 & 1990-91. It is seen that in both 1980-81 & 1990-91, individual holdings far ahead of joint and institutional holdings in terms of area. The individual holdings contributed 2400 times than joint holdings and 5200 times than institutional holdings in 1980-81 while in 1990-91 individual holdings contributed 3400 times of joint holdings and around 8000 times of institutional holdings. Individual holdings pay substantial amount of land revenue to the government every year.

Table 4.16: Community-wise Distribution of Land in Sikkim, 1976-83 (in Percent)

Community	**Total Paddy Field**	**Total Dry Land**	**Waste Land**	**Cardamom**	**Total cultivated Land**
Bhutia	27.12	16.13	24.18	27.05	20.32
Lepcha	14.97	00.00	17.53	32.72	20.38
Nepali	57.19	64.95	62.00	22.37	58.66
Total Public	99.28	99.56	99.60	82.15	99.36
GrandTotal (ha)	11,727.10	6,47,39.80	11,734.40	2,1761.70	1,09,963.00

Source*:* Lama, 2001.

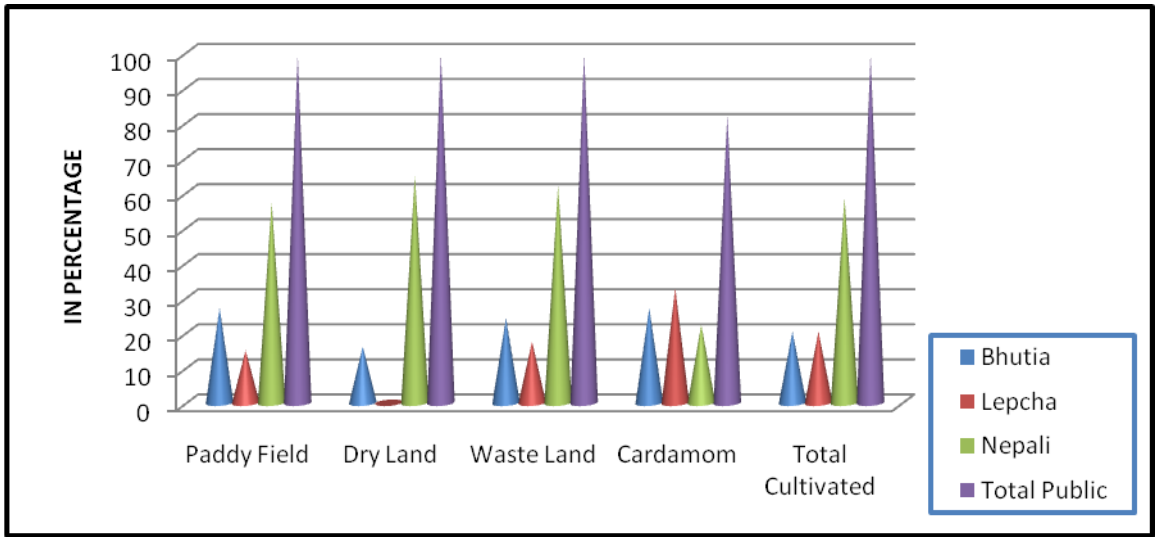


Figure 4.10: Community-wise Distribution of Land in Sikkim (1976-83) (ha)

The table 4.16 and the figure 4.10 depict the community-wise distribution of paddy field, dry land, waste land, cardamom and total cultivated land during 1976-83 in Sikkim amongst Bhutia, Lepcha, Nepali and all communities put together. The Nepali community came first in all sectors of land except cardamom. Nepali people are settled mostly in lower belt where cardamom is not well-suited due to scarcity of water. The Bhutia community comes second with moderate share in paddy and cardamom lands. The Lepchas have comparatively larger share of cardamom land but they do not have much dry land holdings due to their settlements in higher and moist areas.

It is worthwhile to take stock of the community-wise distribution of households possessing dry land in Sikkim. The table 4.17 makes an assessment of household that do have or do not have dry land. The mean S.D. values and standard errors are shown in the table.

Table 4.17: Community-wise Distribution of Households Possessing Dry Land

Community	**HHs having dry land Mean ± S.D.**	**Standard Error**	**HHs not having dry land Mean ± S.D.**	**Standard Error**
Bhutia	8163±28.1638	11.4978	6606 ±31.3942	12.8166
Lepcha	6213±16.8641	6.8847	1828 ±18.1659	7.4162
Tamang	3697±29.3052	11.9638	4021±13.6088	5.5557
Limboo	7701±27.0924	11.0604	2971±25.6046	10.4530
Bahun	5031±37.6669	15.3774	2649±30.6463	12.5113
Chettri	7885±33.6689	13.7453	5624±15.8113	6.4549

Pradhan	2149±28.0642	11.4571	2292±43.2111	17.6408
Rai	10547±30.4499	12.4311	4883±29.7523	12.1463
Manger	1796±28.5587	11.6590	1219±26.0537	10.6364
Gurung	4226±25.7992	10.5324	2263±31.8310	14.2197
Sunuwar/Mukhia	271±42.6286	17.4030	324±16.9587	6.9231
Thami	30±19.0473	7.7760	62±29.6445	12.1023
Jogi	76±25.0918	10.2437	18±10.7144	4.3741
Dewan	6±3.7416	1.5275	38±24.2074	9.8826
Bhujel	367±26.6308	10.8719	334±28.0356	11.1455
Kami	2244±37.9420	15.4897	2471±34.1467	13.9403
Damai	800±36.3483	14.8391	1545±30.2787	12.3612
Sarki	116±28.4464	11.6132	100±25.3456	10.3473
Majhi	25±17.2046	7.0237	75±29.6513	12.1051
Sanyasi/Giri	155±28.3619	11.5787	108±23.5966	9.6332
Others	180±30.2588	12.3531	10721±22.7947	9.3059
Total	61678±38.4915	15.7141	50152±28.3760	11.5844

Source*:* Socio-economic 2006.

Among different communities, the Rai community has highest number of households possessing dry land in Sikkim and it has significant mean ± S.D. is 10547±30.4499 and corresponding error is calculated as 12.4311. The community which does not have dry land has a significant mean ± S.D. of 10721±22.7947 and its corresponding error is calculated as 9.3059. The second highest position is occupied by the Bhutia community in both having dry land and not having dry land, the significant mean ± S.D. is 8163±28.1638 & 6606 ±31.3942 and it has corresponding error calculated as 11.4978 & 12.8166. The Chettri community comes third in possessing both dry land and not having dry land and their significant mean ± S.D. are 7885±33.6689 & 5624±15.8113 and corresponding error of 13.7453 & 6.4549. The lowest number of households which have dry land and do not have dry land belongs to Dewan and Jogi communities and their significant mean ± S.D. are 6±3.7416 &18±10.7144 and corresponding errors are calculated 1.5275 & 4.3741.

Table 4.18: Distribution of Households Possessing Dry Land in South District

Sl. No.	**Households**	**Possessing of Dry Land**
1.	HHs having dry land	18,236
2.	HHs who do not have dry land	8,455
	Total	2,6691

Source*:* Socio-economic 2006.

The table 4.18 depicts the distribution of households possessing dry land and do not have dry land in South district as per socio-economic survey of 2006. It is found that 68.32 percent

households have dry land due to the fact that the South district is in lee ward side and most drought prone area of Sikkim.

Table 4.19: Community-wise Distribution of Households Possessing Dry Land by Size (in percent)

Communities	>1 acre	1 acre - 2.5 acre	2.5 acre - 5 acre	5 acre - 10 acre	10 acre - 25 acre	<25 acre	Grand Total
Bhutia	63.25	25.35	7.46	2.60	1.09	0.26	100.00
Lepcha	59.58	28.50	8.61	2.53	0.58	0.19	100.00
Tamang	69.84	22.37	5.57	1.70	0.46	0.05	100.00
Limboo	70.73	21.67	5.39	1.70	0.43	0.08	100.00
Bahun	70.74	22.10	5.29	1.47	0.34	0.06	100.00
Chettri	71.38	21.24	5.34	1.56	0.37	0.11	100.00
Pradhan	71.34	21.08	5.21	1.40	0.74	0.23	100.00
Rai	61.55	26.34	8.69	2.54	0.76	0.11	100.00
Manger	61.41	26.56	9.52	1.84	0.67	0.00	100.00
Gurung	65.55	24.63	6.96	2.44	0.31	0.12	100.00
Sunuwar/Mukhia	74.17	18.45	6.27	0.74	0.37	0.00	100.00
Thami	83.33	13.33	3.33	0.00	0.00	0.00	100.00
Jogi	73.68	18.42	6.58	0.00	1.32	0.00	100.00
Dewan	83.33	16.67	0.00	0.00	0.00	0.00	100.00
Bhujel	75.20	20.16	3.81	0.27	0.54	0.00	100.00
Kami	78.34	17.51	3.03	0.71	0.31	0.09	100.00
Damai	82.88	13.25	2.88	0.63	0.38	0.00	100.00
Sarki	80.17	13.79	4.31	0.86	0.86	0.00	100.00
Majhi	80.00	16.00	4.00	0.00	0.00	0.00	100.00
Sanyasi/Giri	72.90	20.65	1.94	3.87	0.00	0.65	100.00
Others	85.00	10.00	1.11	1.11	1.67	1.11	100.00
Total (%)	67.03	23.65	6.62	1.99	0.58	0.13	100.00

Source: Socio-economic 2006.

The table 4.19 shows the percentagewise distribution of households possessing dry land within communities by land size such as less than 1 acre, more than 1 acre to less than 2.5 acres, more than 2.5 acres to less than 5 acres, more than 5 acres to less than 10 acre, more than 10 acre to less than 25 acre, and more than 25 acre in Sikkim.

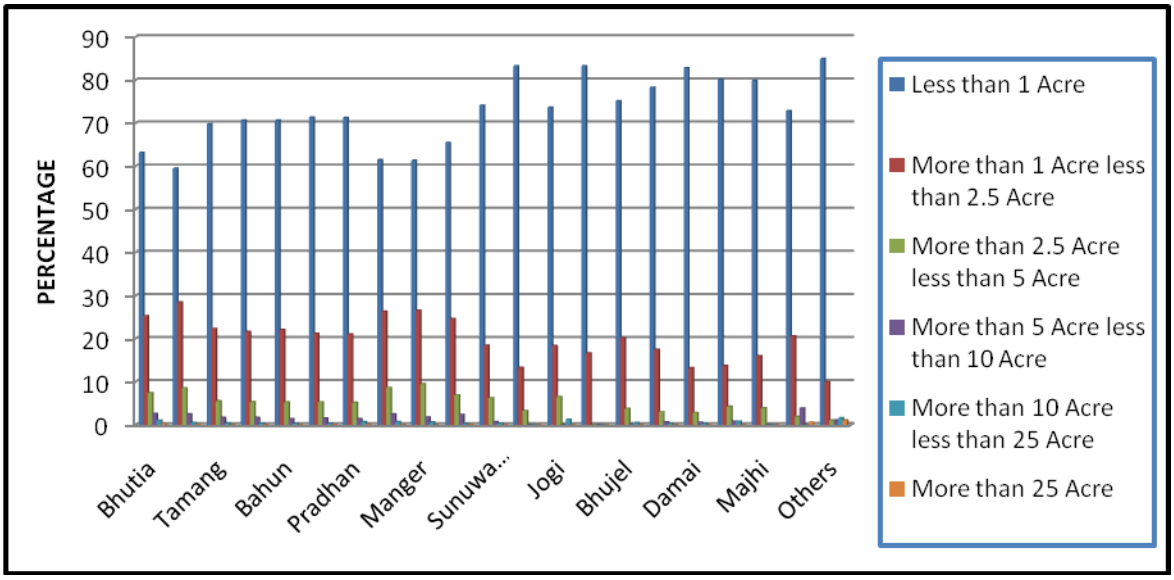


Figure 4.11: Community-wise Distribution of Dry Land by Size (in) Percentage

The figure no. 4.11 indicates that the Lepchas have least amount of dry land in possession followed by Rais, Pradhans and Bhutias, where as the Thami and Dewan communities own substantial dry lands.

Table 4.20: Distribution of Households Possessing Dry Land by Size, South District

Sl. No.	Land Size	Households Possessing Dry Land Mean ± S.D.	Standard Error
1.	Less than 1 Acre	11379±32.9423	13.4486
2.	More than 1 Acre less than 2.5 Acre	4853±28.2913	11.5498
3.	More than 2.5 Acre less than 5 Acre	1457±29.4278	12.0138
4.	More than 5 Acre less than 10 Acre	415±26.7955	10.9392
5.	More than 10 Acre less than 25 Acre	110±23.8746	9.7467
6.	More than 25 Acre	22.00±15.3231	6.2556
	Total	18236±43.9499	17.9425

Source*:* Socio-economic 2006.

The data in table 4.20 shows distribution of households possessing dry land by size in South District and a comparison is made among different categories of land size - less than 1 acre, more than 1 acre, less than 2.5 acre, more than 2.5 acre, less than 5 acre, more than 5 acre, less than 10 acre, more than 10 acre less than 25 acre and more than 25 acre. It is found that the highest number of households possesses dry land of less than 1 acre, the significant mean ±S.D. is 11379±32.9423 and standard error is calculated as 13.4486. Second position is occupied by the category of more than 1 acre and less than 2.5 acre of land which has the significant mean ±S.D. is 4853±28.2913 and standard error is calculated as 11.5498. The third

position is held by the category of more than 2.5 acre and less than 5 acre, the significant mean ±S.D. 1457±29.4278 and standard error is calculated 12.0138. The lowest position is taken by lands more than 25 acre and the significant mean ±S.D. is 22.00±15.3231 and standard error is calculated as 6.2556.

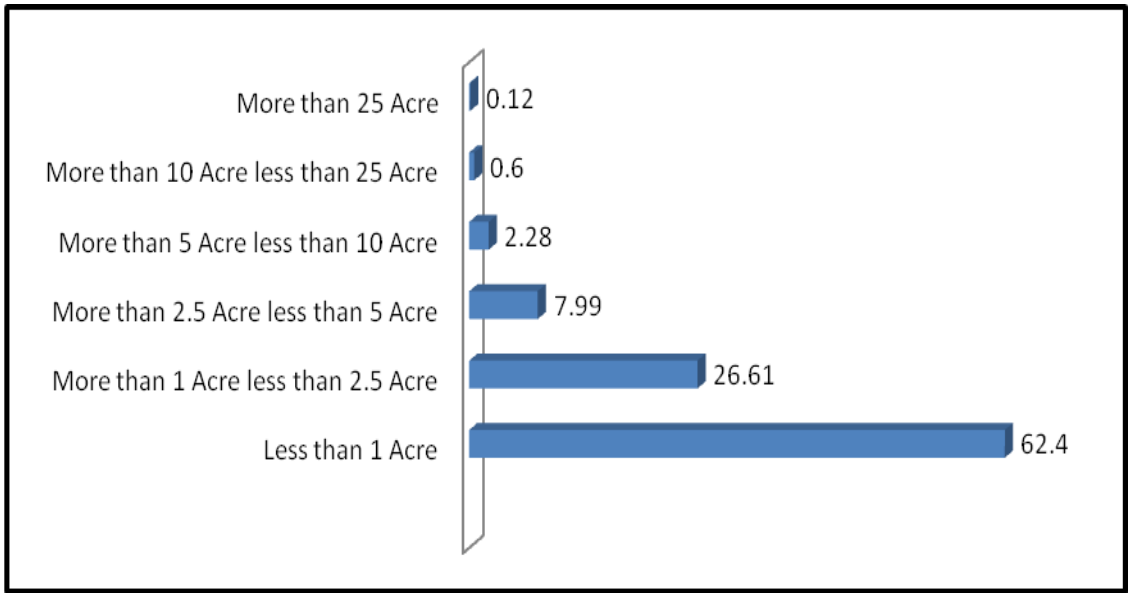


Figure 4.12: Households Possessing Dry Land (in Percentage)

Table 4.21: Distribution of Households Possessing Orchards by Size, South District

Sl. No.	Land Size	Households Possessing Orchards Land Mean ± S.D.
1.	Less than 1 Acre	206 (87.29%)
2.	More than 1 Acre less than 2.5 Acre	20 (8.47%)
3.	More than 2.5 Acre less than 5 Acre	2 (0.85%)
4.	More than 5 Acre less than 10 Acre	5 (2.12%)
5.	More than 10 Acre less than 25 Acre	3 (1.27%)
6.	More than 25 Acre	0 (00%)
	Total	236 (100.00%)

Source: Socio-economic 2006.

The table 4.21 shows distribution of households possessing orchards land by size in South district. It is found that households having less than 1 acre (marginal) have highest percentage i.e. 87.29 and those with more than 1 acre but less than 2.5 acre (small) comes in second

position which secures 8.47 percent. None of the households has large orchards exceeding 25 acres.

Table 4.22: Distribution of Land Holdings (South District, 1991)

Category	Holding (ha)			
	No. (%) Mean ± S.D.	**Standard Error**	**Area (%) Mean ± S.D.**	**Standard Error**
Marginal	44.00±23.7655	9.7022	9.70±7.4027	3.0221
Small	25.00±17.2046	7.0237	18.30±13.3865	5.4650
Semi-Medium	18.00±11.5758	4.7258	24.00±17.5727	7.1740
Medium	10.00±5.6213	2.2949	26.00±16.2450	6.6332
Large	3.00±1.6272	.6643	22.00±15.3231	6.2556
Total	100.00±25.3456	10.3473	100.00±25.3456	10.3473

Source: Chakrabarti, 2012.

The table 4.22 shows the distribution of marginal, small, semi medium, medium and large landholdings in the South district. The marginal farmers (44 percent) are predominant in the district, the majority of people having less than 1 acre of land in 1991.

The per capita land availability in Sikkim in different years from 1971 to 2001 has been divided into five categories such as Net Cultivable Land, Operated Area for Agricultural Use, Land for Non-Agricultural use, Pasture & Cultivable Waste Land and Forest. In the following tables (no. 4.23 and 4.24) the per capita availability of land in Sikkim in the years 1971, 1981, 1991 and 2001 have been presented to highlight the decreasing trend in all categories of land except forest.

Table 4.23: Per Capita Land Availability in Sikkim, 1971 & 1981 (in Ha)

Sl. No.	Type of Land	1971 Hectares Mean ± S.D.	Standard Error	1981 Hectares Mean ± S.D.	Standard Error
1.	Net Cultivable Land	0.31±.1357	0.5544	0.27±.1346	.0549
2.	Operated Area for Agricultural Use	0.41±.1740	.0710	0.36±.1513	.0618
3.	Land for Non-Agricultural use	0.33±.1296	.0529	0.28±.0946	.0886
4.	Pasture & Cultivable Waste Land	0.40±.1662	.0678	0.24±.0907	.0370
5.	Forest	0.12±.0641	.0252	0.10±.6681	.0278

Source: H.R Pradhan, 1998 and Gazetteer of Sikkim, 2013.

Table 4.24: Per Capita Land Availability in Sikkim, 1991 & 2001 (in Ha)

Sl. No.	Type of Land	1991 Hectares Mean ± S.D.	Standard Error	2001 Hectares Mean ± S.D.	Standard Error
1.	Net Cultivable Land	0.17±.0864	.0353	0.12±.0641	.0252
2.	Operated Area for Agricultural Use	0.28±.0946	.0386	0.21±1019	1019
3.	Land for Non-Agricultural use	0.21±.1019	1019	0.01±.0028	.6011
4.	Pasture & Cultivable Waste Land	0.18±.1056	.0431	0.17±.0864	.0353
5.	Forest	0.65±.2490	.1016	0.20±.1056	.0431

Source: Pradhan, 1998 and Gazetteer of Sikkim, 2013.

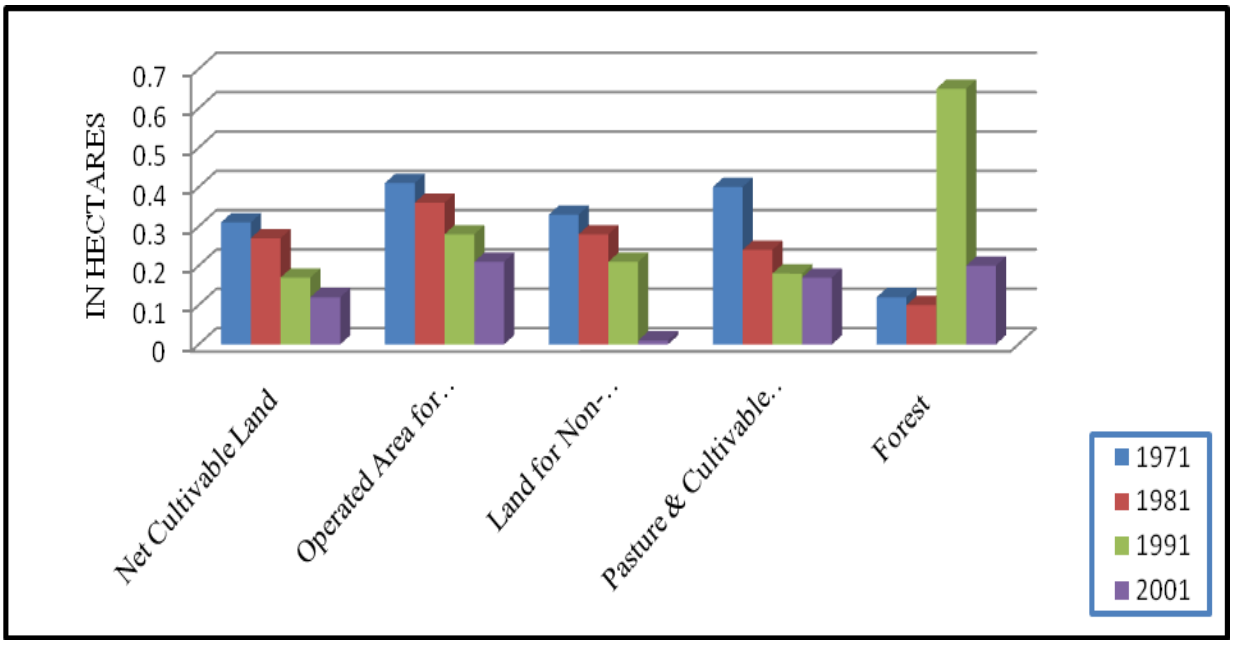


Figure 4.13: Per Capita Land Availability in Sikkim in Different Years (in Ha)

In the case of land availability in Net Cultivable Land, a decreasing tendency is seen from 1971 to 2001. Land availability in the case of Operated Area for Agricultural Use has been decreasing from 1971 to 2001. Land for Non-Agriculture became almost nil in 2001. Pasture & Cultivable Waste Land also started decreasing between the years 1971 to 1981, and from 1991 to 2001 it is almost in the same position. In 1991, it is seen that the per capita land

availability of Forest has suddenly increased. Per capita availability of all types of land except forest land in Sikkim had decreased from 1971 to 2001.

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