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FORESTRY INTERVENTIONS FOR BEAS RIVER



DETAILED PROJECT REPORT

Volume-II

The Team -Preparation of DPR

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HIMACHAL PRADESH

1.1 Introduction

Himachal Pradesh is situated in the north-western part of India. It is surrounded by Jammu and Kashmir Union Territory in the north, Punjab and Haryana in the west, Uttar Pradesh in the south and Tibet in the east. It is the eighteenth largest State of India in respect of area and twenty first largest in population. It is one of the Himalayan states of India and has many prominent and well-known hill stations like Shimla, Kullu, Mandi, Chamba, Dalhousie, Manali and Dharamshala. It consists of varied and attractive valleys, lakes, mountain ranges, ethnic groups and tribal people and has been considered to be the paradise for trekking, climbing enthusiasts and outdoor camping. The State is often referred as the '*Devbhoomi*' (The Land of Gods and Goddesses) due to the presence of numerous temples and pilgrimage centres, located mostly along its rivers. Shimla is the capital of this State which was once the summer capital of the British in India during the colonial regime. For administrative purposes, the State is divided into 12 districts. The States drainage systems comprises of the Chenab, Ravi, Beas, Sutlej and Yamuna rivers, which are perennial and are mainly fed by glacier/snow and rainfall.

1.2 State Profile

1.2.1 Geographical Extent

The State covers a geographical area of 55,673 km2 which is about 1.69% of the country's total area and extends between latitude 30°22'40" N and 33°12'20"N and longitude 75°45'55" E and 79°04'20"E. Physiographically, the State can be divided into four zones namely, Outer Himalaya or the Shivalik's, Lesser Himalaya or Mid Himalaya, Greater Himalaya and the arid Trans-Himalaya. Himachal Pradesh is largely made up of hills and mountains ranging between 350m-6,975m amsl (FSI, 2011), with a gradual rise in the average elevation from south to north. Along the boundary of the State with the Indo-Ganga Plains (Punjab and Haryana), there occur low rolling hills with razor sharp ridges. However, towards north there are striking high mountain ranges with deep valleys and craggy cliffs and gorges.

The physiography of State is a complex mosaic of hills, valleys and snow-clad peaks. The white snow-covered mountain ranges towering over the plains of north India are the most prominent physiographic features of the State. These are the Dhauladhar, Pir-Panjal and the Great Himalayan Ranges, which are visible from a long distance. The steep mountain slopes are covered with coniferous and broad-leaved forests, meadows, pastures and terraces often clinging precariously to the mountain sides. The valleys lying amidst these mountain ranges contain gurgling streams torrents, terraced fields and fairy tale villages.

1.2.2 Geology, Topography and Soil

(a) Geology

Himachal Pradesh is covered by the rocks ranging in age from Precambrian to Recent (GSI, 2012). The normal order of super-position of the rocks in the Lesser Himalaya has been affected by later events of thrusting owing to its complex tectonism and geological evolution. Geologically, rocks ranging from Proterozoic to Quaternary are exposed and represent classic geological sequence. Undifferentiated Proterozoic rocks are mostly confined to the Lesser Himalaya, and represented by Jutogh and Vaikrita Groups. Palaeo-Proterozoic represented by Jeori-Wangtu Banded Gneissic Complex and Kullu, Naraul, Sundernagar and Rampur Groups. Meso-Proterozoic in the Himachal Himalaya are represented by Larji and Shali Groups. The Larji Group consists of Lower Hurla Formation and Upper Aut Formation. The upper part of Meso-Proterozoic is represented by Darla-Tattapani (Peontra volcanics) represented by quartzite, slate and basic flows. The Neo-Proterozoic era has been divided into two as Lower and Upper. The Lower Neo-Proterozoic Era is represented by Jaunsar, Shimla and Haimanta Groups whereas the Upper Neo-Proterozoic Era is represented by Guma, Blaini, Infrakrol, Krol, Manjir and Katarigali Formations. In the Spiti /Kinnaur and higher Himalaya, the Cambrian rocks represented by Kunzamla and Parahio Formations. The Permian in Himachal Pradesh is represented by Kuling Group in the Spiti / Kinnaur area whereas in Chamba area, it is represented by Salooni formation. The Kuling Group is divisible into fossiliferous Gechang and Gungri Formations. These Groups consist of brown to grey, pale grey, coarse grained weakly bioturbated, cross bedded, calcareous sandstone with local conglomerate, black shale, calcareous silty shale, phosphatic, cherty and calcareous nodules and thin limestone. The Salooni Formation is represented by black shale, slate, calcareous slate and lenticles of limestone and is fossiliferous (GSI, 2012).

(b) Topography

The topography is predominantly mountainous with exception the areas bordering Punjab and Haryana plains, which have lower elevations. The altitude of the State varies from 350 - 6,975 m amsl. Himachal Pradesh lies on the southern slope of the Himalayan Range. The climate and vegetation vary greatly with elevation, from glaciers at the highest elevations to sub-tropical forests at the lowest elevations. Of the total geographical area, about 33% is under permanent snow cover/ glaciers, where it is not possible to grow trees due to physical limitations.

The lower hills comprising the district Kangra, Hamirpur, Una, Bilaspur and lower parts of Mandi, Solan and Sirmour are known as Shivalik Hills. These are composed of highly unconsolidated deposits which easily lend themselves to erosion. They maintain almost a regular course from Ravi to Yamuna Rivers in the south of the region. Shivaliks have been highly deforested and eroded. The vegetation consists of tropical and subtropical forest. The altitude ranges from 350 - 1,500 m amsl. This area is suitable for the cultivation of maize, wheat, ginger, sugarcane, paddy, table potatoes, guava, papaya, mango, lemon etc. The Lesser Himalaya or Middle Himalayan zone falls in upper areas or the tehsils of Pachhad and

Renuka in Sirmour district, Chichot and Karsog tehsils of Mandi district; upper parts of Kangra and Palampur tehsils of Kangra district; upper Shimla Hills, and upper parts of Churah tehsil of Chamba district. The altitude of this zone varies from 1,500 - 4,500 m amsl.

The major vegetation includes mixed deciduous forests, evergreen coniferous forests and mixed coniferous forests. This zone is useful for seed potatoes, temperate fruits, stone fruits and soft fruits. The Greater Himalaya or Alpine zone comprises Kinnaur district, Pangi tehsil of Chamba district and some areas of Lahaul-Spiti. The altitude ranges from 4,500 m and above mean sea level. The western Himalayan sub alpine conifer forests, western Himalayan alpine scrubs and alpine pastures from the main vegetation. The climate and soil are best suited for the cultivation of dry fruits. The Trans-Himalaya includes the Himalayan ranges immediately north of the Great Himalayan Range. The Zaskar, the Ladakh, the Kailas and the Karakoram are the main Ranges. It stretches for a distance of about 1,000 km in east-west direction and average elevation is 3,000 m amsl.

(c) Soil

The soils of Himachal Pradesh vary according to aspect, slope, altitude and climatic conditions. They may be classified in to three major groups as brown hill soils, podsolic or sub-montane soils and glacial and eternal snow types of soils. The major soil groups of the State can be further divided in to nine types. These are alluvial soils, brown hill soil, brown earth soils, brown forest soils, grey wooded or podzolic soils, grey brown podzolic soils, planosolic soils, humus and iron podzols, and alpine humus mountain skeletal soils. The brown hill soils are found in the Shivalik and Lesser Himalayan regions and cover 42.16 % of the State's area. The middle and Greater Himalayan zones are characterized by podsolic or sub-montane type of soils covering nearly 46.07 % of Himachal Pradesh. The glacial and eternal snow types of soils cover an area of 11.77 %. These soils are not fully developed as they are found in the snow-covered areas. The soils of Himachal Pradesh are mostly shallow, but deep only in the valleys. The most of the soils are acidic in nature. The soils of Himachal Pradesh are under great stress and strain due to sheet and gully erosion. Large-scale deforestation and unscientific cultivation on the slopes have been mainly responsible for the large-scale soil erosion. The total cultivated land of Himachal Pradesh is estimated to be 7.59 lakh ha out of which nearly 43%is prone to very high and high intensity of erosion.

1.2.3 Climate

There is a great diversification in the climatic conditions of Himachal Pradesh due to variation in elevation and aspect. The State of Himachal Pradesh is a hilly region and it experiences a pleasant climate throughout the year. The climatic conditions vary from hot and sub-humid tropical (450-900 m amsl) in the southern low tracts, warm and temperate (900 – 1,800 m amsl), cool and temperate (1,900– 2,400 m amsl), and cold alpine and glacial (2,400 – 4,800 m amsl) in high mountain ranges. The climate in Lahaul-Spiti and Kinnaur is of the arid to semi-arid type. The year is divided into three seasons i.e., winter (October to February), summer (March to June) and rainy (July to September). Snowfall usually occurs in the higher areas in December and January, though uncommon falls may be experienced

earlier or later. At elevations of about 3,000 m amsl, the average snowfall is about 3 m and lasts from December to March whereas; above 4,500 m elevation snow is perpetual.

The State normally has well defined rainy season. The monsoon sets in towards the end of June or early July. July and August are the rainiest months and considerable damage is caused by erosion, floods and landslides. Rainfall tapers off by the end of September. After September, it declines and continues to be so until April. Beyond Kullu towards Lahaul-Spiti and Kinnaur, rainfall decreases due to rain shadow effect. Spiti is the driest area (below 50 mm rainfall), being enclosed by high mountains on all sides. The highest amount of rainfall of about 3,400 mm has been recorded in Dharamshala. The average annual rainfall is about 1,800 mm. The average temperature in the summer months varies from 22^0C to 37^0C. Throughout the State, temperature during winter months ranges from sub-zero to 15^0C.

1.2.4 River System and Hydrology

a. River System

The drainage system of Himachal is composed both of rivers and glaciers. The present rivers are older than the mountain system. Himachal Pradesh provides water to both the Indus and Ganga River Basins. The drainage systems of the state include the Chandra Bhaga or Chenab, Ravi, Beas, Sutlej and Yamuna. These rivers are perennial and are fed by glacier/snow and rainfall. They are protected by an extensive cover of natural vegetation. Total estimated Hydro-power Potential in Himachal Pradesh is 27,436 MW and power potential harnessed till date is 10,443 MW (DoE, 2019).

(A) Sutlej River

The Sutlej River rises from beyond Indian borders in the southern slopes of the Kailash Mountain near Mansarover Lake from Rakash Lake, as Longcchen Khabab River in Tibet. It is the largest among the five rivers of Himachal Pradesh. It enters Himachal at Shipki La at an altitude of 6,608 m amsl and flows in the south-westerly direction through Kinnaur, Shimla, Kullu, Solan, Mandi and Bilaspur districts. Its course in Himachal Pradesh is 320 km from Rakashtal, with famous tributaries *viz*., Spiti, Ropa, Taiti, Kashang, Mulgaon, Yula, Wanger, Throng and Rupi as right bank tributaries whereas Tirung, Gayathing, Baspa, Duling and Soldang are left bank tributaries. It leaves Himachal Pradesh to enter the plains of Punjab at Bhakra, where the world's highest gravity dam was constructed on this river. Its total catchment area in Himachal Pradesh is 20,154 km^2. The Sutlej finally drains into the Indus River in Pakistan. The basin consists of 2,026 glaciers covering an area of 1,426 km^2 between 3,944 - 7,349 m amsl (Prasad *et al*., 2019). Its total length is 1,448 km. The upper tracts of the Sutlej Valley are under a permanent snow cover. The prominent human settlements that have come on the banks of the Sutlej River are Namgia, Kalpa, Rampur, Rekong Peo, Pooh, Tapri, Jhakhri Tattapani, Suni and Bilaspur.

Tributaries: The important tributaries of the Sutlej River are as below:

Baspa River: Baspa is an important tributary of the Sutlej River in its upper course. The Baspa River is joined by many smaller channels draining snow melt water. The Baspa River has cut across the main Himalayan Range. Thereafter, it empties itself into the Sutlej River in district Kinnaur. Baspa originates from the Baspa hills, joins it from the left near Karcham. Sutlej River leaves Kinnaur district in the west near Chauhra and enters into Shimla district.

Spiti River: The Spiti River originates from Kunzum Range and Tegpo and Kabzian streams are its tributaries. Water draining the famous Pin Valley area is also a part of the Spiti River system. Its position across the main Himalayan Range deprives it from the benefit of the south-west monsoon that causes widespread rain in most parts of India from June to September. The river attains peak discharge in late summer due to glacier melting. After flowing through Spiti Valley, the Spiti River meets Sutlej at Namgia in Kinnaur district traversing a length of about 150 km from the north-west beyond that it flows in south-west direction in the State. The huge mountain rises to very high elevations on either sides of the Spiti River and its numerous tributaries. The mountains are barren and largely devoid of a vegetative cover. The main settlements along the Spiti River and its tributaries are Hansi and Dhankar Gompa.

Nogli Khad: It joins Sutlej River just below Rampur Bushahar. It touches Kullu district in Nirmand tehsil opposite to Rampur tehsil of Shimla district. The Sutlej River enters into Mandi district near Firnu village in the Chawasigarh and passes through the areas of Mahunm, Bagra, Batwara, Derahat and Dehar. The main tributaries of the Sutlej in district Mandi are Siun, Bahlu, Kotlu, Behna, Siman, Bantrehr, Khadel and Bhagmati.

Soan River: The Soan River rises from the southern slopes of the Shivalik Range also known as Solasinghi Range in the tract to the east of the Beas gap across the southern periphery of the Kangra Valley. It joins the boundary of Himachal Pradesh and Punjab. Its gradient is not very steep and the slopes of the Soan catchment vary from gentle to steep. In the summer season, the discharge drops drastically, while during monsoon, it is in spate. The physico-chemical parameters of water of Sutlej River are given in Table 1.1.

Table 1.1 - Physico-Chemical Attributes of Sutlej River Water at Different Sites During 2016

Sr. No.	Parameter	Khab	Wangtoo	Rampur	Kol Dam	Wajipur Kalan
1	Water Turbidity (NTU)	290	5	174	6	80
2	Total Alkalinity (mg/l)	196	191	156	126	178
3	pH	7.79	6.36	6.56	6.12	6.92
4	Conductivity (mho/cm)	607	368	327	227	903
5	Magnesium Hardness (mg/l)	28	34	32	3	21
6	BOD (mg/l)	9	8	8	18	1.9
7	COD (mg/l)	80	35	84	38	230
8	Dissolved Carbon Dioxide	7	6	6	1.2	27

Sr. No.	Parameter	Khab	Wangtoo	Rampur	Kol Dam	Wajipur Kalan
	(mg/l)					
9	Total Hardness (mg/l)	280	240	280	120	245
10	Chloride (mg/l)	9.6	19	9.6	21	126
11	Phosphate (mg/l)	0.01	0.01	0.01	0.02	2.16
12	Nitrate (mg/l)	0.102	2.73	0.1	0.85	17
13	Calcium Hardness (mg/l)	72	18	42	36	62

(Source: Sharma and Walia, 2017)

(B) Beas River

The Beas River emerges from a cavern at the Rohtang Pass at an elevation of 4,350 m amsl. It has played a significant role in the development of peculiar hill culture which pervades the life of hill people living in the towns and surrounding villages since ages. The important settlements on the bank of Beas River are: Manali, Patlikuhl, Bhuntar, Kullu, Mandi, Bajaura, Nagwain, Dharampur, Pandoh, Sujanpur Tihra, Nadaun and Dehra-Gopipur. The total length of this river is 470 km.

Tributaries: The important tributaries of the Beas River are given as below (Fig. 1.1):

Awa: It rises from the Dhauladhar Range in the Kangra Valley of Himachal Pradesh. It flows in a south-westerly direction before joining the Beas River. It receives both snow-fed as well as rainfall water from smaller channels.

Banner: It is also known as Baner Khad. It drains the central part of the Kangra Valley. The Baner Khad rises as a small snow fed channel on the southern slopes of the Dhauladhar Range near Palampur. The general direction of flow of the Banner Khad is towards south-west.

Banganga: It joins the Beas River in the Kangra Valley. It rises from the southern slopes of the Dhauladhar Range. The river is fed by snow melt water and channels emanating from springs. The large fertile sediments have been formed all along the river near its mouth.

Chakki: It drains the south-western part of Himachal Pradesh. The Chakki Khad rises as a small snow-fed and rainfed stream from the southern slopes of the Dhauladhar Range. It enters Punjab near Pathankot and joins the Beas River.

Gaj: It rises as a small stream from the snows on the southern slopes of the Dhauladhar Range in Kangra district. A number of small streams form the Gaj Khad. The Gaj River joins the Beas River a little upstream of the Pong Dam Lake (Maharana Pratap Sagar).

Harla: Harla Khad rises as a small channel from the snows in the depression of the north-western plank of Kullu Valley. It joins the Beas River near Bhuntar. The numerous snow-fed streams join the Harla Khad.

Luni: Luni rises from the south slopes of Dhauladhar Range in the Kangra Valley. It merges with the Beas River in the central part of Kangra Valley.

Manuni: It rises from the southern slopes of the Dhauladhar Range and joins the Beas River. The steep slopes form the upper catchment of the Manuni Khad. There is a sharp fall in its gradient and huge river terraces occur on the both sides of the river bed, which are used for cultivation extensively.

Parbati River: It rises in the snowy wastes upstream of Manikaran on the foothills of the main Himalayan Range in Kullu district. The glacier which feeds this river descends down from the steep southern slopes of the main Himalaya. It joins the Beas River at Shamshi in Kullu Valley.

Patlikuhal Khad: This Khad is a tributary of the Beas River in Kullu district. It rises from snow on the southern slopes of the Pir Panjal Range and thereafter, it flows into the Beas River upstream of Kullu.

Sainj: It rises from the water divide of the Beas and Sutlej Rivers in the lower ranges of the main Himalaya to the east of Kullu. Thereafter, it flows towards south-west to join the Beas River just before it cuts across the Dhauladhar Range near Larji. The Sainj Valley is 'V' shaped and the river flows past a series of interlocking spurs.

Suketi: This Khad is a tributary of the Beas River in the Kangra Valley. It rises from the south facing slopes of Dhauladhar Range. A number of small channels join the Suketi Khad in its upper reaches. The Khad has formed huge terraces, most of which are under cultivation. The upper catchment of the river consists of steep slopes.

Tirthan: It rises from the base of an offshoot of the Great or main Himalayan Range to the south-east of Kullu. Thereafter, it follows a south-westerly course and flows into the Beas River at Larji just before it cuts across the Dhauladhar Range. Lower down, the Valley opens up and it is fairly wide near its confluence with the Beas River.

Uhl: It rises as two feeder channels in the area to the north of the Dhauladhar Range in Himachal Pradesh. Thereafter, the two channels cross this gigantic mountain barrier and merge at the base of the southern slopes to form the main channel of the Uhl River in Kangra area. It flows for a considerable distance along the base of the Dhauladhar Range. Then it turns towards the south-east to merge with the Beas River near the town of Mandi. The physico-chemical parameters of water of Beas River are given in Table 1.2.

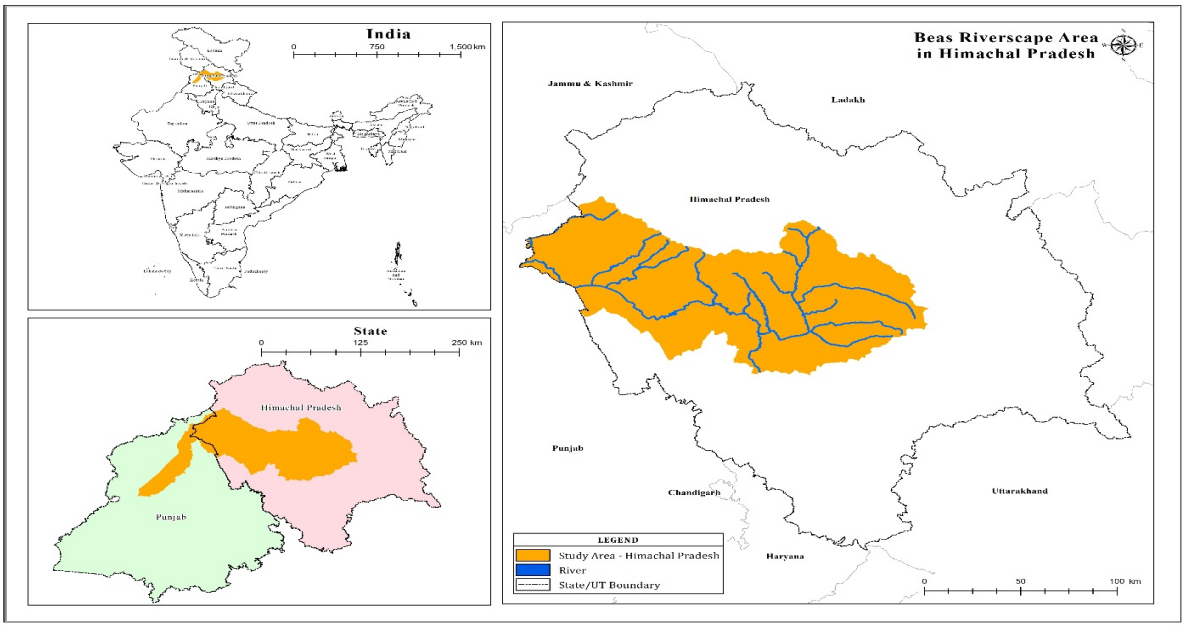


Fig. 1.1- The Beas River and its Major Tributaries in Himachal Pradesh vis-a-vis Entire Riverscape

Table 1.2 - Physico-Chemical Attributes of Beas River Water at Different Sites During 2016

Sr. No.	Parameter	Beas Kund	Samshi	Pandoh Dam	Dharampur	Nadaun	Pong Dam
1	Total Alkalinity (mg/l)	7.5	36	21	72	70	95
2	Conductivity (mho/cm)	24	89	78	175	167	203
3	pH	5.18	6.97	7.24	8.02	8.02	7.07
4	Temperature (^{0}C)	-1	16	21	21	22	23.2
5	Total Dissolved Solids (mg/l)	16	58	50	114	110	130
6	Total Hardness (mg/l)	12	40	36	84	78	105
7	Turbidity (NTU)	0.5	3	0.7	0.9	5	0.7
8	Calcium (mg/l)	2.6	13	10	26	24	31.7
9	Magnesium Hardness (mg/l)	1.2	2.1	2.6	4.6	4.5	6.1
10	Potassium (mg/l)	0.5	2.9	2.5	1.9	3.3	2.3
11	Iron (mg/l)	0.22	0.78	2.34	1.07	5.11	1.14
12	Lead (mg/l)	0	0.0075	0.0096	0.0232	0.0565	0.0368
13	Chloride (mg/l)	4.3	5.7	4.3	11	8.2	4.3
14	Fluoride (mg/l)	0.03	0.49	0	0	0	0
15	BOD (mg/l)	0	1.1	0.8	0.6	0.8	0.7
16	COD (mg/l)	0	1.7	1.6	4.2	4.2	1.9

(Source: Sharma and Walia, 2016)

(C) Chenab River

Two streams namely Chandra and Bhaga rise on the opposite sides of the Baralacha Pass at an elevation of 4,891 m and meet at Tandi at an elevation of 3000 m to form the river Chenab. The Chandra rises from the Chandertal, of Baralacha Pass south-east and Bhaga

from the north-west of the Baralacha Pass. It enters Pangi Valley of Chamba district near Bhujind and leaves the district at Sansari Nallah to enter Podar Valley of Jammu region in J&K UT. It flows in Himachal Pradesh for 122 km with its total length of 1,200 km, it has a catchment area of 61,000 km^2, out of which 7,500 km^2 lie in Himachal Pradesh. It is the largest river of Himachal Pradesh in terms of volume of water. The Chenab Valley is a structural trough formed by the Great Himalayan and Pir Panjal Ranges.

Tributaries: The important tributaries of the Chenab River in Himachal Pradesh are as follows.

Bhaga River: This river originates from the Surajtal in Lahaul Valley. A number of snow-fed rivers join it during its course, before it joins the Chandra River at Tandi. From its origin, it flows in south-westerly direction as a raging torrent before joining the Chandra River. 'U'-shaped Valleys, waterfalls, glaciers and moraines characterize the upper catchment of the Bhaga River. The entire tract is devoid of a vegetative cover. The discharge of this river increases during the summer months, when the snow on the high mountains starts melting.

Chandra River: It originates from Chandertal lying at the base of the Great Himalayan Range in Lahaul and Spiti district. Thereafter, it flows for a considerable distance along the base of thin range in the south-east direction, before making a 180° turn and taking a south-west course in Lahaul Valley. The entire area is a vast cold desert that receives little or no rain as it lies in the rain shadow of the Pir Panjal Range lying towards south. The important human settlement along the river is Koksar. The physico-chemical parameters of water of Chenab River are given in Table 1.3.

Table 1.3 - Physico-Chemical Attributes of Chenab River Water at Different Sites During 2016

Sr. No	Parameters	Ramban	Dham Kund	Kanthan	Anji Khad	Pai Khad	Banihal	Nachlan
1	pH	8.2	8.2	8.2	8.4	8.4	8.2	8.2
	Temperature (^{O}C)	16.8	13.7	13.3	14.7	16.4	8.1	14.0
2	Turbidity (NTU)	27	112	178	2	2	19	24
3	Conductivity(S/cm)	110	126	140	300	379	101	166
4	Total Dissolved Solids (mg/l)	66	76	84	180	227	61	99
5	Total Solids (mg/l)	14	20	31	20	10	26	31
6	Total Alkalinity (mg/l)	40	56	64	188	192	84	82
7	Total Hardness (mg/l)	104	96	96	188	192	76	60
8	Ca Hardness (mg/l)	60	52	72	152	148	52	42
9	Mg Hardness (mg/l)	44	44	24	36	44	24	18
10	Chloride (mg/l)	6	6	8	8	8	6	26
11	Sulphate (mg/l)	34	35	35	22	21	20	16

Sr. No	Parameters	Ramban	Dham Kund	Kanthan	Anji Khad	Pai Khad	Banihal	Nachlan
12	Nitrate (mg/l)	7	6	8	6	7	5	6
13	Phosphate (mg/l)	0.16	0.21	0.17	0.16	0.16	0.44	0.14
14	DO (mg/l)	7.4	7.2	7.4	7.8	7.6	7.6	6.8
15	BOD (mg/l)	2.0	<3	<3	<3	<3<	<3	9.1
16	Total Coliform (CFU/100ml)	20	10	6	6	10	1	190

(Source: Khadse *et al*., 2016)

Ravi River

The Ravi River rises from Bara Banghal a branch of Dhauladhar Range as a joint stream formed by glacier fed Bhadal and Tant Gari and flows about 158 km in Himachal Pradesh.

Tributaries: The description of the major tributaries is as follows.

Bhadal: It rises from the snowy range of the area lying between the Pir Panjal and Dhauladhar Ranges in the Bara Banghal area of the central Himachal Pradesh. It flows in a westerly direction before merging with the Tant Gari River to form the mainstream of the Ravi River. Bhadal River's catchment is made up of 'U'- shaped Valleys, waterfalls, moraines, cirques and towering peaks.

Siul: It rises from the tract between the Dhauladhar and Pir Panjal Ranges near Jammu and Kashmir UT and Himachal Pradesh border. Thereafter, this river flows towards east, takes a 'U' turn and attains a south-westerly course before flowing into the Ravi River downstream of Chamba. Baira River is the prominent tributary of the Siul River. This river is fed by both snow melt water and spring water.

Baira: It rises from snow on southern slopes of the Pir Panjal Range in Himachal Pradesh. Numerous tributaries of the Baira River are also fed by the snow and so make it a perennial river before it joins the Siul River, which is a tributary of the Ravi River. Its catchment consists of steep slopes, deep valleys and terraces that have been laid down by the river since a long time.

Tant Gari: This river rises as a small stream from the slopes of an off shootof the Pir Panjal Range in the area east of Bharmaur in Chamba district. The Tant Gari valley is 'U'- shaped. Its bottom is strewn with boulders and morainic deposits laid down by the glaciers in the past. The physico-chemical parameters of water of Ravi River are given in Table 1.4

Table 1.4 - Physico-Chemical Attributes of Ravi River Water During 2014

Sr. No.	Parameters	Down Stream Chamera III	Down Stream Chamera II	Budhil Nallahh	Chamba	Baira Dam	Surgani	Down Stream Chamera I
1	pH	8.4	8.00	8.15	7.64	8.45	8.60	8.72
2	D.O. (mg/l)	8.1	8.1	8.2	8.5	7.8	7.8	8.2
3	BOD (mg/l)	0.1	0.1	0.1	0.1	0.1	0.1	0.1

4	Total Coliform (MPN/SPC/ 100ml)	220	240	110	170	26	70	110

(Source: HPSPCB, 2014)

b. Hydrology

Himachal region presents an intricate mosaic of mountain ranges, hills and valleys with varied altitudinal ranges. Himachal Pradesh forms a key and central part of the Indian Himalayan Region (IHR). The IHR covers vast area, with about 17% of the region being under permanent snow cover and glaciers, and about 30% - 40% under seasonal snow cover, forming a unique water reservoir. This feeds important perennial rivers that provide water for drinking, irrigation, and hydropower. The total irrigation potential of Himachal Pradesh is 0.33 million ha (HIMCOSTE, 2013).

c. Water Resources Issues

Himachal Pradesh representing the Himalayan Mountain ecosystems harbours a wide range of natural resources and is particularly sensitive to change. Himalayan ecosystemsare highly vulnerable due to geological reasons, stress caused by increased pressure of population, exploitation of natural resources, and other related challenges. These effects are likely to be exacerbated due to the impact of climate change, which may adversely impact the Himalayan ecosystems through increased temperature, increased frequency of heavy precipitation, increase in extreme rainfall intensity, increased variability in rainfall patterns, increased likelihood of water shortages/drought, reduced levels of precipitation as snow, loss of glacier volumes, and earlier snow melt. This would not only impact the very sustenance of the indigenous communities in uplands, but also the life of downstream dwellers across the country and beyond. There is an urgent need for giving special attention to sustain the Himalayan ecosystems for maintaining ecological flow of water. The sewage discharge in water bodies is also a source of concern.

1.2.5 Forests and Vegetation

The State has a geographical area of 55,673 km^2, out of which, 16,263 km^2 (29.21%) is under forests and tree cover. Out of the total forested area, 3,113 km^2 area is under very dense forest cover, 7,126 km^2 under moderately dense forest cover, while 5,195 km^2 falls under open forests (FSI, 2019) (Table 1.5 and Fig. 1.2). The State of Himachal Pradesh harboured an extent of 37,033 km^2 of recorded forest area (RFA). Out of this, the reserved forests (RFs) just covered a small extent of 3,113 km^2 while the bulk RFA was under the category of protected forests (PFs) and rest area of 2,005 km^2 belonged to unclassed forest (Table 1.6). The growing stock in recorded forest area and Trees Outside Forests (TOFs) were 347.07 million m^3 and 25.19 million m^3, respectively.

Table 1.5 - Forests and Tree Cover in Himachal Pradesh

Very Dense Forests (km^2)	Moderately Dense Forests (km^2)	Open Forests (km^2)	Total Forest Cover (km^2)	Tree Cover (km^2)	Total Forests and Tree Cover	Scrub
3,113	7,126	5,195	15,434	829	15,929	315

(Source: FSI, 2019)

Table 1.6 - Recorded Forest Area in Himachal Pradesh

Reserved Forests (km^2)	Protected Forests (km^2)	Unclassed Forests (km^2)	Total (km^2)
1,898	33,130	2,005	37,033

(Source: FSI, 2019)

The vegetation of the State is broadly grouped under following categories based largely on the altitude ranges and species composition (Table 1.7)

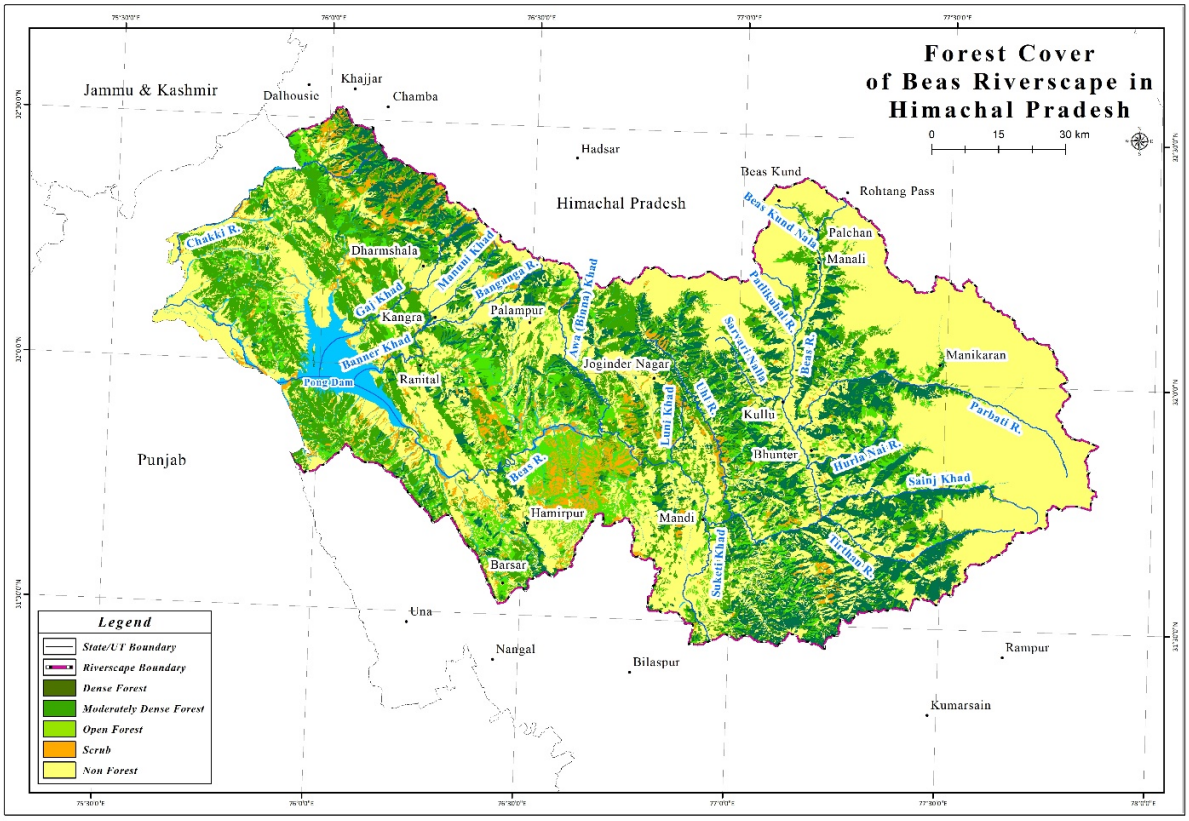


Fig. 1.2- Forest Cover of Beas Riverscape in Himachal Pradesh

Table 1.7 - Forest Types of Himachal Pradesh

Sr. No.	Group	Forest types	Altitude (m)	Dominant Species
1.	Tropical Moist Deciduous Forests	Bhabar-Dun Sal Forests	< 650 m	*Shorea robusta, Lagerstroemia parviflora, Mallotus philippinensis, Haldina cordifolia, Cassia fistula* & *Acacia catechu*
2.	Tropical Dry Deciduous Forests	Northern Dry Mixed Deciduous Forests	< 750 m	*Anogeissus latifolia, Acacia catechu* & *Diospyros montana*
		Dry Deciduous Scrubs	< 750 m	*Acacia catechu, Butea monosperma, Lannea coromandelica, Nyctanthes arbor-tristis, Dodonaea viscosa* & *Woodfordia fruticosa*
		Euphorbia Scrubs	< 750 m	*Euphorbia* spp. & *Acacia* spp.
		Khair-Sissu Forests	< 750 m	*Dalbergia sissoo* & *Acacia catechu*
		Dry Bamboo Brake	< 750 m	*Dendrocalamus strictus*
3.	Subtropical Pine Forests	Lower or Shiwalik Chir Pine Forests	800 m-1,700 m	*Pinus roxburghii*
		Upper or Himalayan Chir Pine Forests	1,200 m-1,700 m	*Pinus roxburghii, Quercus oblongata* & *Rhododendron arboreum*.
		Himalayan Sub-tropical Scrubs	> 1,000 m	*Carissa opaca, Dodonaea viscosa* & *Rhus parviflora*
4.	Himalayan Moist Temperate Forests	Ban Oak Forests	1,600-2,300 m	*Aesculus indica, Quercus oblongata, Rhododendron arboreum, Neolitsea pallens* & *Lyonia ovalifolia*.
		Mohru Oak Forest	1,200 m-2,250 m	*Aesculus indica, Carpinus viminea, Quercus floribunda, Quercus oblongata, Neolitsea pallens, Abies pindrow, Cedrus deodara* & *Rhododendron arboreum*
		Oak Scrub	1,200 m-2,200 m	*Berberis* spp., *Rosa* spp., *Pyracantha crenulata*,

Sr. No.	Group	Forest types	Altitude (m)	Dominant Species
				Prinsepia utilis & *Zanthoxylum armatum*
		Moist Deodar Forests	1,700 m-3,500 m	*Cedrus deodara, Pinus wallichiana, Picea smithiana, Abies pindrow* & *Quercus oblongata*
		Western Mixed Coniferous Forest s	2,100 m-3,000 m	*Picea smithiana, Abies pindrow, Pinus wallichiana, Cedrus deodara* & *Quercus* spp.
		Moist Temperate Deciduous Forests	1,800 m-2,750 m	*Acer acuminatum, A. caesium, A. cappadocicum, A. oblongum, A. pictum, Betula alnoides, Carpinus viminea, Ulmus wallichiana* & *Abies pindrow*
		Low-Level Blue Pine Forests	1,800 m-2,750 m	*Pinus wallichiana*
		Oak Scrubs	1,200 m-2,750 m	*Rosa moschata, Pyracantha crenulata, Rhus parviflora, Rubus ellipticus, R. macilentus, Quercus oblongata, Woodfordia floribunda, Desmodium elegans, Berberis* spp.
		Himalayan Temperate Secondary Scrubs	1,200 m-2,750 m	*Plectranthus rugosus, Berberis asiatica, Berberis lycium, Myrsine africana, Rosa moschata* & *Zanthoxylum armatum.*
		Kharsu Oak Forests	2,600 m-3,500 m	*Quercus semecarpifolia, Picea smithiana, Pinus wallichiana, Prunus cornuta, Taxus wallichiana, Betula utilis, Acer acuminatum* & *A. caesium*
		West Himalayan Upper Oak/Fir Forests	2,600-3,000 m	*Abies pindrow, Pinus wallichiana, Quercus semecarpifolia, Taxus wallichiana, Betula utilis, Corylus*

Sr. No.	Group	Forest types	Altitude (m)	Dominant Species
				jacquemontii & *Acer* spp.
		Montane Bamboo Brakes	>2,400 m	*Drepanostachyum falcatum, Thamnocalamus spathiflorus*, *Viburnum grandiflorum*, *Rhododendron arboreum* & *Quercus* spp.
		Cypress Forests	1,800 m-2,800 m	*Cupressus torulosa, Cedrus deodara, Quercus floribunda* & *Pyrus pashia*
		Alder Forests	1,000 m-3,000 m	*Alnus nitida, Populus ciliata, Celtis australis* & *C. tetrandra*
5.	Himalayan Dry Temperate Forests	Dry Broadleaves and Coniferous Forests	2,000 m-2,400 m	*Pinus gerardiana, Cedrus deodara* & *Quercus ilex*
		Neoza Pine Forests	1,700 m-3,000 m	*Pinus gerardiana* & *Cedrus deodara*
		Dry Deodar Forests	2,100 m-3,250 m	*Cedrus deodara, Pinus wallichiana* & *Picea smithiana*
		West Himalayan Dry Temperate Deciduous Forests	2,900 m-3,600 m	*Acer caesium, A. cappadocicum, A. pictum, Betula alnoides* & *Ulmus wallichiana*
		West Himalayan High- Level Dry Blue Pine Forests	3,000 m-3,600 m	*Pinus wallichiana, P. gerardiana* & *Abies pindrow*
		West Himalayan Dry Juniper Forests	2,500 m-4,300 m	*Juniperus polycarpos* & *Fraxinus xanthoxyloides*
		Populus/ Salix Forests	3,000 m-4,000 m	*Populus alba* & *Salix* spp.
		Western high-Level Dry Blue Pine Forest	3,000 m-3,600 m	*Pinus wallichiana, P. gerardiana, Abies spectabilis, Betula utilis, Rhododendron campanulatum, Juniperus communis, J. indica* & *J. squamata*
6.	Sub Alpine Forest	West Himalayan Sub-Alpine Fir Forests	2,900 m-3,050 m	*Abies pindrow, Pinus wallichiana* & *Picea smithiana*
		West Himalayan	2,900 m-3,050 m	*Abies pindrow, Betula*

Sr. No.	Group	Forest types	Altitude (m)	Dominant Species
		Sub-Alpine Birch/Fir Forests		*utilis, Rhododendron* spp. & *Quercus semecarpifolia*
7.	Moist Alpine Scrub	Birch/Rhododendron Scrub Forests	Above 3,500 m	*Rhododendron* spp.
		Deciduous Alpine Scrubs	Above 3,350 m	*Betula utilis, Syringa emodi, Salix* spp., *Lonicera* spp. & *Berberis* spp.
		Dwarf Rhododendron Scrubs	3,350 m-4,600 m	*Rhododendron* spp.
8.	Dry Alpine Scrub	Dry Alpine Scrubs	2,800 m-4,300 m	*Hippophae* spp., *Juniperus indica* & *J. communis*
		Dwarf Juniper Scrubs	2,900 m-4,200 m	*Juniperus indica, J. squamata* & *J. communis*

(Source: FSI, 2011)

1.2.6 Agro-ecosystem

Agriculture is one of the most significant sectors of the economy of Himachal Pradesh. Important crops grown in the State are maize, wheat, rice, barley, pulses, oilseeds, buckwheat, minor millets, potato, ginger, tea, peas, *kuth*, hops and a variety of vegetables. The fruits, particularly pome, stone and dry fruits like *chilgoza*, walnut, pecan nut and pistachio are widely grown and the region is important for the large-scale processing industry. Although, the State is deficient in foodgrains production, it has gained importance in the production of vegetables and fruits such as seed potato, vegetables, ginger, chicory seeds, hops, olives, figs, apples and mushrooms, besides certain medicinal and aromatic plants. Land use pattern of Himachal Pradesh State during 2013-14 is given in Table1.8.

Table 1.8 - Land Use Pattern in Himachal Pradesh

Sr. No.	Land use	Area in '000 ha	Percentage
1	Total Geographical Area	5,567	NA
2	Reporting Area for Land Utilization	4,576	100.00
3	Forests	1,126	24.61
4	Not Available for Cultivation	1,127	24.64
5	Permanent Pastures and Other Grazing Lands	1,511	33.01
6	Land under Miscellaneous Tree Crops and Groves	64	1.39
7	Culturable Wasteland	122	2.66
8	Fallow Lands other than Current Fallows	22	0.49
9	Current Fallows	54	1.18

Sr. No.	Land use	Area in '000 ha	Percentage
10	Net Area Sown	550	12.02

(Source: FSI, 2017)

Agriculture being main occupation of the people of Himachal Pradesh has an important role in the economy of the State. It provides direct employment to about 62% of the main working population. Income from the agriculture and allied sectors accounts for nearly 9.40% of the State domestic products. Out of the total geographical area of 55673 km^2, area of operational holding is about 9.560 km^2 owned by 9.61 lakh farmers (DoA, 2019). The average holding size is about 1.0 ha (Table 1.9).

Table 1.9 - Distribution of Operational Land Holdings in Himachal Pradesh

Sr. No.	Land Holding Class	No. of Land Holdings (lakh)	Area (lakh ha)	Average Size of Holding (ha)
1	Marginal (<1.0 ha)	6.70	2.73	0.41
2	Small (1.0- <2.0 ha)	1.75	2.44	1.39
3	Semi Medium (>2.0-<4.0 ha)	0.85	2.31	2.72
4	Medium (4-<10 ha)	0.28	1.57	5.61
5	Large (>10 ha)	0.03	0.51	17.00
Total		**9.61**	**9.55**	**1.00**

(Source: DoA, 2019)

Rearing of livestock is an integral to the rural economy of Himachal Pradesh. Cattle, goats and sheep are reared by mostly every family in the rural areas. These animals graze in open areas - fallows, wastelands, pastures, community lands, forestlands, etc. After crop harvest, these animals are also allowed into the agricultural fields for the grazing. The productivity of these animals is low. The collection of grass and leaf fodder is an essential part of daily chores for the people, especially women. Grazing animals pose the greatest challenge to forest regeneration and plantation establishment in the hills.

1.2.7 Biodiversity

Himachal Pradesh is bestowed with distinctive floral and faunal biodiversity having natural, aesthetic, cultural, commercial and genetic values. Himachal Pradesh has great diversity in the biological resources because of its varied topography, geological formations, altitudinal ranges, and climatic conditions. The State has only 1.7% of total geographical area of the country but shares 6.4% of the total diversity of India. The biodiversity elements in the State varied from tropical, sub-tropical, temperate, sub-alpine and alpine types. A greater proportion of the floral and faunal species available in the State are native (HIMCOSTE, 2005). Out of the total 18666 flowering plant species found in the country (BSI) and approximately around 3,500 species have been reported from Himachal Pradesh by various explorations conducted. These floristics are broadly known through a number of studies

(mainly Collett 1902; Nair 1977; Chowdhery and Wadhwa 1984; Aswal and Mehrotra 1994; Dhaliwal and Sharma 1999; Kaur and Sharma 2004). As a result, about 3500 species of higher plants have been identified in the state flora. Collett (1902) collected plants from Shimla and adjacent areas in 1885 and reported 1326 species of flowering plants belonging to 113 families. The state is also rich in orchids with 72 reported by Verma *et al*. (2013) and 75 species reported by Chowdhery and Agrawal (2013). Khullar (1995) has documented 265 species of pteridophytes from Himachal Pradesh. Besides, 128 species of liverworts and hornworts have been reported from the state (Singh and Singh, 2015).

The vertebrate fauna of Himachal-Pradesh has been explored by various workers from time to time and the base line data of faunal diversity of vertebrates (species including 81 fishes, 16 amphibians, 55 reptiles and 112 mammals) contributing 17% of the total vertebrate diversity of India (Sharma and Sidhu, 2016). Mehta (2005) reported 104 fish species from the state with 9 fish species introduced in the water bodies of the state. The carp fishes are well established and their aqua culturing has boosted up the commercial fish production from the dam-reservoirs (Sharma, 2010). Dinesh *et al*. (2012) has given an annotated checklist of amphibians of the state (342 species under 50 genera and 14 families).

Avifaunal studies have been conducted in different parts of Himachal Pradesh by several people. Kumar (2015) has reported 618 species of birds in 20 orders. Mahabal (2005) recorded Muscicapidae as the largest family of birds, comprising 105 spp., from Himachal Pradesh. The Western Tragopan, a rare and endangered species, is confined only to the North Western Himalaya. Himachal Pradesh also has probably the largest population of Chir Pheasants in the world (HIMCOSTE, 2005).

There are 1 Biosphere Reserve (Samant *et al*., 2012), 5 National Parks, 28 Wildlife Sanctuaries and 3 Conservation Reserves covering 8,391 km^2 and 15.11% of geographical area of Himachal Pradesh. The Great Himalayan National Park was awarded UNESCO World Heritage Site status in 2014, in recognition of its outstanding significance for biodiversity conservation. The Park protects over 1,000 plant species representing 128 families and 427 genera (Singh and Rawat, 2000) including many medicinal herbs, 31 mammal and 209 bird species, as well as amphibians, reptiles and insects. Four of GHNP's mammal species and three of its bird species are globally threatened, including the Musk Deer and the Western Tragopan.

1.2.8 Demography

According to the 2011 Census of India, Himachal Pradesh has a population of 68,64,602 comprising 34,81,873 male and 33,82,729 females, with 10.03% of the population living in urban regions. There are 20,118 villages, 3,037 *Gram Panchayats*, 57 towns, 28 *Nagar Panchayats* and 21 *Nagar Parishads* including Municipal Corporations. Lahaul and Spiti is the largest and Hamirpur is the smallest district of the State with geographical area of 12,835 km^2 and 1,118 km^2, respectively. The rural and urban populations in the State is 61,76,050 and 6,00,552 persons, respectively. The density of population in the State varies from as low as 2 persons km^2 in Lahaul and Spiti district to 406 persons km^2 in Hamirpur district as

compared to the State average of 128 persons km^2. Shimla is the largest town with a population of 1,42,161 and Narkanda is the smallest one with a population of 712.

There are two thousand or more temples all over the State. The State has a number of tourist destinations including places of pilgrimage e.g., Manali, Kullu, Manikaran, Shimla, Dharamshala, Kasauli, Malana, Dalhousie, Kaza, Tabo, Kasol, Khajjiar, Kufri, Chail, Solang Valley, Chamba, Bajreshwari Mata, Kangra Devi and Vajreshwari Mata Mandisr located in Kangra, Jwalamukhi Temple, Chamunda Devi Temple, Ma Chintpurni Devi Temple, Rewalsar, Shikari Devi, Bijli Mahadev Temple, Bhimakali Temple, Hatkoti, Jakhu, Naina Devi Temple, Renuka, Baba Balak Nath Temple, Manimahesh, etc.

As per data compiled by the Tourism Department, as many as 19.6 million tourists, including 0.47 million foreigners visited the State during 2017-2018. These figures, which are nearly 2.8 times of the whole population of the state itself, reflect a high 'tourist load' on urban infrastructure and urban services. The major sources of pollution of the rivers are generally the discharges of untreated and partially treated wastewater from the human habitations.

1.3 Riverscape Analysis

1.3.1 Methodology

The entire Beas River Basin spreads over an extent of 22,262.10 km^2. Based on an extensive consultative process adopted and as described in Volume I, the Beas Riverscape having an area of 16,743.01 km^2, representing 75.21% of the river basin was delineated for the purpose of planning and assessment. A larger proportion (81.84%) of the overall riverscape lies in the mountainous State of Himachal Pradesh. The entire catchment area (13,702.16 km^2) of Beas River in Himachal Pradesh has been included in the delineated riverscape (Fig. 1.3). Thus, the main channel of Beas from its origin at *Beas Kund* (3,505 m elevation) to the interstate border with Punjab State along with its all tributaries and their catchments form the part of riverscape within Himachal Pradesh. The total channel length from origin to the interstate border is 320.12 km while the remaining river length of 149.71 km lies within the State of Punjab.

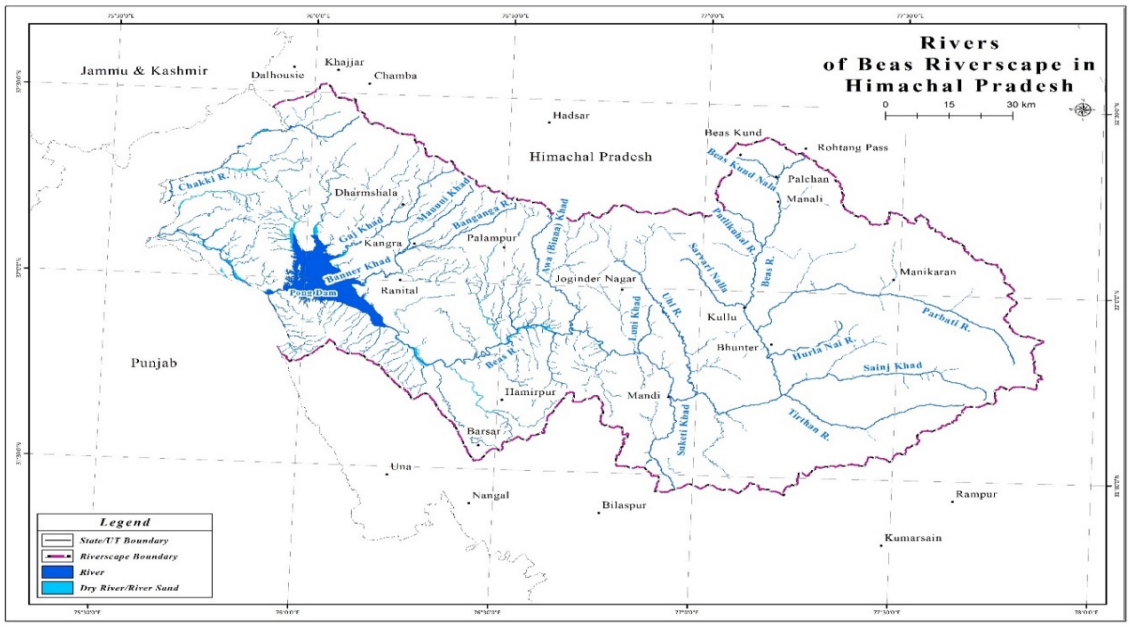


Fig. 1.3- Larger Portion of the Beas Riverscape in the State of Himachal Pradesh

In the present assessment, image processing and GIS tools *viz*., ERDAS Imagine 2018, Geo-Media Professional 2018, ArcGIS, etc. were used. The GIS software provided the tools needed to store, analyze and display geographic information.

Landsat 8 satellite data (for the month of November, 2018) was used for preparation of Land use/ Land cover map of the riverscape. The Row, Path along with Date of Pass of the satellite data used in the present assessment for the larger part of the riverscape within the State of Himachal Pradesh are presented in Table 1.10.

Table 1.10 - List of Data Downloaded and Used in the Present Assessment

State	Path	Row	Date of Pass	Satellite
Himachal Pradesh	147	038	10-Nov-2018	Landsat-8
Himachal Pradesh	148	038	17-Nov-2018	Landsat-8

1.3.2 Riverscape Profile

a. Spatial Extent

Himachal Pradesh, having a geographical area of 55,673 km^2, represents 1.69% geographical area of the country. Out of this, the spatial extent incorporated in the delineated riverscape from the State is 13,702.16 km^2 and it represents 81.84% area of the delineated Beas Riverscape (Table 1.11). The select area of the riverscape falls in five administrative districts of Himachal Pradesh. These districts are: Kullu, Mandi, Kangra, Hamirpur and Chamba. Riverscape area falling within Kullu and Mandi Districts forms the upper reaches of Beas

Basin while area lying in Kangra and Hamirpur Districts forms the lower part of the basin. Very small area of Chamba district falls in the Beas Basin. River Beas and its 16 major tributaries *viz*., Patlikuhal, Sarbari Khad, Parbati River, Hurla Nallah, Sainj River, Thirthan River, Uhl River, Suketi Khad, Luni Khad, Awa Khad, Manuni Khad, Baner Khad, Banganga River, Chakki Khad, Gaj Khad, and Bein falling in 1,977 micro-watersheds have been included in the riverscape for the purpose of planning, assessment and proposed interventions Fig.1.4. Out of 16 tributaries, 15 originate in different parts of Himachal Pradesh from Pir - Panjal Range, Great Himalayan Range and Dhauladhar Range while Bein River originates in Shivaliks, Punjab. Only, Chakki Khad that originates from the southern slopes of the Dhauladhar range in Himachal Pradesh continues to flow in Punjab while other tributaries join Beas within the territory of Himachal Pradesh. Chakki Khad drains the south-western part of Himachal Pradesh and then enters Punjab to join the Beas River.

Table 1.11 - Spatial Extent of the Riverscape in the State

Geographical Area (km^2)	Geographical Coordinates (From – To)		Area in Riverscape (in km^2)	Per Cent Area of Riverscape
	Latitude N	**Longitude E**		
55,673	31^0 27' 12" N to 32^0 31' 27" N	75^0 35' 39" E to 77^0 52' 7" E	13,702.16	81.84

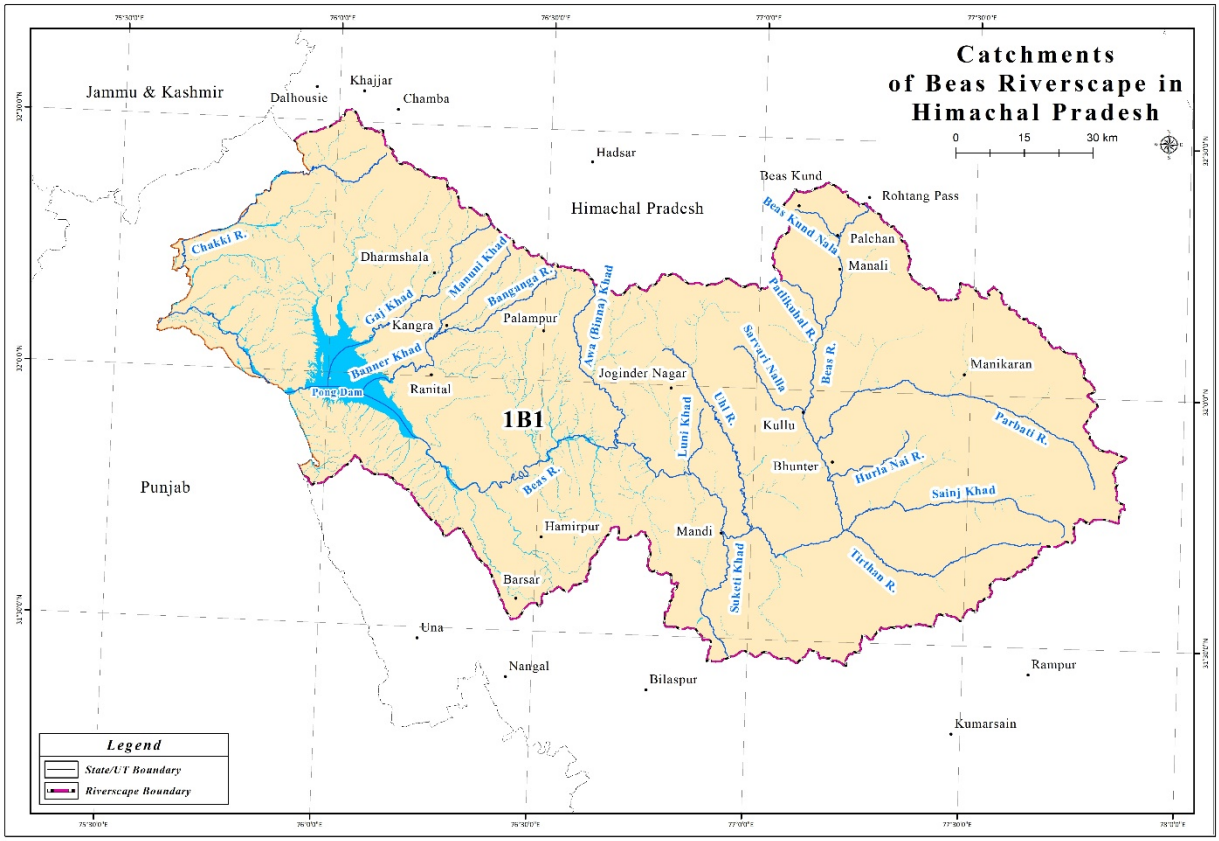


Fig. 1.4- Beas Riverscape in Himachal Pradesh with Tributaries and Catchments

b. Land Use and Land Cover

Land cover refers to a physical and biological cover over the surface of land including water, vegetation, bare soil, and/ or artificial structures. Land use is defined in terms of syndromes of human activities such as agriculture, forestry and building construction that alter land surface processes including biogeochemistry, hydrology and biodiversity. Understanding of land use and land cover change (LULCC) also known as land change is important for planning conservation efforts in view of human induced modifications of Earth's terrestrial surface. An insight on land use/ land cover is vital for land and natural resource management. The geospatial analysis of Beas Riverscape identified altogether 16 land use and land cover categories (Table 1.12). Thirteen land use and land cover classes under the natural category collectively represented nearly three fourth (74.35%) part of the Beas Riverscape within the mountainous State of Himachal Pradesh while man made categories collectively represented the 25.64% extent of the riverscape. The maximum extent of the riverscape was covered by agriculture, representing 24.43% extent (Fig. 1.5). The category of Moderately Dense Forests represented 19.53% of the riverscape within Himachal Pradesh. Snow/ Glaciers accounted for nearly 15.34% area of the riverscape. Two categories of rivers - river perennial and river dry/ river sand represented 3.55% area of the riverscape. Waterbody, wetland, and canal categories of LULC covered a meager area. Alpine pastures represented just 0.03% area of the riverscape while settlements covered 1.21% area of the riverscape. The distribution of land use and land cover categories in Beas Riverscape is depicted in Fig. 1.5.

Table 1.12 – Representation of Land Use and Land Cover Categories of Beas Riverscape, Himachal Pradesh

Sr. N0.	Land Use and Land Cover Classes	Extent Represented in Beas Riverscape (km^2)	Riverscape Extent Represented in Part of Himachal Pradesh (km^2)	LULC Extent Represented in Part of Himachal Pradesh (%)
A	**Natural Categories**			
1	Dense Forests	1,894.15	1,890.37	13.79
2	Moderately Dense Forests	2,818.17	2,676.90	19.53
3	Open Forests	1,351.59	1,318.16	09.62
4	Scrubs	630.55	599.26	4.37
5	Alpine Pastures	3.87	3.87	00.03
6	Cloud	459.77	459.77	03.35
7	Cloud Shadow	16.38	16.38	00.11
8	Snow/Glaciers	2,102.98	2,102.98	15.34
9	Waterbody	3.64	0.94	00.00
10	Wetland	26.12	0.00	00.00

Sr. N0.	Land Use and Land Cover Classes	Extent Represented in Beas Riverscape (km^2)	Riverscape Extent Represented in Part of Himachal Pradesh (km^2)	LULC Extent Represented in Part of Himachal Pradesh (%)
11	River (Dry)/River Sand	194.23	170.76	01.24
12	River (Perennial)	382.72	317.33	02.31
13	Barren	634.90	631.30	04.60
Sub-Total of 'A'		**10,519.07**	**10,188.02**	**74.35**
B	**Man-made Categories**			
14	Agriculture	5,908.95	3,347.56	24.43
15	Settlements	310.06	166.13	01.21
16	Canal	4.93	0.45	00.00
Sub-Total of 'B'		**6,223.94**	**3,514.14**	**25.64**
Grand Total (A and B)		**16,743.01**	**13702.16**	**100.00**

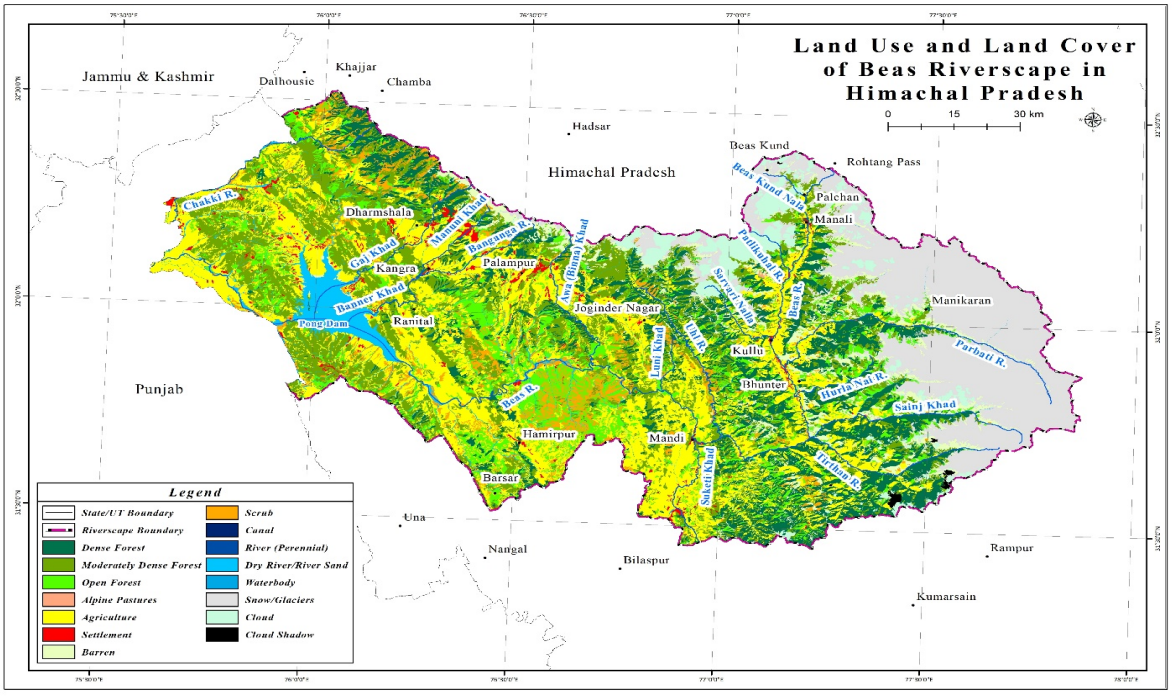


Fig. 1.5- Representation of Land Use and Land Cover Categories of Beas Riverscape in Himachal Pradesh

c. Altitude

Altitude, particularly in the Himalayan Mountains plays a decisive role in the physical characteristics, biological diversity and its distribution, socio-economic uses and consumption patterns. In particular, higher altitudes greatly influence river flow, rate of sedimentation, vegetation, wild animal use and even human settlements and their uses. In all, 12 elevation classes were derived within the riverscape. The riverscape portion within Himachal Pradesh from west to east direction depicted large altitudinal variation from <250 m to very high altitude of 6,488 m amsl (Fig. 1.6). The distribution of areas under different elevation classes within the portion of Himachal Pradesh is presented in **Table 1.13** and it revealed that nearly 75% area of the riverscape lies at altitude >1,000 m. Nearly 25% extent of the riverscape portion in Himachal Pradesh lies >3,000 km^2. The maximum extent of 1,618.69 km^2 or 11.81% area of the riverscape represented the lower category of the elevation class i.e., >250 m to <500 m. Substantial area in the Himalayan State of Himachal Pradesh harbours diverse forests from sub-tropical broad leaved moist or mixed deciduous forests to upper temperate forests. However, most of these forests are under severe influence of biotic pressure. They need efforts towards protection, enhanced regeneration and gap plantations. Degraded forests or areas presently devoid of vegetation owing to past activities or in close proximity to hydro-electric projects, townships, riverine habitats or roadsides have ample opportunities for suitable forestry interventions.

Table 1.13 - Distribution of Area of Beas Riverscape under Different Elevational Classes

Sr. No.	Elevation Classes	Area (km^2)	Representation (%)
1	Less than 250 m	148.67	1.08
2	250 - <500 m	1,618.69	11.81
3	500 - < 750 m	2,047.13	01.49
4	750 - <1000 m	1,572.65	11.14
5	1000 - <1250 m	906.86	06.61
6	1250 -1500 m	680.64	04.96
7	1500 <2000 m	1,140.02	08.32
8	2000 <2500 m	1,195.49	08.72
9	2500 <3000 m	1,093.24	09.34
10	3000 <4000 m	1,410.88	10.29
11	4000 <5000m	1,413.4	10.31
12	>5000 m	474.49	03.46
Total		**13,702.16**	**100.00**

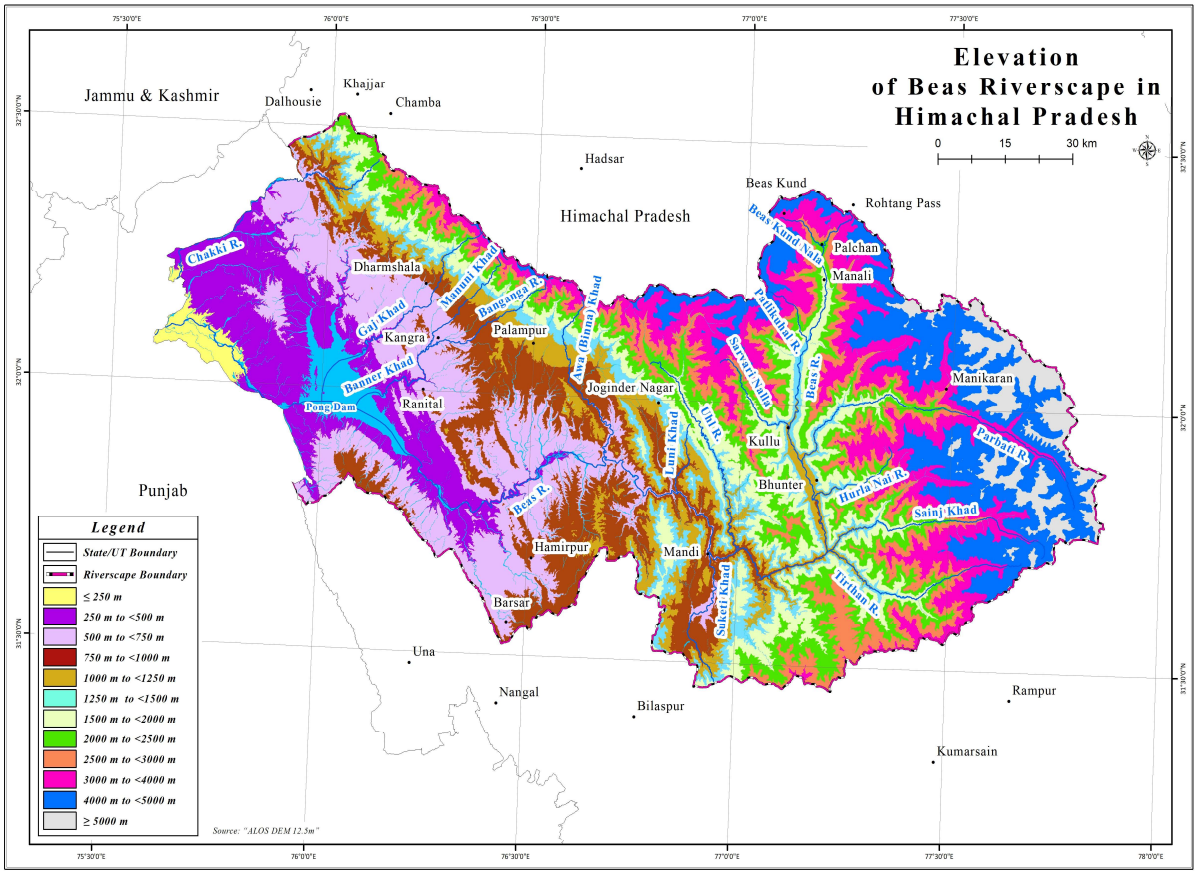


Fig. 1.6- Distribution of Altitudinal Classes of the Beas Riverscape in Himachal Pradesh

d. Slope

Slope matters in the context of Himalayan Mountains as it is considered vital while suggesting suitability of areas for forestry interventions, particularly plantations and soil moisture conservation works. A total of 10 classes of slope have been derived in the riverscape and appropriately named (Table 1.14). The higher degree of slopes (>30°) usually cause a lot of soil erosion and are prone to landslides, greater runoff, etc. Thus, areas with slopes >30° to <45° require safeguards from erosion while raising plantations of multiple values (i.e., fuelwood, fodder, small timber, etc.). These types of forest resources are in heavy demand in upper reaches due to increased pressure of tourism activities, presence of paramilitary forces, transhumance pastorals, and widespread human settlements. The distribution of areas under different slope classes is presented in Table 1.14. Nearly 31% extent of the riverscape portion within Himachal Pradesh lies in slope category >30°. About 12% area of the riverscape has slopes >40° (Fig. 1.7). About 15% area of the riverscape lies in slope class <.5°.

Table 1.14 - Distribution of Area of Beas Riverscape in Himachal Pradesh Under Different Slope Categories

Sr. No	Slope	Slope Category	Area (km^2)	Percentage of Total Area (%)
1	Less than 2.5°	Nearly Level	976.39	7.13
2	2.5° to <5°	Gently Undulating	1,027.29	7.50
3	5° to <10°	Gently Rolling	1,671.82	12.20
4	10° to <15°	Moderately Rolling	1,458.36	10.64
5	15° to <20°	Strong Rolling	1,486.99	10.85
6	20° to <25°	Moderately Steep	1,381.01	10.08
7	25° to <30°	Steep	1,502.70	10.97
8	30° to <35°	Very Steep	1,427.80	10.42
9	35° to <40°	Extremely Steep	1,196.30	8.73
10	>40°	Escarpment	1,573.50	11.48
Total			**13,702.16**	**100**

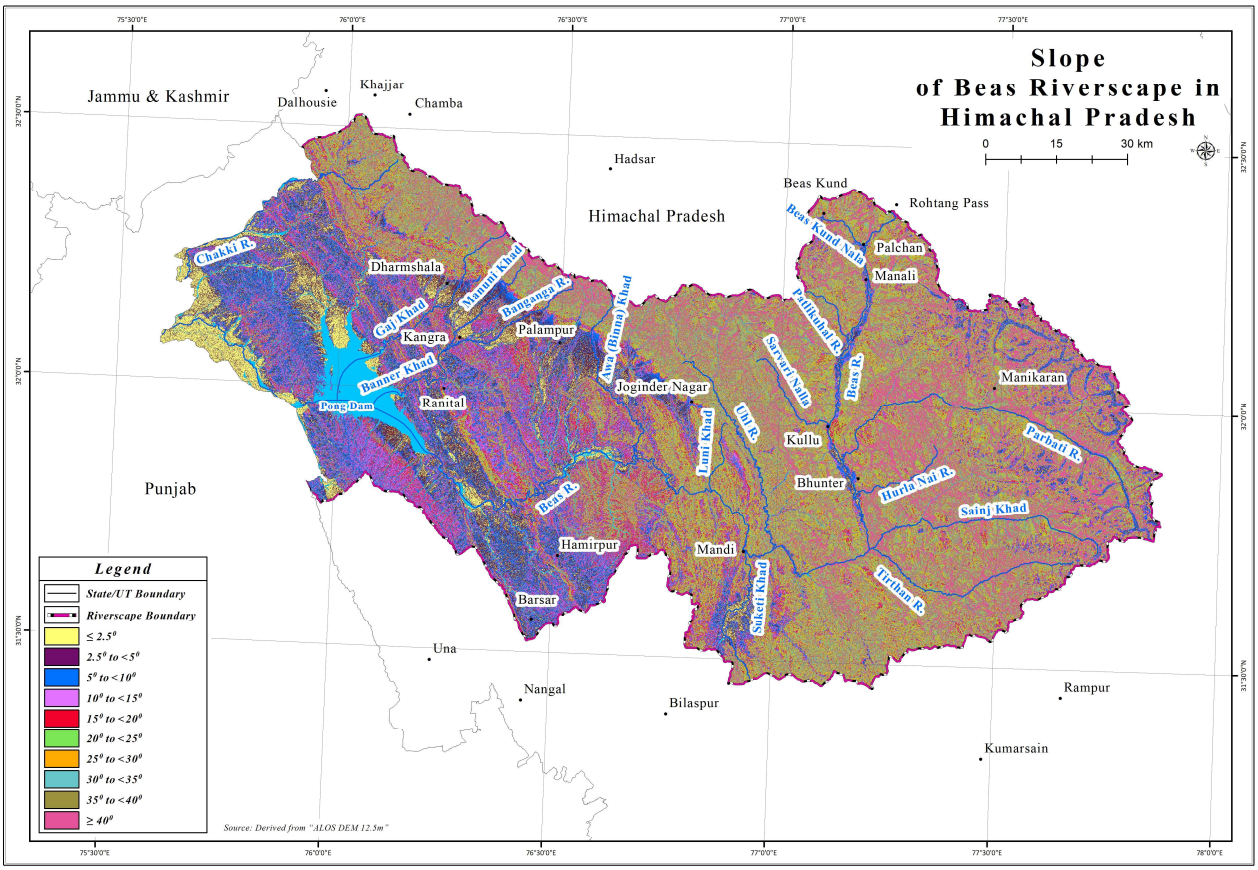


Fig. 1.7- Distribution of Slope Classes of the Beas Riverscape in Himachal Pradesh

e. Aspect

The north and south facing slopes in the Himalayan Mountains vary in their microclimate; light intensity, soil and air temperature, humidity, soil moisture and

evaporation and duration of growing periods and these differences are closely associated with differences in vegetation composition and structure. In general, south facing slopes in the lower to upper temperate forests in the Middle and Greater Himalayas receive more sunlight. Hence, southern slopes are more xeric and warmer, supporting drought-resistant vegetation (grassy slopes and scrub) and less favourable for tree growth. In contrast, north facing slopes due to dense forest cover retain greater amount of moisture and are cold and humid. Mostly, the drainage of the river Beas and a majority of its tributaries flow from north to south or south-westwards. Thus, run-off and sedimentation rates on these aspects are always prominent and higher. A total of nine categories *viz*., North, North-East, East, South-East, South, South-West, West, North-West and the Flat land were analyzed in the Beas Riverscape (Fig. 1.8). The area distribution under different aspect classes is presented in Table 1.15.

Table 1.15 - Distribution of Beas Riverscape Area in Himachal Pradesh in Different Categories of Aspect

Sr. No.	Aspect	Area (km^2)	Percentage of Total Area (%)
1	Flat (-1)	344.46	3
2	North (0-<22.5, >337.5-360)	1439.01	11
3	Northeast (22.5-<67.5)	1496.68	11
4	East (67.5-<112.5)	1479.63	11
5	Southeast (112.5-<157.5)	1642.29	12
6	South (157.5-<202.5)	1717.19	13
7	Southwest (202.5-<247.5)	2087.46	15
8	West (247.5-<292.5)	1853.50	14
9	Northwest (292.5-<337.5)	1641.94	12
Total		**13,702.16**	**100**

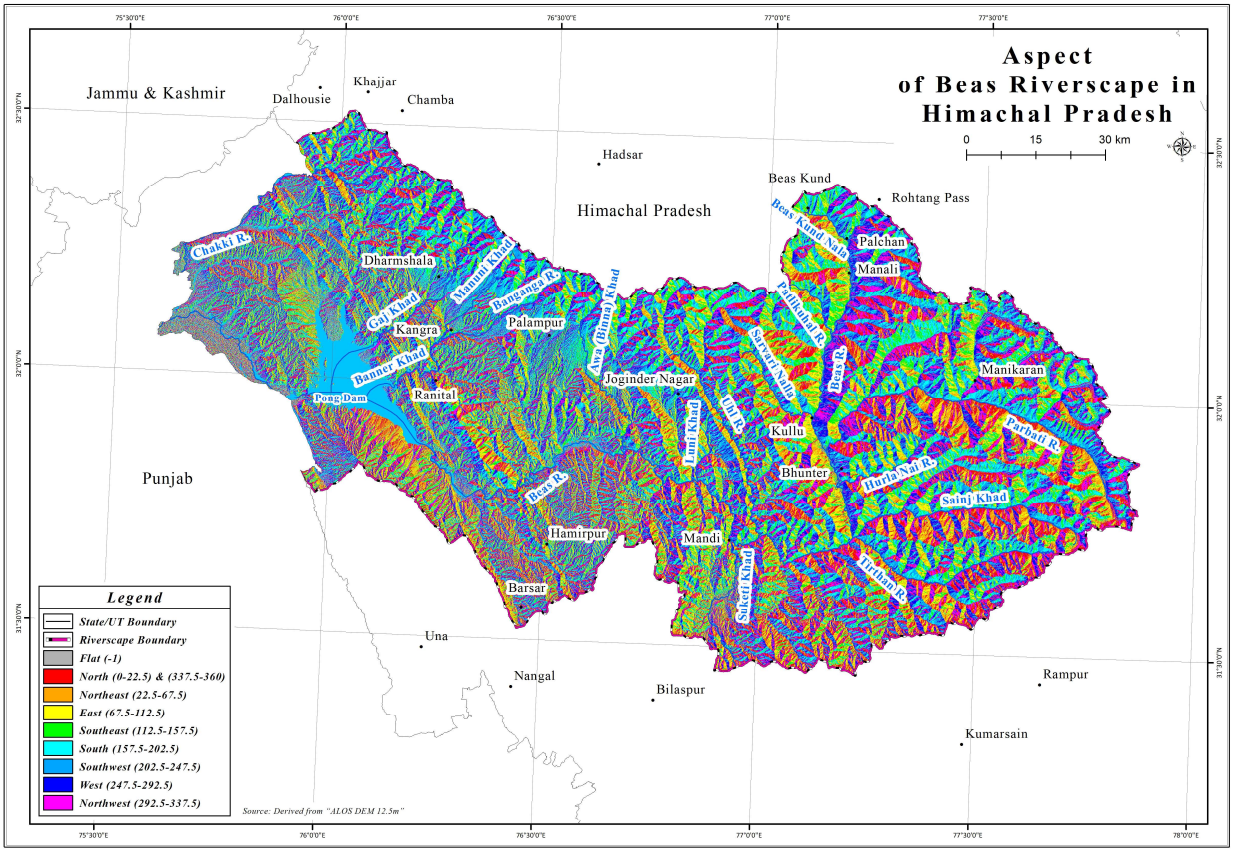


Fig. 1.8- Distribution of Beas Riverscape Area in Himachal Pradesh in Different Categories of Aspect

f. Soil Depth

Soil depth, in addition to soil type, texture and structure can influence water availability, limit root growth and can influence nutrient access. Soil depth can greatly influence the type of plants that can grow in them. Thus, soil depth is another important variable for suggesting suitability of tree species for a plantation model. Three depth classes, *viz*., Deep, Moderately Deep, and Shallow have been mapped within the Himachal part of the Beas Riverscape. The distribution of area under different soil depth classes is provided in Table. 1.16. Nearly 32% area of the riverscape has deep soils while moderately deep soils accounted for38% area of the riverscape. About 28% area of the riverscape has shallow soils (Fig. 1.9). The moderately deep soils predominantly occurred around the course of the main channel and various tributaries. Two per cent area of the riverscape was under the category of non-soil.

Table 1.16 - Distribution of Area in Beas Riverscape in Himachal Pradesh Under Different Soil Depth Categories

Sr. No.	Soil Depth	Area (km^2)	Percentage of Riverscape Area Within Himachal Pradesh (%)
1	Deep	4,395.82	32%
2	Moderately Deep	5,201.16	38%
3	Shallow	3,786.82	28%
4	Non soil	3,18.36	2%
Total		**13,702.16**	**100**

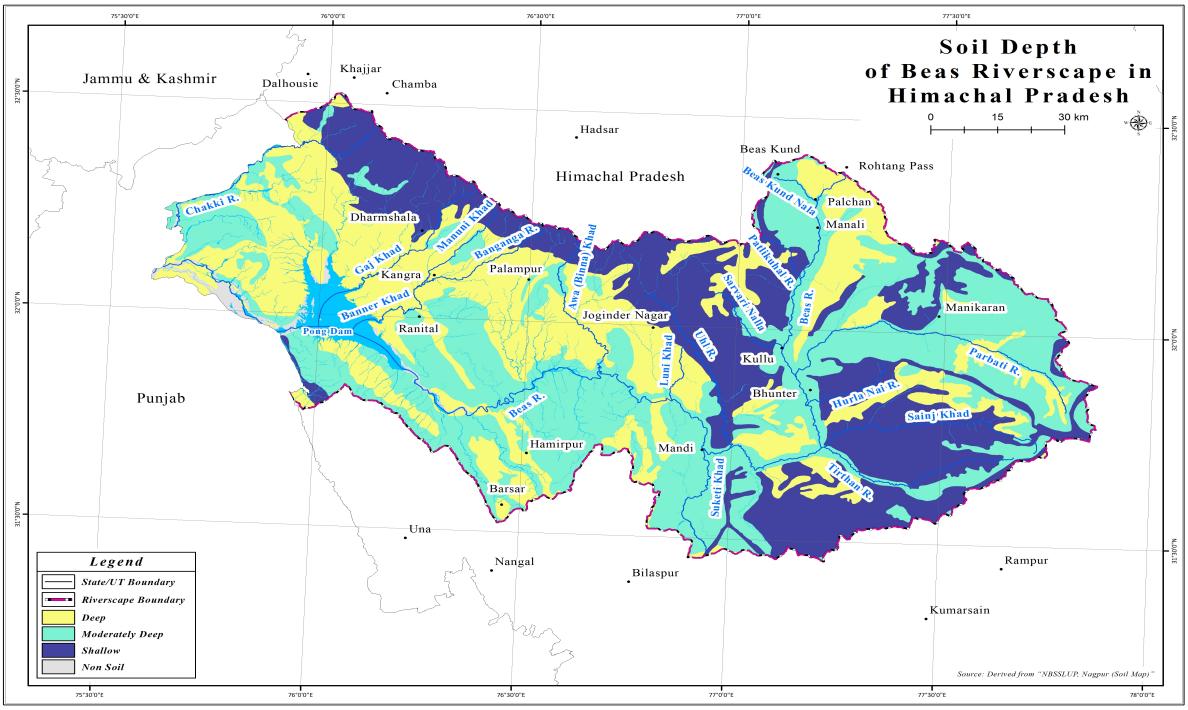


Fig. 1.9- Distribution of Soil Depth Classes of the Beas Riverscape in Himachal Pradesh

g. Soil Erosion

Soil erosion is the displacement of the upper layer of soil and it is one form of soil degradation. Human activities caused by intensive agriculture, deforestation, construction/ widening of roads, construction of hydroelectric projects, urban sprawl and erratic climatic conditions are some of the prominent factors responsible for soil erosion in the mountainous catchment of river Beas. Altogether, total five categories of erosion classes have been recorded in the riverscape. The distribution of areas under different erosion classes and their proportion are given in Table 1.17. Nearly 23% area of the riverscape within Himachal Pradesh was recorded under high and severe soil erosion categories. Only 15% area of the riverscape was under the category of very low erosion (Fig. 1.10). An area of 2,035.87 km^2 falls under non-soil category. These areas may not be suitable for forest plantations. It is evident from the Fig 1.10 that a larger part of the

mountainous region in Kullu and Mandi Districts has moderate soil erosion while the mountainous part in Hamirpur, Kangra and Chamba Districts are prone to high to severe soil erosion.

Table 1.17 - Distribution of Soil Erosion Categories in Beas Riverscape

Sr. No.	Soil Erosion ($t\ ha^{-1}\ yr^{-1}$)	Erosion Intensity Class	Area (km^2)	Proportion of Total Riverscape Area (%)
1	<5	Very Low	2089.27	15
2	>5 to <10	Low	407.96	3
3	>10 to <20	Medium	5915.63	43
4	>20 to <40	High	1556.45	11
5	>40	Severe	1696.98	12
6	Non-Soil	-	2035.87	15
Total			**13,702.16**	**100**

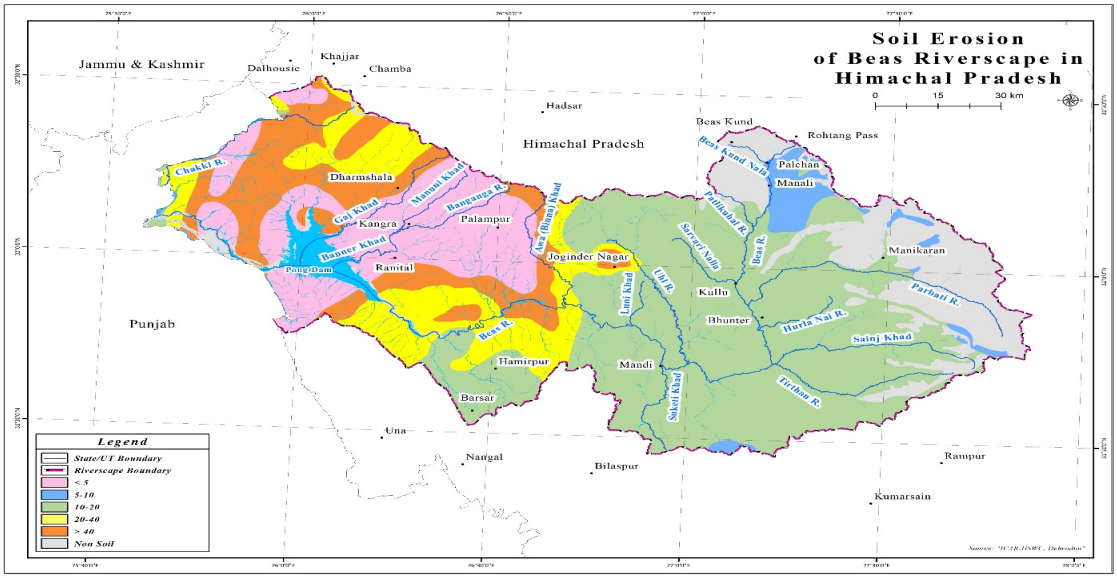


Fig. 1.10- Distribution of Soil Erosion Classes of the Beas Riverscape in Himachal Pradesh

1.4 Need for Forestry Interventions for Beas

The larger portion of the riverscape located in the State of Himachal Pradesh is characterized by high mountains, steep slopes rugged terrain and cold, harsh climatic conditions. Glacier and snow melt flow from glaciers and snow-capped peaks feed Beas channel and its tributaries during the summer season while heavy rains during monsoon results into enhanced surface water and runoff. The glaciers and snow in the upper reaches are primary contributors of water during dry months of the year and are critical to perpetual flow of water to the Beas River and its tributaries. Torrents in hilly region during monsoon not only helps in self-cleansing process of the river but also promotes growth of diverse aquatic as well as terrestrial flora and fauna.

Rugged terrain, precipitous slopes, erratic rainfall and snowfall, and soils exposed by landslides, construction and road widening works and enhanced agriculture/horticulture activities in the region result into higher rate of silt and sedimentation and extensive bank erosion, particularly in the monsoon season. Intentional burning of grass and leaf litter by people for promoting new flush of grass and clearing of ground and removal of unpalatable plant growth/ weeds not only cause erosion but also lead to discharge of ash and other waste in the river. In addition, civic waste from rural areas and urban built-up environment besides industrial pollutants pollute. Further, storage of water in sequential dams/ reservoirs and diversion of water lead into reduced e-flow. These factors have not only combined and cumulative impact on the availability of water and quality of water but immensely influence the biological, ecological and socio-economic sub-environments in upstream as well as downstream areas.

In view of the above stated characteristics and varied pertinent influential factors in the Himalayan part of the riverscape, it is essential to carry out various forestry interventions in the natural, agriculture and urban landscapes so as to check soil erosion, reduce sedimentation and excessive runoff, enhance percolation, and promote infiltration of water. Plantation and treatments models in three types of landscapes are thus, envisaged besides appropriate soil and moisture conservation measures and conservation interventions including riverine and riparian wildlife management and wetland management.

1.5 Prioritization of Sites for Proposed Forestry Interventions

Diverse forests or other natural vegetation along the altitudinal gradient in the mountainous tract are one of the natural resources that is not only important for human life but also critical for maintaining various ecological benefits, such as hydrological functions, erosion control, reducing surface runoff, soil fertility control, and rainwater infiltration (Silva *et al*., 2017). Natural vegetation has been recognized as the most important soil cover in relation to other covers in order to conserve water resources and maintenance of hydrological processes. Information of land suitability is the pre-requisite to prioritize suitable sites for various forestry interventions (e.g. soil and moisture conservation works, forest plantations, grassland/ pasture development, wetland management, protection and maintenance of protected areas, etc.). Specialization of conservation actions can be accomplished through the prioritization of areas, which is one of the most effective and economical method in the management. The GIS assisted planning and decision-making process by way of geospatial analyses and modeling was recognized as an important tool for evaluation of land suitability and identification of priority areas for the purpose of proposed forestry interventions and other conservation measures required within the Beas Riverscape.

Priority Criteria: The GIS based cartographic database and the multi-criteria evaluation approach using three factors *viz*., land use/ land cover, slope and erosion rate with different weight/ rank values as shown in Table 1.18were considered appropriate for the prioritization identification of priority areas for forestry interventions. Accordingly, the land use and land cover classes were merged in eight categories (Wetland, Dense Forest, Alpine Pasture/ Scrub,

Open Forest, Agriculture, Barren, Settlement and Others) with weight/ rank values from 1 to 7. The slope factor included three categories (0° to <30°; >30° to <40°; >40°) with values ranging from 1 to 3. The third factor on erosion rate (t ha^{-1} $year^{-1}$) was categorized into five categories (<5; >5-<10; >10-<20; >20-<40; >40) and assigned weight values ranging from 1.5 to 7.5. GIS overlay operations were carried out on three layers relevant to above stated three factors and the weightages for various combinations were combined together by means of addition to arrive at summed weightage for each combination. These values were then categorized into 'High', 'Medium', and 'Low' based on statistical quartile. For example, an Open Forest area was classified as 'high priority', if it has a slope category of 0° to 30°, and erosion rate in the category of >10 to <20 t/ha/year. Likewise, the same Open Forest area having slope category of >30° to <40° and falls in the erosion rate category of >5 to <10 t/ha/year has been classified as 'moderate priority'.

Table 1.18 – Selected Factors and their Weight Values for Identification of Priority Areas

Sr. No.	Land Use/ Land Cover Category	Weight/ Rank Value	Slope	Weight/ Rank Value	Erosion Rate (t $ha^{-1}year^{-1}$)	Weight/ Rank Value
1	Wetland	7	0° to <30°	1	<5	1.5
2	Dense Forest	6	30° to <40°	2	5 to <10	3.0
3	Alpine Pasture/ Scrub	6	>40°	3	10 to<20	4.5
4	Open Forest	5			20 to<40	6.0
5	Agriculture	4			>40	7.5
6	Barren	3				
7	Settlement	2				
8	Others	1				

The information on priority zones within the Beas Riverscape deciphered on the basis of weightage given to three select factors is presented in Table 1.19. The resultant data on three priorities was subsequently depicted on a map showing low, medium and high priority zones.

Table 1.19 – Prioritization of Sites for Forestry Interventions in the Beas Riverscape

Sr. No.	LULC	Slope	Erosion (t ha^{-1} $year^{-1}$)	Weightage (LULC)	Weightage (Slope)	Weightage (Erosion)	Total	Priority
1	Dense Forest	0° to< 30°	<5	6	1	1.5	8.50	Moderate
2	Dense Forest	0° to < 30°	>40	6	1	7.5	14.50	High
3	Dense Forest	0° to< 30°	>10 - <20	6	1	4.5	11.50	High
4	Dense Forest	0° to< 30°	>20 - <40	6	1	6	13.00	High
5	Dense Forest	0° to< 30°	>5 - <10	6	1	3	10.00	Moderate
6	Dense Forest	>30° to <40°	<5	6	2	1.5	9.50	Moderate
7	Dense Forest	>30° to <40°	>40	6	2	7.5	15.50	High
8	Dense Forest	>30° to <40°	>10 - <20	6	2	4.5	12.50	High
9	Dense Forest	>30° to <40°	>20 - <40	6	2	6	14.00	High

Sr. No.	LULC	Slope	Erosion (t ha^{-1} $year^{-1}$)	Weightage (LULC)	Weightage (Slope)	Weightage (Erosion)	Total	Priority
10	Dense Forest	>30° to <40°	>5 - <10	6	2	3	11.00	High
11	Dense Forest	> 40°	<5	6	3	1.5	10.50	High
12	Dense Forest	>40°	>40	6	3	7.5	16.50	High
13	Dense Forest	>40°	>10 - <20	6	3	4.5	13.50	High
14	Dense Forest	>40°	>20 - <40	6	3	6	15.00	High
15	Dense Forest	>40°	>5 - <10	6	3	3	12.00	High
16	Open Forest	0° to <30°	<5	5	1	1.5	7.50	Moderate
17	Open Forest	0° to 30°	>40	5	1	7.5	13.00	High
18	Open Forest	0° to <30°	>10 - <20	5	1	4.5	10.50	High
19	Open Forest	0° to <30°	>20 - <40	5	1	6	12.00	High
20	Open Forest	0° to <30°	>5 - <10	5	1	3	9.00	Moderate
21	Open Forest	>30° to <40°	<5	5	2	1.5	8.50	Moderate
22	Open Forest	>30° to <40°	>40	5	2	7.5	14.50	High
23	Open Forest	>30° to <40°	>10 - <20	5	2	4.5	11.50	High
24	Open Forest	>30° to <40°	>20 - <40	5	2	6	13.00	High
25	Open Forest	>30° to <40°	>5 - <10	5	2	3	10.00	Moderate
26	Open Forest	>40°	<5	5	3	1.5	9.50	Moderate
27	Open Forest	>40°	>40	5	3	7.5	15.50	High
28	Open Forest	>40°	>10 - <20	5	3	4.5	12.50	High
29	Open Forest	>40°	>20 - <40	5	3	6	14.00	High
30	Open Forest	>40°	>5 - <10	5	3	3	11.00	High
31	Alpine Pasture/Scrub	0° to <30°	<5	6	1	1.5	8.50	Moderate
32	Alpine Pasture/Scrub	0° to <30°	>40	6	1	7.5	14.50	High
33	Alpine Pasture/Scrub	0° to <30°	>10 - <20	6	1	4.5	11.50	High
34	Alpine Pasture/Scrub	0° to <30°	>5 - <10	6	1	3	10.00	Moderate
35	Alpine Pasture/Scrub	>30° to <40°	<5	6	2	1.5	9.50	Moderate
36	Alpine Pasture/Scrub	>30° to <40°	>40	6	2	7.5	15.50	High
37	Alpine Pasture/Scrub	>30° to <40°	>10 - <20	6	2	4.5	12.50	High
38	Alpine Pasture/Scrub	>30° to <40°	>5 - <10	6	2	3	11.00	High
39	Alpine Pasture/Scrub	>40°	<5	6	3	1.5	10.50	High
40	Alpine Pasture/Scrub	>40°	>40	6	3	7.5	16.50	High
41	Alpine Pasture/Scrub	>40°	>10 - <20	6	3	4.5	13.50	High
42	Alpine Pasture/Scrub	>40°	>5 - <10	6	3	3	12.00	High
43	Agriculture	0° to <30°	<5	4	1	1.5	6.50	Low
44	Agriculture	0° to <30°	>40	4	1	7.5	12.50	High
45	Agriculture	0° to <30°	>10 - <20	4	1	4.5	9.50	Moderate
46	Agriculture	0° to <30°	>20 - <40	4	1	6	11.00	High

Sr. No.	LULC	Slope	Erosion (t ha^{-1} $year^{-1}$)	Weightage (LULC)	Weightage (Slope)	Weightage (Erosion)	Total	Priority
47	Agriculture	0° to <30°	>5 - <10	4	1	3	8.00	Moderate
48	Agriculture	>30° to <40°	<5	4	2	1.5	7.50	Moderate
49	Agriculture	>30° to <40°	>40	4	2	7.5	13.50	High
50	Agriculture	>30° to <40°	>10 - <20	4	2	4.5	10.50	High
51	Agriculture	>30° to <40°	>20 - <40	4	2	6	12.00	High
52	Agriculture	>30° to <40°	>5 - <10	4	2	3	9.00	Moderate
53	Agriculture	>40°	<5	4	3	1.5	8.50	Moderate
54	Agriculture	>40°	>40	4	3	7.5	14.50	High
55	Agriculture	>40°	>10 - <20	4	3	4.5	11.50	High
56	Agriculture	>40°	>20 - <40	4	3	6	13.00	High
57	Agriculture	>40°	>5 - <10	4	3	3	10.00	Moderate
58	Barren	0° to <30°	<5	3	1	1.5	5.50	Low
59	Barren	0° to <30°	>40	3	1	7.5	11.50	High
60	Barren	0° to <30°	>10 - <20	3	1	4.5	8.50	Moderate
61	Barren	0° to <30°	>20 - <40	3	1	6	10.00	Moderate
62	Barren	0° to <30°	>5 - <10	3	1	3	7.00	Low
63	Barren	>30° to <40°	<5	3	2	1.5	6.50	Low
64	Barren	>30° to <40°	>40	3	2	7.5	12.50	High
65	Barren	>30° to <40°	>10 - <20	3	2	4.5	9.50	Moderate
66	Barren	>30° to <40°	>20 - <40	3	2	6	11.00	High
67	Barren	>30° to <40°	>5 - <10	3	2	3	8.00	Moderate
68	Barren	>40°	<5	3	3	1.5	7.50	Moderate
69	Barren	>40°	>40	3	3	7.5	13.50	High
70	Barren	>40°	>10 - <20	3	3	4.5	10.50	High
71	Barren	>40°	>20 - <40	3	3	6	12.00	High
72	Barren	>40°	>5 - <10	3	3	3	9.00	Moderate
73	Wetland	0° to <30°	<5	7	1	1.5	9.50	Moderate
74	Others	0° to <30°	<5	1	1	1.5	3.50	Low
75	Others	0° to <30°	>40	1	1	7.5	9.50	Moderate
76	Others	0° to <30°	>10 - <20	1	1	4.5	6.50	Low
77	Others	0° to <30°	>20 - <40	1	1	6	8.00	Moderate
78	Others	0° to <30°	>5 - <10	1	1	3	5.00	Low
79	Others	>30° to <40°	<5	1	2	1.5	4.50	Low
80	Others	>30° to <40°	>40	1	2	7.5	10.50	High
81	Others	>30° to <40°	>10 - <20	1	2	4.5	7.50	Moderate
82	Others	>30° to <40°	>20 - <40	1	2	6	9.00	Moderate
83	Others	>30° to <40°	>5 - <10	1	2	3	6.00	Low
84	Others	>40°	<5	1	3	1.5	5.50	Low
85	Others	>40°	>40	1	3	7.5	11.50	High
86	Others	>40°	>10 - <20	1	3	4.5	8.50	Moderate
87	Others	>40°	>20 - <40	1	3	6	10.00	Moderate
88	Others	>40°	>5 - <10	1	3	3	7.00	Low
89	Settlement	0° to <30°	<5	2	1	1.5	4.50	Low

Sr. No.	LULC	Slope	Erosion (t ha^{-1} $year^{-1}$)	Weightage (LULC)	Weightage (Slope)	Weightage (Erosion)	Total	Priority
90	Settlement	0° to <30°	>40	2	1	7.5	10.50	High
91	Settlement	0° to <30°	>10 - <20	2	1	4.5	7.50	Moderate
92	Settlement	0° to <30°	>20 - <40	2	1	6	9.00	Moderate
93	Settlement	0° to <30°	>5 - <10	2	1	3	6.00	Low
94	Settlement	>30° to <40°	<5	2	2	1.5	5.50	Low
95	Settlement	>30° to <40°	>40	2	2	7.5	11.50	High
96	Settlement	>30° to <40°	>10 - <20	2	2	4.5	8.50	Moderate
97	Settlement	>30° to <40°	>20 - <40	2	2	6	10.00	Moderate
98	Settlement	>30° to <40°	>5 - <10	2	2	3	7.00	Low
99	Settlement	>40°	<5	2	3	1.5	6.50	Low
100	Settlement	>40°	>40	2	3	7.5	12.50	High
101	Settlement	>40°	>10 - <20	2	3	4.5	9.50	Moderate
102	Settlement	>40°	>20 - <40	2	3	6	11.00	High
103	Settlement	>40°	>5 - <10	2	3	3	8.00	Moderate

Priority Classes: It is evident from Table 1.20 that 49% area of the riverscape within the part of Himachal Pradesh was located in the High priority class while an extent of 3,415.20 km^2 was located in Moderate priority class, representing 25% of the riverscape area (Fig.1.10). Only 26% extent of the riverscape within Himachal Pradesh was located in the Low priority class.

Table 1.20 – Distribution of Priority Areas within the Himachal Pradesh Part of the Beas Riverscape

Sr. No.	Priority Class	Area (km^2)	Representation of Priority Classes within the Portion of Himachal Pradesh in the Beas Riverscape (%)
1	High	6,774.37	49
2	Moderate	3,415.20	25
3	Low	3,512.59	26
Total		**13,702.16**	**100**

The GPS locations of proposed sites of forestry inventions were superimposed on the map of priority areas. Accordingly, 49% points of proposed sites were located in High priority class, followed by 25% points those have fallen in Moderate priority class. Only 26% points of proposed sites of forestry interventions were located in Low priority class (Fig. 1. 11 to Fig.1.12) and the points for SMC interventions have been shown in Fig. 1.13.

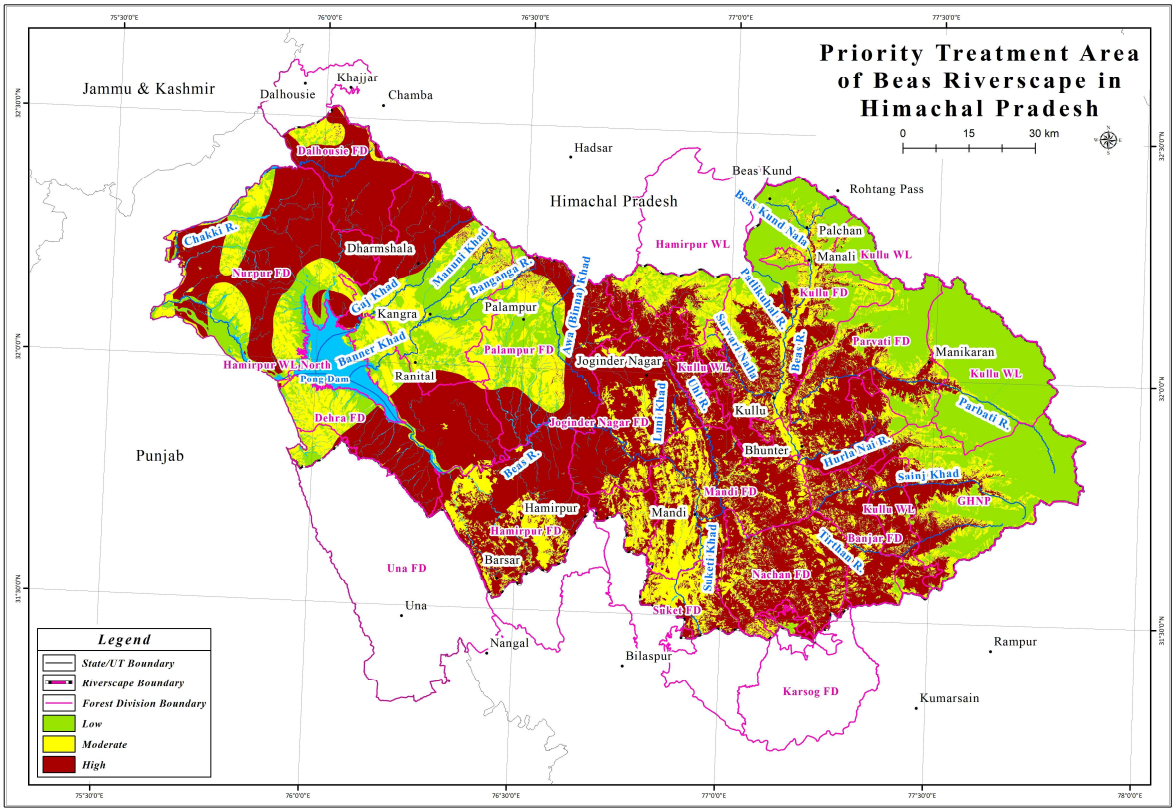


Fig. 1.11- The GPS Locations of Proposed Sites of Forestry Inventions

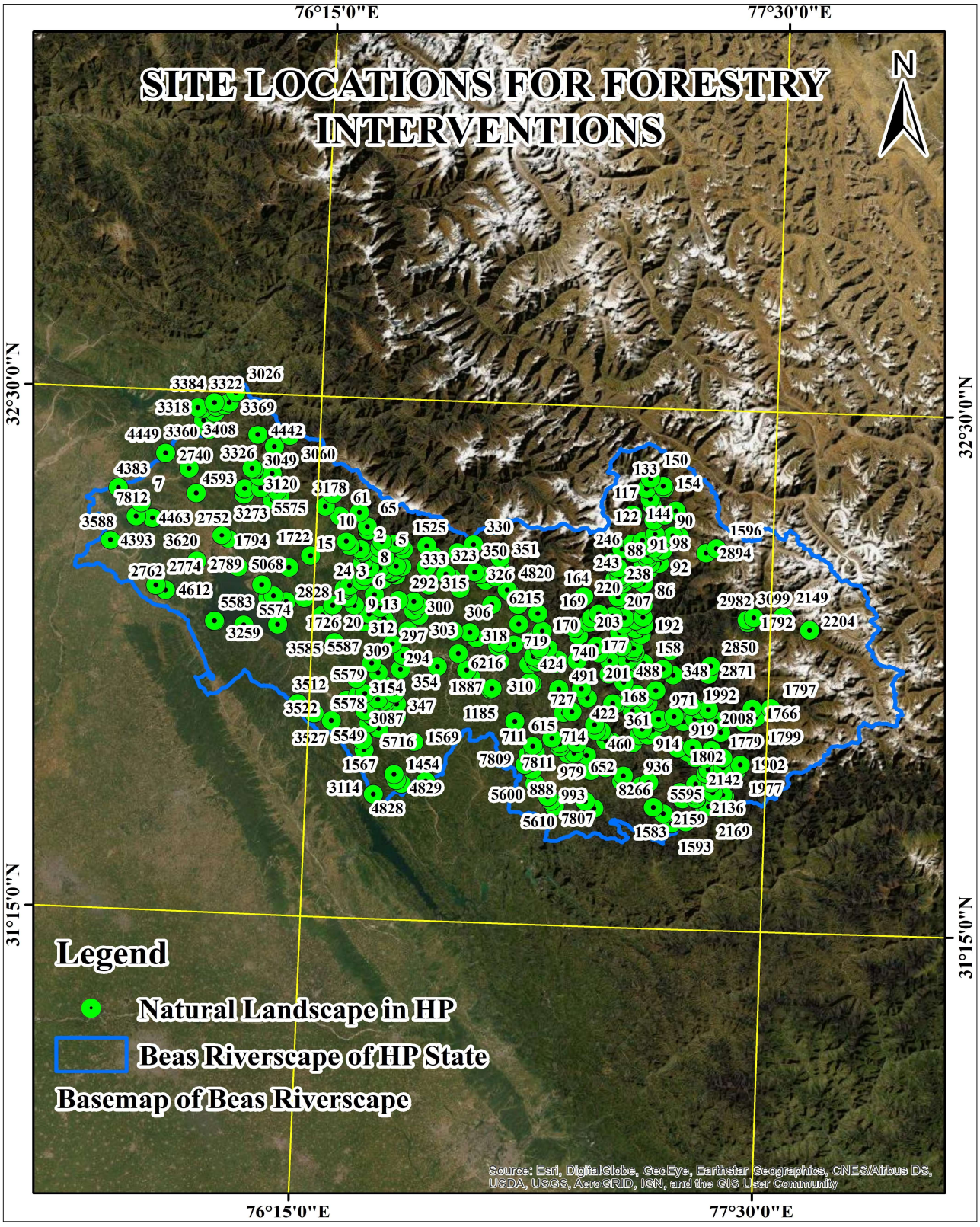


Fig. 1.12- Priority Treatment Areas of Beas Riverscape in Himachal Pradesh

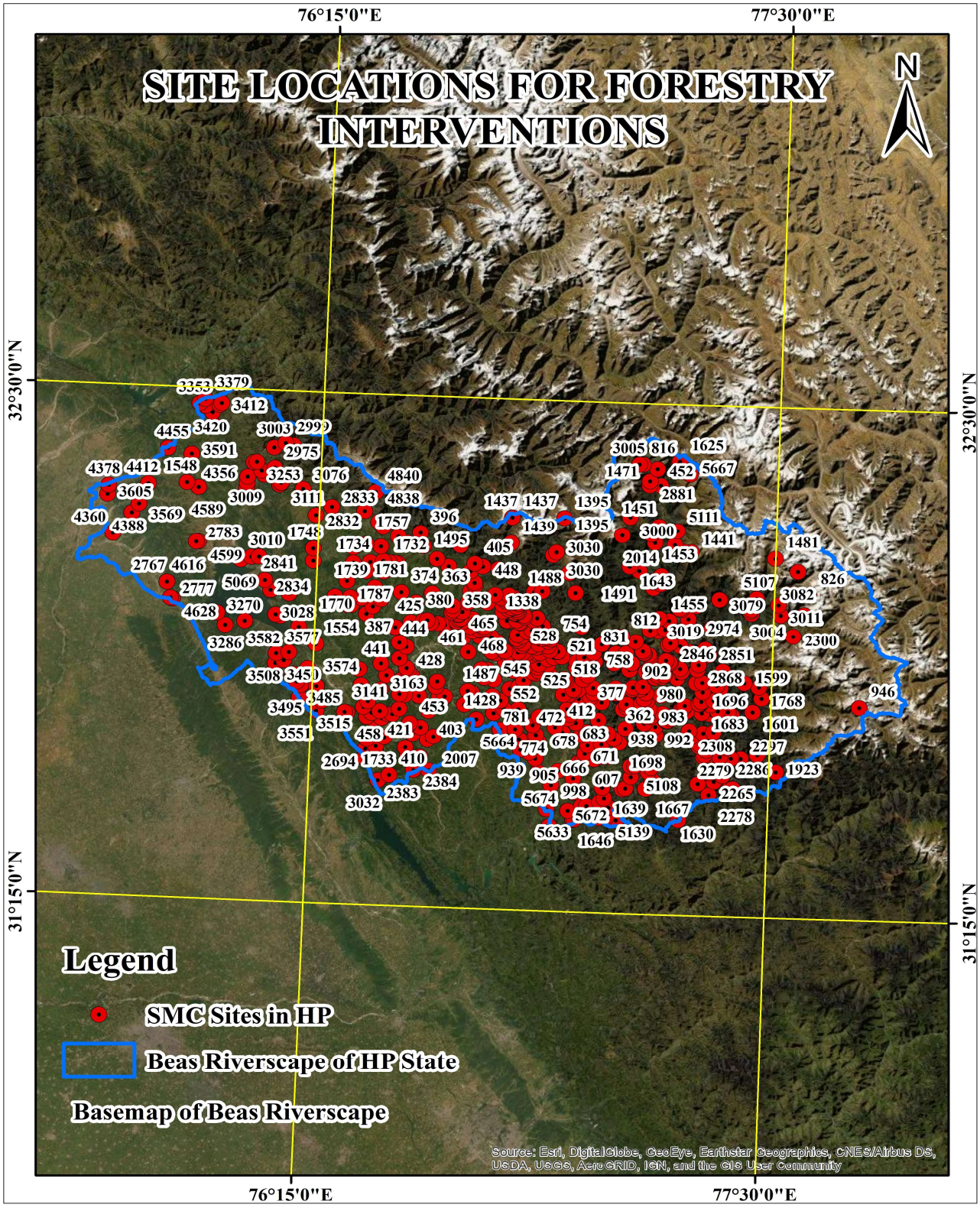


Fig. 1.13- Priority Treatment Areas of Beas Riverscape in Himachal Pradesh

1.6 Proposed Forestry Interventions

The following section summarizes proposed forestry interventions in natural, agriculture and urban landscapes within the Himachal Pradesh part of the Beas Riverscape besides envisaged various 'Conservation Interventions' and 'Supporting Activities'

1.6.1 Natural Landscape

The primary purpose of various models planned and proposed in the natural landscape is protection, eco-restoration, and conservation. Each recommended treatment model includes background information on site characteristics, recommended plant species for the proposed plantation besides details on spacing, quantity of different activities and man days during the establishment year as well as in subsequent years of maintenance. Details of potential treatment models were shared with SFDs of concerned States seeking feedback for appropriate finalization. Altogether, 13 models selected for natural landscapes numbered from BS/HP/NL/01 to BS/HP/NL/13 in the hilly region of Himachal Pradesh were included. Details of these models in natural landscape relevant to hills along with incorporated abbreviations/ code List of plant (tree/ shrub/ herb/ grass) species recommended for various treatment models are summarized in Table 1.21 (Fig. 1.14).

The model BS/HP/NL/01 specific to sub-alpine area (2,900 m to 3,600 m) is proposed. The model: BS/HP/NL/02 deals with enrichment and development of sub-alpine areas. Ten different models (BS/HP/NL/03 to BS/HP/NL/12) are proposed for lower, middle and upper temperate forested tracts in the Himalayan Mountains of Himachal Pradesh. All these 12 models prescribed for the natural landscape will be implemented by the SFD, Himachal Pradesh. Model BS/HP/NL/13 will be implemented by the Eco-Task Force in varied sub-tropical to temperate forests including inhospitable topography and refractory conditions adopting any of the suggested 12 models (BS/HP/NL/01 to BS/HP/NL/12).

Table 1.21 – Proposed Treatment Model in Natural Landscapes in Himachal Pradesh

Model Number	Name of Model	Brief Description	Suggested Species
BS/HP/NL/01	Sub-Alpine Conservation	Under this model, it is proposed to conserve and augment vegetation of the alpine meadows. The major focus will be on conservation of native species and livelihood generation for local communities. Under this model, medicinal plant species will be planted at the rate of 2,400 plants/ha in the blank areas. Root slips/ seeds of native grasses will be put in continuous contour strips immediately after melting of snow in 600 patches/ ha. The high-altitude medicinal plants require two years nursery	**Herbs/ Medicinal Plants:** *Aconitum heterophyllum*, *A. violaceum, Anemone tetrasepala, Nardostachys jatamansi*, *Ainsliaea aptera*, *Arnebia benthamii*, *Delphinium denudatum, Dactylorhiza hatagirea*, *Heracleum candicans*, *Jurinea macrocephala, Angelica glauca*, *Polygonatum verticillatum*, *Selinum wallichianum*, *Allium humile*, *Geranium nepalense, G. wallichianum*, *Rheum australe*, *R. moorcroftianum*, *Podophyllum hexandrum*, *Saussurea lappa,* etc.

Model Number	Name of Model	Brief Description	Suggested Species
		period and third year planting in the field along with grasses. It will be followed by two years maintenance. Harvesting can be started after 3rd year onwards in sustainable manner.	**Grasses and Forbs:** *Festuca rubra*, *F. valesiaca*, *Trifolium pratense*, *Poa pratensis*, *Dactylis glomerata*, *Erianthus* spp., *Agrostis gigantea*, *A. pilosula*, *A. munroana*, *Agropyron* spp., *Danthonia* spp., *Calamagrostis montanus*, *Koeleria* spp., *Brachypodium sylvaticum*, *Bromus himalaicus*, *B. ramosus*, *Danthonia cuminsii*, *Stipa roylei,* etc.
BS/HP/NL/02	Sub-Alpine Enrichment	In this model, native trees @ 200 plants/ha at 6 m x 8 m spacing and medicinal plant species @ 800 plants/ha at 6 m x 8 m spacing in 200/ha patches will be planted in blank areas. Conservation and enrichment practices as prescribed in the Working Plan of Respective Territorial Forest Division /Wildlife Management Plan of a protected area will be applicable. The collection of medicinal and aromatic plant species would be regulated as per the State's policy on medicinal plants and accordingly the accrued benefit will be shared with local communities.	**Trees:** *Betula utilis, Pinus wallichiana, Picea smithiana, Acer caesium, A. cappadocicum, A. pictum, Corylus jacquemontii, Prunus cornuta, Quercus semecarpifolia,* etc. **Herbs/ Medicinal Plants**: *Aconitum heterophyllum, Arnebia benthamii, Dactylorhiza hatagirea, Ferula jaeschkeana, Heracleum candicans, Polygonatum verticillatum, Selinum wallichianum, Allium humile, Geranium wallichianum, Bergenia stracheyi, Phytolacca acinosa, Angelica glauca, Picrorhiza kurroa, Jurinea macrocephala,* etc.
BS/HP/NL/03	Temperate Conifer Forest	Planting of 400/ha plants of various tree species and 400/ha shrub species will be carried out per ha. In addition, 400/ha patches of medicinal plants with 1,600 plants/ha	**Trees:** *Cedrus deodara*, *Pinus wallichiana*, *Picea smithiana*, *Taxus wallichiana*, *Cupressus torulosa,* etc., **Shrubs:** *Drepanostachyum*

Model Number	Name of Model	Brief Description	Suggested Species
		will also be planted out in the treatment site. The small stream or *Nallahh* facing side of the treatment area will be planted with two rows of hill bamboo at 2 m x 2 m spacing with 200/ha plants of hill bamboo. The major focus will be on the conservation and development of native species and livelihood generation for local communities. The collection of medicinal and aromatic plant species in protected areas would be regulated as per the State's policy on medicinal plants and in accordance with the rights of local communities.	*falcatum*, *Daphne papyracea*, *Prinsepia utilis*, *Rosa moschata*, *Debregeasia saeneb*, *Cotoneaster bacillaris*, *Viburnum cotinifolium*, *V. grandiflorum*, *V. nervosum, Cornus oblonga*, *Syringa emodi*, *Indigofera heterantha*, *Desmodium elegans*, *Hypericum oblongifolium, Hypericum perforatum,* etc. **Herbs:** *Aconitum heterophyllum*, *Anemone tetrasepala, Picrorhiza kurroa*, *Heracleum candicans*, *Angelica glauca*, *Geranium wallichianum*, *Podophyllum hexandrum*, *Polygonatum verticillatum*, *P. cirrhifolium*, *Bergenia stracheyi*, *B. ciliata*, *Viola pilosa*, *Trillium govanianum*, *Phytolacca acinosa*, *Valeriana jatamansi,* etc.
BS/HP/NL/04	Temperate Mixed Forest	Temperate mixed forest treatment model has been proposed specifically for the blank and degraded patches within the temperate zone. Planting of trees @400/ha belonging to conifers and broadleaved species will be carried out in the blank and degraded patches. In this model, preferably broadleaved species will be planted in general and conifer plants can be planted on the ridges and shallow soil depth area. The native shrubs @400	**Trees:** *Cedrus deodara*, *Pinus wallichiana*, *Picea smithiana*, *Taxus wallichiana*, *Aesculus indica*, *Juglans regia, Malus baccata, Malus* spp., *Prunus cornuta*, *P. cerasoides*, *Acer caesium*, *A. pictum*, *Betula alnoides*, *Alnus nitida*, *Ulmus wallichiana*, *Quercus glauca*, *Q. oblongata*, *Q. floribunda*, *Q. semecarpifolia*, *Cornus capitata*, *C. macrophylla,* etc. **Shrubs:** *Drepanostachyum falcatum*, *Daphne oleoides,*

Model Number	Name of Model	Brief Description	Suggested Species
		plants/ha will be planted in between the trees raised. The medicinal plant species will also be planted in patches @ 4 plants/ patch and that means planting of total of 1,600 medicinal plants/ ha. The small stream or Nallahh facing side of the treatment site will be planted with two rows of hill bamboo @ 200/ha at 2 m x 2 m spacing. The major focus of the proposed treatment model will be on the conservation and propagation of native species alongside improved livelihoods for local communities.	*D. papyracea*, *Euonymus tingens, Prinsepia utilis*, *Rosa moschata*, *Debregeasia saeneb*, *Cotoneaster bacillaris*, *Viburnum grandiflorum*, *V. mullah*, *Elaeagnus conferta*, *E. umbellata, Hypericum oblongifolium*, *Rubus biflorus*, *R. niveus*, *R. ellipticus*, *Zanthoxylum armatum*, *Deutzia staminea*, *D. corymbosa,* etc. **Herbs:** *Aconitum heterophyllum*, *A. violaceum, Ajuga integrifolia, Artemisia* spp*., Heracleum candicans*, *Angelica glauca*, *Geranium wallichianum*, *Hyoscyamus niger, Polygonatum verticillatum*, *P. cirrhifolium*, *Podophyllum hexandrum*, *Bergenia ciliata*, *Viola biflora*, *Valeriana jatamansi*, *Hedychium spicatum,* etc.
BS/HP/NL/05	Pasture and Grazing land Development	Under this model, pasture and grazing land development are proposed by protection and enrichment of areas within this zone. Suitable grass species will be planted or sowing of seeds will be undertaken after carrying out necessary land development works *viz*., trenching/ terracing/ moisture conservation measures, etc. besides removal of weeds and unpalatable grasses. The proposed treatment model mainly includes plantation of	**Grasses/ Forbs:** *Festuca rubra*, *Trifolium pratense*, *Poa pratensis*, *Dactylis glomerata*, *Erianthus* spp., *Agrostis* spp., *Agropyron* spp., *Danthonia sp. Calamagrostis* spp., *Koeleria* spp, *Saccharum spontaneum*, *Arundinella nepalensis*, *A. pumila*, *Themeda anathera*, *Drepanostachyum falcatum*, *Cymbopogon distans*, *Setaria glauca*, *S. viridis, Alopecurus aequalis*, *A. nepalensis*, *Bothriochloa pertusa*, *B. parviflora,* etc.

Model Number	Name of Model	Brief Description	Suggested Species
		native and nutritionally important grass species. In this model, grass sowing in furrows/ strips of 100 cm x 30 cm x 5 cm along contours at interval of 2 m apart is proposed.	
BS/HP/NL/06	Himalayan Chir Pine Forest	Grass species such as *Heteropogon contortus*, *Chrysopogon fulvus*, *C. zizanioides,* etc. are proposed to be sown in the treatment site, particularly towards the river or Nallahh side. The area will be planted with *Pinus roxburghii* mainly in drier sites with shallow soil depth whereas broadleaved species like *Quercus oblongata*, *Lyonia ovalifolia*, Bamboo spp., etc. on moist sites are proposed to be planted at 5 m x 5 m spacing. A total of 400 plants of tree or bamboo species/ha along with 400 plants of shrubs/ha and 2-3 lines 2 m apart of grasses near river or Nallahh side will be planted.	**Tree:** *Pinus roxburghii*, *Quercus oblongata*, *Lyonia ovalifolia*, *Dendrocalamus strictus*, *D. hamiltonii*, *Holoptelea integrifolia*, *Ficus bengalensis*, *F. racemosa*, *F. rumphii*, *Juglans regia, Ginkgo biloba, Phyllanthus emblica*, *Diospyros montana*, *Pittosporum eriocarpum, Bauhinia variegata*, *Grewia optiva*, *Pyrus pashia*, *Mallotus philippensis,* etc. **Shrubs:** *Desmodium elegans*, *Tephrosia purpurea*, *Justicia adhatoda*, *Lonicera quinquelocularis, Murraya koenigii*, *M. paniculata*, *Ricinus communis*, *Cinnamomum tamala*, *Tinospora cordifolia*, *Woodfordia fruticosa*, *Maesa indica*, *Nyctanthes arbor-tristis*, *Vitex negundo*, *Carissa carandas*, *Berberis lycium*, *B. aristata*, *Ziziphus nummularia*, *Z. jujuba,* etc. **Grasses/ Forbs:** *Heteropogon contortus*, *Chrysopogon fulvus*, *C. zizanioides*, *Boerhavia diffusa*, *Festuca rubra*, *F. arundinacea*, *Poa pratensis*, *Eulalia aurea*,

Model Number	Name of Model	Brief Description	Suggested Species
			Agrostis gigantea, *Agropyron* spp., *Phleum pratense*, *Themeda anathera*, *Arundo donax*, *Cymbopogon martinii*, *Phragmites karka*, *Bothriochloa pertusa*, *B. intermedia*, *Eulaliopsis binata*, *Calamagrostis* spp., *Thysanolaena maxima,* etc.
BS/HP/NL/07	Himalayan Mixed Forest	Grass species such as *Heteropogon contortus*, *Chrysopogon fulvus*, etc. will be sown in the part of treatment site, particularly on the ridges. The treatment area will be planted with broadleaved species like *Quercus oblongata*, *Lyonia ovalifolia*, *Toona ciliata*, *Syzygium cumini*, *Grewia optiva*, *Pyrus pashia Albizia* spp., *Phyllanthus emblica*, *Holoptelea integrifolia*, *Ficus* spp., *Punica granatum*, *Bauhinia variegata*, etc. Plants will be planted at 5 m x 5 m spacing. A total of 400 plants of tree species/ha., 400 plants of shrubs/ha and 200 patches of 2x2 m apart grasses on the ridges/degraded sites will be planted.	**Trees:** *Quercus oblongata*, *Lyonia ovalifolia*, *Neolitsea pallens, Holoptelea integrifolia*, *Ficus carica, F. palmata, F. racemosa*, *F. rumphii*, *Juglans regia, Albizia lebbeck*, *Machilus duthiei, Phyllanthus embellica*, *Bauhinia variegata*, *Grewia optiva*, *Pyrus pasha*, *Toona ciliata*, *Syzygium cumini*, *Punica granatum, Pistacia chinensis* subsp. *integerrima,* etc. **Shrubs:** *Rosa moschata*, *Debregeasia saeneb*, *Elaeagnus conferta*, *Hibiscus* spp., *Hydrangea* spp., *Zanthoxylum armatum*, *Berberis lycium*, *B. aristata*, *Ziziphus nummularia*, *Z. jujuba*, *Carissa carandas*, *Murraya koenigii*, *M. paniculata*, *Desmodium gangeticum*, *Tephrosia purpurea*, *Justicia adhatoda*, *Ricinus communis*, *Cinnamomum tamala*, *Tinospora cordifolia*, *Woodfordia fruticosa*, *Maesa indica*, *Nyctanthes arbor-tristis*, *Vitex negundo,* etc. **Grasses/ Forbs:** *Heteropogon contortus*,

Model Number	Name of Model	Brief Description	Suggested Species
			Chrysopogon fulvus, *C. serrulatus*, *Boerhavia diffusa*, *Festuca rubra*, *F. arundinacea***,** *Poa pratensis*, *Eulalia aurea*, *Agrostis gigantea*, *Agropyron* spp., *Phleum pratense***,** *Themeda anathera*, *Arundo donax*, *Cymbopogon martinii*, *Phragmites karka*, *Bothriochloa pertusa*, *B. intermedia*, *Eulaliopsis binata*, *Calamagrostis* spp., *Thysanolaena maxima,* etc.
BS/HP/NL/08	Sub-Tropical Dry Deciduous Forest	Under this model, it is proposed to plant 400 trees of broadleaved species or bamboos. 400 shrubs at 5 m x 5 m in between the tree rows and strong soil binding grasses like *Arundinella nepalensis*, *Apluda mutica*, *Chrysopogon fulvus* and sedges like *Carex obscura* will be planted on the river or Nallahh facing side of the treatment site. In case of trees, a mixture of timber species like *Dalbergia sissoo*, *Acacia catechu*, *Adina cordifolia*, etc. along with medicinal trees like *Terminalia* spp., *Phyllanthus emblica*, *Oroxylum indicum*, *Sapindus mukorossi*, etc. will be planted at 5 m x 5 m spacing. Management practices and conservation measures as prescribed in the Working Plan of the respective Territorial Forest Division or the Wildlife Management	**Trees:** *Dalbergia sissoo*, *Acacia catechu*, *Adina cordifolia*, *Aegle marmelos*, *Terminalia bellirica*, *T. chebula*, *T. arjuna*, *Mallotus philippensis*, *Syzygium cumini*, *Oroxylum indicum*, *Sapindus mukorossi*, *Dendrocalamus* spp., *Bambusa* spp., *Holoptelea integrifolia*, *Ficus bengalensis*, *F. racemosa*, *F. rumphii*, *Albizia lebbeck*, *A. julibrissin, A. chinensis*, *Celtis australis*, *Quercus glauca*, *Myrica esculenta*, *Pyrus pashia*, *Phyllanthus embellica*, *Diospyros montana*, *Bauhinia variegata*, *Grewia optiva*, *Pyrus pashia*, *Azadirachta indica*, *Shorea robusta*, *Myrsine africana,* etc. **Shrubs:** *Rosa moschata*, *Debregeasia saeneb*, *Zanthoxylum armatum*, *Berberis lycium*, *Berberis aristata*, *Ziziphus nummularia*, *Z. jujuba*, *Carissa carandas*,

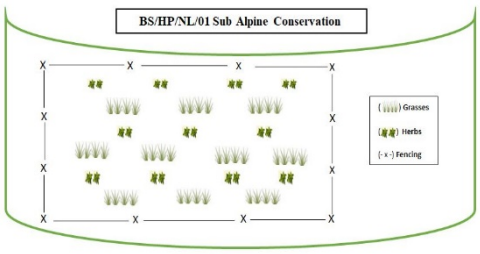
Model Number	Name of Model	Brief Description	Suggested Species
		Plan of the concerned protected area will be applicable. Collection of medicinal plants and other NTFP's along with sharing of accrued benefits to local communities would be regulated as per the State's policy on medicinal plants.	*Desmodium gangeticum*, *Tephrosia purpurea*, *Justicia adhatoda*, *Murraya koenigii*, *M. paniculata*, *Ricinus communis*, *Cinnamomum tamala*, *Tinospora cordifolia*, *Woodfordia fruiticosa*, *Maesa indica*, *Nyctanthes arbor-tristis*, *Vitex negundo,* etc. **Grasses/ Forbs:** *Heteropogon contortus*, *Chrysopogon fulvus*, *C. serrulatus*, *Boerhavia diffusa*, *Festuca rubra*, *F. arundinacea***,** *Poa pratensis*, *Eulalia aurea*, *Agrostis gigantea*, *Agropyron* spp., *Phleum pratense***,** *Themeda anathera*, *Arundo donax*, *Cymbopogon martinii*, *Phragmites karka*, *Bothriochloa pertusa*, *B. intermedia*, *Eulaliopsis binata*, *Calamagrostis* spp., *Thysanolaena maxima,* etc.
BS/HP/NL/09	Control of *Lantana*	It is proposed to cut and manually uproot invasive species in treatment sites as per the prescription of CRS (Cut Root Stock) method for complete eradication of this obnoxious weed. These areas after *Lantana* eradication will be planted in the third year of project implementation. Grass species such as *Heteropogon contortus*, *Chrysopogon fulvus*, etc. will be sown in the part of treatment site. The treatment area will be planted with	**Trees:** *Dalbergia sissoo*, *Acacia catechu*, *Adina cordifolia*, *Aegle marmelos*, *Terminalia bellirica*, *T. chebula*, *T. arjuna*, *Mallotus philippensis*, *Syzygium cumini*, *Sapindus mukorossi*, *Dendrocalamus strictus*, *D. hamiltonii*, *Bambusa bambos*, *B. arundinacea*, *Holoptelea integrifolia*, *Albizia lebbeck*, *A. chinensis*, *Celtis australis*, *Pyrus pashia*, *Alstonia scholaris*, *Phyllanthus embellica*, *Diospyros montana*, *Bauhinia variegata*,

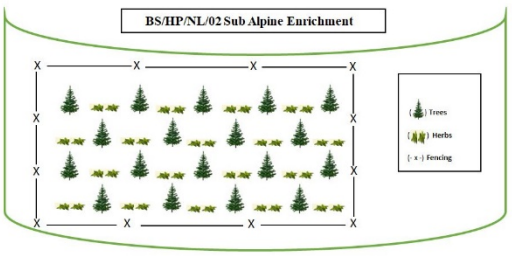
Model Number	Name of Model	Brief Description	Suggested Species
		broadleaved species. Plants will be planted at 5 m x 5 m spacing.	*Grewia optiva,* etc. **Grasses/ Forbs:** *Arundinella nepalensis*, *Apluda mutica*, *Chyrsopogon fulvus*, *Boerhavia diffusa*, *Heteropogon contortus*, *Trifolium pratense*, *Eragrostis nigra*, *Deschamsia* spp., *Panicum maximum*, *Phleum pratense*, *Cymbopogon citratus*, *Arundo donax*, *Phragmites karka*, *Themeda arundinacea*, *Eulaliopsis binata*, *Dichanthium annulatum*, *Sporobolus diander*, *Thysanolaena maxima*, *Hierochloe laxa,* etc.
BS/HP/NL/10	Control/ Removal of Invasive Alien Species or <50% *Lantana*	In case of *Lantana* infested areas, CRS (Cut Root Stock) method will be used for complete eradication/ control of this obnoxious weed. In case of other weeds, cuttings and removal of infested plants will be done at such a time and in such a way as to cause least disturbance to soil and provide opportunity to the nearby economically important plants to occupy the space vacated by weeds. These areas after plantation will be intensively managed subsequently for two years to minimize the chances of their re-growth. For controlling herbaceous weeds like *Ageratum conyzoides* and *Parthenium hysterophorus*, eco-friendly measures (e.g.,	**Trees:** *Quercus oblongata*, *Toona ciliata*, *Dalbergia sissoo*, *Acacia catechu*, *Adina cordifolia*, *Aegle marmelos*, *Terminalia bellirica*, *T. chebula*, *T. arjuna*, *Mallotus philippensis*, *Syzygium cumini*, *Sapindus mukorossi*, *Dendrocalamus strictus*, *Bambusa bambos*, *Holoptelea integrifolia*, *Albizia lebbeck*, *A. chinensis*, *Celtis australis*, *Pyrus pashia*, *Alstonia scholaris Phyllanthus embellica*, *Diospyros montana*, *Bauhinia variegata*, *Grewia optiva,* etc. **Grasses/ Forbs:** *Arundinella nepalensis*, *Apluda mutica*, *Chyrsopogon fulvus*, *Boerhavia diffusa*, *Heteropogon contortus*,

Model Number	Name of Model	Brief Description	Suggested Species
		physical or mechanical methods, use of natural products, etc.) will be adopted without resorting to the use of synthetic chemicals. These areas after *Lantana* removal will be planted in the third year of project implementation. Grass species such as *Heteropogon contortus*, *Chrysopogon fulvus*, etc. will be sown in the part of treatment site. The treatment area will be planted with broadleaved species. Plants will be planted at 5 m x 5 m spacing. A total of 400 plants of tree species/ha., 400 patches of grasses 5 m x 5 m apart will be planted on the proposed sites. The rows of trees and grasses will be planted alternatively.	*Trifolium pratense*, *Eragrostis nigra*, *Deschamsia* spp., *Panicum maximum*, *Phleum pratense*, *Cymbopogon citratus*, *Arundo donax*, *Phragmites karka*, *Themeda arundinacea*, *Eulaliopsis binata*, *Dichanthium annulatum*, *Sporobolus diander*, *Thysanolaena maxima*, *Hierochloe laxa,* etc.
BS/HP/NL/11	Protection Model for Natural Regeneration	Under this model, it is proposed to protect and conserve vegetation so as to promote ample establishment and recruitment of natural regeneration. The major focus will be on protection of special areas like patches of good natural regeneration of various conifers, broadleaved species, shrubs etc. and thereby conserving native plant species, particularly herbs. In natural regeneration areas cleaning operation twice a year in the month of September and March be carried out *viz*., climber	No Plantation Proposed

Model Number	Name of Model	Brief Description	Suggested Species
		cutting, removal of obnoxious weeds, unwanted species, pruning of plants, and removing of dead and dying trees. The broadcasting of desired seed be done in the closed area to supplement the natural regeneration.	
BS/HP/NL/12	Fire Protection Model	In this model, existing fire lines are cleared of vegetation and maintained all around the forest in such a way that a compact block or area is separated from adjoining areas. These fire lines are usually cleared before the start of the fire seasons in order to avoid the spread of fires from one forest to another. The treatment model includes engagement of fire watchers in fire sensitive beats, procurement of firefighting equipment and use of Elide fire extinguishing balls. Construction of water harvesting and storage structure with locally available materials e.g., ponds, *khals*, etc. are also proposed. Besides these activities/structures, awareness campaign among rural masses, particularly about overall damage by forest fires to nature flora and fauna, soil and other ecosystem services provided by forests such as hydrological functions, moderation of local climate	No Plantation Proposed

Model Number	Name of Model	Brief Description	Suggested Species
		etc. influencing horticulture/ agriculture productivity of farmlands will also be performed. Role of local communities in bringing down the forest fire incidences in Chir-pine zone is an important aspect and needs to be highlighted at various levels.	
BS/HP/NL/13	Plantation by EcoTask Force in Temperate Forest	A total of 2,000 ha land in Temperate areas will be identified within Himachal Pradesh part of the Beas Riverscape in liaison with Himachal Pradesh State Forest Department. The selected areas may not necessarily be contiguous. The task of establishment and maintenance of proposed plantations will be carried out by the existing unit of ETF at Aut/ Jalogi in Mandi district in close coordination with HPFD. One or more of the proposed plantation models amongst suggested models (BS/HP/NL/01 to BS/HP/NL/12) will be selected for replication by the ETF under this model.	Eco Task Force to Select any of the Above Described Model (BS/HP/NL/01 to BS/HP/NL/10) and Corresponding Suggested Species of Trees/ Shrubs/ Herbs/ Grass to be Planted.





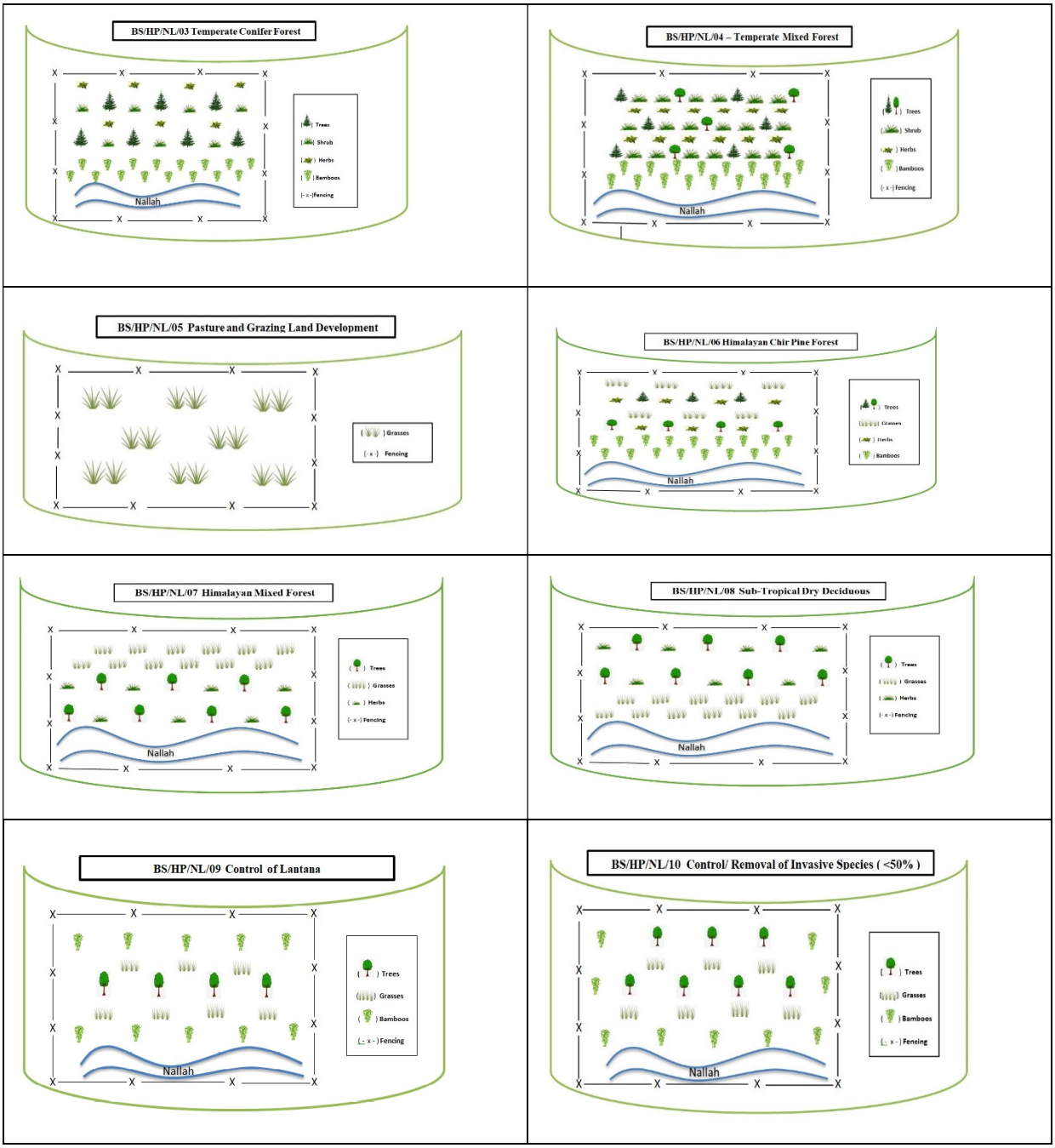


Fig. 1.14- Priority Treatment Areas of Beas Riverscape in Himachal Pradesh Sketches of Ten Different Proposed Treatment Models (BS/HP/NL/01 to BS/HP/NL/10) in Natural Landscapes in Himachal Pradesh

Cost Norms of Natural Landscapes

Cost norms for various proposed plantation and treatment models in Natural Landscapes within the mountainous State of Himachal Pradesh are summarized below one by one for each of the prescribed model (Table 1.22). All models have incorporated the current Labour Rate of Rs. 250/- per day for the first year and also considered an annual increase @ 7% in subsequent years.

Table 1.22 – Cost Norms for Proposed Treatment Models in Natural Landscapes

BS/HP/NL/01 (Sub Alpine Conservation)				
Year	**Item**	Detail of work	**Amount (Rs)/ ha**	**Man days**
	Number of Plants (No.)	2400 herbs + 600 patch of Grasses		
1st Year	Advance Work Labour Cost	Establishment of Nursery	12,000	48
2nd year	Advance Work Labour Cost	Maintenance of Nursery+ Estb of Ist year maintenance	10,200	38
2nd year	Advance Work Material	Cost of Seed, Farm yard manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	55,600	0
2nd year	Advance Work Labour Cost	Site Preparation, site preparation i/c survey & demarcation, Bush Cutting in strips , collection of debris, burning of debris, preparation inspection path, Carriage of RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	54,910	205
3rd year	Advance Work Labour Cost	Maintenance of Nursery for creation and maint. work 1st and 2nd year	9,000	31
3rd year	Creation	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching, etc.	25,087	88
	Total Establishment Cost		1,66,797	410
		MAINTENANCE		
4th year	Maintenance Cost - I Year i/c Material	Nursery maintenance, Material cost, planting cost & other maint works	22,517	68
5th year	Maintenance Cost - II Year	Nursery maintenance, Material cost, planting cost & other maint works	17,515	49
6th year	Maintenance Cost - III Year	Nursery maintenance, Material cost, planting cost & other maint works	13,199	35
7th year	Maintenance Cost - IV Year	Maintenance cost of fencing	582	2
	Total Maintenance Cost		53,813	154
		Total cost of Plantation	**220610**	**564**

BS/HP/NL/02 (Sub Alpine Enrichment)				
Year	**Item**	Detail of works	**Amount**	**Man days**
	Number of Plants (No.)	Shrubs: 200, herbs- 800		
1st Year	N-Advance Work Labour Cost (Rs.)	Establishment of Nursery	400	2
2nd year	NAdvance Work Labour Cost (Rs.)	Establishment of Ist year maintenance of plant	3,746	14
3rd year	N-Advance Work Labour Cost (Rs.)	Maintenance of Nursery of herbs+ Ist and IInd year maintenance of plant nursery	10,650	37
4th year	A-Advance Work Labour Cost (Rs.)	Nursery 1st of herbs+ 1st, 2nd and 3rd year maintenance of trees nursery	17,787	12
4th year	Advance Work Material (Rs.)	Cost of Seed, Farm yard Manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	55,000	0
4th year	Advance Work Labour Cost (Rs.)	Site Preparation,- site preparation i/c survey & demarcation , Bush Cutting in strips , collection of debris , burning of debris, preparation inspection path, Carriage of fence RCC poleand RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	62,867	205
5th year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery for creation and maint. works 1st and 2nd year	12,805	39
5th year	Creation (Rs.)	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching,	7,659	23

		etc.		
	Total Establishment Cost (Rs.)		1,70,914	332
		MAINTENANCE		
6th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	13,793	35
7th year	Maintenance Cost - II Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	8,993	20
8th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, Material cost, planting cost & other Maintenance works	3,305	6
	Total Maintenance Cost (Rs.)		26,091	61
Total cost of Plantation			**1,97,005**	**394**

BS/HP/NL/03 (Temperate Conifer Forest)

Year	Item	Detail of work	Amount/ha	Man days
	Number of Plants (No.)	Plants- 300 No., Bamboo-200, Shrubs-300 no., Herbs- 1200 no (300 no. patches)		
1st Year	Advance Work Labour Cost (Rs.)	Establishment of Nursery	10,000	40
2nd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery+ Estb of Ist year maintenance	38,879	145
2nd year	Advance Work Material (Rs.)	Cost of Seed, Farm yard manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	52,000	0
2nd year	Advance Work Labour Cost (Rs.)	Site Preparation,- site preparation i/c survey & demarcation , Bush Cutting in strips, collection of debris, burning of debris, preparation inspection path, Carriage of RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	54,910	205
3rd	Advance Work	Maintenance of Nursery for creation and	28,603	100

year	Labour Cost (Rs.)	maintenance works 1st and 2nd year		
3rd year	Creation (Rs.)	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching, etc.	45,157	158
	Total Establishment Cost (Rs.)		2,29,549	648
		MAINTENANCE		
4th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	37,034	118
5th year	Maintenance Cost - II Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maint works	20,711	61
6th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	16,107	44
7th year	Maintenance Cost - IV Year (Rs.)	Maintenance cost of fencing	582	2
	Total Maintenance Cost (Rs.)		74,434	225
Total cost of Plantation			**303983**	**873**
BS/HP/NL/04 (Temperate Mixed Forest)				
Year	**Item**	Detail of works	**Amount/ha**	**Man days**
	Number of Plants (No.)	Plants- 300 No., Bamboo-200, Shrubs-300 no., Herbs- 1200 no (300 no. patches)		
1st Year	Advance Work Labour Cost (Rs.)	Establishment of Nursery	14,491	58
2nd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery+ Establishment of Ist year maintenance	33,045	124
2nd year	Advance Work Material (Rs.)	Cost of Seed, Farm yard manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	52,000	0
2nd year	Advance Work Labour Cost (Rs.)	Site Preparation,- site preparation i/c survey & demarcation, Bush Cutting in strips, collection of debris, burning of debris, preparation inspection path, Carriage of fence RCC poleand RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	54,910	205
3rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery for creation and maintenance works 1st and 2nd year	28,925	101

3rd year	Creation (Rs.)	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching, etc.	45,157	158
	Total Establishment Cost (Rs.)		2,28,528	646
MAINTENANCE				
4th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery maintenance, Material cost, planting cost & other maint works	38,815	117
5th year	Maintenance Cost - II Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	20,711	61
6th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	16,107	44
7th year	Maintenance Cost - IV Year (Rs.)	Maintenance cost of fencing	582	2
	Total Maintenance Cost (Rs.)		76,215	224
Total cost of Plantation			**304743**	**870**

BS/HP/NL/05 (Pasture and Grazing Land Development)

Year	Item	Detail of works	Amount/ha	Man days
	Number of Plants (No.)	Grasses-2000 no. patches		
1st Year	Advance Work Material (Rs.)	Cost of Seed, Farm yard manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	66,400	0
1st Year	Advance Work Labour Cost (Rs.)	Site Preparation,- site preparation i/c survey & demarcation, Bush Cutting in strips, collection of debris, burning of debris, preparation inspection path, Carriage of RCC Poles and RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	54,910	205
2nd year	Creation (Rs.)	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching	40,850	143
	Total Establishment Cost (Rs.)		1,62,160	348

		MAINTENANCE		
3rd year	Maintenance Cost - I Year i/c Material (Rs.)	Material cost, planting cost & other maintenance work	27,994	67
4th year	Maintenance Cost - II Year (Rs.)	Material cost, planting cost & other maintenance works	20,711	61
5th year	Maintenance Cost - III Year (Rs.)	Material cost, planting cost & other maintenance works	16,107	44
6th year	Maintenance Cost - IV Year (Rs.)	Maintenance cost of fencing	582	2
Total Maintenance Cost (Rs.)			65394	224
Total cost of Plantation			**227554**	**572**

BS/HP/NL/06 (Himalayan Chir Pine Forest)

Year	**Item**	Detail of works	**Amount/ha**	**Man days**
	Number of Plants (No.)	Plants- 300 No., Bamboo-100, Shrubs-300 no., Grasses- 800 no. patches		
1st Year	Advance Work Labour Cost (Rs.)	Establishment of Nursery	8,397	34
2nd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery+ Establishment of Ist year maintenance	11,861	44
2nd year	Advance Work Material (Rs.)	Cost of Seed, Farm yard manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	58,000	0
2nd year	Advance Work Labour Cost (Rs.)	Site Preparation,- site preparation i/c survey & demarcation, Bush Cutting in strips, collection of debris, burning of debris, preparation inspection path, Carriage of RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	54,910	205
3rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery for creation and maintenance works 1st and 2nd year	11,890	42
3rd year	Creation (Rs.)	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching	52,006	182
Total Establishment Cost (Rs.)			1,96,344	507
		MAINTENANCE		
4th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	39,786	118

5th year	Maintenance Cost - II Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	31,875	90
6th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	26,144	70
7th year	Maintenance Cost - IV Year (Rs.)	Maintenance. cost of fencing	8588	24
	Total Maintenance Cost (Rs.)		106,393	302
Total cost of Plantation			**3,02,737**	**809**

BS/HP/NL/07 (Himalayan Mixed Forest)

Year	Item	Detail of works	Amount/ha	Man days
	Number of Plants (No.)	Plants- 300 No., Shrubs-300 no., Grasses- 200 no. patches		
1st Year	Advance Work Labour Cost (Rs.)	Establishment of Nursery	8397	34
2nd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery+ Establishment of Ist year maintenance	11861	44
2nd year	Advance Work Material (Rs.)	Cost of Seed, Farm yard mannure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	52600	0
2nd year	Advance Work Labour Cost (Rs.)	Site Preparation,- site preparation i/c survey & demarcation, Bush Cutting in strips, collection of debris, burning of debris, preparation inspection path, Carriage of RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	54910	205
3rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery for creation and maintenance works 1st and 2nd year	11890	42
3rd year	Creation (Rs.)	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching, etc.	39849	139
Total Establishment Cost (Rs.)			1,79,507	464
MAINTENANCE				
4th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery maintenance, Material cost, planting cost & other maint works	34,284	108

5th year	Maintenance Cost - II Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maint works	27,652	81
6th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	22,920	63
7th year	Maintenance Cost - IV Year (Rs.)	Maintenance cost of fencing	8,588	23
	Total Maintenance Cost (Rs.)		93,444	275
		Total cost of Plantation	**2,72,951**	**739**
BS/HP/NL/08 (Sub-Tropical Dry Deciduous Forest)				
Year	**Item**	Detail of works	**Amount/ha**	**Man days**
	Number of Plants (No.)	Plants- 300 No., Shrubs-300 no., Grasses- 200 no. patches		
1st Year	Advance Work Labour Cost (Rs.)	Establishment of Nursery	7,940	32
2nd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery+ Establishment of Ist year maintenance	11,657	44
2nd year	Advance Work Material (Rs.)	Cost of Seed, Farm yard manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	52,600	0
2nd year	Advance Work Labour Cost (Rs.)	Site Preparation,- site preparation i/c survey & demarcation, Bush Cutting in strips, collection of debris, burning of debris, preparation inspection path, Carriage of RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	54,910	205
3rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery for creation and maintenance work 1st and 2nd year	9,544	33
3rd year	Creation (Rs.)	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching, etc.	39,849	139
	Total Establishment Cost (Rs.)		1,76,500	453
		MAINTENANCE		
4th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	33,563	105
5th year	Maintenance Cost	Nursery maintenance, Material cost,	27,154	80

	- II Year (Rs.)	planting cost & other maintenance works		
6th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, Material cost, planting cost & other maintenance works	22,521	62
7th year	Maintenance Cost - IV Year (Rs.)	Maintenance cost of fencing	8,588	23
	Total Maintenance Cost (Rs.)		91,826	270
		Total cost of Plantation	**2,68,326**	**723**

BS/HP/NL/09 (Eradication of Lantana (> 50%)

Year	Item	Detail of works	Amount/ha (Rs)	Man days
	Number of Plants (No.)	Plants/ Bamboo- 600 No., Grasses- 600 no. patches		
1st Year	Advance Work Labour Cost	Establishment of Nursery	5,955	24
1st Year	Advance Work Labour Cost	Lantana by Cut Root Stock method and Cleaning of lantana(sprouts) and seedlings, one times (100%) and @15% one cut in Ist year	31501	126
2nd year	Advance Work Labour Cost	Maintenance of Nursery+ Establishment of Ist year maintenance	8,743	33
2nd year	Advance Work Material	Cost of Seed, Farm yard mannure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	55,600	0
2nd year	Advance Work Labour Cost	Site Preparation includes Lantana by Cut Root Stock method and Cleaning of lantana(sprouts) and seedlings 3 times a year @15% in 2nd year @ 15% of unit cost (estb) preparation inspection path, Carriage of RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	62609	234
3rd year	Advance Work Labour Cost	Maintenance of Nursery for creation and maintenance work 1st and 2nd year	7,158	25
3rd year	Creation	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching, Lantana by Cut Root Stock method and Cleaning of lantana(sprouts) and seedlings in 2 times in	49258	172

		3rd year @ 15% of unit cost (Establishment)		
	Total Establishment Cost		220,824	614
		MAINTENANCE		
4th year	Maintenance Cost - I Year i/c Material	Nursery maintenance, Material cost, planting cost & other maint works, Clearing of Fire line along fencing, Lantana by Cut Root Stock method and Cleaning of lantana(sprouts) and seedlings in 2 times in 4th year @ 15% of unit cost (Establishment)	41842	128
5th year	Maintenance Cost - II Year	Nursery maintenanceए Material cost, planting cost & other maintenance works, Clearing of Fire line along fencing	26028	74
6th year	Maintenance Cost - III Year	Nursery maintenance, Material cost, planting cost & other maint works Clearing of Fire line along fencing	21812	59
7th year	Maintenance Cost - IV Year	Maintenance cost of fencing, Clearing of Fire line along fencing	8588	23
	Total Maintenance Cost		98270	284
		Total cost of Plantation	**319094**	**898**

BS/HP/NL/10 (Eradication of Lantana (<50%)

Year	**Item**	Detail of works	**Amount/ha (Rs)**	**Man days**
	Number of Plants (No.)	Plants/ Bamboo- 400 No., Grasses- 400 no. patches		
1st Year	Advance Work Labour Cost	Establishment of Nursery	3970	16
1st Year	Advance Work Labour Cost	Lantana by Cut Root Stock method and Cleaning of lantana(sprouts) and seedlings, one times (100%) and @15% one cut in Ist year	31501	126
2nd year	Advance Work Labour Cost	Maintenance of Nursery+ Establishment of Ist year maintenance	5829	22
2nd year	Advance Work Material	Cost of Seed, Farm yard mannure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	54400	0

2nd year	Advance Work Labour Cost	Site Preparation includes Lantana by Cut Root Stock method and Cleaning of lantana(sprouts) and seedlings 3 times a year @15% in 2nd year @ 15% of unit cost (estb) preparation inspection path, Carriage of RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	62609	234
3rd year	Advance Work Labour Cost	Maintenance of Nursery for creation and maintenance work 1st and 2nd year	4772	17
3rd year	Creation	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Patches & Planting of Herbs, Preparation of strips including (i/c) sowing in strips, Weeding, mulching, Lantana by Cut Root Stock method and Cleaning of lantana(sprouts) and seedlings in 2 times in 3rd year @ 15% of unit cost (establishment)	49258	172
	Total Establishment Cost		212339	587
		MAINTENANCE		
4th year	Maintenance Cost - I Year i/c Material	Nursery maintenance, Material cost, planting cost & other maintenance works, Clearing of Fire line along fencing, Lantana by Cut Root Stock method and Cleaning of lantana(sprouts) and seedlings in 2 times in 4th year @ 15% of unit cost (estb)	39675	123
5th year	Maintenance Cost - II Year	Nursery maintenance, Material cost, planting cost & other maintenance works, Clearing of Fire line along fencing	25046	72
6th	Maintenance	Nursery maintenance, Material cost,	21372	58

year	Cost - III Year	planting cost & other maintenance works Clearing of Fire line along fencing		
7th year	Maintenance Cost - IV Year	Maintenance cost of fencing, Clearing of Fire line along fencing	8588	23
	Total Maintenance Cost		94681	276
		Total cost of Plantation	**307020**	**863**

BS/HP/NL/11 Protection Model for Natural Regeneration				
Year	**Item**	Detail of works	**Amount/ha (Rs)**	**Man days**
	Number of Plants (No.)	Seed Broadcasting - (2 kg for conifer and 15 kg for Broad leave)		
1st Year	I-Advance Work Material (Rs.)	Cost of Seed, Farm yard manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	0	0
1st Year	II-Advance Work Labour Cost (Rs.)	Site Preparation,- site preparation i/c survey & demarcation, Debris collection and burning, preparation inspection path, Carriage of RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of B/wire	0	0
1st Year	III-Creation (Rs.)	Cleaning and un-saleable thinning (noncommercial) in regeneration areas, Climber cutting in the forests/ plantation area, Broadcasting sowing in plantation/ Regeneration area, Preparation of fire lines 2.5 m wide, Pruning of established saplings in plantation/regeneration 1/3 portion, Burning/maintenance of lines 2.5 mt around the fencing	1,28,301	306
	Total Establishment		**1,28,301**	**306**

	Cost (Rs.)			
		MAINTENANCE		
2nd year	Maintenance Cost - I Year i/c Material (Rs.)	Cleaning and un-saleable thinning (noncommercial) in regeneration areas, Climber cutting in the forests/ plantation area (50%),Broadcasting sowing in plantation/Regeneration area(50%), Pruning of established saplings in plantation/ regeneration 1/12 portion, Burning/ maintenance of lines 2.5 mt around the fencing (2 times)	15,389	50
3rd year	Maintenance Cost - II Year (Rs.)	Cleaning and un-saleable thinning (noncommercial) in regeneration areas, Climber cutting in the forests/ plantation area (30%),Broadcasting sowing in plantation/Regeneration area(30%), Pruning of established saplings in plantation/ regeneration 1/15 portion, Burning/maintenance of lines 2.5 mt around the fencing (2 times)	14,216	44
4th year	Maintenance Cost - III Year (Rs.)	Cleaning and un-saleable thinning (noncommercial) in regeneration areas, Climber cutting in the forests/ plantation area (20%), Broadcasting sowing in plantation/Regeneration area(20%), Pruning of established saplings in plantation/ regeneration 1/18 portion, Burning/maintenance of lines 2.5 mt around the fencing (2 times)	13,174	39
5th year	Maintenance Cost - IV Year (Rs.)	Cleaning and un-saleable thinning (noncommercial) in regeneration areas, Climber cutting in the forests/ plantation area (15%),Broadcasting sowing in plantation/Regeneration area(15%), Burning/maintenance of lines 2.5 mt around the fencing (2 times)	8,146	23
	Total Maintenance		50,925	156

	Cost (Rs.)			
		Total Cost of Plantation	**1,79,226**	**462**

BS/HP/NL/12 Fire Protection Model

Year	**Item**	Detail of work	**Amount (Rs) /ha**	**Man days**
1st Year	Establishment Cost	Cleaning of Fire lines (2.5 mt width), Control burning, Engagement of fire watchers, Constructions of Ponds/ water harvesting structures, Procurement of firefighting equipment's / Elide fire extinguishing balls and maintenance, Awareness campaign, Community awareness	32,863	307
MAINTENANCE				
2nd year	Maintenance Cost - I Year i/c Material	Cleaning of Fire lines (2.5 mt width),Control burning, Engagement of fire watchers, Procurement of firefighting equipment's / Elide fire extinguishing balls and maintenance, Awareness campaign, Community awareness	24,462	78
3rd year	Maintenance Cost - II Year	Cleaning of Fire lines (2.5 mt width),Control burning, Engagement of fire watchers, Procurement of firefighting equipment's / Elide fire extinguishing balls and maintenance, Awareness campaign, Community awareness	24,265	71
4th year	Maintenance Cost - III Year	Cleaning of Fire lines (2.5 mt width),Control burning, Engagement of fire watchers, Procurement of firefighting equipment's / Elide fire extinguishing balls and maintenance, Awareness campaign, Community awareness	23,922	0

5th year	Maintenance Cost - IV Year (Rs.)	Cleaning of Fire lines (2.5 mt width),Control burning, Engagement of fire watchers, Procurement of firefighting equipment's / Elide fire extinguishing balls and maintenance, Awareness campaign, Community awareness	23,411	0
Total Maintenance Cost (Rs.)			**96,060**	**149**
Total cost of model			**1,28,923**	**456**

Model No – BS/HP/NL/H/13 - Plantation by Eco Task Force

Year	Item	Amount (Rs)
1st	Establishment of cost of Eco Task Force, Cost of Vehicle, Equipment for Plantation, firefighting & Protection	7 00 00 000
2nd	Material cost of Plantation (ha) and Petrol and Vehicle maintenance per year	60 00 000
2nd	Cost of Salary and maintenance of ET. Force per year	3 00 00 000
3rd	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	66 00 000
3rd	Cost of Salary and maintenance of E.T .Force	3 15 00 000
4th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	72 00 000
4th	Cost of Salary and maintenance of E.T.Force	3 20 00 000
5th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	80 00 000
5th	Cost of Salary and maintenance of E.T.Force	3 30 00 000
6th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	90 00 000

6th	Cost of Salary and maintenance of E.T.Force	3 40 00 000
7th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	24 00 000
7th	Cost of Salary and maintenance of E.T.Force	3 50 00 000
8th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	18 00 000
8th	Cost of Salary and maintenance of E.T.Force	3 50 00 000
9th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	8 00 000
9th	Cost of Salary and maintenance of E.T.Force	3 50 00 000
10th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	4 00 000
10th	Cost of Salary and maintenance of E.T.Force	3 50 00 000
	Grand Total	**41 27 00 000**
Total	Material cost including carriage	4 22 00 000
Total	Cost of Salary and maintenance of E.T.Force	37 05 00 000

Model No – BS/HP/NL/H/16 - Plantation by Eco Task Force

Year	Item	Amount (Rs)
1st	Establishment of cost of Eco Task Force, Cost of Vehicle, Equipment for Plantation, firefighting & Protection	7 00 00 000
2nd	Material cost of Plantation (ha) and Petrol and Vehicle maintenance per year	60 00 000
2nd	Cost of Salary and maintenance of ET. Force per year	3 00 00 000
3rd	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	66 00 000
3rd	Cost of Salary and maintenance of E.T .Force	3 15 00 000
4th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	72 00 000
4th	Cost of Salary and maintenance of E.T.Force	3 20 00 000

5th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	80 00 000
5th	Cost of Salary and maintenance of E.T.Force	3 30 00 000
6th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	90 00 000
6th	Cost of Salary and maintenance of E.T.Force	3 40 00 000
7th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	24 00 000
7th	Cost of Salary and maintenance of E.T.Force	3 50 00 000
8th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	18 00 000
8th	Cost of Salary and maintenance of E.T.Force	3 50 00 000
9th	Material cost for Plantation (ha), maintenance of Plantation and Carriage of planting material	8 00 000
9th	Cost of Salary and maintenance of E.T.Force	3 50 00 000
10th	Material cost for Plantation (ha), maintenance of	4 00 000

Note: 200 ha of plantations under different treatment models to be raised by one Company/Unit each year starting from II year to VI year and includes maintenance from III year to X year.

Nursery Rate in Himachal Pradesh and Rate after Including Inflation Factor

Nursery Rate Broad Leaved				**Year**	**Rate per Day (Rs.)**	**Factor After Inflation @ 7% Each Year**
Ban Oak	Conifers	Tree/ Shrub (Average)	Herbs		150	
11	10	10.5	5	I	250.0	1.667
6	6	5.7	3	II	267.5	1.784
6	3	4.3	2	III	286.0	1.909
				IV	306.0	2.042
				V	327.7	2,185
				VI	350.7	2.338
				VII	375.3	2,502
				VIII	401.5	2.677
				IX	450.0	2.864

1.6.2 Agriculture Landscapes

In all, two treatment models are proposed in agriculture landscapes within the mountainous part of the Beas Riverscape. These are described below one by one:

Table 1.23- **Proposed Treatment Model in Agriculture Landscapes in Himachal Pradesh**

Model Number	Name of Model	Brief Description	Suggested Species
BS/HP/AL/01	Boundary Plantation Model	The sites proposed for this model are agricultural or horticultural lands where off-season vegetables and fruit crops are grown. The farmers/ orchardists will decide the species and number of plants per unit area of economically important tree species (including hill bamboo) keeping in view their requirements; they may freely grow agricultural/horticultural crops of their own choice with the trees in any planting geometry mostly tree planting will be done on vacant areas around farms/ orchard and near settlements. Hill bamboo will be planted on boundaries and will also act as live fencing for farm/ orchard in future. Quality Planting Material will be supplied to the local communities through HPFD. Planting and maintenance of the plants will be done by farmers/ orchardists. Financial incentive to the growers will be provided keeping in view the performance of the plantation especially survival. The local communities/ beneficiaries would also be provided technical knowledge for the purpose through institutes, universities, NGOs, NYKs, other CSOs, etc.	**Tree:** *Prunus armeniaca*, *P. mira*, *P. ceracifera*, *P. domestica*, *P. persica*, *Myrica esculenta*, *Phyllanthus embellica*, *Hippophae salicifolia*, *Terminalia arjuna*, *T. bellirica*, *Sapindus mukorossi* & *Santalum album*. **Shrubs:** *Drepanostachyum falcatum*, *Thamnocalamus spathiflorus*, *Embelia ribes*, *Gymnema sylvestre*, *Mucuna pruriens,* *Parrotiopsis jacquemontiana* & *Tinospora cordifolia.*

Model Number	Name of Model	Brief Description	Suggested Species
BS/HP/AL/02	**Block Plantation Model**	This model will be implemented in Agricultural/ Horticultural lands in temperate to sub-tropical zones in Himachal Pradesh. For these areas, planting of economic trees in hills is recommended. The farmer/ orchardist will decide the species and number of plants of per unit area of economically important tree species i.e., Harad (*Terminalia chebula*), Bahera *(Terminalia bellirica)*, Amla (*Phyllanthus emblica*), Reetha (*Sapindus mukorossi*), Chandan (*Santalum album*), etc. Block plantation in vacant and fallow land can be taken up by the farmers for increase their income as well as utilising the fallow lands and other grass lands also.	

Cost Norms of Agriculture Landscapes

The following section provides details on cost norms in case of various treatment models prescribed in Agriculture Landscapes within the mountainous part of Himachal Pradesh.

Model – BS/HP/AL/01 Boundary Plantation Model

Year	**Amount (RS)/ha**	**Man days**
Ist year Estt.	9000	36
Maint Ist	4815	18
Maint IInd	5152	18
Maint IIrd	5513	18
	24480	90

Details of Cost Norms and Pattern of Assistance for Peripheral and Boundary Plantation (PBP)

Sr. No.	Type of Interventions	Indicative Unit Cost per Plant (Rs.)
1	Pre-Plant Activities, Land Clearing, Maintenance, etc.	20
2	Digging, Planting etc.	12
3	Single Unit Planting Material, etc.	30
4	Transportation Charges	03
5	Critical inputs *viz*., FYM, Fertilizer., Seed Treatment, Vesicular Arbuscular Mycorrhizae (VAM), etc.	20
6	Planting Cost	05
7	Fencing	20
	Maintenance (Weeding + Watering, etc.)	40
Total		**150**

Note: (i) The activity wise cost indicated above is tentative and States have the flexibility to formulate their own estimate based on local requirements subject to a maximum of Rs. 150/- per plant

(ii) The assistance will be given in the year wise proportion of 40:20:20:20

Model – BS/HP/AL/02 Boundary Plantation Model

Magnitude of block Plantations (no of plants/block of 1 ha)	**Total cost (Max.) (Rs) for the block ((**or in proportion to planting intensity)				**Total**
	1st Year	**2nd year**	**3rd Year**	**4th Year**	
1200	48,000	25,680	27,478	29,401	1,30,559
Mandays	192	96	96	96	480

1.6.3 Urban Landscapes

Five treatment models *viz*., bioremediation and biofiltration, riverfront development, institutional and industrial estate plantation, eco park development, and avenue plantation are proposed in the mountainous State of Himachal Pradesh (Table 1.24).

Table 1.24 - Proposed Treatment Model in Urban Landscapes in Himachal Pradesh

Model No.	Model Name	Brief Description	Recommended Species
BS/HP/UL/01	Bioremediation and Biofiltration	In this technique plants and microbes associated with plant root systems are used to remove the pollutants in the form of inorganic and organic wastes. The State Forest Department, Municipal Corporation/ Committees or *Panchayat* bodies have to adopt the suitable approach for bio-filter suiting to the specific requirements and site characteristics. The model will include the following activities: • Waste water treatment through mechanical measures as per the site requirement. • Drainage line treatment by planting grasses, herbaceous vegetation, and shrubs. • Biofilters: Biofilters may be of different types: Free floating macrophyte biofilter, emergent macrophyte biofilter, sub-merged macrophyte biofilter, and multispecies algal biofilter.	*Tecoma stans*, *Actinoscirpus grossus*, *Spirodela polyrrhiza*, *Lemma minor*, *Cyperus rotundus*, *Nymphaea* spp., *Trapa natans*, etc.
BS/HP/UL/02	Riverfront Development Zone: **Along River and Tributaries**	Riverfront development envisages riverbank plantation to stabilize it by protecting it from soil erosion. This involves covering the entire ground	**Tree*:*** *Jacaranda mimosifolia*, *Grevillea robusta*, *Albizia chinensis*, *Butea monosperma*, *Kigelia pinnata*, *Dalbergia sissoo*, *Salix alba*, *Saraca*

Model No.	Model Name	Brief Description	Recommended Species
		by intercepting the sunlight at various heights of canopy through multiple layers of vegetation. The proposed model of riverfront development would involve plantation of avenue shrubs and trees along the riverbank to stabilize the soil and protect the bank from erosion. It would also have beds of annual flowering plants and patches of grasses. The area is so developed that would provide a pleasing and relaxing environment to the visitors. It would be a typical landscaping area comprised of vegetation and non-vegetation components. According to requirements, following components need to be created as a part of the proposed for riverfront development: • Vegetation Part: Grove consisting of shade trees, ornamental trees and bamboos, small herbal garden, climbers, hedges, grasses for lawn, etc. • Non-vegetation Part: Stairs, pathways, walking trails, stone pitching, benches, rain shelters, e-public utilities, parking area, information centre, refreshment area, etc. as	*asoca*, *Polyalthia longifolia*, *Callistemon viminalis*, *Syzygium cumini*, etc. **Shrubs:** *Bougainvillea* spp., *Rosa* spp., *Nerium oleander*, *Nyctanthes arbor-tristis*, *Spiraea canescens*.

Model No.	Model Name	Brief Description	Recommended Species
		per the site-specific requirements.	
BS/HP/UL/03	Institutional and Industrial Estate Plantation Zone: **Institutes and Industrial Estate**	Under this model mainly ornamental, shade and fruit plants will be encouraged for planting. Evergreen plants especially Silver oak (*Grevillea robusta*) will be preferred so that the leaves do not shed during winter months when air pollution is usually high. The initiative will beautify the area, create awareness among people associated with institution and industries and promote environmental services, besides providing economic returns from under-utilized land. This would improve aesthetics; provide shade; produce non-wood and wood products; reduce air, noise and dust pollution; harbour birds; reduce erosion; and create awareness about importance of trees. Some of the trees may serve religious purpose too and could be developed as small sacred grooves with the approval of management of such institutions. Site-specific activities will be carried out at according to the site conditions.	**Tree:** *Syzygium cumini*, *Anthocephalus kadamba*, *Dalbergia sissoo*, *Magnolia grandiflora, Magnolia liliiflora, Melia composita*, *Pongamia pinnata*, *Thuja* spp., *Cryptomeria japonica*, *Araucaria araucana*, *Cupressus torulosa*, *Jacaranda mimosifolia*, *Grevillea robusta*, *Albizia chinensis*, *Salix alba*, *Saraca asoca*, *Platanus orientalis, Polyalthia longifolia*, *Callistemon viminalis*, *Kigelia pinnata, Phoenix* spp., etc.

Model No.	Model Name	Brief Description	Recommended Species
BS/HP/UL/04	Ecopark Development Zone: **Along the Course of River or its Tributaries in the Great, Lesser, and Outer Himalayas**	The natural layout of the land will be maneuvered in such a way that the aesthetic beauty will be enhanced without much investment by greening the blank areas. Landscape area will be designed to afford good soil, moisture and biodiversity conservation, in addition to improvement in aesthetic values. Site-specific activities will be carried out at different places in harmony with the selected site conditions. An ecopark will have both vegetation and non-vegetation components. Even in the Eco Parks the proportion of ornamental plants will be relatively more than in the riverfront development model. Accordingly, it would be a typical landscaping area comprised of vegetation and non-vegetation components.	**Tree:** *Jacaranda mimosifolia*, *Grevillea robusta*, *Albizia chinensis*, *Butea monosperma*, *Thuja* spp., *Cryptomeria japonica*, *Salix babylonica, S. daphnoides, Araucaria araucana*, *Cupressus torulosa*, *Dalbergia sissoo*, *Eucalyptus territicornis*, *Eucalyptus camaldulensis*, *Salix alba*, *Saraca asoca*, *Polyalthia longifolia*, *Callistemon viminalis*, *Syzygium cumini*, etc. **Shrubs:** *Bougainvillea* spp., *Rosa* spp., *Nerium oleander*, *Nyctanthes arbor-tristis*, *Spiraea,* spp.

Cost Norms for Urban Landscape

Following section provides details on cost norms of proposed treatment models in Urban Landscapes.

Sr. No	Model No.	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days
		Estt.		1st year Maint		2nd year Maint		3rd year Maint.	
1	BS/HP/UL/01 Bioremediation and Bio filtration	15,00,000	1800	4,50,000	540	3,00,000	360	2,25,000	270
2	BS/HP/UL/02 Riverfront Development	15,00,000	18000	4,50,000	5400	3,00,000	3600	2,25,000	2700
3	BS/HP/UL/03 Institution Plantation	2,60,000	312	78,000	94	52,000	62	39,000	47
4	BS/HP/UL /04 Eco-Park Development	1,50,00,000	18000	45,00,000	5400	30,00,000	3600	22,50,000	2700

Sr. No.	**Model No.**	**Amount Rs. /ha**	**Man Days**	**Amount Rs. /ha**	**Man Days**	**Amount Rs. / ha**	**Man Days**	**Amount Rs. / ha**	**Man Days**
		Establishment		**I Year Maintenance**		**II Year Maintenance**		**III Year Maintenance**	
1	BS/HP/UL/01 - Bioremediation and Bio filtration	15,00,000	1,316	4,50,000	395	3,00,000	263	2,25,000	197
2	BS/HP/UL/02 - Riverfront Development	2,50,00,000	21,930	75,00,000	6579	50,00,000	4386	37,50,000	3,289
3	BS/HP/UL/03 - Institutional and Industrial Estate Plantation	2,60,000	228	78,000	68	52,000	46	39,000	34
4	BS/HP/UL/04 - Eco-Park Development	1,50,00,000	13,158	45,00,000	3947	30,00,000	2,632	22,50,000	1,974

1.7 Conservation Interventions

In addition to above stated plantation and treatment models in different landscapes, three types of conservation interventions, *viz*., (a) soil and water conservation, (b) riparian and riverine wildlife management, and (c) wetland management have also been proposed for implementation by the State. Details of these conservation interventions are given in the Vol. I of DPR.

Treatment Models for Soil and Water Conservation Interventions in Himachal Pradesh

Sr.No.	Model No.	Amount Rs/Cumt	Mandays
1	BS/HP/CI/01 Brushwood Interventions	300	2
2	BS/HP /CI /02 Dry stone activities	1800	8
3	BS/HP /CI /03 Crate wire activities	4500	15
4	BS/HP /CI/04 Water Ponds	65,000	288
5	BS/HP /CI /05 Silt Detention Dam Type Activities	80,000	248

1.8 Supporting Activities

Further, in addition to above described proposed plantation and treatment models in three types of landscapes and priority conservation interventions, varied supporting activities, *viz*., policy level interventions, concurrent research, capacity development, awareness, participatory monitoring, project management, and evaluation are considered vital for successful and effective execution of the proposed forestry interventions in vast extent of the riverscape. The strategies and specific interventions for these supporting activities are given in the Vol. I of DPR. A multi-tiered mechanism for the project implementation and monitoring of the project activities have been suggested. The structure of the mechanism has been shown in the Fig. 1.15 .

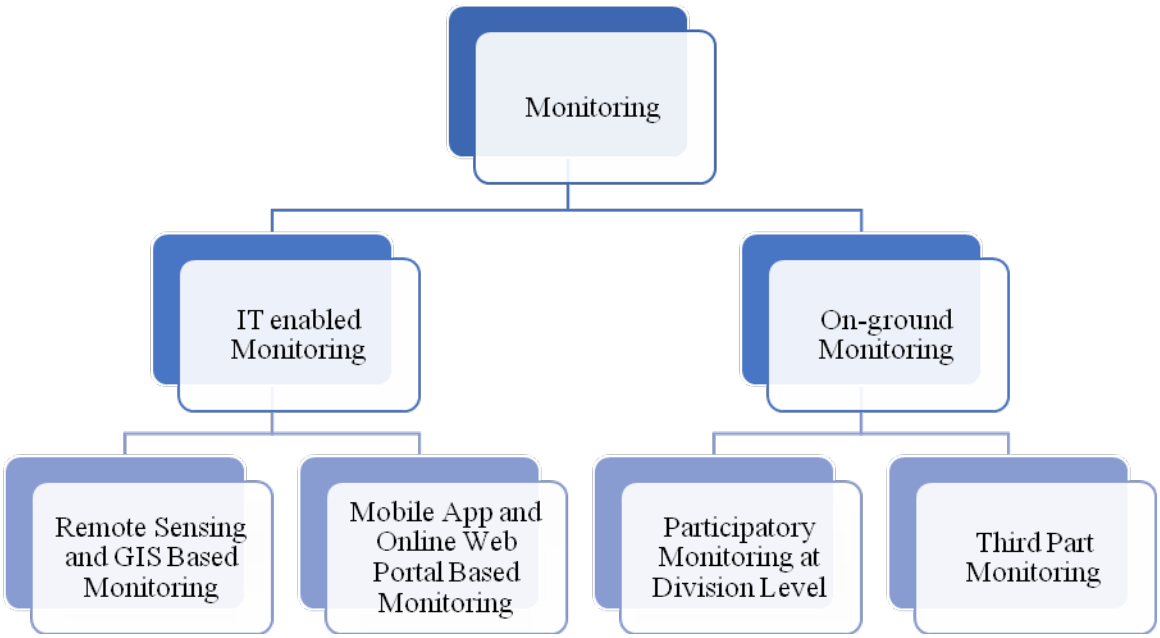


Fig. 1.15- Priority Treatment Areas of Beas Riverscape in Himachal Pradesh Multi-Tiered Mechanism for Monitoring Activities in the Beas Riverscape

1.9 Physical and Financial Targets

The physical and financial projections of various proposed forest interventions (plantation and treatment model, conservation interventions and supporting activities) at the State level during the project duration (Phase I and Phase II) as well as relevant details for each of the involved Forest/ Wildlife Division within the State of Himachal Pradesh are furnished in Table 1.25 to 1.47.

Table 1.25– Component/ Activity Wise Budget Allocation for Himachal Pradesh

Sr. No.	Component/ Activity	Amount (Rs. in Crore)
A.	**Implementation of Forestry Interventions in Two States of Riverscape**	595.33
A.1	**Plantations and Treatment Models in Himachal Pradesh**	**360.91**
A.1.1	Natural Landscapes	283.41
A.1.2	Eco Task Force	22.43
A.1.3	Agriculture Landscapes	7.45
A.1.4	Urban Landscapes	47.61
A.2	**Conservation Interventions**	**151.30**
A.2.1	Soil and Moisture Conservation	129.53

A.2.2	Riverine and Riparian Wildlife Management	16.91
A.2.3	Wetland Management (Natural and Artificial)	4.86
A.3	**Supporting Activities**	**28.30**
A.3.1	Policy Level Interventions	0.21
A.3.2	Research Activities	2.64
A.3.3	Capacity Development	7.20
A.3.4	Awareness	6.19
A.3.5	Participatory Monitoring	0.98
A.3.6	Cost of PMUs of Two State Level Implementing Agencies	10.41
A.3.7	Evaluation	0.62
A.3.8	Contingency and Miscellaneous Activities	0.05
Total Budget of Component A (A1+A2+A3)		**540.52**
C.	**DPR – Phase II (Maintenance phase) Including Scaling Up and Replication of Successful Models of Forestry Interventions**	**92.99**
C.1	Maintenance Cost of A.1 and A.2 (Cost of Phase II)	57.50
C.2	Maintenance Cost of A.3	9.88
C.3	Scaling Up and Replication of Successful Models of Forestry Interventions (5% of A.1 & A.2)	25.61

C.1 Maintenance Cost in Crore [(NL) 36.94+ (ETF) 17.94+ (Est. of Phase II ETF) 0.9 + (AL) .62+ (UL) 0.40 =56.82] + [(SMC) 0+ (Riparian & Wetland) 0.67] = 57.49]

Table 1.26 – Year-Wise Breakup of Extent Coverage of Proposed Forestry Interventions in Himachal Pradesh

Year	Period	Plantation and Treatment Models				Conservation Intervention		
		Natural Landscape	Eco Task Force	Agriculture Landscape	Urban Landscape	Soil and Moisture Conservation Measures	Riverine and Riparian Wildlife Management	Wetland Conservation
		(ha)	(ha)	(ha)	(ha)	(m^3)	(ha)	(ha)
A.Phase I (Implementation Phase)								
I	Est.	3690	0	537	49.4	186365	110	45
II	Est.	2620	200	542.5	55.1	143011.5	65	10

Year	Period	Plantation and Treatment Models				Conservation Intervention		
		Natural Landscape	Eco Task Force	Agriculture Landscape	Urban Landscape	Soil and Moisture Conservation Measures	Riverine and Riparian Wildlife Management	Wetland Conservation
		(ha)	(ha)	(ha)	(ha)	(m^3)	(ha)	(ha)
	Maint	3690	0	537	49.4	-	110	45
III	Est.	3269	200	591.5	34	140613	-	-
	Maint.	6310	200	1079.5	104.5	-	175	55
IV	Est.	2809	200	-	-	98484	-	-
	Maint.	9569	400	1671	138.5	-	175	55
V	Est.	1218	200	-	-	60789	-	-
	Maint.	12388	600	1134	89.1	-	175	55
Total Phase I	**Est.**	**13606**	**800**	**1671**	**138.5**	**629263**	**175**	**55**
	Maint.	**12388**	**600**	**4421.5**	**381.5**	**-**	**635**	**210**
B. Phase II (Maintenance Phase)								
VI	Est.	-	**200**	**-**	**-**	-	**-**	**-**
	Maint.	9916	800	591.5	34	-	65	10
VII	Est.	-	0	-	-	-	-	-
	Maint.	3236	800	-	-	-	-	-
VIII	Est.	-	0	-	-	-	-	-
	Maint.	4022	600	-	-	-	-	-
IX	Est.	-	0	-	-	-	-	-
	Maint.	1198	400	-	-	-	-	-
X	Est.	-	0	-	-	-	-	-
	Maint.	-	200	-	-	-	-	-
Total Phase II	**Est.**	**-**	**200**	**-**	**-**	-	**-**	**-**
	Maint.	**18372**	**800**	**591.5**	**34**	**-**	**65**	**-**
Grand Total Phase I and Phase II	**Est.**	**13606**	**1000**	**1671**	**138.5**	**629263**	**175**	**55**
	Maint.	**13606**	**1000**	**1671**	**138.5**	**-**	**635**	**210**

**Natural landscape also includes area of fire protection and natural regeneration models of natural landscape;*
***Area is virtual, considered for calculation of budgetary provisions*

***The consent for the availability of land for proposed forestry intervention have been obtained from PCCF & HoFF of Punjab state (Annexure attached at Page No- 531 of Vol-II)

Table 1.27– Year-Wise Breakup of Cost for Proposed Forestry Interventions in Himachal Pradesh

Year	Period	Plantation and Treatment Models				Conservation Intervention		
		Natural Landscape	Eco Task Force	Agriculture Landscape	Urban Landscape	Soil and Moisture Conservation Measures	Riverine and Riparian Wildlife Management	Wetland Conservation
		(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)
A.Phase I (Implementation Phase)								
I	Est.	3846.44	700.00	93.96	1398.30	3581.33	352.00	126.00
II	Est.	8017.43	60.00	100.50	1239.40	3208.41	208.00	28.00
	Maint.	711.22	300.00	50.28	419.49	-	308.00	112.50
III	Est.	5673.53	66.00	102.57	273.00	3085.13	-	-
	Maint.	1086.54	315.00	107.57	651.48	-	391.00	97.00
IV	Est.	3248.22	72.00	-	-	1903.16	-	-
	Maint.	2244.10	320.00	170.02	539.55	-	255.50	70.00
V	Est.	717.27	80.00	-	-	1175.37	-	
	Maint.	2796.39	330.00	120.32	240.52	-	177.00	52.50
Total Phase I	**Est.**	**21502.90**	**978.00**	**297.03**	**2910.70**	**12953.40**	**560.00**	**154.00**
	Maint.	**6838.25**	**1265.00**	**448.19**	**1851.04**	**-**	**1131.50**	**332.00**
B. Phase II (Maintenance Phase)								
VI	Est.	**-**	90.00	**-**	**-**	**-**		
	Maint	2066.13	340.00	62.85	40.96		58.50	9.00
VII	Maint.	1119.10	374.00	-	-	-		-
VIII	Maint.	430.59	368.00	-	-	-		-

Year	Period	Plantation and Treatment Models				Conservation Intervention		
		Natural Landscape	Eco Task Force	Agriculture Landscape	Urban Landscape	Soil and Moisture Conservation Measures	Riverine and Riparian Wildlife Management	Wetland Conservation
		(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)
IX	Maint.	78.47	358.00	-	-	-		-
X	Maint.	-	354.00	-	-	-		-
Total Phase II	**Est.**	**-**	**90.00**	**-**	**-**	**-**	**-**	**-**
	Maint.	**3694.29**	**1794.00**	**62.85**	**40.96**	**-**	**58.50**	**9.00**
Grand Total Phase I and Phase II	**Est.**	**21502.90**	**1068.00**	**297.03**	**2910.70**	**12953.41**	**560.00**	**154.00**
	Maint.	**10532.50**	**3059.00**	**511.04**	**1892.00**	**-**	**1190.00**	**341.00**

**Natural landscape also includes cost of fire protection and natural regeneration models of natural landscape*

Table 1.28 – Division Wise Proposed Extent of Plantations in Natural Landscapes in Himachal Pradesh

Sr. No.	Division	Year														Grand Total (Ha)	
		Phase I									Phase II						
		(Extent in ha)							Total (Phase I) (Extent in ha)		(Extent in ha)				Total (Phase II) (Extent in ha)		
		I	II	III	IV		V				VI	VII	VIII	IX			
		Establishment (Nursery raising for 3rd year creation)	Establishment (Nursery raising for 4th year Creation	Establishment(i/c creation for 3rd year plantation)	Establishment(i/c creation for 4th year plantation)	Maintenance (Maint of plantation 3rd year maintenance	Establishment(i/c creation for 5th year plantation	Maint	Establishment	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Establishment	Maintenance
1	Dalhousie	90	110	90	110	90	70	200	270	200	270	270	180	70	270	270	270
2	Dehra	431	364	431	364	431	210	795	1005	795	1005	1005	574	210	1005	1005	1005
3	Dharamshala	225	125	225	125	225	180	350	530	350	530	530	305	180	530	530	530
4	Hamirpur	160	175	160	175	160	40	335	375	335	375	375	215	40	375	375	375
5	Joginder Nagar	640	565	640	565	640	180	1205	1385	1205	1385	1385	745	180	1385	1385	1385
6	Kullu	254	160	254	160	254	105	414	519	414	519	504	265	105	519	519	519
7	Mandi	723	714	723	714	723	175	1437	1612	1437	1612	1612	889	175	1612	1612	1612
8	Nachan	40	125	40	125	40	15	165	180	165	180	175	135	15	180	180	180
9	Nurpur	133	95	133	95	133	10	228	238	228	238	238	105	10	238	238	238
10	Palampur	257	216	257	216	257	111	473	584	473	584	584	327	111	584	584	584
11	Parvati	192	70	192	70	192	65	262	327	262	327	287	135	45	327	327	327
12	Seraj	94	90	94	90	94	57	184	241	184	241	241	147	57	241	241	241
13	Suket	30	0	30	0	30	0	30	30	30	30	30	0	0	30	30	30
Total		**3269**	**2809**	**3269**	**2809**	**3269**	**1218**	**6078**	**7296**	**6078**	**7296**	**7236**	**4022**	**1198**	**7296**	**7296**	**7296**

Table 1.29– Division Wise Projected Cost of Plantations in Natural Landscapes in Himachal Pradesh

Sr. No.	Division	Year															
		Phase I								Phase II						Grand Total (Phase I & II) (Rs. In lakhs)		
		(Rs. in Lakhs)															
		I	II	III	IV		V		Total	VI	VII	VIII	IX	Total			
		E	E	E	E	M	E	M	E	M	M	M	M	M	M	E	M	Total Cost
1	Dalhousie	13.47	150.96	198.88	145.64	33.03	38.03	68.90	546.98	101.94	73.82	50.02	25.59	6.01	155.45	546.98	256.99	803.97
2	Dehra	124.9	666.05	759.86	461.39	167.03	112.54	262.79	2124.73	429.82	270.31	169.21	76.37	18.03	533.92	2124.73	963.74	3088.47
3	Dharamshala	32.30	291.620	313.63	283.17	82.06	94.00	107.12	1014.72	189.18	152.06	94.24	50.08	15.06	311.44	1014.72	500.62	1515.34
4	Hamirpur	29.35	213.99	315.56	160.51	63.15	25.56	115.61	744.97	178.75	109.76	71.92	25.49	3.44	210.60	744.97	389.35	1134.32
5	Joginder nagar	124.61	891.57	1168.80	619.21	241.16	113.24	368.16	2917.42	609.32	320.56	180.90	50.02	8.25	559.74	2917.42	1169.06	4086.48
6	Kullu	42.52	356.49	385.55	252.01	90.65	71.02	114.88	1107.59	205.53	116.87	56.74	21.09	3.01	197.71	1107.59	403.24	1510.83
7	Mandi	155.40	1077.91	1322.46	628.86	276.61	102.49	469.30	3287.12	745.91	411.490	263.57	97.72	14.23	787.01	3287.12	1532.92	4820.04
8	Nachan	4.90	67.01	180.20	90.30	13.60	10.60	53.70	353.02	67.30	46.95	33.08	12.42	0.49	92.93	353.02	160.23	513.25
9	Nurpur	27.28	171.62	186.46	60.44	48.52	5.64	67.70	451.44	116.22	59.20	35.37	10.34	0.86	105.77	451.44	221.99	673.43
10	Palampur	31.87	346.45	440.85	277.41	95.83	73.14	148.77	1169.71	244.60	155.94	92.22	36.10	5.21	289.48	1169.71	534.08	1703.79
11	Parvati	20.9	253.1	204.49	139.6	59.37	34.65	69.15	652.75	128.52	67.42	33.34	9.5	1.46	111.72	652.75	240.24	892.99
12	Seraj	10.04	133.4	181.28	129.67	34.41	36.37	55.09	490.76	89.5	61.44	35.92	15.88	2.41	115.65	490.76	205.15	695.91
13	Suket	2.52	35.81	15.52	0	10.29	0	8.3	53.85	18.58	6.88	2.58	0	0	9.45	53.85	28.03	81.88
Grand Total		**620.06**	**4655.98**	**5673.54**	**3248.21**	**1215.71**	**717.28**	**1909.47**	**14915.06**	**3125.17**	**1852.7**	**1119.11**	**430.6**	**78.46**	**3480.87**	**14915.1**	**6605.64**	**21520.7**

**E=Establishment, M=Maintenance*

Table 1.30– Fire Protection Regeneration Natural Landscape Himachal Pradesh (Area) (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year									Phase I &II (Total Area ha)
		Phase I (Extent of Area in ha)						Phase I Total		(Phase II) VI	
		I	II		III	IV	V				
		E	E	M	M	M	M	E	M	Total Maint	E
1	Dalhousie	280	0	280	280	280	280	280	280	0	280
2	Dehra	320	170	320	490	490	490	490	490	170	490
3	Dharamshala	320	200	320	520	520	520	520	520	200	520
4	Hamirpur	320	160	320	480	480	480	480	480	160	480
5	Joginder Nagar	380	300	380	680	680	680	680	680	300	680
6	Karsog	210	250	210	460	460	460	460	460	250	460
7	Kullu	125	150	125	275	275	275	275	275	150	275
8	Mandi	180	150	180	330	330	330	330	330	150	330
9	Nachan	135	180	135	315	315	315	315	315	180	315
10	Nurpur	370	200	370	570	570	570	570	570	200	570
11	Palampur	230	180	230	410	410	410	410	410	180	410
12	Parvati	220	200	220	420	420	420	420	420	200	420
13	Seraj	200	180	200	380	380	380	380	380	180	380
14	Suket	400	300	400	700	700	700	700	700	300	700
Total		**3690**	**2620**	**3690**	**6310**	**6310**	**6310**	**6310**	**6310**	**2620**	**6310**

**E=Establishment, M=Maintenance*

Table 1.31- Fire Protection Regeneration Natural Landscape Himachal Pradesh (Cost) (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year												
		Phase I (Rs. in Lakhs)							Phase II (Rs. in Lakhs)		Total (Rs. In lakhs)	Maint	Grand Total Cost
		I	II	III	IV		V	Total		VI	Total			
		E	E	E	E	M	M	E	M	M	M	E		
1	Dalhousie	282.89	0.00	50.35	47.84	45.49	35.02	282.89	178.70	0.00	0.00	282.89	178.70	461.59
2	Dehra	248.32	218.11	64.67	88.73	84.60	74.42	466.43	312.42	13.85	13.85	466.43	326.27	792.70
3	Dharamshala	219.69	256.60	67.39	96.37	92.08	82.95	476.29	338.79	16.29	16.29	476.29	355.08	831.37
4	Hamirpur	238.77	205.28	65.57	88.20	84.25	74.62	444.05	312.64	13.03	13.03	444.05	325.67	769.72
5	Joginder Nagar	315.75	384.90	74.81	118.28	112.06	97.95	700.65	403.10	24.44	24.44	700.65	427.54	1128.19
6	Karsog	259.89	320.75	33.23	69.33	64.28	51.57	580.64	218.41	20.37	20.37	580.64	238.78	819.42
7	Kullu	117.43	192.45	23.32	45.37	42.62	36.81	309.88	148.12	12.22	12.22	309.88	160.34	470.22
8	Mandi	173.68	192.45	33.15	54.70	51.48	43.59	366.13	182.92	12.22	12.22	366.13	195.14	561.27
9	Nachan	158.89	230.94	22.14	48.40	44.99	37.00	389.83	152.53	14.66	14.66	389.83	167.19	557.02
10	Nurpur	293.38	256.60	74.18	102.47	97.59	85.49	549.98	359.73	16.29	16.29	549.98	376.02	926.00
11	Palampur	190.11	230.94	45.38	71.45	67.71	59.24	421.05	243.78	14.66	14.66	421.05	258.44	679.49
12	Parvati	186.82	256.60	42.93	72.11	68.16	59.54	443.42	242.74	16.29	16.29	443.42	259.03	702.45
13	Seraj	218.43	230.94	34.40	60.16	56.24	46.10	449.37	196.90	14.66	14.66	449.37	211.56	660.93
14	Suket	322.33	384.90	79.70	123.13	116.84	102.63	707.23	422.30	24.44	24.44	707.23	446.74	1153.97
	Grand Total	**3226.38**	**3361.46**	**711.22**	**1086.54**	**1028.39**	**886.93**	**6587.84**	**3713.08**	**213.42**	**213.42**	**6587.84**	**3926.5**	**10514.34**

Table 1.32– Division Wise Proposed Extent of Plantations in Agriculture Landscapes in Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year												
		Phase I (Extent of Area in ha)									Phase II VI	Phase II	Grand Total Area (ha)	
		I	II		III		IV	V	Total (ha)					
		E	E	M	E	M	M	M	E	M	M	Total	E	M
1	Dehra	90	85	90	60	175	235	145	235	235	60	60	235	235
2	Dharamshala	60	60	60	60	120	180	120	180	180	60	60	180	180
3	Hamirpur	0	0	0	50	0	50	50	50	50	50	50	50	50
4	Joginder Nagar	55	40	55	40	95	135	80	135	135	40	40	135	135
5	Kullu	10.5	15.5	10	20.5	26	46.5	36	46.5	46.5	20.5	20.5	46.5	46.5
6	Mandi	70	50	70	50	120	170	100	170	170	50	50	170	170
7	Nachan	25	25	25	50	50	100	75	100	100	50	50	100	100
8	Nurpur	70	105	70	90	175	265	195	265	265	90	90	265	265
9	Palampur	60	60	60	60	120	180	120	180	180	60	60	180	180
10	Parvati	20.5	25	20	45	45.5	90.5	70	90.5	90.5	45	45	90.5	90.5
11	Seraj	15	15	15	15	30	45	30	45	45	15	15	45	45
12	Suket	61	62	61	51	123	174	113	174	174	51	51	174	174
Total		**537**	**542.5**	**537**	**591.5**	**1079.5**	**1671**	**1134**	**1671**	**1671**	**591.5**	**591.5**	**1671**	**1671**

Table 1.33 – Division Wise Projected Cost of Plantations in Agriculture Landscapes in Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year										Total Cost in Rs. (Phase1 and Phase II)		Grand TotalCost in Rs. (Phase 1 & II)
		Phase I (Rs. in Lakhs)									Phase II			
		I	II		III		IV	V	Total		VI Total	E	M	
		E	E	M	E	M	M	M	E	M	M			
1	Dehra	15.90	13.50	8.51	9.30	16.33	22.45	13.60	38.70	60.89	5.70	38.70	66.59	105.29
2	Dharamshala	9.30	9.30	4.98	9.30	10.31	16.01	11.03	27.90	42.33	5.70	27.90	48.03	75.93
3	Hamirpur	0.00	0.00	0.00	4.50	0.00	2.41	2.58	4.50	4.99	2.76	4.50	7.75	12.25
4	Joginder Nagar	10.80	7.50	5.78	9.45	10.19	15.97	10.00	27.75	41.94	5.79	27.75	47.73	75.48
5	Kullu	1.14	1.59	0.61	2.04	1.51	2.70	2.15	4.77	6.97	1.25	4.77	8.22	12.99
6	Mandi	10.20	12.30	5.46	8.40	12.42	17.80	12.34	30.90	48.02	5.15	30.90	53.17	84.07
7	Nachan	4.20	4.20	2.24	8.40	4.64	9.47	7.38	16.80	23.73	5.15	16.80	28.88	45.68
8	Nurpur	18.00	23.10	9.63	19.80	22.67	34.85	25.49	60.90	92.64	12.13	60.90	104.77	165.67
9	Palampur	13.20	13.20	7.07	13.20	14.63	22.72	15.65	39.60	60.07	8.09	39.60	68.16	107.76
10	Parvati	2.04	6.15	1.09	9.90	4.46	10.06	9.44	18.09	25.05	6.06	18.09	31.11	49.20
11	Seraj	3.30	3.30	1.76	3.30	3.65	5.67	3.91	9.90	14.99	2.02	9.90	17.01	26.91
12	Suket	5.88	6.36	3.15	4.98	6.76	9.91	6.75	17.22	26.57	3.05	17.22	29.62	46.84
Total		**93.96**	**100.50**	**50.28**	**102.57**	**107.57**	**170.02**	**120.32**	**297.03**	**448.19**	**62.85**	**297.03**	**511.04**	**808.07**

Table 1.34– Division Wise Proposed Extent of Plantations in Urban Landscapes in Himachal Pradesh

(**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year											
		Phase I (Extent of Area in ha)							Phase I Total		Phase II		Total Area ha
		I	II		III		IV	V			VI		
		E	E	M	E	M	M	M	E	M	M	Total	
1	Dalhousie	1	1	1	0	2	2	1	2	2	0	0	2
2	Dehra	4.9	6	4.9	3	10.9	13.9	9	13.9	13.9	3	3	13.9
3	Dharamshala	1	0.5	1	1	1.5	2.5	1.5	2.5	2.5	1	1	2.5
4	Hamirpur	7	6.5	7	5	13.5	18.5	11.5	18.5	18.5	5	5	18.5
5	Joginder Nagar	3	4.5	3	2.5	7.5	10	7	10	10	2.5	2.5	10
6	Kullu	4	3.5	4	3	7.5	10.5	6.5	10.5	10.5	3	3	10.5
7	Mandi	4.5	6	4.5	3	10.5	13.5	9	13.5	13.5	3	3	13.5
8	Nachan	6.4	8	6.4	6	14.4	20.4	14	20.4	20.4	6	6	20.4
9	Nurpur	1.1	0.5	1.1	0	1.6	1.6	0.5	1.6	1.6	0	0	1.6
10	Palampur	0.5	2	0.5	0.5	2.5	3	2.5	3	3	0.5	0.5	3
11	Parvati	3.5	3	3.5	2	6.5	8.5	5	8.5	8.5	2	2	8.5
12	Seraj	6	5	6	4	11	15	9	15	15	4	4	15
13	Suket	6.5	8.6	6.5	4	15.1	19.1	12.6	19.1	19.1	4	4	19.1
Total		**49.4**	**55.1**	**49.4**	**34**	**104.5**	**138.5**	**89.1**	**138.5**	**138.5**	**34**	**34**	**138.5**

Table 1.35– Division Wise Projected Cost of Plantations in Urban Landscapes in Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year													Grand Total (Rs. in Lakhs)
		Phase I (Rs. in Lakhs)							Phase I (Rs. in Lakhs)		Phase II	Phase II	Total (Rs. in Lakhs)		
		I	II		III		IV	V	Total		VI	Total			
		E	E	M	E	M	M	M	E	M	Maint		E	M	
1	Dalhousie	150.00	15.00	45.00	0.00	34.50	25.50	2.25	165.00	107.25	0.00	0.00	165.00	107.25	272.25
2	Dehra	77.90	28.00	23.37	7.80	23.98	19.63	5.76	113.70	72.74	1.17	1.17	113.70	73.91	187.61
3	Dharamshala	15.00	75.00	4.50	82.50	25.50	42.00	27.75	172.50	99.75	12.38	12.38	172.50	112.13	284.63
4	Hamirpur	178.00	90.60	53.40	13.00	62.78	48.72	16.19	281.60	181.09	1.95	1.95	281.60	183.04	464.64
5	Joginder Nagar	7.80	165.30	2.34	12.70	51.15	38.04	27.34	185.80	118.87	1.91	1.91	185.80	120.78	306.58
6	Kullu	170.20	82.80	51.06	20.20	58.88	48.15	16.46	273.20	174.55	3.03	3.03	273.20	177.78	450.78
7	Mandi	245.20	95.50	73.56	7.80	77.69	58.22	15.89	348.50	225.36	1.17	1.17	348.50	226.53	575.03
8	Nachan	75.60	20.80	22.68	15.60	21.36	20.18	6.24	112.00	70.46	2.34	2.34	112.00	72.80	184.80
9	Nurpur	97.50	75.00	29.25	0.00	42.00	29.63	11.25	172.50	112.13	0.00	0.00	172.50	112.13	284.63
10	Palampur	7.50	165.00	2.25	75.00	51.00	56.63	39.75	247.50	149.63	11.25	11.25	247.50	160.88	408.38
11	Parvati	162.70	155.20	48.81	5.20	79.10	57.01	24.32	323.10	209.24	0.78	0.78	323.10	210.20	533.12
12	Seraj	175.40	13.00	52.62	22.80	38.98	35.75	6.51	211.20	133.86	3.42	3.42	211.20	137.28	348.48
13	Suket	35.50	258.20	10.65	10.40	84.56	60.09	40.81	304.10	196.11	1.56	1.56	304.10	197.67	501.77
Total		**1398.00**	**1239.40**	**419.49**	**273.00**	**651.48**	**539.55**	**240.52**	**2910.70**	**1851.04**	**40.96**	**40.96**	**2910.70**	**1892.00**	**4802.70**

Table 1.36 – Year-Wise Breakup of Projected Cost on Supporting Activities in Himachal Pradesh

Sr. No.	Activities	Year (Cost Rs. in lakh)											Total Phase II	Grand Total (Cost Rs. in lakh) Phase I+II
		Phase I					Total	Phase II						
		I	II	III	IV	V	Phase I	VI	VII	VIII	IX	X		
1	Policy Level Interventions	4.77	3.73	3.91	4.10	4.31	20.83	2.23	0.00	0.00	0.00	0.00	2.23	23.06
2	Research	47.73	50.12	52.62	55.25	58.02	263.75	30.46	31.98	33.58	35.26	37.02	168.31	432.05
3	Capacity Development	139.00	130.20	156.71	143.55	150.72	720.18	0.00	0.00	0.00	0.00	0.00	0.00	720.18
4	Awareness	112.00	117.60	123.48	129.65	136.14	618.87	0.00	0.00	0.00	0.00	0.00	0.00	618.87
5	Participatory Monitoring	23.87	21.48	19.33	17.40	15.66	97.73	14.09	12.68	11.41	10.27	9.25	57.71	155.44
6	Project Management Unit	238.66	186.45	195.61	205.23	215.33	1041.28	111.74	105.52	99.57	93.95	88.66	499.44	1540.73
7	Evaluation	0.00	0.00	62.07	0.00	0.00	62.07	104.13	0.00	0.00	0.00	154.07	258.20	320.27
8	Contingency and Miscellaneous Expenses	1.19	0.93	0.98	1.03	1.08	5.21	0.56	0.53	0.50	0.47	0.44	2.50	7.70
	Total	**567.22**	**510.51**	**614.72**	**556.22**	**581.25**	**2829.91**	**263.21**	**150.72**	**145.06**	**139.96**	**289.44**	**988.39**	**3818.31**

Table 1.37 – Division Wise Proposed Extent for Soil and Moisture Conservation Measure for Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No	Division	Year						Grand Total Area (ha)
		Phase I (Extent of Area in ha)					Phase I Total	
		I	II	III	IV	V		
		E	E	E	E	E	E	E
1	Dalhousie	8250	8461.5	8120	7010	3570	35411.5	35411.5
2	Dehra	9080	7240	6560	4710	4410	32000	32000
3	Dharamshala	10070	5730	6340	5280	4460	31880	31880
4	Hamirpur	16280	13139	11500	6340	4289	51548	51548
5	Joginder Nagar	34000	28348	25840	16430	8170	112788	112788
6	Kullu	910	490	810	390	270	2870	2870
7	Mandi	26700	18470	19970	14599	7350	87089	87089
8	Nachan	14710	12300	11320	9200	5050	52580	52580
9	Nurpur	7535	4463	4925	3575	3230	23728	23728
10	Palampur	21020	14700	15348	11990	9030	72088	72088
11	Parvati	17530	13790	13760	8430	5410	58920	58920
12	Seraj	14970	10850	11160	6270	3130	46380	46380
13	Suket	5310	5030	4960	4260	2420	21980	21980
Total		**186365**	**143011.5**	**140613**	**98484**	**60789**	**629262.5**	**629262.5**

Table 1.38 – Division Wise Projected Cost for Soil and Moisture Conservation Measures in Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No	Division	Phase I: Year Wise Cost (Rs in Lakhs)					Total Phase I (Rs.in Lakhs)	Grand Total (Rs.in Lakhs)
		I	II	III	IV	V		
		E	E	E	E	E	E	
1	Dalhousie	184.05	237.09	195.87	180.42	72.51	869.93	869.94
2	Dehra	233.10	197.82	243.36	155.46	114.93	944.67	944.67
3	Dharamshala	146.46	92.33	188.70	99.90	76.80	604.18	604.19
4	Hamirpur	345.96	287.37	224.75	90.08	79.41	1027.56	1027.56
5	Joginder Nagar	719.79	631.93	516.41	240.74	155.40	2264.26	2264.27
6	Kullu	17.88	8.82	6.75	3.42	4.86	41.73	41.73
7	Mandi	352.29	320.90	318.02	199.55	138.21	1328.97	1328.97
8	Nachan	234.78	279.77	204.75	152.35	98.64	970.28	970.29
9	Nurpur	72.56	94.54	100.62	97.55	59.97	425.23	425.24
10	Palampur	287.22	291.48	373.97	256.49	136.77	1345.93	1345.93
11	Parvati	563.55	433.59	408.52	279.66	142.92	1828.24	1828.24
12	Seraj	334.62	225.24	202.88	67.03	51.39	881.16	881.16
13	Suket	89.07	107.57	100.56	80.53	43.56	421.29	421.29
	Total	**3581.33**	**3205.00**	**3078.83**	**1903.17**	**1175.37**	**12953.41**	**12953.41**

Table 1.39 - Division Wise Proposed Extent (in ha) for Riverine and Riparian Wildlife Management in Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No	Division	Phase I: Year Wise Extent of Area (ha)*						Total Phase I		Phase II Year Wise Extent of Area (ha)*		Grand Total (ha)	
		I	II		III	IV	V			VI	Total		
		E	E	M	M	M	M	E	M	M	Total	E	M
1	GHNP Shamshi	50	30	50	80	80	80	80	290	30	30	80	290
2	W L Hamirpur	20	5	20	25	25	25	25	95	5	5	25	95
3	W L Kullu	40	30	40	70	70	70	70	250	30	30	70	250
Total		**110**	**65**	**110**	**175**	**175**	**175**	**205**	**635**	**65**	**65**	**175**	**635**

Table 1.40 - Division Wise Projected Cost (Rs. in Lakhs) for Riverine and Riparian Wildlife Management in Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No	Division	Phase I: Year Wise Cost (Rs in Lakhs)						Total Phase I (Rs.in Lakhs)		Phase II (Rs.in Lakhs)	Total Phase II (Rs.in Lakhs)	Total Phase I & phase II (Rs.in Lakhs)		Grand Total (Rs.in Lakhs)
		I	II		III	IV	V			VI				
		E	E	M	M	M	M	E	M	M	M	E	M	
1	GHNP Shamshi	160.00	96.00	140.00	179.00	117.00	81.00	256.00	517.00	27.00	27.00	256.00	544.00	800.00
3	W L Hamirpur	64.00	16.00	56.00	52.00	33.50	24.00	80.00	165.50	4.50	4.50	80.00	170.00	250.00
4	W L Kullu	128.00	96.00	112.00	160.00	105.00	72.00	224.00	449.00	27.00	27.00	224.00	476.00	700.00
Total		**352.00**	**208.00**	**308.00**	**391.00**	**255.50**	**177.00**	**560.00**	**1131.50**	**58.50**	**58.50**	**560.00**	**1190.00**	**1750.00**

Table 1.40 – Division Wise Proposed Extent (in ha) for Wetland Management in Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No	Division	Phase I: Year Wise Extent of Area (ha)*						Total Phase I		Phase II Year Wise Extent of Area (ha)*		Grand Total (ha)	
		I	II		III	IV	V			VI	Total		
		E	E	M	M	M	M	E	M	M	Total	E	M
1	Mandi	15	10	15	25	25	25	25	90	10	10	25	90
2	W L Hamirpur	30	0	30	30	30	30	30	120	0	0	30	120
Total		**45**	**10**	**45**	**55**	**55**	**55**	**55**	**210**	**10**	**10**	**55**	**210**

Table 1.41 – Division Wise Projected Cost (Rs. in Lakhs) for Wetland Management in Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No	Division	Phase I: Year Wise Extent of Area (ha)*						Total Phase I		Phase II Year Wise Extent of Area (Rs. in Lakhs) *		Total Phase I & phase II (Rs.in Lakhs)		Grand Total (Rs.in Lakhs)
		I	II		III	IV	V			VI	Total			
		E	E	M	M	M	M	E	M	M	Total	E	M	
1	Mandi	42	28	37.50	49.00	34.00	25.50	70	146	9	9	70	155	225
2	W L Hamirpur	84	00	75.00	48.00	36.00	27.00	84	186	0	0	84	186	270
Total		**126**	**28**	**112.5**	**97**	**70**	**52.5**	**154**	**332**	**9**	**9**	**154**	**341**	**495**

Table 1.42 - Year-Wise Projected Cost of State Project Management Unit, Himachal Pradesh

Sr. No.	Activities	Year (Cost Rs. in lakh)												Grand Total (Cost Rs. in lakh)
		Phase I					Total Phase I	Phase II					Total Phase II	
		I	II	III	IV	V		VI	VII	VIII	IX	X		
1	Project Staff - Salary and Wages (PED+PEO+SPA+JPA2+PA2+PM+OA3+A3+DEO for each Division-15) and 50% staff in Phase II	149.16	156.618	164.45	172.67	181.30	824.20	95.19	89.95	85.00	80.33	75.91	**426.37**	**1250.58**
2	Office Expenses (including executing Divisions)	14.916	1.57	1.64	1.73	1.81	21.67	0.95	0.90	0.85	0.80	0.76	**4.26**	**25.93**
3	POL and maintenance (including executing Divisions)	14.916	1.57	1.64	1.73	1.81	21.67	0.95	0.81	0.60	0.40	0.23	**2.99**	**24.65**
4	Travel Expenses (including executing Divisions)	14.92	15.66	16.44	17.27	18.13	82.42	9.52	8.99	8.50	8.03	7.59	**42.64**	**125.06**
5	Equipment – Office and Field	7.458	0.07	0.07	0.07	0.07	7.76	0.07	0.07	0.07	0.07	0.07	**0.37**	**8.13**
6	Purchase of Equipment -Computer, RS and GIS and IT and maintenance	14.916	2.98	2.98	2.98	2.98	26.85	0.15	0.15	0.15	0.15	0.15	**0.75**	**27.59**
7	Furniture and Fixtures	14.916	0.15	0.15	0.15	0.15	15.51	0.15	0.15	0.15	0.15	0.15	**0.75**	**16.26**
8	Contingency and Miscellaneous	7.46	7.83	8.22	8.63	9.07	41.21	4.76	4.50	4.25	4.02	3.80	**21.32**	**62.53**
Grand Total		238.656	186.45	195.61	205.23	215.33	1041.28	111.74	105.52	99.57	93.95	88.66	**499.44**	**1540.73**

Table 1.43 – Projected Cost of Capacity Development at State and Division Level in Himachal Pradesh

Sr. No.	Activity	Norms Rs. in lakh	Phase I					Grand Total (Cost Rs. in lakh)
			Year					
			(Cost Rs. in lakh)					
			I	II	III	IV	V	
1	Local Level Training for Communities (Trainings; 2-3 days) 25	3.00	42.00	44.10	46.31	48.62	51.05	232.08
2	Division Level Trainings for SFD Personnel, Line Departments and Other Partner Agencies (1 Training/ Division/ 2-3 days) 25	3.00	42.00	44.10	46.31	48.62	51.05	232.08
3	State Level Inception Workshop (2-3 days) 1	15.00	15.00	-	-	-	-	15.00
4	State Level Seminar – Mid Term (2-3 days) 1	20.00	-	0.00	20	-	-	20.00
5	Exposure Trip Within State (30 participants; 2 per year)	10.00	20.00	21.00	22.05	23.15	24.31	110.51
6	Exposure Trip Outside State (15 participants; 1 per year)	20.00	20.00	21.00	22.05	23.15	24.31	110.51
Grand Total			**139.00**	**130.20**	**156.71**	**143.55**	**150.72**	**720.18**

Table 1.44 – Division Wise Details of Area/Extent and Cost for Three Different Landscapes in Himachal Pradesh (Part-I) (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Natural Landscape*				Agriculture Landscape				Urban Landscape			Total Cost (Rs. in Lakhs)
		Total Area (ha)*	Cost (Rs. in Lakhs)		Total Cost (Rs. in Lakhs)	Area (ha)	Cost (Rs. in Lakhs)		Total Cost (Rs. in Lakhs)	Total Area (ha)	Cost (Rs. in Lakhs)		
			E	M			E	M			E	M	
1	Dalhousie	550	829.87	435.69	1265.56	-	-	-	-	2	165	107.25	272.25
2	Dehra	1495	2591.16	1290.01	3881.17	235	38.70	66.59	105.29	13.9	113.70	73.91	187.61
3	Dharamshala	1050	1491.01	855.70	2346.71	180	27.90	48.03	75.93	2.5	172.50	112.13	284.63
4	Hamirpur	855	1189.02	715.02	1904.04	50	4.50	7.75	12.25	18.5	281.60	183.04	464.64
5	Joginder Nagar	2065	3618.07	1596.60	5214.67	135	27.75	47.73	75.48	10	185.80	120.78	306.58
6	Kullu	794	1417.47	563.58	1981.05	46.5	4.77	8.22	12.99	10.5	273.20	177.78	450.78
7	Mandi	1942	3653.25	1728.06	5381.31	170	30.90	53.17	84.07	13.5	348.50	226.53	575.03
8	Nachan	495	742.85	327.42	1070.27	100	16.80	28.88	45.68	20.4	112.00	72.80	184.80
9	Nurpur	808	1001.42	598.01	1599.43	265	60.90	104.77	165.67	1.6	172.50	112.13	284.63
10	Palampur	994	1590.76	792.52	2383.28	180	39.60	68.16	107.76	3	247.50	160.88	408.38
11	Parvati	747	1096.17	499.27	1595.44	90.5	18.09	31.11	49.20	8.5	323.10	210.20	533.12
12	Seraj	621	940.13	416.71	1356.84	45	9.90	17.01	26.91	15	211.20	137.28	348.48
13	Suket	730	761.08	474.77	1235.85	174	17.22	29.62	46.84	19.1	304.10	197.67	501.77
14	Karsoag	460	580.64	238.78	819.42	-	-	-	-	-	-	-	-
Total		**13606**	**21502.94**	**10532.14**	**32035.40**	**1671**	**297.03**	**511.04**	**808.07**	**138.5**	**2910.70**	**1892.00**	**4802.70**

**In Natural Landscape total area and total cost also include cost and area of fire protection and Natural Regeneration Models*

Table 1.45 : Division Wise Details of Area/Extent and Cost for Three Different Landscapes and SMC Activities in Himachal Pradesh (Part-II)

Sr. No.	Division	Grand Total Area of Three Landscapes (ha)	Total Cost of Three Landscapes	SMC Measures		Grand Total Cost of Three Landscapes and SMC
			(Rs. in Lakhs)	Total Extent (m3)	Total Cost (Rs. in Lakhs)	(Rs. in Lakhs)
1	Dalhousie	552	1537.81	35411.5	869.94	2407.75
2	Dehra	1743.9	4174.07	32000	944.67	5118.74
3	Dharamshala	1232.5	2707.26	31880	604.19	3311.45
4	Hamirpur	923.5	2380.93	51548	1027.56	3408.49
5	Joginder Nagar	2210	5596.73	112788	2264.27	7861.00
6	Kullu	851	2444.82	2870	41.73	4158.75
7	Mandi	2125.5	6040.41	87089	1328.97	7369.38
8	Nachan	615.4	1300.75	52580	970.29	2271.04
9	Nurpur	1074.6	2049.73	23728	425.24	2474.97
10	Palampur	1177	2899.42	72088	1345.93	4245.35
11	Parvati	846	2177.76	58920	1828.24	4006.00
12	Seraj	681	1732.23	46380	881.16	2613.39
13	Suket	923.1	1784.46	21980	421.29	2205.75
14	Karsoag	460	819.42	-	-	819.42
	Total	**15415.5**	**37645.80**	**629262.5**	**12953.41**	**52271.47**

Table 1.46 - Details of Area/Extent and Cost for Three Different Landscapes, SMC Activities and Riverine& Riparian Wildlife Management and Wetland Management in Himachal Pradesh

Sr No	Division	Grand Total area of Three Landscapes (ha)	Grand Total cost of Three Landscapes (Rs. in Lakhs)	SMC Measures		Grand Total Cost of Three Landscapes and SMC (Rs. in Lakhs)	Riverine & Riparian Wildlife Management and Wetland Management		Grand Total Cost of Three Landscapes, SMC and Riverine and wetland Mgmt. (Rs. in Lakhs)
				Total Extent (m^3)	Total Cost (Rs. in Lakhs)		Total Extent	Total Cost (Rs. in Lakhs)	
1	Dalhousie	552	1537.81	35411.5	869.94	2407.75	-	-	2407.75
2	Dehra	1743.9	4174.07	32000	944.67	5118.74	-	-	5118.74
3	Dharamshala	1232.5	2707.26	31880	604.19	3311.45	-	-	3311.45
4	Hamirpur	923.5	2380.93	51548	1027.56	3408.49	-	-	3408.49
5	Joginder Nagar	2210	5596.73	112788	2264.27	7861.00	-	-	7861.00
6	Kullu	851	2444.82	2870	41.73	2486.55	-	-	2486.55
7	Mandi	2125.5	6040.41	87089	1328.97	7369.38	-	-	7369.38
8	Nachan	615.4	1300.75	52580	970.29	2271.04	-	-	2271.04
9	Nurpur	1074.6	2049.73	23728	425.24	2474.97	-	-	2474.97
10	Palampur	1177	2899.42	72088	1345.93	4245.35	-	-	4245.35
11	Parvati	846	2177.76	58920	1828.24	4006.00	-	-	4006.00
12	Seraj	681	1732.23	46380	881.16	2613.39	-	-	2613.39
13	Suket	923.1	1784.46	21980	421.29	2205.75	-	-	2205.75
14	Karsoag	460	819.42	-	-	819.42	-	-	819.42
Total		**15415.5**	**37645.80**	**629262.5**	**12953.41**	**50599.21**		-	-
1	GHNP Shamshi	-	-	-	-	-	80	800.00	800.00
2	Mandi	-	-	-	-	-	25	225.00	225.00

3	W L Hamirpur	-	-	-	-	-	55	520.00	520.00
4	W L Kullu	-	-	-	-	-	70	700.00	700.00
Total		**15415.5**	**37645.80**	**629262.5**	**12953.41**	**50599.21**	**230**	**2245.00**	**52844.27**

Table 1.47 - Details of Area/Extent and Cost for Three Different Landscapes, SMC Activities, Riverine, wetland and Eco Task Force in Himachal Pradesh

Sr. No.	Grand Total area of Three Landscapes (ha)	Grand Total cost of Three Landscapes (Rs. in Lakhs)	SMC Measures		Riverine and Wetland Management		ETF Measures		Grand Total Cost of Three Landscapes, SMC, Riverine and Wetland Management and ETF (Rs. in Lakhs)
			Total Extent (m^3)	Total Cost (Rs. in Lakhs)	Total Extent (ha)	Total Cost (Rs. in Lakhs)	Total Extent (ha)	Total Cost (Rs. in Lakhs)	
1	15415.5	37645.80	629262.5	12953.41	230	2245.00	1000	4127.00	56971.21
Total	**15415.5**	**37645.80**	**629262.5**	**12953.41**	**230**	**2245.00**	**1000**	**4127.00**	**56971.21**

PUNJAB

2.1 Introduction

The State of Punjab situated in the north-western part of India covers an area of 50,362 km^2 and represents 1.53% of the total geographical area of the country. It is bordered by the Indian States of Himachal Pradesh to the east, Haryana to the south and south east, Rajasthan to the southwest and the Pakistani province of Punjab to the west (Fig.2.1). In the north, Punjab is bounded by the Union Territory of Jammu and Kashmir. The term Punjab comprises of two words: '*punj'* meaning five and '*ab*' meaning water, thus, the land of five rivers – Sutlej, Beas, Ravi, Chenab and Jhelum, principal rivers of the Indus River System. After the partition of India in 1947, the larger unified province of Punjab during theBritish India was divided. The western portion of unified Punjab province went to Pakistan while the eastern part of Punjab became one of the States of the independent Indian Republic. In September, 1966, the Indian State of Punjab was reorganized carving out a new state of Haryana; territory was transferred to Himachal Pradesh, then a Union Territory; and the city of Chandigarh became a Union Territory to serve as the capital of both the residual Punjab and Haryana. Thus, the present Indian State of Punjab mainly comprises fertile alluvial plains while along the north eastern part of the State bordering Himachal Pradesh runs the belt of Outer Himalayas or low Shivalik hills. Now, only two major rivers (Sutlej and Beas) flow through the Indian Punjab State and one major river (Ravi) flows on its northern border. Roughly triangular in shape, the Punjab State has a sensitive location and has great significance from the point of view of socio-economic development and defense (Gosal, 2004). The State is blessed with rich natural and cultural diversity.



Fig. 2. 1 - Punjab State

(Source: Aggarwal and Garg, 2015)

2.2 State Profile

2.2.1 Geographical Extent

Punjab, among the smaller States of India is located between latitudes N 29º30ºto 32º32º and the longitudes E 73º54º to 76º50º . Physiographically, the State is situated in the north-western part of India sharing a 300 km long international border with Pakistan in the west. The State has 22 districts, 81 tehsils, 168 statutory towns and 69 census towns and about 12,858 villages, with the area being generally plain (180 m to 320 m) except for the Sub-Himalayan Shivalik foothills in the north-eastern border (300 m to 800 m). Punjab is predominantly an agrarian State and more than 60% of the population lives in the rural areas. The State is sub-divided into three parts, Malwa, Majha and the Doaba. Malwa region constitutes majority of the region in the State and comprises of cities like Ludhiana, Patiala, Bhatinda and Mohali, whereas Majha embrace modern districts of Amritsar, Gurdaspur and Tarn Taran. Doaba region, predominantly alluvial plains between two rivers is considered among the most fertile regions of the world. In spite of many upheavals, the State has achieved tremendous success in the economic and agriculture development. About, 84% area of the State is under intensive cultivation (with a cropping intensity of 184%). The State enjoys the distinction of being the food bowl of the country and has the country's highest per capita income.

2.2.2Geology, Topography and Soil

Geology

In Punjab, land is used for agriculture all year round, but today many industries like thermal power plants, fertilizer plants, chemical factories, cement factories are well established here. The soil in the plains is mainly alluvial and suitable for cultivation. However, the monotony of its well mended fields is broken in patches by water courses, wetlands and sand dunes besides an elongated green, undulating elevated stretch of the Shivalik hills towards the north-eastern border with Himachal Pradesh. The alluvium thickness steadily decreases southwards where the basement depth is shallow. This heterogeneous alluvium ranges in age from the upper Pleistocene to the present and is generally classified into older and newer alluvium and consists of clay, gravel, sand, silty sands and clays with varying proportions of *kankar*. In the western and south-western parts, the alluvium is occupied by windblown, fine grained, buff coloured sand in the form of dunes. The area is also in close vicinity to the Trans-Aravalli Vindhya basin in Rajasthan. The highest part of the Aravalli-Delhi ridge which is at about 400m depth passes through Sirsa-Mansa and Faridkot region. The basement rocks go down rapidly from Tusam to Bhatinda, while east of Sirsa, rocks of Malani suite, granites and rhyolites and Delhi quartzite are encountered below the quaternary sediments. At Zira, near Ferozpur, granites rocks are met at a depth of 700 m below the Shivalik sediments. The maximum depth to basement in Punjab plains is between 4 km to 5 km and depth increases to some extent under the Shivalik ranges.

Topography

Lying between the Yamuna River on the east and the Indus on the west, and fringed by a dissected foot-hill zone and the Shivalik foothills in the north-east and the north, Punjab is an extensive alluvial plain gently sloping from about 350 m above sea-level in the northeast and the north to about 180 m in the southwest. The south-western fringe of the region is desertic and undulating, but has gradually been becoming level with the extension of cultivation and irrigation. The region primarily, is a great mass of alluvium brought down by the rivers. In between the Yamuna and the Sutlej in the east, the Ghaggar River and its tributaries have contributed to the same process of alluviation in what is now called the Malwa tract. With about 90% of the total area as plain (comprising the low-lying floodplains along the rivers and the monotonously flat upland plains between them), the region is an extensive level tract of land. In general, Punjab is a predominantly flat and featureless land form; however, it presents a varied relief when viewed from micro-regional levels. The entire landscape of Punjab can be segregated into the following landform types described below (Gosal,2004):

(a) Shivalik Hills

Punjab is bordered by the Shivalik hills on its north-west, north and north-east along the foothills of the Himalayas. They are fairly wide in the north-west and the north, and are only a narrow zone in the north-east. The Shivaliks are formed of Mio-Pleistocene sands, gravels and conglomerates. The hills generally range between 300 m to 1,000 m and provide a sharp contrast to the predominantly level topography in much of the region. They are quite denuded and dissected by discontinuous series of longitudinal valleys (*duns*) and generally covered with only scrub and stunted vegetation.

(b) Dissected Foot-hill Zone

Along the foothills of the Shivaliks, stretches a narrow 10 km - 15 km wide dissected undulating zone with seasonal streams, locally called *chos*. These *chos* are closely spaced and do not run for long distances, but cause large scale soil and gully erosion. This tract of the Shivalik foothill zone is locally called the *Kandi* tract.

Upland Plains

From the Sutlej to the Indus, the Punjab plains gradually slope westward forming the interfluvial tract formed as a result of the westward shift of the rivers' courses. All these upland plains are made of old alluvium originally deposited by the major rivers descending from the Himalayas. Here the plains in general look flat and featureless, slope from the north-east to the south-west. In the Malwa tract, there is a discontinuous chain of sand dunes south of the Sutlej floodplain formed as a result of the shifting of the rivers course to the west, leaving mounds of sand in its earlier course. The western Malwa tract, which was strewn with sand-dunes in early 1950s, has now been levelled and brought under cultivation with the help of canal and tube well irrigation, now looks like any other well-developed plain area. The southern part of west Punjab which have a much drier climate than their counterparts on the east side have relatively different surface conditions.

(c) Floodplains

The floodplains are formed of new alluvium deposited by the rivers during the rainy season annually. These floodplains along the rivers are linear tracts having a width not more than 10 km to 15 km. These plainswere earlier wastelands, but now practically all are under extensive cultivation. Since rivers have been shifting their courses in varying degrees to the west, the western banks are relatively steep leaving little scope for their development. The floodplains on the eastern side of the rivers, on the other hand, are relatively extensive and wide. Sutlej floodplains begin from the point the river enters the plain near Ropar and extends uptoFazilka town in Ferozepur district. It is much wider in the south of the river than to its north due to westward shift of its course. A section of the floodplain lies between the Sutlej River and Budha Nallahh, the old course of the river. The presence of the remnants of oxbow lakes between the old course and the present one provides demonstrative evidence of the shift of the river's course to the west. An extensive floodplain tract is formed near Harike Pattanwhere the Sutlej is joined by the Beas (Table 2.1). The floodplain of the Beas comprises a large part of Dasuya region of Hoshiarpur district and the western part of Kapurthala. Because of the westward shift of Beas, the floodplain is much wider east of the river than to the west. The floodplain of the upper Ravi lies between the river and the Sakki-Kiran stream which is thought to have been the old course of the river. The floodplain is 10 km - 15 km wide, but in Gurdaspur region, it is only 3 km - 4 km. The floodplain of the lower Ravi is wider, widening with the western shift of the river in the past. The Ghaggar, runs along the eastern margins of Patiala and marks the southern tips of Sangrur and Mansa districts, often subjected to frequent flooding during the monsoon season.

Table 2.1 - Summary of the Rivers of Punjab

River	Length (km)	Place of Origin	Confluence
Sutlej	1,500	Rakshastal Lake in Tibet	Sutlej has confluence with Chenab River
Beas	470	Beas Kund, Kullu district in Himachal Pradesh	Beas River joins Sutlej River at Harike in Tarn Taran district
Ravi	720	Kangra district of Himachal Pradesh	Ravi River joins Chenab River

Soil

There are various classifications of soils of Punjab by different workers/sources. However, the soils of Punjab have been classified to cover the broad categorization of the State into the following major types:

(a) Floodplain/Bet soils: Floodplain or Bet soils are *Khadar* soils of the periodically flooded or old floodplain areas of various rivers, streams or *chos* of the State. They are found in the form of elongated belts on the both side of the river channel such as those of Sutlej, Ravi, Beas and the Ghagghar.

(b) Loamy soils: It is the most important, fertile and productive soil group of the State, found predominantly in the Nawanshahr district, larger parts of Nakodar tehsil of Jalandhar district, Phagwara and central parts of Kapurthala district.

(c) Sandy soils: These are arid soils of south-western and south-central Punjab covering the districts of Bhatinda, Mansa, southern parts of Ferozepur and Muktsar districts, larger parts of Sangrur, south-central parts of Patiala district and some patches of Ludhiana district.

(d) Desert soils: These soils belong to the arid zone spreading over south-western parts of the State in Abohar tehsil and some area of Firozpur district, Muktsar district, large parts of Bhatinda and Mansa districts and some patches in Sangrur and Ludhiana districts. Formed under arid and hot climate with thin cover or scrub vegetation, it covers more than 11% of the total area of the State.

(e) *Kandi* soils: These soils have a sandy, sandy loam, silt loam and clay-silt to gravelly texture and are found in the areas of Pathankot, larger parts of Hoshiarpur, Nawanshahr and Ropar districts.

(f) Sierozems: Sierozems are grey soils of semi-arid parts of Punjab with an average annual rainfall of 50 cm-70 cm and air temperature ranging between 24°C - 25°C. They have grass and deciduous vegetation and cover nearly 25% area of the State. These soils are found in eastern half of the Malwa plains in Ludhiana district, northern and central parts of Sangrur district, Fatehgarh Sahib district, Rajpura district, western parts of Patiala district and some areas of Faridkot districts.

(g) Grey-brown podzolic and forest soils: These are stony, gravelly and sandy soils, reddish brown to olive brown in colour.in some blocks of Gurdaspur district and Shivalik hill zone of Hoshiarpur, Nawanshahr and Ropar districts. These soils have developed under shrub and deciduous forests, steep slopes and rugged topography, much water erosion and less hot temperature conditions.

(h) Sodic and saline soils: On account of climate and topography, anthropogenic activities and mismanagement, soils suffer from various kinds and degree of degradation, particularly salinity and sodicity. The pH values are generally 7.3 to 8.5 and the soils are neutral in reaction. Sodic soils have a higher percentage of sodium (>15%) salt and high pH value of 8.5 above and strong alkaline reaction (ENVIS, 2015).

2.2.3 Climate

In conformity with its inland position and sub-tropical location, Punjab is characterized by a continental, semi-arid to sub-humid climate. It is also bounded by western Himalayas in the

north and the Great Indian (Thar) desert in the south and south-west which mainly determine its climatic conditions. It receives south-easterly current of the summer monsoons coming over the Bay of Bengal. Thus, the climate of Punjab is greatly influenced by these factors. Its climatic rhythm, as of other parts of India, is defined by the change of seasons. The contrast between summer and winter is well marked, and these two primary seasons are associated with two main crop seasons of Kharif and Rabi in monsoon and winter season, respectively. The summers are extremely hot and winters slightly cool. The mean monthly maximum temperature (June) is as high as 42°C while the mean monthly minimum temperature (January) is as low as 4.7°C. The mean annual rainfall is 705 mm, which varies from 1,200 mm at Pathankot to less than 300 mm at Abohar, representing the wettest and driest stations, respectively. Hence, the climate of the State can be considered as predominantly semi-arid to monsoon type. The mean annual rainfall varies from less than 300 mm to about 1,400 mm per annum. According to the Thornthwaite (1948) classification system, the State of Punjab can be divided in to six climate zones (Sehgal, 1970):

(i) Arid and Hot zone
(ii) Semi-arid (dry) and Hot zone
(iii) Semi-arid (dry) and less-hot zone
(iv) Semi-arid (semi-dry) and less-hot zone
(v) Semi-arid (Sub-moist) and Less-hot zone
(vi) Sub- humid (dry) and Less-hot zone

2.2.4 River System and Hydrology

a. River System

Earlier prior to the partition of the country, the unified Punjab was drained by five perennial rivers, numerous seasonal streams like the Ghaggar and hundreds of gullies (Fig. 2.2). The discharge of these perennial rivers is subject to wide fluctuations ranging from a flush during the monsoons to a low current during late winters. The perennial rivers are not dependent on monsoon rainfall alone for their water supply, but also get supply from the melting of the Himalayan glaciers (Gosal, 2004).

(A) Sutlej

The Sutlej River originates from *Rakshastal* near Mansarovar Lake in Tibet at an elevation of 4,633 m above sea level. This 1,450 km long river follows a north-westerly course along the slopes of Kailash Mountains before entering the Shipki La in Himachal Pradesh. Here it bends southwest and makes its way through the mountainous and hill topography till it enters the Shivalik foothills near Nangal, where the Bhakra dam has been constructed across the river. At this point, the river flows with northwest-southeast orientation through the Jaswan dun between two ranges of the Shivalik hills in Ropar district. At Ropar, it pierces through the hills and enters the plain proper, and here it takes a sharp westward turn. The Sutlej separates the Bist Doab in the north from the Malwa tract in the south. At Harike, it is joined

by the Beas River from where it adopts a south-westerly course. It marks the boundary between the erstwhile east and western Punjab from nearby Ferozepur to Fazilka for about 120 km. From there, it follows a south-westerly course to meet the combined course of Ravi, Chenab and Jhelum Rivers. This meeting point of the combined Sutlej-Beas and the Ravi, Chenab and Jhelum is called the *Panjnad* (five rivers) at the extreme end of Bahawalpur district of Pakistan. Some 70 km downstream the combined waters of the five rivers, join the Indus a little above Mithankot, now in Pakistan.

The State of Punjab owes a lot of its prosperity to the Sutlej River. The Bhakra dam on the river not only provides the precious hydro-electric power but also saves the State from floods. The Nangal Barrage canal originated at Nangal, the Sirhind and the *Bist Doab* canals starting from Ropar, the Sirhind feeder and Indira Gandhi (Rajasthan) canal with their source at Harike and the Bikaner canal with its headworks at Hussainwala, all derive water from this river.

(B) Beas

Beas River rises from the southern face of Rohtang Pass (4,062 m) in the Kullu district, Himachal Pradesh. After its hill journey in Himachal Pradesh, it enters the Punjab plain near Mirthal where it is joined by the Chakki stream. The construction of the Pong dam at Talwara has greatly reduced the flood menace of the river and has paved large scale cultivation, especially in Dasuya, Gurdaspur and Kapurthala tehsils. Beas merges with Sutlej after flowing a distance of nearly 470 km at Harike Pattan situated towards the south of Amritsar. Beas is a comparatively small river which is only about 470 km long and lies entirely within the Indian territory, separating the upper Bari Doab from the Bist Doab.

(C) Ravi

Ravi comes out from the Himalayan Ranges of Chamba district of Himachal Pradesh. Flowing in north-westerly direction from its source, it drains the area between the Pir Panjal and the Dhauladhar Ranges. After passing through Chamba district, it enters the Punjab plains near Madhopur. It joins the Chenab (actually the combined Jhelum and Chenab waters), a little above Rangpur in Punjab, Pakistan after flowing for a distance of about 725 km from its source. Its total catchment area is 14,442 km^2 of which only about 6,000 km^2 lies in India. To the west of the Ravi, there is Degh stream which runs parallel to it for about 240 km before joining it. The place where Ravi joins the combined Jhelum-Chenab course is known as *Trimab* (three rivers).

Throughout its course in Punjab, India the river flows in a comparatively narrow valley. The fluctuations in its discharge are significantly less than those of the Beas. However, in its course in Pakistan, several changes and shifts are thought to have taken place in the past.

Major Tributaries of Punjab Rivers

Ghaggar

In addition to its prominent rivers, there is another historically important stream, the Ghaggar also called Sarasvati, which has been closely linked with the physiographic and cultural evolution of the part of the Punjab plains. Ghaggar takes its origin from the lower Himalayas in Sirmaur district and is an inland and largely a seasonal stream. After a short journey, it enters the plains near Mubarakpur and traverses through the eastern part of Patiala district, the southern section of Sangrur district and the lower tip of Mansa district. It finally leaves Punjab and moves into Rajasthan to lose itself in the sands near Hanumangarh.

Buddha Nallahh

A seasonal stream which runs through the Malwa region of Punjab and after passing through the highly populated district of Ludhiana, it drains into the Sutlej River.

Seasonal Streams (*Chos*)

In addition to the main drainage described above, scores of seasonal streams, present another notable feature of the Punjab drainage system. These seasonal streams infest the area immediately south of the Shivalik hills. Most of them start from the southern slopes of these hills, dissect their way through the foothill zone for 10 km-20 Km and soon exhaust themselves dry, or fall in some nearby river or in one of its tributaries.

b. Hydrology

Perennial rivers *viz*., Sutlej, Beas, and Ravi and ephemeral river Ghaggar drain the State of Punjab. It is predominantly an agriculture State with a vast network of canal system for irrigation. Its surface water resources are being fully utilized and to meet the growing demand of water for irrigation and other diverse purposes, the ground water is being exploited extensively. It is facing the problem of 'falling ground water level' in about 80% of the State. The annual normal rainfall is around 550 mm in the plains and 890 mm in the sub-mountainous regions near lower Shivaliks in the east. Rain is primarily provided by the south-west monsoon during the months of June-September.

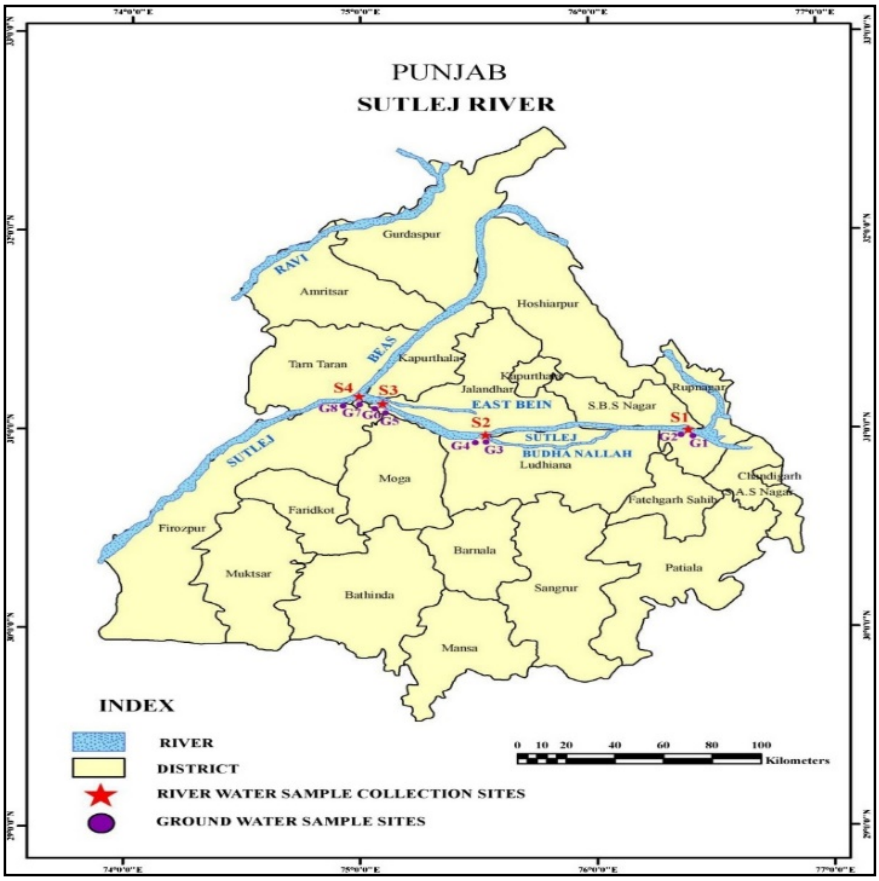


Fig. 2. 2- River System of Punjab

(Source: Sharma *et al.*, 2017)

c. Canal Irrigation System

Canal irrigation systems in Punjab comprise of Sirhind Canal system, Bist Doab Canal system, Bhakra Main Line (BML) Canal System, Upper Bari Doab Canal system, Kashmir Canal, Ferozepur Feeder/Sirhind Feeder system, Eastern Canal system, Makhu Canal System, Shahnehar Canal system and the Kandi Canal system. The Rajasthan Feeder and Bikaner Canal which carry Ravi-Beas and Sutlej water exclusively for Rajasthan also run in a considerable length over Punjab Territory.

d. Issues About Water Resources

Punjab, predominantly an agricultural State of India, is facing a severe water crisis due to lesser annual rainfall than normal (700 mm) since 1998. Further, Punjab is not getting adequate amount of river water due to political reasons like Indus Water Treaty, damming and diversion of river water, water issues with Haryana, Rajasthan, and the central government. However, the irrigation water demand (4.45 m ham) is significantly more than total irrigation water availability (3.04 m ham). Hence, in most parts of the State, groundwater is being overexploited for irrigation and apart from this water scarcity; water quality is also being deteriorated and, in several pockets, not suitable for drinking. Basic

groundwater parameters such as salinity, electrical conductivity (EC), chloride (Cl^-), and nitrate (NO^{3-}) have surpassed the maximum permissible limit in most of the parts of this State. Even toxic heavy metals (Selenium, Uranium, Arsenic, and Lead) and pesticides have also been reported in groundwater samples of several regions of the State. Intake of this contaminated water is affecting the villager's health, especially in the Malwa region.

2.2.5 Forests and Vegetation

Punjab Forest and Wildlife Preservation Department is making efforts to increase the forest cover in accordance with the National Forest Policy, 1988. Simultaneously, measures are being taken to protect and conserve the existing tree species and wild fauna to arrest and reverse ecological degradation. The current forest cover of the State is 1,837 km^2 which is 3.65% of the State's geographical area. Plains in the State of Punjab do not have any thick forest; the only available patches are of grass, herbs and shrubs.

Based on Champion and Seth (1968) classification of forest types, the State has seven types of the forests which have been briefly described below:

a. Northern Dry Mixed Deciduous Forests: Here, the vegetation is xerophytic in nature and there is a preponderance of species like *Acacia catechu, A. leucocephala, A. nilotica, Anogeissus latifolia,* etc.

b. Dry Deciduous Scrub: Mostly found in the *Kandi* tract, consisting of *Nyctanthes arbor-tristis, Carissa opaca, Grewiatenax,* etc. Plantations of economically important species like *Acacia catechu* and *Eulaliopsis binata* have also been undertaken in these areas.

c. Khair-Sissoo Forests: These forests are found scattered in nature along the streams. These are mostly man-made forests as a result of plantings in the foothills along *cho*s (streams) and *mand* areas with Khair (*Acacia catechu*), Sissoo (*Dalbergia sissoo*) and *Eucalyptus* hybrids. Groves of mango are found in these forests.

d. *Butea* spp. Forests and Saline/Alkaline Scrub Savannah: This forest has been converted into plantations of commercial species like *Eucalyptus* spp., *Dalbergia sissoo, Acacia catechu, Morus alba,* etc. Small patches of natural vegetation survive in village wastelands in the plains.

e. Dry Bamboo Brakes: Located in certain parts of Hoshiarpur and Roopnagar districts bordering Himachal Pradesh and also Gurdaspur. The forests of Karanpur and Bindraban in Dasuya Forest Division are mainly bamboo areas where *Dendrocalamus strictus* occurs gregariously. The other associates are: *Lannea coromandelica, Diospyros montana, Butea monosperma, Holoptelia integrifolia* and *Cassia fistula*.

f. Shivalik Chir Pine Forests: *Pinusroxburghii* (Chir Pine) found in elevations above 850 m in parts of Bari Khad, Dehrian, Chattarpur, Dhar, Dunera and NurpurBedi Forests (TERI, 2002).Associated species are: *Terminalia alata, Terminalia bellerica, T. chebula, Anogeisus latifolia, Phyllanthus emblica, Cassia fistula*, etc.

a. Forest Cover and Change

The term 'Recorded Forest Area (RFA)' refers to all the geographic areas recorded as 'forests' in the government records. RFAs are largely consists of Reserved Forests (RFs), Protected Forests (PFs), and Un-demarcated Forests (UDFs) or Unclassified Forests constituted as per the provisions of the Indian Forest Act, 1927.The situation of forests in terms of RFA in the alluvial plains of Punjab State was dismaying in proportion to its larger size (Fig. 2.3). Thisagriculture dominated State just contributeda small proportioni.e., 6.12%of RFA of the geographical area of the State while the State represented a minuscule RFA i.e. 0.40% of the overall extent of the country (Table 2.2).

Table 2.2 - Recorded Forest Areas (RFAs) in Punjab State

Sr. No.	Geographical Area of the State km^2	Reserved Forest km^2	Protected Forest km^2	Unclassed Forest km^2	Forest Recorded Area km^2	Representation of RFA of the States' Geographical Area (%)	% of India's Forest Area (%)
1	50,362	44	1,137	1,903	3,084	6.12	0.40

(Source: FSI, 2019)

The term 'Forest Cover' refers to all land more than 1 ha in area with a tree canopy more than 10% irrespective of land use, ownership and legal status. The close scrutiny of information on forest cover provided by FSI (2019) revealed that out of the total estimated forest cover of 1,837 km^2 in the State, a small area (8 km^2) was under the category of Very Dense Forests Forest (lands with tree canopy density of >70%) while as much as much 1,023 km^2 area offorests was under the category of the Open Forests(lands with tree canopy density of 10% to <40%). The Moderately Dense Forests (MDFs) with >40% and <70% canopy density covered 806 km^2 of total forest cover of the State (Fig.2.4). A meager extent of just 8 km^2 of VDFs in Punjab justify improvement of forests by way of protection, massive plantation and interventions like assisted natural regeneration and gap planting (Table 2.3).



Fig. 2. 3- Forest Cover in Punjab State

(Source: FSI, 2019)

Table 2.3 - Forest Cover in Punjab State

Sr.No.	Geographical Area km^2	VDF km^2	MDF km^2	OF km^2	Total Forest Cover km^2	Representative of Geographical Area (%)	Tree Cover km^2	Total Forest and Tree Cover km^2	Scrub km^2
1	50,362	8	806	1,023	1,837	3..65	1,592	3,429	33

(Source: FSI, 2019)

(a) Tree Outside Forests (TOFs)

Tree cover in small tree patches (<1 ha in extent) outside the recorded forest area and usually those lie in village woodlots, orchids, homesteads, urban areas, industrial plantations, and compact blocks along roads, canals, railway lines, etc. and as well as scattered trees are of immense value as they provide multiple benefits. Owing to mapping limitations, isolated small tree patches (<1 ha) are excluded from 'forest cover', however, their contribution is captured in the form of tree cover. The State which was deficient in the actual forest cover had greater representation of tree cover to the extent of 1,592 km^2 (FSI, 2019) (Table 2.3).

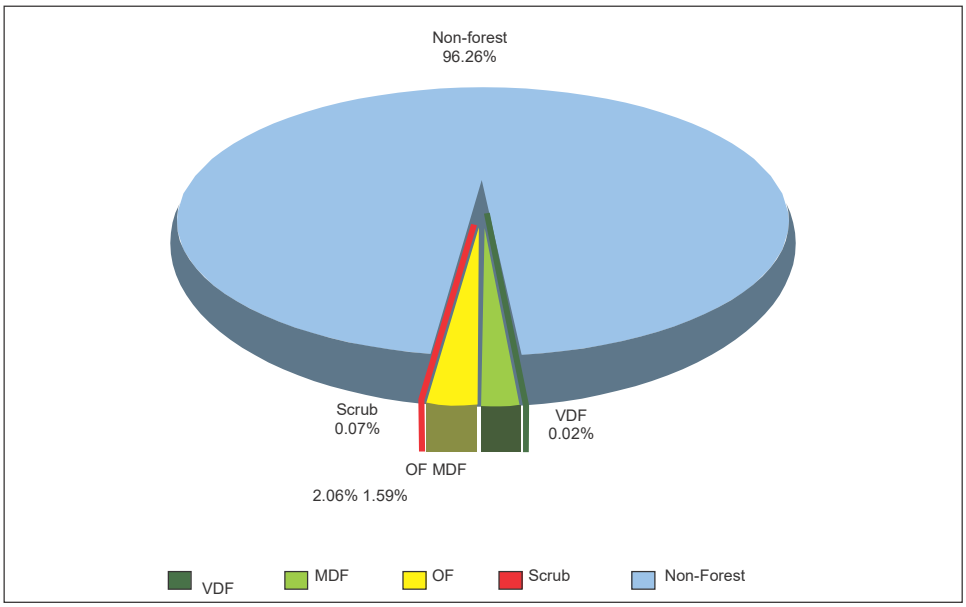


Fig. 2. 4 - Forest Cover in Different Classes in Punjab State

(Source: FSI, 2019)

(b) Growing Stock

The ISFR-2019 also provided the insight on the growing stock in the RFA and TOF (Table 2.4). Punjab State had the growing stock in RFAs to the tune of 12.9 million m^3while the State contributed 20.0 million m^3 of growing stock in TOF (FSI, 2019).

Table 2.4 - Growing Stock in Punjab State

Sr.No.	Geographical Area of the State km^2	Recorded Forest Area km^2	% of India's Forest Area (%)	States' Geographical Area (%)	Growing Stock in RFA M m^3	Growing Stock in TOF M m^3
1	50,362	3,084	0.40	6.12	12.9	20.0

(Source: FSI, 2019)

Above revelations with regard to the lower extent of RFA, legal categories of forests, forest cover, representation of canopy density classes, and contribution to the growing stock of RFA and TOFs in Punjab State noticeably explained that the overall situation of forests in the State is not very sound. These observations provide ample clues that there is enormous scope not only to enhance the forest extent in this State located along the course of Beas River but also to improve the quality of forests.

(c) Spatial Pattern of Forest Cover and Fragmentation in Different Patch Size

Two consecutive biennial assessments on forest cover and patch characterization in Punjab State also offered startling observations based on ISFR-2015 and ISFR-2017. In 2017, the State had a forest cover of 1,837 km^2 represented by 6,185 patches. There was just one large patch in the patch size range of >500 - ≤1000 km^2 constituting 30% of the total forest cover of the state (Table 2.5). As many as 98.39% patches were less than 1 km^2 and they constituted nearly 25% of the total forest cover in the State. There were just seven patches >10 km^2 those constituted 63.37% of the total forest cover. While comparing the situation of forest cover and patch characterization based on ISFR-2015, notable observations were: (a) an increase in number of forest patches from 5,161 to 6,185 with majority increase in the lowest patch size category (<1 km^2), (b) the contribution by singular largest patch to overall forest cover of the State decreased from 556 km^2 to 551 km^2 in two years of intervening period. The contribution of this patch to State forest cover decreased from 31.29% to 30% (FSI, 2015 and 2017). In one way, the situation of Punjab resembled to great extent with the overall country as they all showed the bulk proportion of patches in the smallest forest patch range class and greater pace of fragmentation of smaller patches.

Table 2.5 - Patch Size Classes in Punjab State

Forest Cover Informatics in Different Patch Size Class							
Sr. No.	**Patch Size Range (km^2)**	**ISFR – 2017**			**ISFR - 2019**		
		No. of Patches	**Area (km^2)**	**(%)**	**No. of Patches**	**Area (km^2)**	**(%)**
1	≥0.01 - ≤1.0	5065	385	21.74	6,086	451	24.55
2	1.0 - ≤10	89	212	11.97	92	222	12.08
3	10 - ≤100	3	65	3.67	3	65	3.54
4	100 - ≤500	3	553	31.23	3	548	29.83
5	500 - ≤1000	1	556	31.29	1	551	30.00
6	**Total**	**5,161**	**1,771**	**100**	**6,185**	**1,837**	**100**

(Source: FSI, 2015 and 2017)

(d) Forest Change in the State

The spatio-temporal changes in forest cover between two consecutive assessment periods reflect the change on the ground during the intervening period and provide an insight on the forest dynamics in human dominated landscape. A comparison of total forest cover and forest canopy density classes in two consecutive assessment periods (2017 and 2019) in the State provided noteworthy observations (Table 2.6). Accordingly, the State registered slight increase in forest cover in 2019 than the previous biennial assessment. There was no change

in the extent of VDF between two consecutive assessments of 2017 and 2019. In case of MDFs, the State recorded slight decline in MDFs over two-year intervening period. The extent of Open Forests was enhanced the State in comparison to the previous biennial assessment (Table 2.6).

Table 2.6- Comparison in Forest Cover and Canopy Density Classes in Punjab State Between two Consecutive Assessments of 2017 and 2019

Sr. No.	Geographical Area km^2	2017 Assessment				2019 Assessment			
		Total Forest Cover km^2	VDF km^2	MDF km^2	OF km^2	Total Forest Cover km^2	VDF km^2	MDF km^2	OF km^2
1	50,362	1,837	8	806	1,023	1,849	8	801	1,040

(Source: FSI, 2017 and 2019)

(e) Changes in Forest Cover

The FSI has been carrying out biennial assessment on forest cover for the entire country and each of the State/ UT since 1987. Thus, in past 16 consecutive assessments until 2019, valuable insight on changes in forest cover has been obtained. The same has been summarized in Table 2.7 for the State. Accordingly, the State showed gradual increase in forest cover since 1987 except an aberration between 2001 and 2005 when the forest cover decreased from 2,432 km^2 to 1,558 km^2 (Table 2.7).

Undoubtedly, the country as well as two concerned States showed gradual increase in forest cover in past 32 years. However, such increase in forest cover has to be seen with caution in connotation with the valuable insight on various forest canopy density classes, growing stock, spatial patterns of forest cover, patch characterization, and the pace of fragmentation, particularly loss of smaller forest patches at a very fast pace. The forgoing description on changes in forest cover, the condition of the growing stock and the alarming rate of forest fragmentation warrants extensive as well as intensive forestry interventions so as to ensure healthy forests, efficient catchments, and sustainability of river ecosystems.

Table 2.7 – Comparison of Forest Cover in India and Two States between 1987 and 2019

Sr. No.	Geographical Area km^2	Change in Total Forest Cover Since 1987 km^2							
		Assessment Year							
		1987	1991	1995	2001	2005	2011	2017	2019
1	50,362	943	1,343	1,342	2,432	1,558	1,764	1,837	1,849

(Source: FSI, 2017 and 2019)

2.2.6 Agro-ecosystem

Details on land use pattern in the State are provided in Table 2.8. Punjab with net area sown to the extent of 82.23% and cropping intensity of around 191% with over 99% of the cultivatable area with assured irrigation holds place of pride among the Indian States for its outstanding achievements in agriculture as well as horticulture development (Table 2.8). The State comprising only 1.54% of the total geographical area of the country contributes 13-14% towards the totalfood grain production of the country. The other categories i.e. land not available for cultivation and forests occupy 10.25% and 5.86% area, respectively. Besides these, the other categories are insignificant in Punjab and the land use categories show big imbalances for the State. For example, the extent of forests is very low as the stipulated (33 per cent) or even in comparison to the country's recorded forest or forest cover. Presently natural resources especially water; soil and air of Punjab are degrading day by day, which is perhaps due to these imbalances in land use categories (Singh, 2015). There are three types of agro-climatic zones i.e., arid irrigated zone, sub-mountain zone and the central zone (Fig. 2.5).

Table 2.8 – Land Use Pattern in Punjab State

Sr. No.	Land Use	Area (km^2)	Per Cent Geographical Area of State
1	Total Geographical Area	50,360	1.53
2	Reporting Area for Land Utilization	50,330	100.00
3	Forests	2,950	5.86
4	Not Available for Cultivation	5,160	10.25
5	Permanent Pastures and other Grazing Lands	70	0.14
6	Land Under Misc. Tree Crops and Groves	50	0.10
7	Culturable Wasteland	30	0.06
8	Fallow Lands other than Current Fallows	0	0.00
9	Current Fallows	370	0.74
10	Net Area Sown	41,690	82.83

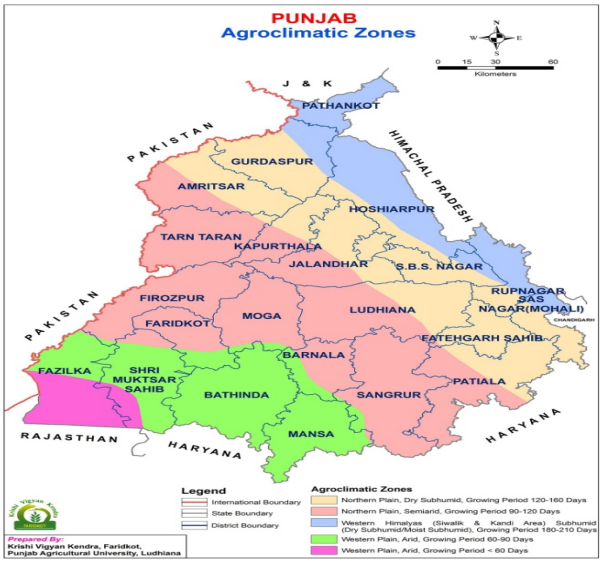


Fig. 2. 5 - Agro-Climatic Zones of Punjab

(Source: ENVIS, 2015)

Agriculture is the largest occupation and source of livelihood to most people in Punjab. The State has made unparalleled progress in the agriculture since the advent of green revolution in the mid-60s with traditional agriculture progressively giving way to modern and commercial agriculture. The State known as 'Granary of India' has played key role in transforming India from grain importing nation to self-reliant and export surplus nation. The State has highest yield of rice, being 4.41t/ha while the yield in case of wheat has been 5.04 t/ha. The State contributed 46.4% of wheat and 29% of rice to central pool during the year 2016-17. The stunning rise of food grain production from 11.92 MT in 1980-81 to 29.44 MT in 2013-14 was attributed to intensive use of farm chemicals. It is also worth mentioning here that 85% of water consumption in the State is accounted by the agriculture sector. Canals provide about 27% irrigation while tube wells contribute 73% irrigation. The number of tube wells has increased considerably in past decades. The groundwater is being overexploited to meet the increasing demand of water for irrigation. The present groundwater development in the State is 170% with groundwater in 80% geographical area of the State is over exploited. Farm mechanization has played a key role to bring a significant improvement in agriculture productivity in the State. Undoubtedly, the State has immensely helped the country in bringing the self-reliance in food grain production and made significant contribution to the country's as well as State economy. However, from the perspective of rivers, excessive groundwater abstraction and decline of water quality due to chemical pollutants are important concerns.

2.2.7 Biodiversity

As stated earlier, the State of Punjab predominantly represented by alluvial plains and predominated by agriculture has minuscule extent of Very Dense Forestsand diverse forests just contribute about <6% geographical area of the State. Generally, available patches of natural vegetation are dominated bywidely scattered open forests, grass, herbs and shrubs. The State of Punjab with 20 PAs (13 sanctuaries, 04 conservation reserves, and 03 community reserves) covers a meager area of 381.33 km^2 under PA network and represents 0.75% of the geographical area of the State. The diversity of angiosperms includes 355, 70, 70, 19 species of herbs, trees, shrubs, and climbers, respectively. Other than angiosperms, 31 kinds of pteridophytes and 27 species of bryophytes have been documented. Faunal diversity includes 396 species of birds, 214 species of Lepidoptera, 55 species of fish, 20 species of reptiles and 19 species of mammals in the region. Wetlands of International importance in the State are Harike, Kanjli and Ropar wetlands. The State is primarily represented by three prominent natural and man-made ecosystems *viz*., Shivalik Ecosystem, Wetland Ecosystem and Agro-Ecosystem.

(a) The Shivalik Ecosystem: The Shivalik hill area is spread over geographical area of 9,448.97 km^2 and lies in the north-eastern part of the State extending from north-west to south-east along the Himachal Pradesh border. The Shivalik ecosystem region owing to its rich flora and fauna has been termed as the zone of micro-endemics in India.

(b) The Wetland Ecosystem: This ecosystem includes a wide range of natural and manmade wetlands, covering an area of nearly 100 km^2. Four of the natural wetlands of Harike, Kanjili, Beas River Conservation Reserve and Ropar have been recognized as Wetlands of International Significance under the Ramsar Convention, while Ranjit Sagar and Nangal Lake have been declared as the National Wetlands.

(c) Agro Ecosystem: Agriculture is practiced on about 84% of the total land area in Punjab. The State harbours a great deal of genetic variability, however it has been reduced over time due to change in the cropping pattern with main focus on wheat and paddy crop rotation. Increase in the area under paddy has led to decline in area under other major natives Kharif crops namely maize, jowar, bajra, area other introduced cash crops *viz*., sugarcane, groundnut, pulses, etc. Wheat cultivation is being done at the expense of gram, barley, rapeseed, mustard and sunflower. Due to predominance of wheat and paddy cultivation, the crop diversity has immensely reduced. As a result, the soil in the State has been severely impacted and the underground water table has also been considerably depleted. This has also led to resurgence and development of resistance in pests thus, affecting the populations of natural enemies of pests.

2.2.8 Demography

According to the Census of India, 2011, the population of the State is 27.7 million and a population density of 551 people per km^2. The population comprises of 14.63 million males and 13.10 million females and the sex ratio in the State is 893, with the literacy rate being 76.7%. The rural and urban population constitutes 62.52% and 37.48%, respectively. The decadal growth (2001-2011) of human population in Punjab was 13.89% against the value of 17.69% registered for the entire country. The rich and fertile land of the Punjab was meeting ground of different people and races. Its people descended from various stocks and consist of heterogeneous racial elements. Sikhs are in majority in the State and constitute 57.69% of the total State population. Hinduism stands at 38.49% of the total population, Christianity at 1.26%, Jainism at 0.16% and Buddhism at 0.12% and others at 0.35%. Punjab's demographic and social profile presents a unique human resource opportunity for economic growth through manpower skilling. Punjab has one of the oldest and richest cultures of the world. Its diversity and uniqueness are evident in the Punjabi poetry, philosophy, spirituality, education, artistry, music, cuisine, science, technology, military warfare, architecture, traditions, values and history. Undoubtedly, the culture of Punjab is one of the distinctive cultures found anywhere around the globe. The people of the State are friendly, hospitable, hard-working and relish living.

2.3 Riverscape Analysis

2.3.1 Methodology

The Beas River Basin occupying an area of 22,262.10 km^2 spreads across two north Indian States *viz*., Himachal Pradesh and Punjab (Fig. 2.6). The Beas Riverscape representing 75.21% of the basin area or covering an extent of 16,743.01 km^2 was delineated for the purpose of planning, assessment and preparation of present DPR adopting an extensive

consultative process as described in the Volume I.In the present assessment, image processing and GIS tools used were: ERDAS Imagine 2018, Geo-Media Professional 2018, ArcGIS, etc. The GIS software provided the tools needed to store, analyze and display geographic information. Landsat 8 satellite data (for the month of November, 2018) was used for preparation of Land use/ Land cover map of the riverscape. The Row, Path along with Date of Pass of the satellite data used in the present assessment for Punjab State representing the downstream part of riverscape is presented in Table 2.9.

Table 2.9 - List of Data Downloaded and Used in the Present Assessment

State	Path	Row	Date of Pass	Satellite
Punjab	147	038	10 November, 2018	Landsat-8
Punjab	148	038	17 November, 2018	Landsat-8

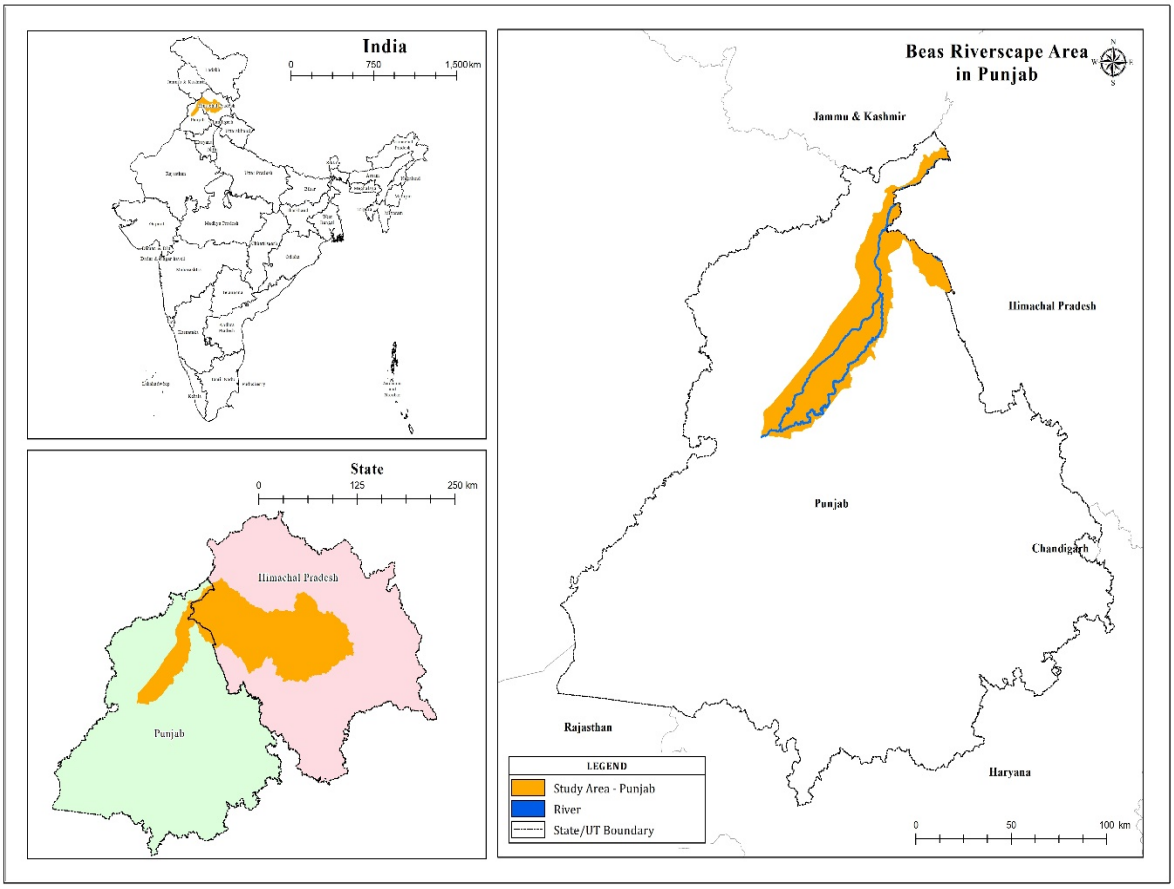


Fig. 2. 6 - The Beas River Basin Across Two States and the Beas Riverscape

2.3.2 Riverscape Profile

a. Spatial Extent

A small proportion (3,040.85 km^2) or just 18.16% of the lower reaches of the riverscape only lies in Punjab State while the larger proportion (81.84%) of the riverscape is located in the mountainous State of Himachal Pradesh (Table 2.10). The Beas River after traversing a distance of nearly 320 km in the mountainous State descends into alluvium plainsand travels a distance of 149.71 km in Punjab State before it joins yet another principal river i.e., the Sutlej of the Indus River system at Harike Pattan.The entire area of all concerned micro-watersheds within Punjab State covering an area of 3,040.85 km^2 was included in the riverscape keeping in view the fact that the water spread area during the high flood period had covered the extreme limits of relevant micro-watersheds. Out of 20 districts of Punjab State, areas of only four administrative districts fall within the riverscape. These are Gurdaspur, Amritsar, Jalandhar and Tarn Taran. The select area of the Beas Riverscape in Punjab includes the main stem and only one tributary i.e., Bein, and they represent 372 micro-watersheds.

Table 2.10 - Representation of the Beas Riverscape in Punjab State

Geographical Area of Punjab State (km^2)	Geographical Coordinates (From - To)		Area of Riverscape Included in Punjab State (km^2)	Representative Area of the Beas Riverscape (%)
	Latitude N	Longitude E		
50,362	31° 08' 15. 204" to 32° 27' 23. 295"	74° 56' 43. 847" to 75° 57' 16. 529"	3,040.85	18.16

Using the dataset from Micro-Watershed Atlas of India, layers of Catchment of Beas River followed by sub-catchment, watershed, sub-watershed and micro-watersheds were derived. The Beas Riverscape within Punjab State represented 01 sub-catchments, 06 watersheds, 64 sub-watersheds and 327 micro-watersheds (Table 2.11) (Fig. 2.7).

Table 2.11 – Various Catchment Categories Represented within the Punjab Portion of the Beas Riverscape

Sr. No.	Catchment Category	State-wise Representation of Catchment Units in the Riverscape
		Punjab
1.	Sub-Catchments	01
2.	Watersheds	06

3.	Sub-watersheds	64
4.	Micro-watersheds	372

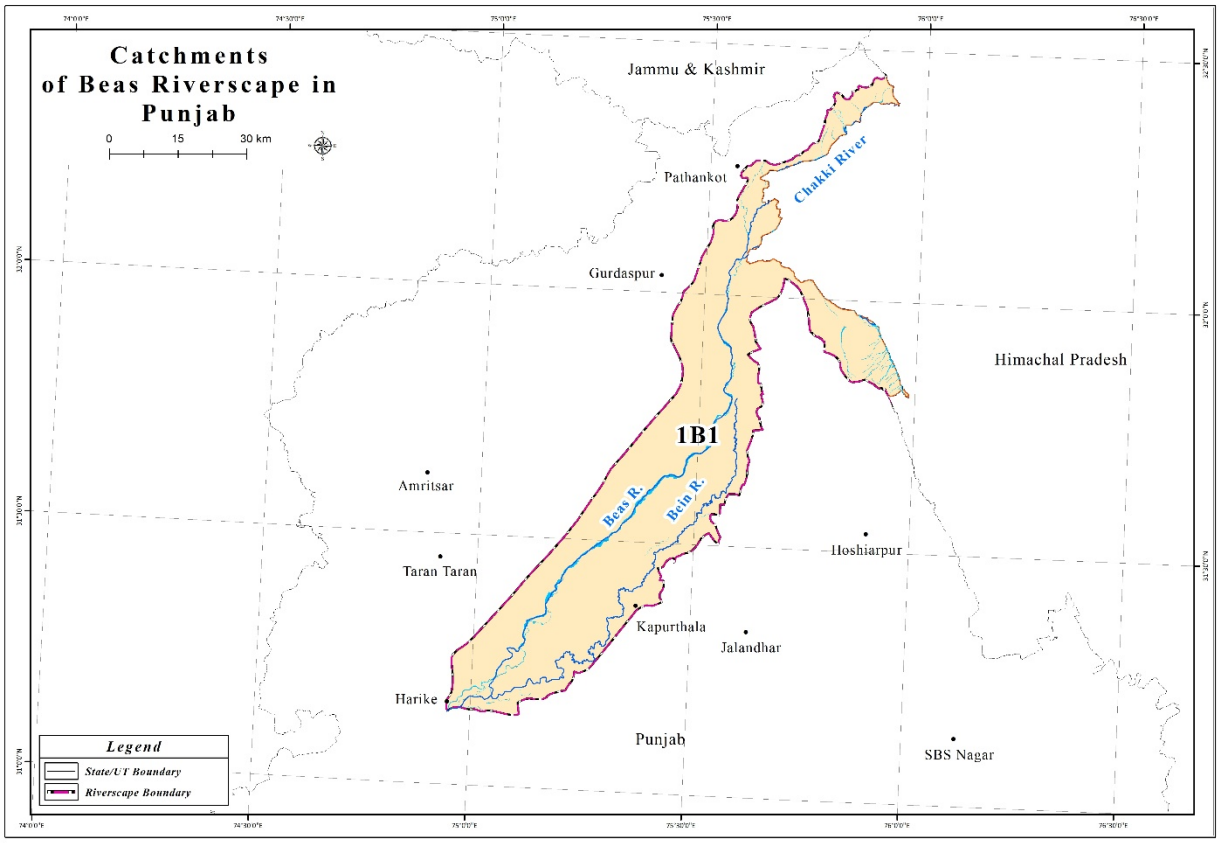


Fig. 2. 7 - Catchment Area in Punjab Portion of the Beas Riverscape

b. Land Use and Land Cover

An insight on land use/ land cover is vital for land and natural resource management. Land cover refers to a physical and biological cover over the surface of land including water, vegetation, bare soil, and/ or artificial structures. Land use is defined in terms of syndromes of human activities such as agriculture, forestry and building construction that alter land surface processes including biogeochemistry, hydrology and biodiversity. The geospatial analysis of Beas Riverscape identified altogether 16 land use and land cover categories (Table 2.12).Nine land use and land cover classes under the natural category collectively represented only 11% (331. 05km^2)Punjab Part of the Beas Riverscape while manmade categories collectively represented 89% extent of the riverscape. The maximum extent of the riverscape was covered by agriculture, representing 84% extent (Table 2.12). The category of Moderately Dense Forests represented 141.27 km^2 or 5% of the riverscape within Punjab.The Open Forest and Scrub categories covered 1% area in each case. The manmade category of Settlement covered 149.93 km^2 area or represented 5% extent of the riverscape part within Punjab State. Two categories of Rivers - River

Perennial and River Dry/ River Sand represented 3% area of the riverscape. Waterbody, Wetland, and Canal categories of LULC covered a meager area of about 1% area. Natural categories *viz*., Alpine pastures, Cloud and Cloud Shadow were conspicuously absent in Punjab part of the riverscape (Table 2.12). The distribution of land use and land cover categories in Beas Riverscape is depicted in Fig. 2.8.

Table 2.12 – Representation of Land Use and Land Cover Categories Within Punjab Part of the Beas Riverscape

Sr. No.	Land Use and Land Cover Categories	Extent Represented in Beas Riverscape (km^2)	Extent Represented in PunjabPart of the Beas Riverscape (km^2)	LULC Extent Represented in Punjab Part of the Beas Riverscape (%)
A	**Natural Categories**			
1	Dense Forest	1,894.15	3.78	0
2	Moderately Dense Forest	2,818.17	141.27	5
3	Open Forest	1,351.59	33.43	1
4	Scrub	630.55	31.29	1
5	Alpine Pastures	3.87	-	-
6	Cloud	459.77	-	-
7	Cloud Shadow	16.38	-	-
8	Snow/Glaciers	2,102.98	-	-
9	Waterbody	3.64	2.70	0
10	Wetland	26.12	26.12	1
11	River (Dry)/River Sand	194.23	23.47	1
12	River (Perennial)	382.72	65.39	2
13	Barren	634.9	3.6	0
Sub-Total of 'A'		**10,519.07**	**331.05**	**11**
B	**Man Made Categories**			
14	Agriculture	5,908.95	2561.39	84
15	Settlement	310.06	149.93	5
16	Canal	4.93	4.48	0
Sub-Total of 'B'		**6,223.94**	**2715.80**	**89**
Grand Total (A and B)		**16,743.01**	**3046.85**	**100**

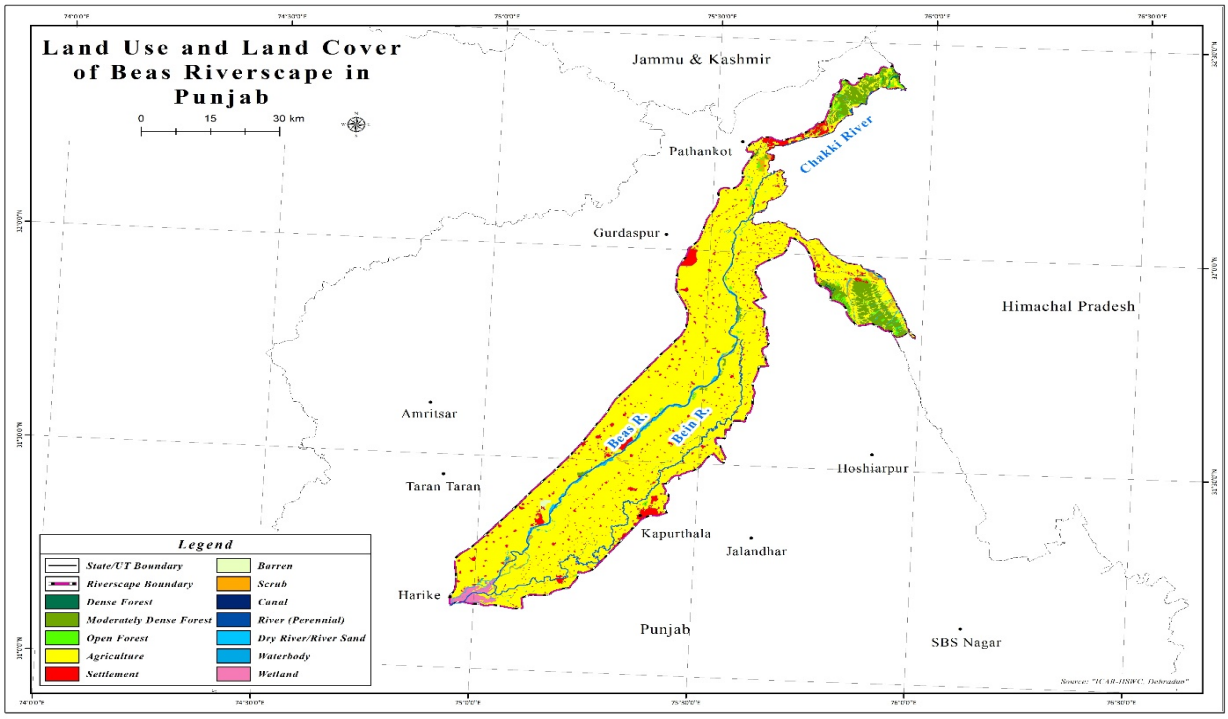


Fig. 2. 8 - Representation of Land Use and Land Cover Categories of the Beas Riverscape in Punjab

c. Altitude

Altitude plays an important role in defining physical characteristics, distribution of biological diversity, and socio-economic uses and consumption patterns. In all, 04 elevation classes were derived within the Punjab part of the Beas Riverscape. The riverscape from south-west to north-east direction depicted narrow range of altitudinal variation from 127 m to <1,000m amsl. The distribution of areas under different elevation classes within the Punjab part of the Beas Riverscape is presented in Table 2.13 and it revealed that 87% area of the riverscape lies at altitude <250 m. A small extent of 2.18 km^{2}of the riverscape portion in PunjabState lies in the elevational class of >750 m to <1000 m (Fig. 2.9).

Table 2.13 - Distribution of Area Under Different Elevational Classes of the Beas Riverscape in Punjab

Sr. No	Elevation Classes	Area (km^2)	Representation (%)
1	Less than 250 m	2653.29	87%
2	>250 m to <500 m	256.03	8%
3	>500 m - to < 750 m	129.35	4%
4	>750 m to <1000 m	2.18	0%
Total		**3,040.85**	**100.00**

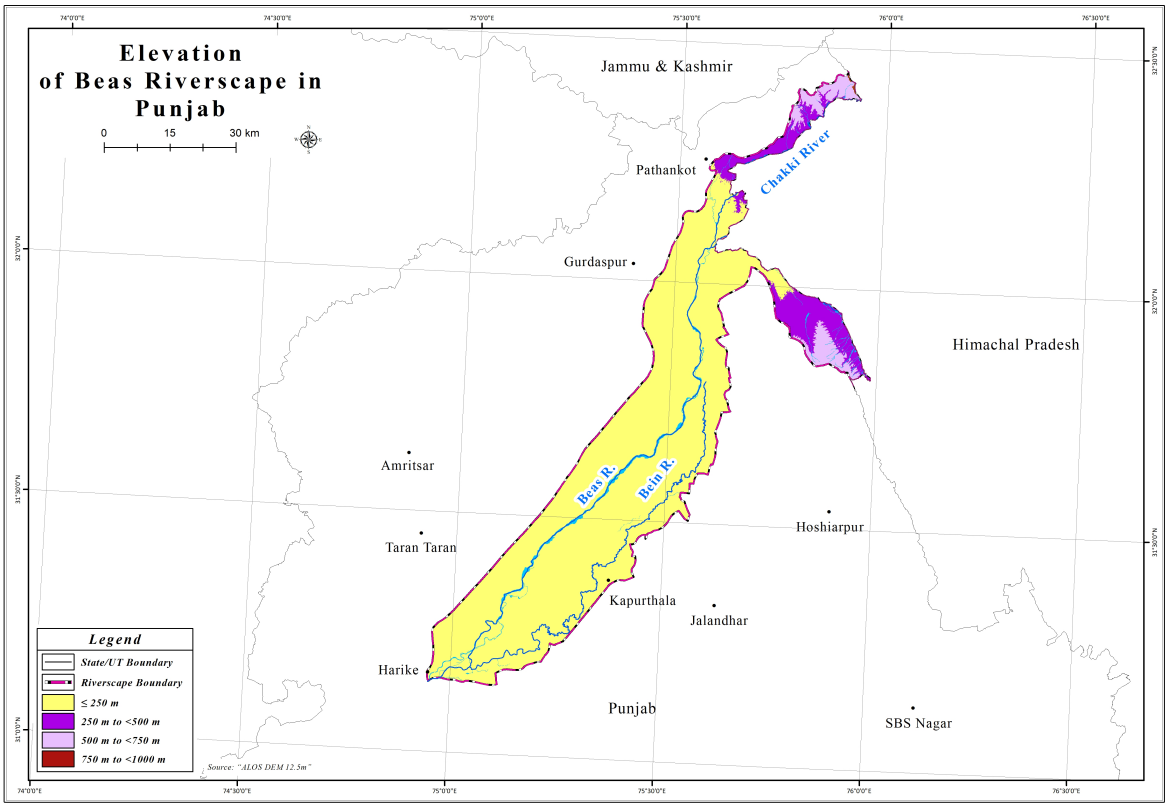


Fig. 2. 9 - Altitudinal Class Distribution

d. Slope

Slope is considered vital while suggesting suitability of areas for forestry interventions, particularly plantations and soil moisture conservation works. A total of 10 classes of slope were derived in the riverscape and appropriately named (Table 2.14). The higher degree of slopes usually cause a lot of soil erosion and are prone to landslides, greater runoff, etc. and require safeguards from erosion while raising plantations. Substantial extent (61%) within Punjab part of the riverscape is nearly flat (<2.5°). About 833.48 km^2 or 27% area of the riverscape lies in slope classof >2.5° to <5° representing the slope category of 'gently undulating' (Fig.2.10). Higher slope classes > 15° are conspicuously absent or just represent meagre extent (Table 2.14).

Table 2.14 - Distribution of Area Under Different Slope Classes of the Beas Riverscape in Punjab

Sr. No	Slope	Slope Category	Area (km^2)	Percentage of Total Area (%)
1	Less than 2.5°	Nearly Level	1840.60	61%
2	>2.5° to <5°	Gently Undulating	833.48	27%
3	>5° to <10°	Gently Rolling	247.33	8%
4	>10° to <15°	Moderately Rolling	67.01	2%
5	>15° to <20°	Strong Rolling	33.87	1%

6	>20° to <25°	Moderately Steep	9.86	0%
7	>25° to <30°	Steep	2.86	0%
8	>30° to <35°	Very Steep	0.87	0%
9	>35° to <40°	Extremely Steep	0.22	0%
10	Greater than 40°	Escarpment	4.75	0%
Total			**3040.85**	**100%**

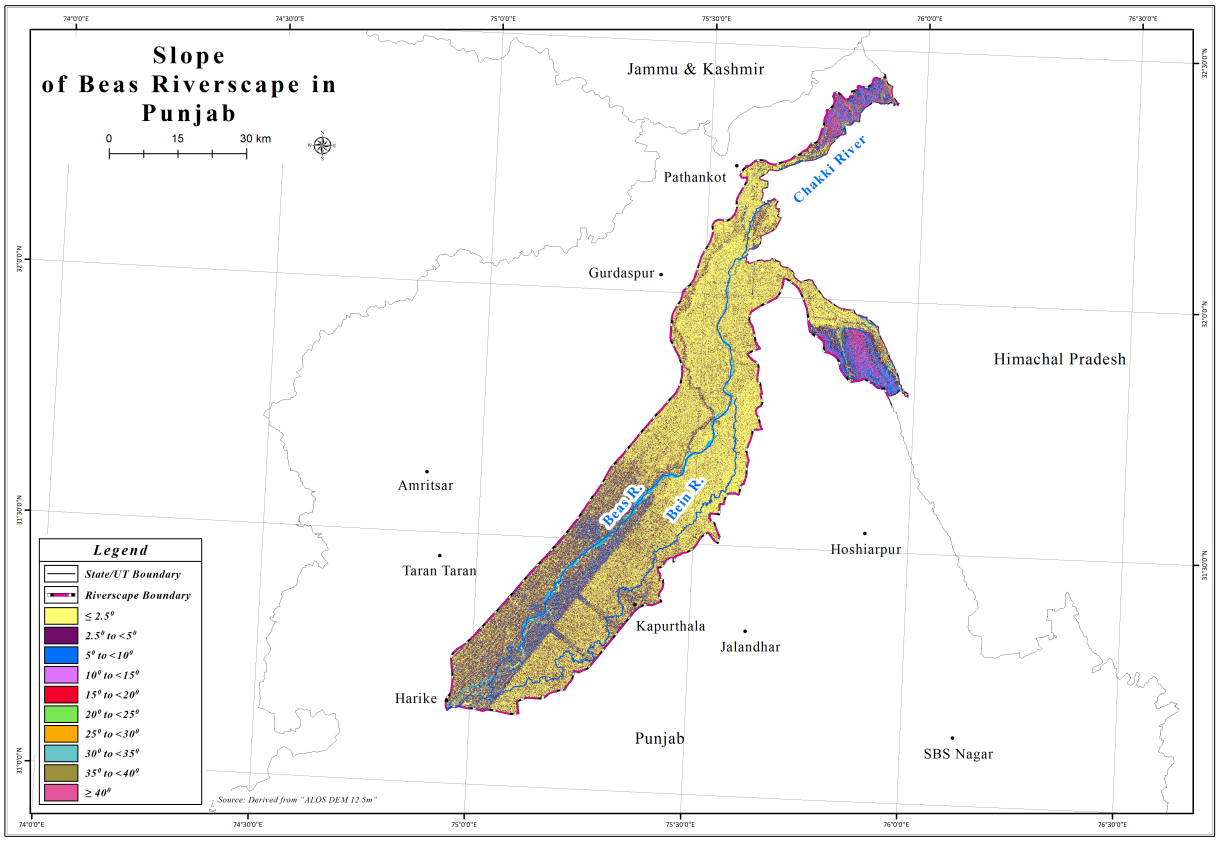


Fig. 2. 10 - Distribution of Slope Classes of the Beas Riverscape in Punjab

e. Aspect

Mostly, the drainage of the river Beas and a majority of its tributaries flow from north to south or south-westwards. Thus, run-off and sedimentation rates on these aspects are always prominent and higher. A total of nine categories *viz*., North, North-East, East, South-East, South, South-West, West, North-West and the Flat land were analyzed in the Beas Riverscape. The area distribution under different aspect classes within Punjab part of the Beas Riverscape is presented in Table 2.15. Nineteen per cent area of the riverscape within Punjab State exhibited flat area and devoid of any specific aspect while remaining eight categories of aspect represented almost equal proportion of 10% area.

Table 2.15 - Distribution of Area Under Different Aspect Classes of the Beas Riverscape in Punjab

Sr. No.	Aspect	Area (km^2)	Percentage of Total Area (%)
1	Flat (-1)	567.61	19%
2	North (0-<22.5, >337.5-360)	292.98	10%
3	Northeast (>22.5-<67.5)	309.93	10%
4	East (>67.5-<112.5)	291.78	10%
5	Southeast (>112.5-<157.5)	346.63	11%
6	South (>157.5-<202.5)	296.18	10%
7	Southwest (>202.5-<247.5)	310.37	10%
8	West (>247.5-<292.5)	287.35	9%
9	Northwest (>292.5-<337.5)	338.02	11%
Total		**3,040.85**	**100**

f. Soil Types

Soil is a product of several factors *viz*., the influence of climate, relief (elevation), orientation, and slope of terrain, organisms, and the soils parent materials (original minerals) interacting over time. Soils continuously undergo development by way of numerous physical, chemical and biological processes including weathering and associated erosion. Soil has four important functions to perform. These functions are: (a) provide medium for plant growth, (b) serves as a means of water storage, supply and purification, (c) help as a modifier of earth's atmosphere and store carbon, and (d) provide habitat for a wide range of organisms including invertebrates, microorganisms, etc. Natural ecosystems (forests, grasslands, wetlands and agroecosystems) are impacted in far reaching ways by the various processes carried out in the soil. Hence, from the perspective of present DPR, understanding of soils in the riverscape is critical as they form an important abiotic variable that determines the suitability of site conditions for proposed forestry interventions, mainly tree and other plantations (grass, herbs, shrubs, medicinal plants, orchards, etc.). A total of 10 soil type classes and one class of non-soil have been recorded within Punjab part of the Beas Riverscape (Table 2.16). Various soil types and their proportionate area estimates are presented in Table 2.16. The soil type – Typic Ustochrepts was the most dominant soil type as this soil type covered 24% area of the riverscape (Fig. 2.11). These types of soilsare coarse-loamy derived from mixed alluvium or residium weathered from sand stone and shale. This was followed by Typic Ustipsamments, occupying 17% of the riverscape and these types of soils aresandy that have deep ground water and a thick regolithsoil. The soil type - Typic Ustifluvents ranked third in the area proportion representing 14% extent of the riverscape within Punjab part, characterized as very deep imperfectly drained fine soils occurring on flat to nearly level active alluvial plain.

Table 2.16 - Distribution of Area under Different Soil Types and Other Land Attributes

Sr. No.	Soil type	Area (km^2)	Percentage of Total Area (%)
1	Dystric Eutrochrepts: Deep, well drained, thermic, fine-loamy soils on very steep slopes with loamy surface and severe erosion	61.10	2%
2	FluventicEutrochrepts: Coarse loamy, mixed, non-acidic, hypothermic soils	32.29	1%
3	FluventicUstochrepts: Very deep, moderately well drained coarse loamy soils, occurring on very gentle slopes in active alluvial plains with fluvial parent material	141.92	5%
4	TypicEutrochrepts: Deep, well drained, thermic, fine-loamy, calcareous soils on moderately steep slopes with loamy surface and severe erosion	97.77	3%
5	TypicHaplustalfs: Freely drained soils are moderately deep or deep to hard rock	314.24	10%
6	Typic Ustifluvents: Very deep imperfectly drained fine soils occurring on flat to nearly level active alluvial plain.	418.47	14%
7	TypicUstipsamments: Sand that have deep ground water and a thick regolith	511.19	17%
8	TypicUstochrepts: Coarse-loamy soils derived from mixed alluvium or residium weathered from sand stone and shale	723.84	24%
9	TypicUstorthents: Soils those are deep or moderately deep to hard rock and those do not have ground water within 150 cm	97.43	3%
10	Udic Ustochrepts: Coarse-loamy soils derived from mixed alluvium or residium weathered from sand stone and shale	376.91	12%
11	Non-Soil: Areas that do not support plant growth are not considered but mapped. These may be bedrock outcrops, urban land, active quarries, etc.	265.70	9%
Grand Total		**3,040.85**	**100%**

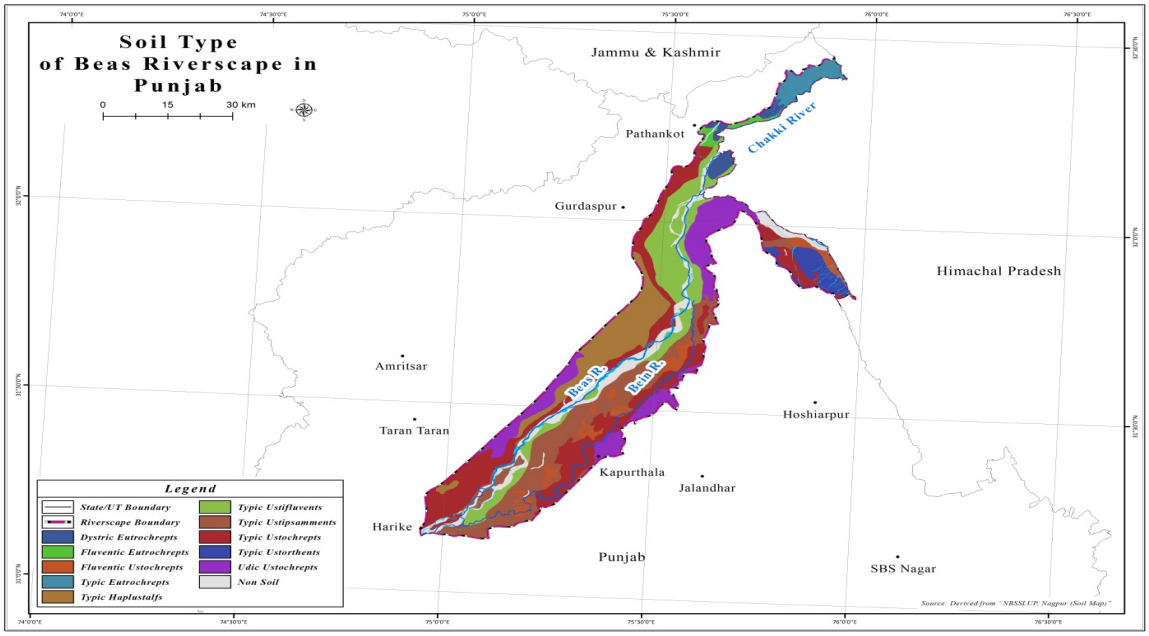


Fig. 2. 11 - Distribution of Soil Types of the Beas Riverscape in Punjab

g. Soil Depth

In addition to soil type, texture and structure, soil depth is another important variable that can influence water availability, limit root growth and can even influence nutrient access. Soil depth can greatly influence the type of plants that can grow in them. Deeper soils generally provide more water and nutrients to plants than more shallow soils. Thus, soil depth matters for suggesting suitability of tree species for a plantation model. Four depth classes, *viz*., Very Deep, Moderately Deep, Deep and Shallow were mapped in the Beas Riverscape. The distribution of area under different soil depth classes is provided in Table 2.17. The riverscape part in the alluvial plains of Punjab has very deep to deep soils A substantial extent i.e., 83% has very deep soils while an extent of 140.54 km^2 or about 5% soils of the riverscape were moderately deep (Fig. 2.12). Deep soils represented about 3% extent of the riverscape within the part of Punjab. Non-soil category represented 9% extent of the riverscape.

Table 2.17 - Distribution of Areal Extent under Different Soil Depth Categories of the Beas Riverscape in Punjab

Sr. No.	Soil Depth	Area (km^2)	Representative Extent Within Punjab Part of the Beas Riverscape (%)
1	Very Deep	2,536.83	83
2	Moderately Deep	140.54	05
3	Deep	97.77	03
4	Non-Soil	265.71	09
Total		**3,040.85**	**100.00**

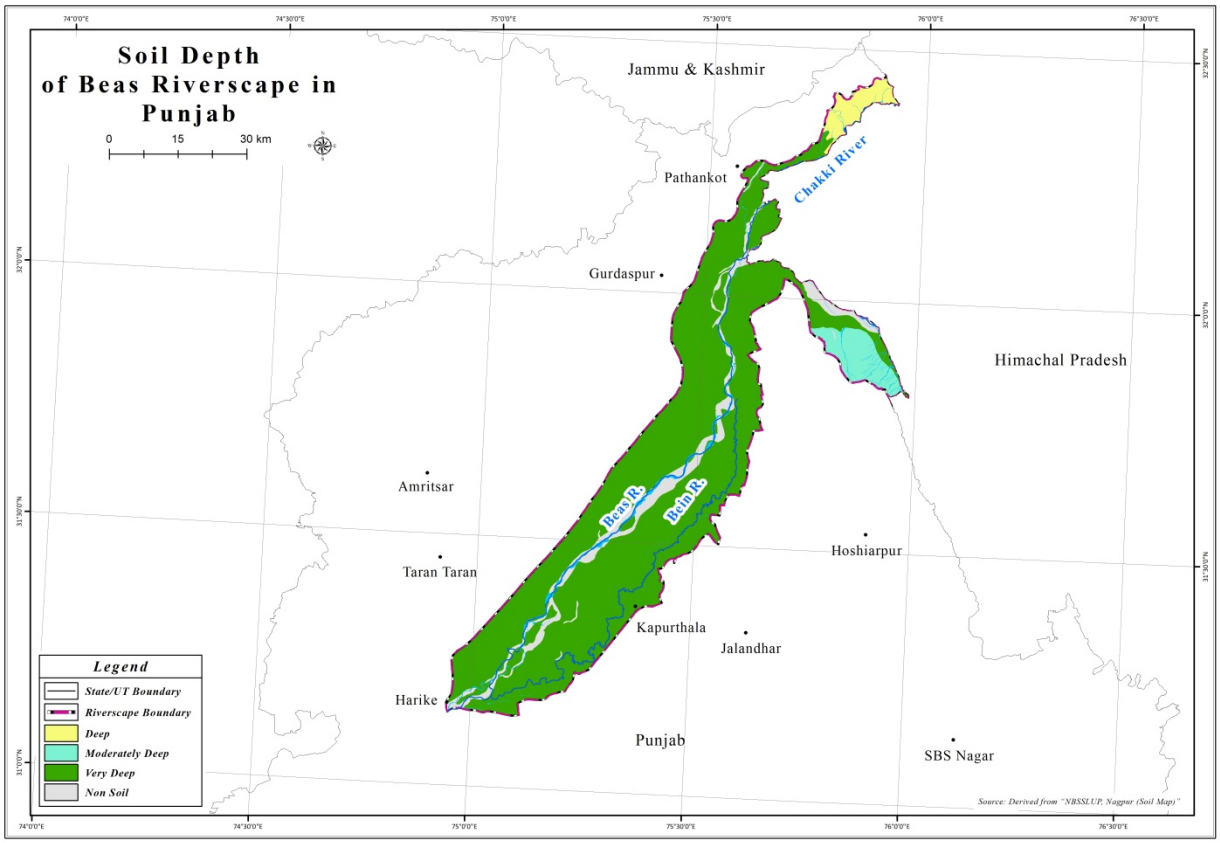


Fig. 2. 12 - Distribution of Soil Depth Classes of the Beas Riverscape in Punjab

h. Soil Erosion

Soil erosion is a naturally occurring process caused by the dynamic activity of erosive agents i.e., water, ice, snow, air, plants, animals, and humans that affects all land forms. Soil erosion is the displacement of the upper layer of soil and it is one form of soil degradation. Altogether, total five categories of erosion classes have been recorded in the riverscape *viz*., < 5 t ha^{-1} yr^{-1}; >5 t ha^{-1} yr^{-1} to <10 t ha^{-1} yr^{-1}; >10 t ha^{-1} $yr^{-1}$to < 20 t ha^{-1} yr^{-1}; >20 t ha^{-1} yr^{-1} to <40 t ha^{-1} yr^{-1}; and > 40 t ha^{-1} yr^{-1}. The distribution of areas under different erosion classes and their proportion are given in Table 2.18. Nearly 70% area of the riverscape within Punjab part exhibited very low erosion (< 5 t ha^{-1} yr^{-1}). About 5%soils recorded high to severe erosion (Fig. 2.13). An area of 264.21 km^2, representing nearly 9% of the riverscape within Punjab was under the non-soil category. These areas may not be suitable for forest plantations.

Table 2.18 - Distribution of Soil Erosion Categories Within Punjab Part of the Beas Riverscape

Sr. No.	Soil Erosion ($t\ ha^{-1}\ yr^{-1}$)	Erosion Intensity Class	Area (km^2)	Proportion of Total Riverscape Area (%)
1	<5	Very Low	2,133.11	70%
2	>5 to <10	Low	266.78	9%
3	>10 to <20	Medium	240.21	8%
4	>20 to <40	High	119.60	4%
5	>40	Severe	16.94	1%
6	Non-Soil	-	264.21	9%
Total			**3,040.85**	**100**

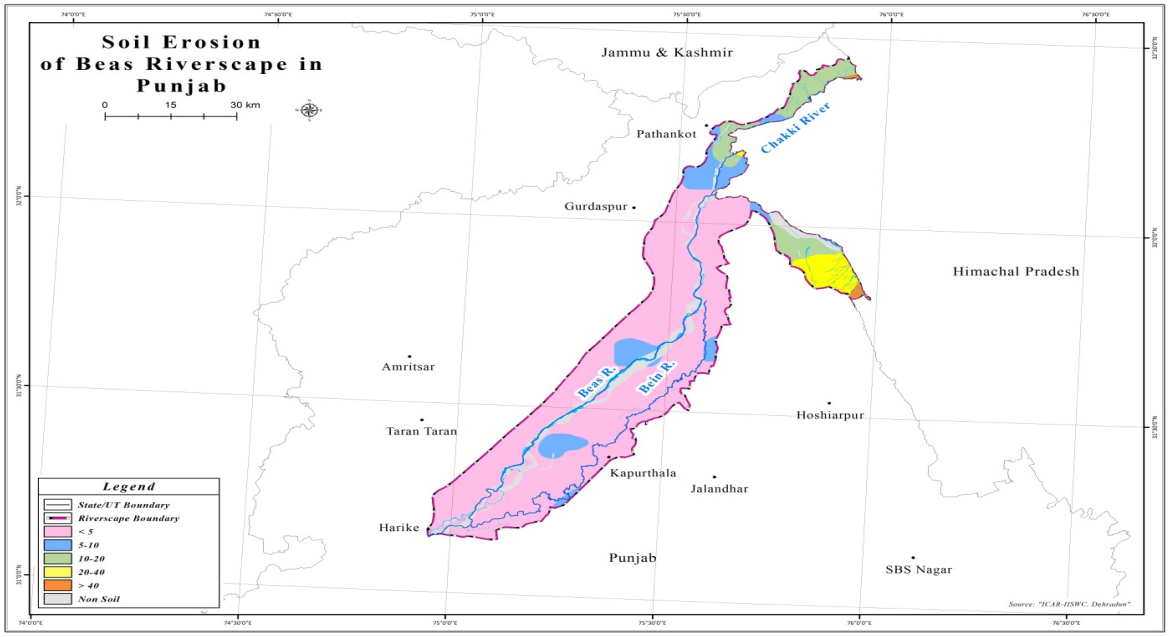


Fig. 2. 13 - Distribution of Soil Erosion Classes of the Beas Riverscape in Punjab

2.4 Need for Forestry Interventions for Restoration of Beas Riverscape

Nearly one-fifth portion of the riverscape located in the alluvial plains of Punjab is predominantly under the land use category of agriculture and exhibit a very small extent of forest cover or any other natural vegetation. The riverscape part within Punjab is prone to floods. The main channel as and its prominent tributaries suffer on account of pollution primarily caused by chemical pollutants arising from wide spread agriculture and industries besides civic waste from rural as well as urban built-up environment all along the river course. Further, storage of water in sequential dams/ reservoirs and diversion of water by linking river has led into reduced e-flow. These factors not only have combined and cumulative impact on the availability of water and quality of water but also immensely influence the biological, ecological and socio-economic sub-environments, particularly in downstream area of the riverscape.

In view of the above stated characteristics and several factors influencing the riverscape, there is a wide scope to carry out various forestry interventions in the natural, agriculture and urban landscapes so as to check soil erosionand excessive runoff, enhance percolation, and promote infiltration and recharge of aquifers. Plantation and treatments models in three types of landscapes, particularly along canals, in educational and industrial estates are thus, envisaged besides appropriate soil and moisture conservation measures and conservation interventions including riverine and riparian wildlife management and wetland management.

2.5 Prioritization of Sites for Forestry Interventions

The section 1.5 has already elaborated details on the GIS based cartographic database and the multi-criteria evaluation approach using three prominent factors *viz*., land use/ land cover, slope and erosion rate with different weight/ rank values adopted for the identification of potential sites for proposed forestry interventions and prioritization of areas. Computed values were categorized into 'High', 'Medium', and 'Low' prioritized sites based on statistical quantile and were superimposed on a riverscape map generated in the GIS domain (Table 2.19).

The GPS locations of proposed sites of forestry inventions were superimposed on the map of priority areas. Accordingly, 7% points of proposed sites were located in High priority class, followed by 15% points those have fallen in Moderate priority class. Only 78% points of proposed sites of forestry interventions were located in Low priority class (Fig. 2.14 to Fig.2.15). GPS points for SMC activities have been shown in Fig. 2.16.

Table 2.19 – Distribution of Priority Areas within Punjab Part of the Beas Riverscape

Sr. No.	Priority Sites	Area (km^2)	Representation of Priority Classes within the Punjab Portion in the Beas Riverscape (%)
1	High	7%	07
2	Moderate	15%	15
3	Low	78%	78
Total		**3,040.85**	**100**

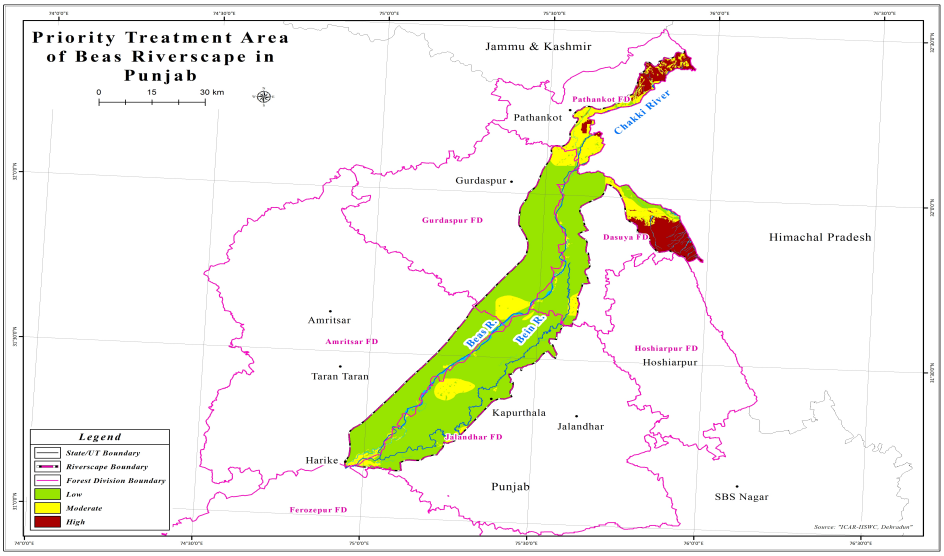


Fig. 2. 14 - Priority Treatment Areas of the Beas Riverscape in Punjab

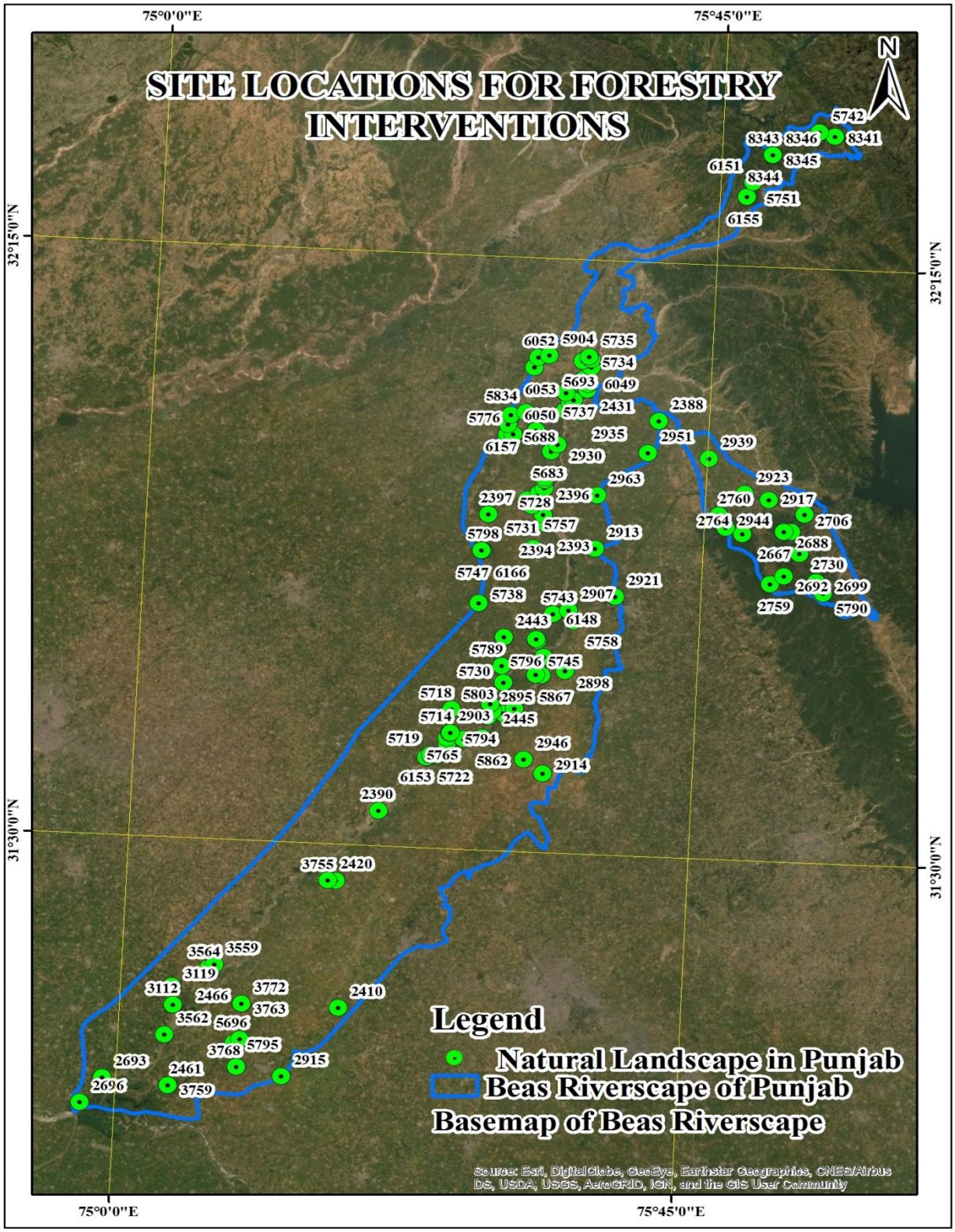


Fig. 2. 15 - Priority Sites for Proposed Forestry Interventions in Natural Landsacpe, Punjab

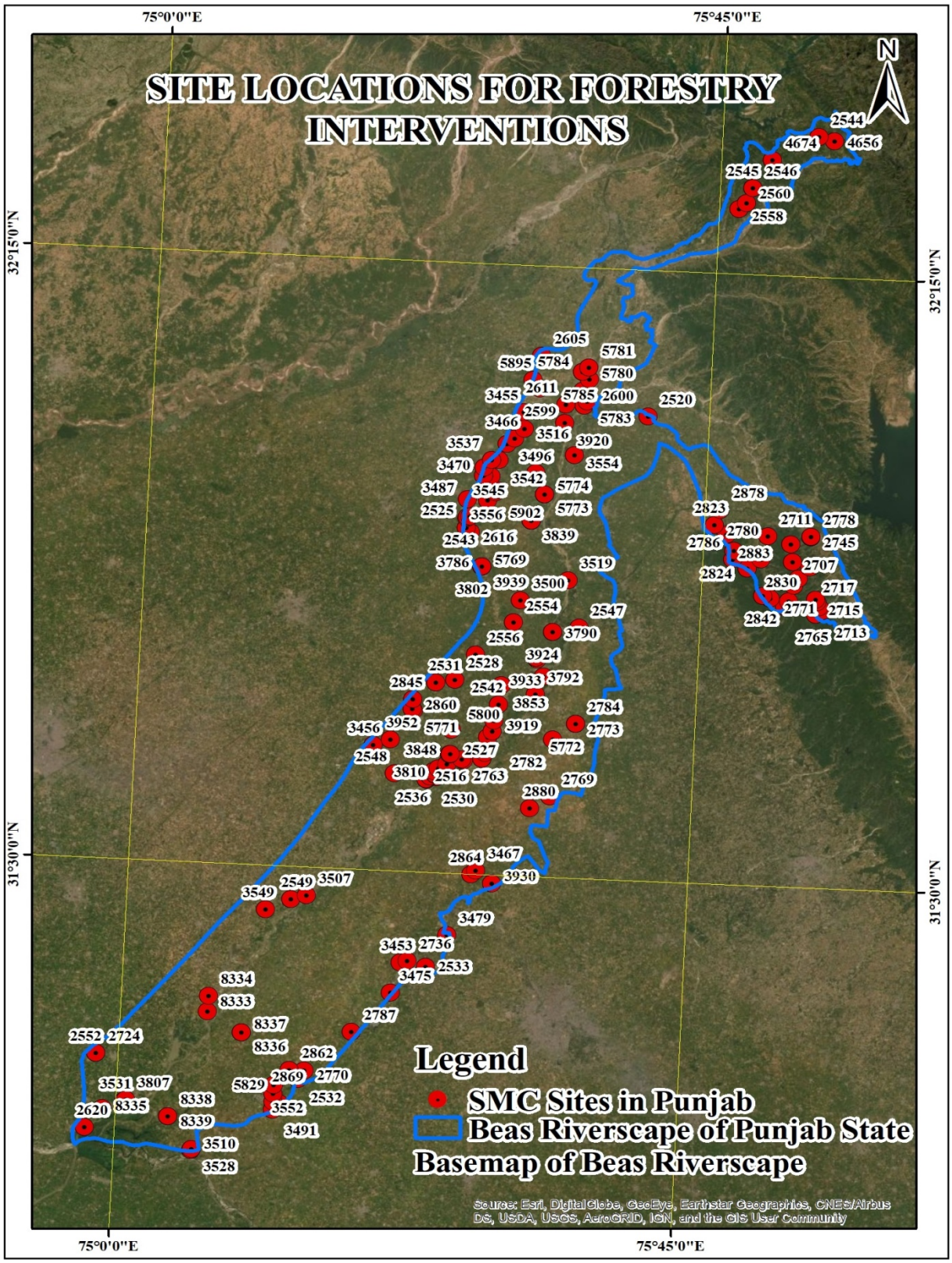


Fig. 2. 16 - Priority Sites for Proposed Forestry Interventions for SMC Activities, Punjab

2.6 Proposed Forestry Interventions

The following section summarizes proposed forestry interventions in natural, agriculture and urban landscapes within Punjab part of the Beas Riverscape besides envisaged various 'Conservation Interventions' and 'Supporting Activities'.

2.6.1 Natural Landscapes

Forestry interventions proposed in the natural landscapes of the Beas Riverscape primarily aims to protect, conserve and restore ecologically degraded natural sites. Each recommended treatment model includes background information on site characteristics, recommended plant species for the proposed plantation besides details on spacing, quantity of different activities and man days during the establishment year as well as in subsequent years of maintenance. Details of potential treatment models were shared with SFDs of concerned States seeking feedback for appropriate finalization. Altogether, 02models selected for natural landscapes numbered from BS/PB/NL/01 to BS/PB/NL/02 in the alluvium plains of Punjab were included. Details of these models in natural landscape relevant to alluvium plains with incorporated abbreviations/ code are summarized in Table 2.20.

The model BS/PB/NL/01 specific to restoration of degraded forest is proposed. The model: BS/PB/NL/02 deals with Road Side Plantation (Fig. 2.17). List of plant (tree/ shrub/ herb/ grass) species recommended for two treatment models is presented in Table 2.20.

Table 2.20 – Proposed Treatment Model in Natural Landscapes within Punjab Part of the Beas Riverscape

Model Number	Name of Model	Brief Description	Suggested Species for Plantation
BS/PB/NL/01	Restoration of Degraded Forest	Suitable and effective forestry interventions can immensely help in improvement of vegetation cover, checking soil erosion, and enhancing groundwater recharge. Block plantations of native broadleaved species are proposed for such areas. Trees will be planted at the rate of 1,000 plants ha-1 at 3 m x 3 m spacing. Pit size of 50 cm x 50 cm x 40 cm will be used for proposed plantations under this model. After land development, pit digging, etc., plants mainly of broadleaved species like *Acacia nilotica,*	**Trees:** *Acacia nilotica*, *Dalbergia sissoo*, *Acacia catechu*, *Melia composita*, *Ailanthus excelsa*, *Cedrelatoona*, *Tectona grandis*, *Azadirachta indica*, *Cordia myxa*, *Morus alba*, *Pongamia pinnata*, *Tecomella undulata*, *Capparis decidua*, *Prosopis cineraria*, *Bombax ceiba*, *Sesbania sesban*, *Aegle marmelos*, *Pterocarpus marsupium*, *Grewia elastica*, *Cassia fistula,* etc.

Model Number	Name of Model	Brief Description	Suggested Species for Plantation
		Dalbergia sissoo, Acacia catechu, Melia composita, Ailanthus excelsa, Cedrelatoona, Morus alba, Tectona grandis, Azadirachta indica, etc. will be planted. Conservation and other management practices as prescribed in the Forest Working Plan of the respective Forest Division would be applicable.	
BS/PB/NL/02	Road Side Plantation	Strip plantations on both sides of the road are proposed. The planting area will be cleaned and one row of shrubs is proposed at 1 m x 1 m spacing towards the road side. Fast growing ornamental shrub species are proposed. Two rows of native broadleaved tree species are recommended under this road side plantation model at 3 m x 2 m spacing. Pit size of 45 cm x 45 cm x 45 cm will be used for plantation. After land development, pit digging, etc. plants mainly of broadleaved species *viz*., *Dalbergia sissoo*, *Terminalia bellirica*, *Terminalia chebula*, *Terminalia arjuna*, *Melia azedarach*, *Acacia nilotica*, *Azadirachta indica*, *Anthocephalus kadamba*, *Ailanthus excelsa*, *Cedrela toona*, etc. will be planted. Nursery of selected tree species will be established during the first year and planting will be done in the second year. Subsequently, the plantation will be managed for next three years of the project.	**Trees:** *Dalbergia sissoo*, *Terminalia bellirica*, *T. chebula*, *T. arjuna*, *Melia azedarach*, *M. composita*, *Acacia nilotica*, *Albizia lebbeck*, *A. chinensis*, *A. procera*, *Butea monosperma*, *Azadirachta indica*, *Anthocephalus kadamba*, *Ailanthus excelsa*, *Cedrela toona*, *Jacaranda mimosifolia*, *Grevillea robusta*, *Salix alba*

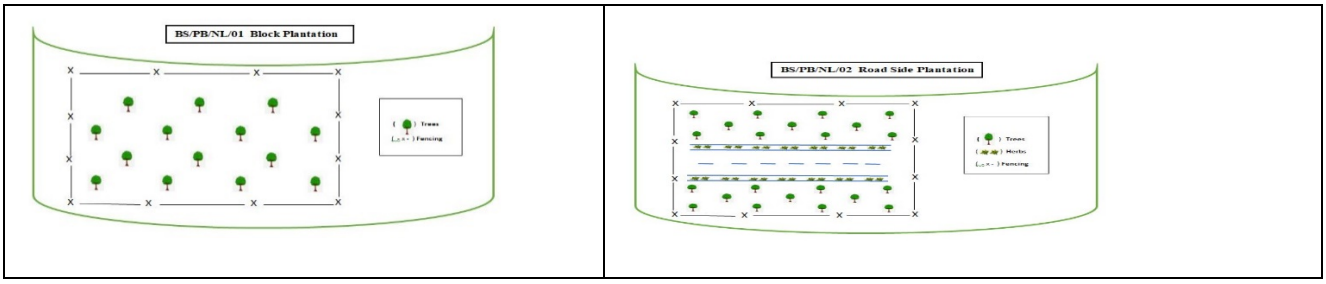


Fig. 2. 17 - Sketches of Two Different Proposed Treatment Models (BS/PB/NL/01 to BS/PB/NL/02) in Natural Landscapes in Punjab State

Cost Norms for the Natural Landscapes in Alluvial Plains - Punjab

Altogether, two plantation and treatment models in natural landscapes have been proposed. Cost norms of these two models are presented below:

Labour Rate Rs 342/day in Ist year and Annual Increase @ 7% in Subsequent Years				
BS/PB/NL/01 Restoration of Degraded Forests Model				
Year	**Item**	Detail of work	**Amount Rs./ha**	**Man days**
	Number of Plants (No.)	Plants- 1000 No.		
1st Year	Nursery Advance Work Labour Cost (Rs.)	Cost of seedlings including (a) Original planting =1000 per ha (b) Replacement 10%= 100 per ha Total 1100 No. in Bio-degradable polybag	16,115	47
2nd year	Advance Work Labour Cost (Rs.)	Cutting of Lantana/Mallah etc, Kana stubbing, Survey and alignment Earth work i.e.digging of pit of size a) 1000 no x .5m x0.5mx 0.40m, Refilling of pits, Fencing (5% of plantation cost)	25,100	70
3rd Year	Creation (Rs.)	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Weeding hoeing (twice), Application of insecticides, Application of FYM/ fertilizers(twice), Providing thorny protection to plants against Porcupine attack, Covering and uncovering of frost tender plant species (25%), Preparation of	1,10,424	305

		inspection path, Watch and ward for every 10 ha. of plantation, Cutting of lantana/mallah IInd and IIIrd times, Spot Irrigation (8+1 times), Reopening of Trenches and pits, Insecticides including carriage, Fertilizers i.e. urea etc. including carriage, Overhead charges (10% of planation cost) POL, OE, Misc.		
Total Establishment Cost (Rs.)			1,51,639	422
MAINTENANCE				
4th year	Maintenance Cost - I Year i/c Material (Rs.)	Cost of seedlings (25%), Cutting of Lantana/Mallah etc, Kana stubbing, Earth work i.e.re digging of pit Refilling of pits,(25%) Fencing (5% of plantation cost), Carriage of Plants, Weeding hoeing (twice), Application of insecticides, Application of FYM/ fertilizers(twice), Providing thorny protection to plants against Porcupine attack, Covering and uncovering of frost tender plant species (25%), Maint. of inspection path, Watch and ward for every 10 ha. of plantation, Spot Irrigation (8+1 times), Reopening of Trenches and pits, Insecticides including carriage, Fertilizers i.e. urea etc. including carriage, Overhead charges (10% of maint of planation cost) POL, OE, Misc.	51,534	118
5th year	Maintenance Cost - II Year (Rs.)	Earth work i.e.re digging of pit Refilling of pits,(15%) Fencing (5% of plantation cost), Carriage of Plants, Weeding hoeing (twice), Application of insecticides, Application of FYM/ fertilizers(twice), Providing thorny protection to plants against Porcupine attack, Covering and uncovering of frost tender plant species (25%), Maint. of inspection path, Watch and ward for every 10 ha. of plantation, Spot Irrigation (8+1 times), Reopening of	21,346	41

		Trenches and pits, Insecticides including carriage, Fertilizers i.e. urea etc. including carriage, Overhead charges (10% of maint of planation cost) POL, OE, Misc.		
6th year	Maintenance Cost - III Year (Rs.)	Weeding hoeing (twice), Application of insecticides, Application of FYM/ fertilizers (twice), Providing thorny protection to plants against Porcupine attack, Watch and ward for every 10 ha. of plantation, Fertilizers i.e. urea etc. including carriage, Overhead charges (10% of maint of planation cost) POL, OE, Misc.	7394	10
Total Maintenance Cost (Rs.)			80,274	169
Total cost of Plantation			**231913**	**591**

BS/PB/NL/02 Road Side Plantation

Year	**Item**	Detail of works	**Amount/ha (Rs)**	**Man days**
	Number of Plants (No.)	Plants- 1000 No., Herbs- 2500		
1st Year	Nursery Advance Work Labour Cost (Rs.)	Cost of seedlings including (a) Original planting =3500 per ha (b) Replacement 10%= 350 per ha Total 1100 No. in Bio-degradable polybag Cost of Herbs - (a) Original planting =2500 per ha (b) Replacement 10%= 250 per ha Total 2750 No. in Bio-degradable polybag (Ist year)	38115	111
2nd year	Advance Work Labour Cost (Rs.)	Cutting of Lantana/Mallah etc, Kana stubbing, Survey and alignment Earth work i.e. digging of pit of size a) 1000 no x .5m x0.5mx 0.40m, b) 2500 no. Spacing (m) - 2 x 2, Pit size (cm) – 30 x 30 x 30, Refilling of pits,	52361	119

		Fencing (5% of plantation cost)		
3rd Year	Creation (Rs.)	Carriage of Plants, Lay out of pits and patches, Pitting & Planting of Plants, Weeding hoeing (twice), Application of insecticides, Application of FYM/ fertilizers(twice), Providing thorny protection to plants against Porcupine attack, Covering and uncovering of frost tender plant species (25%), Preparation of inspection path, Watch and ward for every 10 ha. of plantation, Cutting of lantana/mallah IInd and IIIrd times, Spot Irrigation (8+1 times), Reopening of Trenches and pits, Insecticides including carriage, Fertilizers i.e. urea etc. including carriage, Overhead charges (10% of plantation cost) POL, OE, Misc.	180376	442
Total Establishment Cost (Rs.)			**2,70,852**	**672**
MAINTENANCE				
4th year	Maintenance Cost - I Year i/c Material (Rs.)	Cost of seedlings (25%), Cutting of Lantana/Mallah etc, Kana stubbing, Earth work i.e.re digging of pit Refilling of pits,(25%) Fencing (5% of plantation cost), Carriage of Plants, Weeding hoeing (twice), Application of insecticides, Application of FYM/ fertilizers(twice), Providing thorny protection to plants against Porcupine attack, Covering and uncovering of frost tender plant species (25%), Maint. of inspection path, Watch and ward for every 10 ha. of plantation, Spot Irrigation (8+1 times), Reopening of Trenches and pits, Insecticides including carriage, Fertilizers i.e. urea etc. including carriage, Overhead charges (10% of maint of plantation cost) POL,	125712	311

		OE, Misc.		
5th year	Maintenance Cost - II Year (Rs.)	Earth work i.e.re digging of pit Refilling of pits,(15%) Fencing (5% of plantation cost), Carriage of Plants, Weeding hoeing (twice), Application of insecticides, Application of FYM/ fertilizers(twice), Providing thorny protection to plants against Porcupine attack, Covering and uncovering of frost tender plant species (25%), Maint. of inspection path, Watch and ward for every 10 ha. of plantation, Spot Irrigation (8+1 times), Reopening of Trenches and pits, Insecticides including carriage, Fertilizers i.e. urea etc. including carriage, Overhead charges (10% of maint of plantation cost) POL, OE, Misc.	47220	114
6th year	Maintenance Cost - III Year (Rs.)	Weeding hoeing (twice), Application of insecticides, Application of FYM/ fertilizers (twice), Providing thorny protection to plants against Porcupine attack, Watch and ward for every 10 ha. of plantation, Fertilizers i.e. urea etc. including carriage, Overhead charges (10% of maint of plantation cost) POL, OE, Misc.	5863	10
Total Maintenance Cost (Rs.)			**178795**	**435**
Total cost of Plantation			**449647**	**1107**

Nursery Rate in Punjab after Including Inflation Factor

Year	Rs. Per Man Day	Inflation Factor of 7% Each year
I	342	1.000
II	366	1.070
III	392	1.145

Year	Rs. Per Man Day	Inflation Factor of 7% Each year
IV	419	1.225

2.6.2 Agriculture Landscapes

Two plantation and treatment models have been proposed in agriculture landscapes of alluvial plains of Punjab (Table 2.21).

Table 2.21 – Proposed Treatment Model in Agriculture Landscapes within Punjab Part of the Beas Riverscape

Model No.	Model Name	Description	Species
BS/PB/AL/01	**Boundary Plantation Model**	The model will be applied in agriculture fields in the plains of Punjab. These fields are intensively cultivated for wheat, rice, sugarcane, etc. and prone to soil erosion especially during flood irrigation. Heavy monsoon rains in this zone transport huge quantities of silt to Beas River causing siltation and floods in Punjab plains. Intensive cultivation in this zone makes these areas vulnerable to soil erosion. Effective forestry interventions in these sites can help significantly in improvement of the flow of Beas and its tributaries. The sites proposed for this model are agricultural lands where selected clones of Poplar (*Populus* spp.), Dek (*Melia* spp.), Neem (*Azadirachta* spp.), Chandan (*Santalum* spp.), etc., will be planted at 4 m x 4 m spacing. Pit size of 50 cm x 50 cm x 40 cm will be used for plantation. Selected plants will be distributed to farmers for planting on their agricultural	**Tree:** *Populous deltoides*, *Melia composita*, *Phyllanthus emblica*, *Aegle marmelos*, *Albizia lebbeck*, *Azadirachta indica*, *Eugenia jambolana*, *Gmelina arborea*, *Holarrhena antidysenterica*, *Santalum album*, *Tamarindus indica*, *Terminalia arjuna*, *T. bellirica,* etc.

		land. Planting will be done by the farmers. The farmers will place requirement for plants to local forest officials who will supply the plants to the farmers at the start of the planting season.	
BS/PB/AL/02	**Block Plantation Model**	This model will be applied in agriculture fields in the alluvial plains of Punjab. These fields are intensively cultivated for wheat, rice, sugarcane, etc. and prone to soil erosion, especially during flood irrigation. Heavy monsoon rains in this zone transport huge quantities of silt to Beas causing siltation and floods in Punjab plains. Intensive cultivation in this zone makes these areas vulnerable to soil erosion. Effective forestry interventions in these sites can help significantly in improvement of the flow of Beas River and its tributaries. The sites proposed for this model are agricultural lands where selected tree species will be planted at 4 m x 4 m spacing. Pit size of 50 cm x 50 cm x 40 cm will be used for plantation. This is a practice of growing tree in rectangular or square planting pattern throughout the field as mostly adopted by farmers having large land holdings. *Populus* spp., *Melia* spp. are the important tree species for block planting. Wheat, potato,	**Trees:** *Populus deltoides*, *Melia composita*, *Phyllanthus emblica*, *Aegle marmelos*, *Azadirachta indica*, *Eugenia jambolana*, *Gmelina arborea*, *Holarrhena antidysenterica*, *Santalum album*, *Tamarindus indica*, *Terminalia arjuna*, *T. bellirica*, *T. chebula*, *Sapindus mukorossi,* etc. **Shrubs:** *Dendrocalamus strictus*, *D. hamiltonii*, *Bambusa bamboos*, *B. arundinacea*, *Cinnamomum tamala*, *C. verum*, *Adathoda vasica*, *Asparagus racemosus*, *Embelia ribes*, *Gymnema sylvestre*, *Mucuna pruriens*, *Tinospora cordifolia,* etc.

		mustard, berseem, turmeric, sugarcane, etc., can be profitably raised intermixed with block plantation of trees. Planting will be done by the farmers. The farmers will place requisition for plants to local forest officials who will supply the quality nursery stock to the farmers at the start of the planting season.	

Cost Norms – Plantations in Agriculture Landscapes

Model – BS/PB/AL/01 Boundary Plantation Model

Year	Amount (RS)/ha	Man days
Ist year Estt.	9000	26
Maint Ist	4815	13
Maint IInd	5513	14
Maint IIrd	5899	14
Total	**25227**	**67**

Model – BS/PB/AL/02 - Block plantation Model

Sl. No.	**Magnitude of block Plantations (no of plants/block of 1 ha)**	**Total cost (Max.) (Rs) for the block ((**or in proportion to planting intensity)				**Total**
		1st Year	**2nd year**	**3rd Year**	**4th Year**	
1	1200	48,000	25,680	27,478	29,401	1,30,559
	Mandays	140	70	70	70	350

2.6.3 Urban Landscapes

In urban landscapes of alluvial plains of Punjab, four treatment models *viz*., bioremediation and biofiltration, riverfront development, institutional and industrial estate plantation, and eco park development are proposed. Model-wise details are provided below one by one in Table 2.22 :

Table 2.22 – Proposed Treatment Model in Urban Landscapes within Punjab Part of the Beas Riverscape

Model No.	Model Name	Description	Species
BS/PB/UL/01	Bioremediation and Biofiltration	The State Forest Department, Municipal Corporation/ Committees or Panchayat bodies have to adopt the suitable approach for bio-filter suiting to the specific requirements and site characteristics. The model will include the following activities. (i) Waste water treatment through mechanical measures as per the site requirement. (ii) Drainage line treatment by planting grasses, herbaceous vegetation and shrubs. (iii) Biofilters: Biofilters may be of different types: Free floating macrophytebiofilter, emergent macrophytebiofilter, sub-merged macrophytebiofilter, multispecies algal biofilter.	*Tecoma stans*, *Actinoscirpus grossus*, *Spirodela polyrrhiza,* etc.
BS/PB/UL/02	Riverfront Development	The proposed model of riverfront development would	**Tree:** *Jacaranda mimosifolia*, *Grevillea robusta*,

		involve plantation of avenue shrubs and trees along the riverbank to stabilize the soil and protect the bank from erosion. It would also have beds of annual flowering plants and patches of grasses. The area is so developed that would provide a pleasing and relaxing environment to the visitors. It would be a typical landscaping area comprised of vegetation and non-vegetation components. The vegetation and non-vegetation components will be arranged in such a way to enhance the aesthetic beauty of riverfront. Ornamental species will be planted according to their recommended spacing and site-specific suitability. For using the available space economically and efficiently multi-tier planting methods will be used.	*Albizia* spp., *Butea monosperma*, *Kigelia pinnata*, *Dalbergia sissoo*, *Salix* spp., *Saraca asoca*, *Polyalthia longifolia*, *Callistemon viminalis,* etc. **Shrubs:** *Bougainvillea* spp., *Rosa* spp., *Nerium oleander*, *Nyctanthes arbor-tristis*, *Spiraea* spp., etc.
BS/PB/UL/03	Institutional and Industrial Estate Plantation	Under this model, mainly ornamental, shade and fruit plants will be encouraged for planting. Evergreen plants especially Silver oak (*Grevillea robusta*) will be preferred so that the leaves do not shed during winter months when air pollution is usually high in plains. Plantation of forest species will be raised near the vicinity of various institutions and industries at 3 m x 3 m. Pit size of 45 cm x 45 cm x 45 cm will be used for plantation. The initiative will	**Tree:** *Syzygium cumini*, *Anthocephalus kadamba*, *Dalbergia sissoo*, *Melia composita*, *Pongamia pinnata*, *Thuja* spp., *Cryptomeria japonica*, *Araucaria araucana,* *Jacaranda mimosifolia*, *Grevillea robusta*, *Albizia chinensis*,

		beautify the area, create awareness among people associated with institutions and industries and promote environmental services, besides providing economic returns from under-utilized land.	*Salix alba*, *Saraca asoca*, *Polyalthia longifolia*, *Callistemon viminalis*, *Kigelia pinnata,* etc.
BS/PB/UL/04	Eco Park Development	An ecopark will be better equipped than riverfront development to facilitate visitors. An ecopark will have both vegetation and non-vegetation components. Even in the Ecoparks, the proportion of ornamental plants will be relatively more than in the riverfront development model. According to the requirement, list of components to be created under this model (i) Vegetation Part: Miscellaneous ornamental plant species e.g., trees, shrubs, herbs, creepers, hanging plants, etc. Non-vegetation Part: Fencing, stairs, pathways, walking trails, stone pitching, rain shelter, e-public utilities, benches parking area, information centre, children playing area, pond beautification, landscaping, etc. as per site-specific requirements.	**Tree:** *Jacaranda mimosifolia*, *Grevillea robusta*, *Thuja* spp., *Cryptomeria japonica*, *Araucaria araucana*, *Albizia chinensis*, *Butea monosperma*, *Kigelia pinnata*, *Dalbergia sissoo*, *Salix alba*, *Saraca asoca*, *Polyalthia longifolia*, *Callistemon viminalis,* etc. **Shrubs:** *Bougainvillea* spp., *Rosa* spp., *Nerium oleander*, *Nyctanthes arbor-tristis*, *Spiraea* spp., etc.

Cost Norms of Treatment Models in Punjab

Following tabular statement provides details on cost norms of proposed treatment models in Urban Landscapes in the alluvial plains of Punjab State:

Sr. No	Model No.	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days
		Estt.		1st year Maint		2nd year Maint		3rd year Maint.	
1	BS/PB/UL/01 Bioremediation and Bio filtration	15,00,000	1,316	4,50,000	395	3,00,000	263	2,25,000	197
2	BS/PB/UL/02 Riverfront Development	150.00,000	3,115.8	45.00000	394.7	30.00000	263.2	2,25,000	197.4
3	BS/PB/UL/03 Institution Plantation	2,60,000	228	78,000	68	52,000	46	39,000	34
4	BS/PB/UL/04 Eco-Park Development	1,50,00,000	1,315.8	45,00,000	394.7	30,00,000	263.2	22,50,000	1974

2.6.4 Conservation Interventions

Proposed forestry interventions besides plantation and treatment models in three types of landscapes, varied conservation interventions, *viz*., (a) soil and water conservation, (b) riparian and riverine wildlife management, and (c) wetland management have also been proposed for implementation by the State. Details of these conservation interventions are given in the Vol. I of DPR. Cost Norms of treatment models for proposed soil and water conservation measures in Punjab are provided below:

Sr. No.	Model No.	Amount Rs. / m^3	Man Days
1	BS/PB/CI/01 - Brushwood Interventions	300	1
2	BS/PB/CI /02 - Dry Stone Activities	1,800	5
3	BS/PB/CI /03 - Crate Wire Activities	4,500	13
4	BS/PB/CI/04 - Water Ponds	65,000	190
5	BS/PB/CI /05 - Silt Detention Dam Type Activities	80,000	164

Sr. No.	Year	BS/PB/CI /06 Riverine and Riparian Wildlife Management		BS/PB/CI /07 Wetland Management	
		Amount Rs. / ha	Man Days (70% of Total Cost)	Amount Rs. / ha	Man Days (70% of Total Cost)
1	I	3,20,000	655	2,80,000	573
2	II	2,80,000	536	2,50,000	478
3	III	1,90,000	340	1,60,000	286
4	IV	1,20,000	200	1,20,000	200
5	V	90,000	141	90,000	141
Total		**10,00,000**	**1,872**	**9,00,000**	**1,678**

Treatment Models for Soil and Water Conservation Interventions in Punjab

Sr.No.	Model No.	Amount Rs/Cumt	Mandays
1	BS/PB/CI/01 Brushwood Interventions	300	1
2	BS/PB/CI /02 Dry stone activities	1800	5
3	BS/PB/CI /03 Crate wire activities	4500	13
4	BS/PB/CI/04 Water Ponds	65,000	190
5	BS/PB/CI /05 Silt Detention Dam Type Activities	80,000	164

2.6.5 Supporting Activities

Varied supporting activities, *viz*., policy level interventions, concurrent research, capacity development, awareness, participatory monitoring, project management, and evaluation are considered vital for effective and successful execution of a major project dealing with the proposed forestry interventions in vast extent of the riverscape. The strategies and specific interventions for these supporting activities are given in the Vol. I of DPR.

2.7 Physical and Financial Targets

The following section provides an insight on physical and financial projections of various proposed forest interventions including plantation and treatment models, conservation

interventions and supporting activities within the alluvial plains of the Beas Riverscape during the project duration (Phase I and Phase II) as well as relevant information for each of the involved Forest/ Wildlife Division within the State of Punjab are furnished in Table 2.23 to 2.45.

Table 2.23 – Component/ Activity Wise Budget Allocation for Punjab

Sr. No.	Component/ Activity	Amount (Rs. in Crore)
A.	**Implementation of Forestry Interventions in Two States of Riverscape**	**132.58**
A.1	**Plantations and Treatment Models in Three Categories of Landscape**	**82.17**
A.1.1	Natural Landscapes	24.50
A.1.2	Eco Task Force	0.00
A.1.3	Agriculture Landscapes	25.51
A.1.4	Urban Landscapes	32.16
A.2	**Conservation Interventions**	**38.89**
A.2.1	Soil and Moisture Conservation	31.46
A.2.2	Riverine and Riparian Wildlife Management	4.91
A.2.3	Wetland Management (Natural and Artificial)	2.52
A.3	**Supporting Activities**	**15.79**
A.3.1	Policy Level Interventions	0.15
A.3.2	Research Activities	0.63
A.3.3	Capacity Development	4.83
A.3.4	Awareness	2.65
A.3.5	Participatory Monitoring	0.63
A.3.6	Cost of PMUs of Two State Level Implementing Agencies	6.48
A.3.7	Evaluation	0.39
A.3.8	Contingency and Miscellaneous Activities	0.03
Total Budget of Component A (A1+A2+A3)		**136.85**
C.	**DPR – Phase II (Maintenance phase) Including Scaling Up and Replication of Successful Models of Forestry Interventions**	**15.48**
C.1	Maintenance Cost of A.1 and A.2 (Cost of Phase II)	5.47
C.2	Maintenance Cost of A.3	3.96
C.3	Scaling Up and Replication of Successful Models of Forestry Interventions (5% of A.1 & A.2)	6.05

C.1 Maintenance Cost in Crore [(NL) 4.22+ (AL) 1.59 + (UL) 0.44 =6.25] + [(SMC) 0+ (Riparian & Wetland) 0.27] = 6.52].

Table 2.24 – Year-Wise Breakup of Extent Coverage of Proposed Forestry Interventions in Punjab

Year	Period	Plantation and Treatment Models			Conservation Intervention		
		Natural Landscape	Agriculture Landscape	Urban Landscape	Soil and Moisture Conservation Measures	Riverine and Riparian Wildlife Management	Wetland Conservation
A. Phase I (Implementation Phase)							
		(ha)	**(ha)**	**(ha)**	**(m^3)**	**(ha)**	**(ha)**
I	Establishment	355	2675	117.5	75499	40	10
	Maintenance	-	-	-		-	-
II	Establishment	457	2600	106.4	59999	10	20
	Maintenance	-	2675	-		40	10
III	Establishment	253	1980	50.1	83497	-	-
	Maintenance	-	5275	223.9		50	30
IV	Establishment	-	-	-	55989	-	-
	Maintenance	355	7255	274		50	30
V	Establishment	-	-	-	22069	-	-
	Maintenance	457	4580	156.5	-	50	30
Total Phase I	**Establishment**	**1065**	**7255**	**274**	**297053**	**50**	**30**
	Maintenance	**812**	**7255**	**274**	**-**	**50**	**30**
Phase II (Maintenance Phase)							
VI	Establishment	-	-	-	-	-	-
	Maintenance	1065	1980	50.1	-	10	20
VII	Establishment	-	-	-	-	-	-
	Maintenance	710	-	-	-	-	-
VIII	Establishment	-	-		-	-	-
	Maintenance	253	-	-	-	-	-
IX	Establishment	-	-	-	-	-	-
	Maintenance	-	-	-	-	-	-
X	Establishment	-	-	-	-	-	-
	Maintenance	-	-	-	-	-	-
Total Phase II	Establishment	-	-	-	-	-	-
	Maintenance	**2028**	**1980**	**50.1**	**-**	**10**	**20**
Grand Total Phase I and Phase II	**Establishment**	**1065**	**7255**	**274**	**297053**	**50**	**30**
	Maintenance	**1065**	**7255**	**274**	**-**	**50**	**30**

*The consent for the availability of land for proposed forestry intervention have been obtained from PCCF & HoFF of Punjab state (Annexure attached at Page No- 530 of Vol-II)

Table 2.25 – Year-Wise Breakup of Cost for Proposed Forestry Interventions in Punjab

Year	Period	Plantation and Treatment Models			Conservation Intervention		
		Natural Landscape	Agriculture Landscape	Urban Landscape	Soil and Moisture Conservation Measures	Riverine and Riparian Wildlife Management	Wetland Conservation
		(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)	(Rs. in Lakhs)
A. Phase I (Implementation Phase)							
I	Establishment	64.91	387.00	797.30	708.75	128.00	28.00
	Maintenance	-	-	-		-	-
II	Establishment	197.59	343.20	882.50	832.02	32.00	56.00
	Maintenance	-	207.05	239.19	-	112.00	25.00
III	Establishment	611.02	284.40	296.26	794.99	-	-
	Maintenance	-	413.45	424.21	-	104.00	66.00
IV	Establishment	658.13	-	-	474.88	-	-
	Maintenance	208.91	583.65	384.99	-	67.00	44.00
V	Establishment	303.86	-	-	334.95	-	-
	Maintenance	405.65	367.88	191.64	-	48.00	33.00
Total Phase I	**Establishment**	**1835.51**	**978.60**	**1976.06**	**3145.60**	**160.00**	**84.00**
	Maintenance	**614.56**	**1572.00**	**1240.03**	**-**	**331.00**	**168.00**
B. Phase II (Maintenance Phase)							
VI	Establishment	-	-	-	-	-	-
	Maintenance	309.36	159.12	44.45	-	9.00	18.00
VII	Establishment	-	-	-	-	-	-
	Maintenance	95.09	-	-	-	-	-
VIII	Establishment	-	-	-	-	-	-
	Maintenance	18.17	-	-	-	-	-
IX	Establishment	-	-	-	-	-	-
	Maintenance	-	-	-	-	-	-
X	Establishment	-	-	-	-	-	-
	Maintenance	-	-	-	-	-	-
Total Phase II	Establishment	-	-	-	-	-	-
	Maintenance	422.62	159.12	44.45	-	9.00	18.00
Grand Total Phase I and Phase II	**Establishment**	**1835.51**	**978.6**	**1976.06**	**3145.60**	**160.00**	**84.00**
	Maintenance	**1036.98**	**1731.12**	**1284.48**	**-**	**340.00**	**186.00**

Table 2.26 – Division Wise Proposed Extent of Plantations in Natural Landscapes in Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year															Grand Total	
		Phase I									Phase II							
		(Extent in ha)							Total (Extent in ha)		(Extent in ha)					Grand Total (ha)	(Ha)	(Ha)
		I	II	III	IV		V				VI	VII	VIII	IX	X			
		Establishment (Nursery raising for 3rd year creation)	Establishment (Nursery raising for 4th year Creation	Establishment(i/c creation for 3rd year plantation)	Establishment(i/c creation for 4th year plantation)	Maintenance (Maint of plantation 3rd year maintenance	Establishment(i/c creation for 5th year plantation	Maintenance (Maint of plantation 3rd year and 4th year maint	E	M	M	M	M	M	M	M	E	M
1	Amritsar	9	15	9	15	9	20	24	44	24	44	35	20	0	0	44	44	44
2	Dasuya	70	169	70	169	70	55	239	294	239	294	224	55	0	0	294	294	294
3	Gurdaspur	236	208	236	208	236	146	444	590	444	590	354	146	0	0	590	590	590
4	Hoshiarpur	0	10	0	10	0	0	10	10	10	10	10	0	0	0	10	10	10
5	Jalandhar	15	35	15	35	15	32	50	82	50	82	67	32	0	0	82	82	82
6	Pathankot	25	20	25	20	25	0	45	45	45	45	20	0	0	0	45	45	45
Total		**355**	**457**	**355**	**457**	**355**	**253**	**812**	**1065**	**812**	**1065**	**710**	**253**	**0**	**0**	**1065**	**1065**	**1065**

Table 2.27 – Division Wise Projected Cost of Plantations in Natural Landscapes in Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year													Total Rs. In lakhs (Phase I & II)		Grand Total (Rs. In lakhs) (Phase I & II)
		Phase I									Phase II						
		(Rs.in Lakhs)															
		I	II	III	IV		V		Total		VI	VII	VIII	Total			
		E	E	E	E	M	E	M	E	M	M	M	M	M	E	M	
1	Amritsar	1.45	4.68	16.93	21.58	4.64	22.08	9.65	66.72	14.29	14.17	5.38	1.48	21.03	66.72	35.32	102.04
2	Dasuya	14.58	62.53	162.57	251.97	47.2	81.72	151.91	573.38	199.11	107.66	31.05	3.61	142.32	573.38	141.43	914.8
3	Gurdaspur	41.33	103	355.56	287.28	132.75	164.72	182.22	951.89	314.97	147.81	47.41	10.72	205.94	951.89	565.91	1472.8
4	Hoshiarpur	0	1.61	2.51	11.04	0	0	5.15	15.16	5.15	2.13	0.74	0	2.87	15.16	8.02	23.19
5	Jalandhar	2.42	12.71	34.59	57.17	7.73	35.34	32.37	142.23	40.1	28.95	9.19	2.37	40.51	142.23	80.61	222.83
6	Pathankot	5.13	13.06	38.85	29.08	16.59	0	24.35	86.12	40.95	8.63	1.33	0	9.95	86.12	50.9	137.02
Total		**64.91**	**197.59**	**611.02**	**658.13**	**208.91**	**303.86**	**405.65**	**1835.5**	**614.56**	**309.36**	**95.09**	**18.17**	**422.62**	**1835.5**	**1037.18**	**2872.68**

Table 2.28– Division Wise Proposed Extent of Plantations in Agriculture Landscapes in Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year														
		Phase I (Extent of Area in ha)											Phase II		Grand Total Area	
		I	II		III		IV		V		Total (ha)		VI		ha	ha
		E	E	M	E	M	E	M	E	M	E	M	M	Total	E	M
1	Amritsar	500	440	500	270	940	0	1210	0	710	1210	1210	0	270	1210	1210
2	Dasuya	550	520	550	390	1070	0	1460	0	910	1460	1460	0	390	1460	1460
3	Gurdaspur	475	480	475	330	955	0	1285	0	810	1285	1285	0	330	1285	1285
4	Hoshiarpur	475	440	475	390	915	0	1305	0	830	1305	1305	0	390	1305	1305
5	Jalandhar	450	440	450	330	890	0	1220	0	770	1220	1220	0	330	1220	1220
6	Pathankot	225	280	225	270	505	0	775	0	550	775	775	0	270	775	775
Total		**2675**	**2600**	**2200**	**1980**	**5275**	**0**	**7255**	**0**	**4580**	**7255**	**7255**	**0**	**1980**	**7255**	**7255**

Table 2.29– Division Wise Projected Cost of Plantations in Agriculture Landscapes in Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year													Total Cost in Phase1 and Phase II		Grand Total
		Phase I (Rs. in Lakhs)											Phase II	Total Phase II			
		I	II		III		IV		V		Total Phase I		VI		E	M	
		E	E	M	E	M	E	M	E	M	E	M	M	M			
1.	Amritsar	84.00	55.20	44.94	36.00	79.06	0.00	105.30	0.00	56.83	175.20	286.13	0.00	22.98	175.20	309.11	484.31
2.	Dasuya	69.00	62.40	36.92	46.80	74.69	0.00	106.68	0.00	68.17	178.2	286.46	0.00	30.06	178.2	316.52	494.72
3.	Gurdaspur	72.00	74.40	38.52	41.40	82.46	0.00	111.83	0.00	71.90	187.80	304.71	0.00	26.52	187.80	331.23	519.03
4.	Hoshiarpur	72.00	55.20	38.52	46.80	72.19	0.00	103.72	0.00	63.45	174.00	277.88	0.00	30.06	174.00	307.94	481.94
5.	Jalandhar	60.00	55.20	32.10	41.40	65.32	0.00	93.49	0.00	60.14	156.60	251.05	0.00	26.52	156.60	277.57	434.17

6.	Pathankot	30.00	40.80	16.05	36.00	39.73	0.00	62.63	0.00	47.39	106.08	165.80	0.00	22.98	106.80	188.78	295.58
7.	**Total**	**387**	**343.2**	**207.05**	**248.4**	**413.45**	**0.0**	**583.65**	**0.0**	**367.88**	**977.88**	**1572.03**	**0.0**	**159.12**	**978.6**	**1731.15**	**2709.75**

Table 2.30– Division Wise Proposed Extent of Plantations in Urban Landscapes in Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	**Division**	**Year**														
		Phase I (Extent of Area in ha)									**Total Phase I**		**Phase II**		**Total Phase II**	**Total Area (ha)**
		I	**II**		**III**		**IV**		**V**				**VI**			
		E	**E**	**M**	**E**	**M**	**E**	**M**	**E**	**M**	**E**	**M**	**E**	**M**		
1	Amritsar	21.5	21.5	21.5	10	43	0	53	0	31.5	53	53	0	10	10	53
2	Dasuya	21	21	21	10	42	0	52	0	31	52	52	0	10	10	52
3	Gurdaspur	62	42.9	62	28	104.9	0	132.9	0	70.9	132.9	132.9	0	28	28	132.9
4	Hoshiarpur	0.5	0.5	0.5	1.1	1	0	2.1	0	1.6	2.1	2.1	0	1.1	1.1	2.1
5	Jalandhar	10.5	20.5	10.5	0.5	31	0	31.5	0	21	31.5	31.5	0	0.5	0.5	31.5
6	Pathankot	2	0	2	0.5	2	0	2.5	0	0.5	2.5	2.5	0	0.5	0.5	2.5
Total		**117.5**	**106.4**	**117.5**	**50.1**	**223.9**	**0**	**274**	**0**	**156.5**	**274**	**274**	**0**	**50.1**	**50.1**	**274**

Table 2.31– Division Wise Projected Cost of Plantations in Urban Landscapes in Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	**Division**	**Year**																
		Phase I (Rs. in Lakhs)									**Phase I (Rs. in Lakhs)**		**Phase II**		**Phase II**	**Total (Rs. in Lakhs)**		**Total (Rs. in Lakhs)**
		I	**II**		**III**		**IV**		**V**		**Total**		**VI**					
		E	**E**	**M**	**E**	**M**	**E**	**M**	**E**	**M**	**E**	**M**	**E**	**M**	**Total**	**E**	**M**	
1	Amritsar	74.50	209.50	22.35	26.00	77.75	0.00	60.88	0.00	36.63	310.00	197.61	0.00	3.90	3.90	310.00	201.51	511.51
2	Dasuya	202.00	67.00	60.60	26.00	60.50	0.00	51.50	0.00	15.25	295.00	187.85	0.00	3.90	3.90	295.00	191.75	486.75

3	Gurdaspur	321.00	471.50	96.30	152.70	205.65	0.00	188.26	0.00	101.27	945.20	591.48	0.00	22.91	22.91	945.20	614.39	1559.59
4	Hoshiarpur	1.30	7.50	0.39	9.06	2.51	0.00	4.42	0.00	2.94	17.86	10.26	0.00	1.36	1.36	17.86	11.62	29.48
5	Jalandhar	33.50	127.00	10.05	7.50	44.80	0.00	32.68	0.00	20.55	168.00	108.08	0.00	1.13	1.13	168.00	109.21	277.21
6	Pathankot	165.00	0.00	49.50	75.00	33.00	0.00	47.25	0.00	15.00	240.00	144.75	0.00	11.25	11.25	240.00	156.00	396.00
	Total	**797.30**	**882.50**	**239.19**	**296.26**	**424.21**	**0.00**	**384.99**	**0.00**	**191.64**	**1976.06**	**1240.03**	**0.00**	**44.45**	**44.45**	**1976.06**	**1284.48**	**3260.54**

Table 2.32– Model/ Activity Wise Area and Cost for Forestry Intervention in Punjab

State	Landscape	Model/ Activity	Area (Ha)	Cost (Rs. in Crore)
Punjab	Natural	BS/PB/NL/01 - Restoration of Degraded Forest	880	20.40
		BS/PB/NL/02 - Road Side Plantation	185	8.31
	Agriculture	BS/PB/AL/01 - Boundary Plantation Model	6420	16.20
		BS/PB/AL/02 - Block Plantation	835	10.90
	Urban	BS/PB/UL/01 - Bioremediation and Bio-filtration	8	1.98
		BS/PB/UL/02-River front development	-	-
		BS/PB/UL/03 - Institutional Plantation	243.1	10.42
		BS/PB/UL/04 - Eco Park Development	7.9	19.55
	Conservation Intervention	Soil and water Conservation	**(m3)**	
		BS/PB/CI/01 - Brushwood Interventions	115050	3.45
		BS/ PB /CI/02 - Dry Stone Activities	50690	9.12
		BS/ PB /CI/03 - Crate Wire Activities	31030	13.96
		BS/ PB /CI/04 - Water Ponds	97793	3.42
		BS/ PB /CI/05 - Silt Detention Dam Type Activities	2490	1.49
		Other Interventions	Area (ha)	
		BS/ PB /CI/06 - Riverine and Riparian Wildlife Management	60	6.00
		BS/ PB /CI/07 - Wetland Management	30	2.42
		Sub Total =	**8669 hac+297053**	**127.62**

Table 2.33- Division Wise Proposed Extent for Soil and Moisture Conservation for Punjab (**E=Establishment*)

Sr. No.	Division	Year						(Grand Total Area in ha)
		Phase I (Extent of Area in ha)					Phase I	
		I	II	III	IV	V	Total	
		E	E	E	E	E	E	E
1	Amritsar	1740	1130	1690	470	0	5030	5030
2	Dasuya	14369	12279	17179	12349	6139	62315	62315
3	Gurdaspur	48320	34980	55868	34440	13200	186808	186808
4	Hoshiarpur	8360	9540	6680	6690	2110	33380	33380
5	Jalandhar	2160	1710	1790	1610	410	7680	7680
6	Pathankot	550	360	290	430	210	1840	1840
Total		**75499**	**59999**	**83497**	**55989**	**22069**	**297053**	**297053**

Table 2.34– Division Wise Proposed Extent for Soil and Moisture Conservation (Cost) for Punjab (**E=Establishment*)

Sr. No.	Division	Phase I: Year Wise Cost (Rs in Lakhs)						Grand Total (Rs.in Lakhs)
		I	II	III	IV	V	Total Phase I	
		E	E	E	E	E		
1	Amritsar	49.77	20.64	49.02	13.59	0.00	133.02	133.02
2	Dasuya	108.51	133.49	108.19	86.91	97.32	534.42	534.42
3	Gurdaspur	455.61	577.06	538.25	275.85	188.97	2035.74	2035.74
4	Hoshiarpur	25.08	55.80	51.15	35.45	33.33	200.80	200.80
5	Jalandhar	45.03	38.55	43.17	43.74	5.88	176.37	176.37
6	Pathankot	24.75	6.48	5.22	19.35	9.45	65.25	65.25
Total		**708.75**	**832.02**	**794.99**	**474.88**	**334.95**	**3145.60**	**3145.60**

Table 2.35 – Division Wise Proposed Extent (Area in ha) of Riverine and Riparian Wildlife Management for Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Phase I: Year Wise Extent of Area (ha)*						Phase I Total		Phase II Year Wise Extent of Area (ha)*		Grand Total (ha)	
		I	II		III	IV	V			VI	Total		
		E	E	M	M	M	M	E	M	M		E	M
1	Wild Life Ferozpur	20	10	20	30	30	30	30	110	10	10	30	110
2	Pathankot	20	0	20	20	20	20	20	80	0	0	20	80
Total		**40**	**10**	**40**	**50**	**50**	**50**	**50**	**190**	**10**	**10**	**50**	**190**

Table 2.36-– Division Wise Projected Cost (Rs. in Lakhs) for Riverine and Riparian Wildlife Management in Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Phase I: Year Wise Cost (Rs in Lakhs)						Total Phase I		Phase II (Rs. in Lakhs)	Total Phase II	Total Phase I & phase II (Rs. in Lakhs)		Grand Total (Rs.in Lakhs)
		I	II		III	IV	V			VI				
		E	E	Mt	M	M	M	E	M	M	M	E	M	
1	Wild Life Ferozpur	64.00	32.00	56.00	56.00	43.00	30.00	96.00	185.00	9.00	9.00	96.00	194.00	290.00
2	Pathankot	64.00	0.00	56.00	38.00	24.00	18.00	64.00	136.00	0.00	0.00	64.00	136.00	200.00
Total		**128.00**	**32.00**	**112.00**	**94.00**	**67.00**	**48.00**	**160.00**	**321.00**	**9.00**	**9.00**	**160.00**	**330.00**	**490.00**

Table 2.37– Division Wise Proposed Extent (Area in ha) of Wetland Management in Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Phase I: Year Wise Extent of Area (ha)*						Phase I Total		Phase II Year Wise Extent of Area (ha)*		Grand Total (ha)	
		I	II		III	IV	V			VI	Total		
		E	E	M	M	M	M	E	M	M	Total	E	M
1	Wild Life Ferozpur	10	20	10	30	30	30	30	100	20	20	30	100
Total		**10**	**20**	**10**	**30**	**30**	**30**	**30**	**100**	**20**	**20**	**30**	**100**

Table 2.38– Division Wise Projected Cost (Rs. in Lakhs) for Wetland Management in Punjab (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Phase I: Year Wise Cost (Rs in Lakhs)						Total Phase I		Phase II (Rs.in Lakhs)	Total Phase II	Total Phase I & phase II		Grand Total (Rs.in Lakhs)
		I	II		III	IV	V			VI				
		E	E	M	M	M	M	E	M	M	M	E	M	
1	Wild Life Ferozpur	28.00	56.00	25.00	66.00	44.00	33.00	84.00	168.00	18.00	18.00	84.00	186.00	270.00
Total		**28.00**	**56.00**	**25.00**	**66.00**	**44.00**	**33.00**	**84.00**	**168.00**	**18.00**	**18.00**	**84.00**	**186.00**	**270.00**

Table 2.39– Year-Wise Breakup of Projected Cost on Supporting Activities in Punjab

Sr. No.	Activities	Year												Grand Total
		(Cost Rs. in lakh)											Total	(Cost Rs. in lakh)
		Phase I					Total	Phase II					Phase II	Phase I+II
		I	II	III	IV	V	Phase I	VI	VII	VIII	IX	X		
1	Policy Level Interventions	7.74	3.87	1.94	0.97	0.00	**14.52**	0.00	0.00	0.00	0.00	0.00	**0.00**	**14.52**
2	Research	15.48	13.94	12.54	11.29	10.16	**63.41**	9.14	8.23	7.41	6.67	6.00	**37.44**	**100.85**
3	Capacity Development	91.00	95.55	120.33	105.34	70.67	**482.89**	0.00	0.00	0.00	0.00	0.00	**0.00**	**482.89**
4	Awareness	48.00	50.40	52.92	55.57	58.34	**265.23**	0.00	0.00	0.00	0.00	0.00	**0.00**	**265.23**
5	Participatory Monitoring	15.48	13.94	12.54	11.29	10.16	**63.41**	9.14	8.23	7.41	6.67	6.00	**37.44**	**100.85**
6	Project Management Unit	154.84	114.55	120.12	125.96	132.10	**647.56**	40.79	36.50	34.13	31.91	29.83	**173.16**	**820.72**
7	Evaluation			38.95			**38.95**	64.76				82.07	**146.83**	**185.78**
8	Contingency and Miscellaneous Expenses	0.77	0.57	0.60	0.63	0.66	**3.24**	0.20	0.18	0.17	0.16	0.15	**0.87**	**4.10**
Grand Total		333.32	292.81	359.93	311.04	282.09	**1579.20**	124.04	53.14	49.11	45.40	124.05	**395.73**	**1974.93**

Table 2.40– Year-Wise Projected Cost of State Project Management Unit Punjab

Sr.No.	Activities	Year											Grand Total (Cost Rs. in lakh)
		Cost (Rs. in lakh)											
		Phase I					Total	Phase II					Total Phase II	
		I	II	III	IV	V	Phase I	VI	VII	VIII	IX	X		
1	Project Staff - Salary and Wages (PED/PEO+SPA+JPA+PA2+PM+OA2+A2+DEO1 for each Division) and 50% staff in Phase II	93.84	98.532	103.46	108.63	114.06	**518.53**	35.93	33.95	32.09	30.32	28.65	**160.95**	**679.47**
2	Office Expenses (including executing Divisions)	9.384	0.99	1.03	1.09	1.14	**13.63**	0.36	0.34	0.32	0.30	0.29	**1.61**	**15.24**
3	POL (including executing Divisions)	9.384	0.99	1.03	1.09	1.14	**13.63**	0.36	0.31	0.22	0.15	0.09	**1.13**	**14.76**
4	Travel Expenses (including executing Divisions)	9.38	9.85	10.35	10.86	11.41	**51.85**	3.59	1.36	0.96	0.61	0.29	**6.81**	**58.66**
5	Equipment – Office and Field	4.692	0.07	0.07	0.07	0.07	**4.99**	0.07	0.07	0.07	0.07	0.07	**0.37**	**5.36**
6	Purchase of Equipment -Computer, RS and GIS and IT and maintenance	9.384	2.98	2.98	2.98	2.98	**21.32**	0.15	0.15	0.15	0.15	0.15	**0.75**	**22.06**
7	Furniture and Fixtures	9.384	0.15	0.15	0.15	0.15	**9.98**	0.15	0.15	0.15	0.15	0.15	**0.75**	**10.73**
8	Contingency and Miscellaneous	9.38	0.99	1.03	1.09	1.14	**13.63**	0.18	0.17	0.16	0.15	0.14	**0.80**	**14.44**
	Total	154.84	114.55	120.12	125.96	132.10	**647.56**	40.79	36.50	34.13	31.91	29.83	**173.16**	**820.72**

Table 2.41– Projected Cost of Awareness Programme Punjab

Sr. No.	Activity	Year					Grand Total (Cost Rs. in lakh)
		Phase I (Cost Rs. in lakh)					
		I	II	III	IV	V	
1	Awareness Campaigns@1	6.00	6.30	6.62	6.95	7.29	33.15
2	Awareness Activities for General Public@2	12.00	12.60	13.23	13.89	14.59	66.31

3	Awareness Material – Pamphlets, Brochures, Booklets, Signages, Boards and Hoardings @2	12.00	12.60	13.23	13.89	14.59	66.31
4	Publicity Through Mass Media@3	18.00	18.90	19.85	20.84	21.88	99.46
	Total	**48.00**	**50.40**	**52.92**	**55.57**	**58.34**	**265.23**

Table 2.42– Projected Cost of Capacity Development at State and Division Level for Punjab

Sr. No.	Activity	Norms Rs. in lakh	Phase I					Grand Total (Cost Rs. in lakh)
			Year (Cost Rs. in lakh)					
			I	II	III	IV	V	
1	Local Level Training for Communities (Trainings; 2-3 days) 25	3.00	18.00	18.90	19.85	20.84	-	77.58
2	Division Level Trainings for SFD Personnel, Line Departments and Other Partner Agencies (1 Training/ Division/ 2-3 days) 25	3.00	18.00	18.90	19.85	20.84	-	77.58
3	State Level Inception Workshop (2-3 days) 1	15.00	15.00	15.75	16.54	17.36	-	64.65
4	State Level Seminar – Mid Term (2-3 days) 1 and Final year (1)	20.00	-	-	20.00	-	22.05	42.05
5	Exposure Trip Within State (30 participants; 2 per year)	10.00	20.00	21.00	22.05	23.15	24.31	110.51
6	Exposure Trip Outside State (15 participants; 1 per year)	20.00	20.00	21.00	22.05	23.15	24.31	110.51
	Total		**91.00**	**95.55**	**120.33**	**105.34**	**70.67**	**482.89**

Table 2.43 - Division Wise Details of Area/Extent and Cost for Three Different Landscapes in Punjab (Part-I) (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Natural Landscape*				Agriculture Landscape				Urban Landscape			
		Total Area (ha)*	Cost (Rs. in Lakhs)		Total Cost (Rs. in Lakhs)	Total Area (ha)	Cost (Rs. in Lakhs)		Total Cost (Rs. in Lakhs)	Total Area (ha)	Cost (Rs. in Lakhs)		Total Cost (Rs. in Lakhs)
			E	M			E	M			E	M	
1	Amritsar	44	66.72	35.32	102.04	1210	175.20	309.11	484.31	53	310.00	201.51	511.51
2	Dasuya	294	573.38	341.43	914.81	1460	178.2	316.52	494.72	52	295.00	191.75	486.75
3	Gurdaspur	590	951.89	520.91	1472.8	1285	187.80	331.23	519.03	132.9	945.20	614.39	1559.59
4	Hoshiarpur	10	15.16	8.02	23.18	1305	174.00	307.94	481.94	2.1	17.86	11.62	29.48
5	Jalandhar	82	142.23	80.61	222.84	1220	156.60	277.57	434.17	31.5	168.00	109.21	277.21
6	Pathankot	45	86.12	50.9	137.02	775	106.80	188.78	295.58	2.5	240.00	156.00	396.00
Total		**1065**	**1835.5**	**1037.19**	**2872.79**	**7255**	**978.6**	**1731.15**	**2709.75**	**274**	**1976.06**	**1284.48**	**3260.54**

Table 2.44 - Division Wise Details of Area/Extent and Cost for Three Different Landscapes and SMC Activities Punjab, (Part-II)

Sr. No.	Division	Grand Total Area of Three Landscapes (ha)	Total Cost of Three Landscapes (Rs. in Lakhs)	SMC Measures		Grand Total Cost of Three Landscapes and SMC (Rs. in Lakhs)
				Total Extent (m^3)	Total Cost (Rs. in Lakhs)	
1	Amritsar	1307	1097.86	5030	133.02	903.58
2	Dasuya	1806	1896.07	62315	534.4175	2021.768

3	Gurdaspur	2007.9	3200.97	186808	2035.738	5236.708
4	Hoshiarpur	1317.1	534.61	33380	200.8	374.85
5	Jalandhar	1333.5	934.21	7680	176.37	747.06
6	Pathankot	822.5	828.6	1840	65.25	676.33
Total		**8594**	**6814.8**	8492.32	**3145.596**	**9960.396**

Table 2.45 - Details of Area/Extent and Cost for Three Different Landscapes, SMC Activities and Riverine & Riparian Wildlife Management and Wetland Managementin Punjab, (Part-III)

Sr. No	Division	Grand Total area of Three Landscapes (ha)	Grand Total cost of Three Landscapes (Rs. in Lakhs)	SMC Measures		Riverine & Riparian Wildlife Management and Wetland Management		Grand Total Cost of Three Landscapes, SMC and Riverine & Riparian Wildlife Management and Wetland Management (Rs. in Lakhs)
				Total Extent (m^3)	Total Cost (Rs. in Lakhs)	Total Extent (ha)	Total Cost (Rs. in Lakhs)	
1	Amritsar	1307	1097.86	5030	133.02	-	-	903.58
2	Dasuya	1806	1896.07	62315	534.42	-	-	2021.768
3	Gurdaspur	2007.9	3200.97	186808	2035.74	-	-	5236.708

4	Hoshiarpur	1317.1	534.61	33380	200.81	-	-	374.85
5	Jalandhar	1333.5	934.21	7680	176.37	-	-	747.06
6	Pathankot	822.5	828.6	1860	65.25	-	-	676.33
Total		**8594**	**6814.70**	**6814.8**	**3145.65**	-	-	-
7	Wild Life Ferozpur	-	-	-	-	60	570.00	570.00
8	Wildlife Pathankot	-	-	-	-	20	200.00	200.00
Total		**8594**	**6814.70**	**297073**	**3145.65**	**80**	**770.00**	**10730.30**

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Annexure 1: Logical Framework Analysis – The Beas Riverscape Management

Project Strategy	**Objectively Verifiable Indicators**				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
Project Goal - 1	**Riverscape Management:** Aiming a holistic riverine landscape (riverscape) approach for sustainable management of Beas River, its banks, or its riparian areas, within its fluvial system.				
Outcome 1: Creation of an enabling environment for climate resilient, sustainable terrestrial, aquatic (river and wetlands), and floodplain ecosystem management.	**Project Objective 1:** To promote an enabling environment for sustainable land and river ecosystem-based management approaches focusing on reduced soil erosion, enhanced forest/ vegetation cover in the buffer zone, enhanced connectivity and e-flow, and ecological rejuvenation of river Beas and its tributaries.				
	Output1.1 Enhanced levels and enabling environment created for: (a) multi-sector convergence, alliances, and integration; (b) favourable national and state level policies (forests, agriculture, animal husbandry, watershed management, river management, tribal welfare, infrastructure development, and tourism) those reflect	The target is to create an enabling environment wherein multiple agencies/ sectors working for various production sectors converge and adopt climate resilient and sustainable approaches of land and ecosystem management by mainstreaming biodiversity concerns. Various concerned sectors also work together so as to	Integration and convergence of line agencies and various production sectors initiated and notable progress made. Communities mobilized and their active engagement ensured. Biodiversity concerns mainstreamed in production sectors. Gaps and inadequacies in various policies reviewed and actions initiated to address them.	Periodic reports, proceedings of consultative process (workshops, meetings, seminars, etc). Mid-term and final independent evaluations.	Lack of enthusiasm on the part of stakeholders, inadequate sectoral integration, and lack of community participation in the implementation of existing and proposed policies and laws relating to conservation might hinder the promotion of local decision making and also their active engagement in the conservation agenda. Participation

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
	principles of climate resilience, sustainable land and ecosystem management, and mainstreaming biodiversity concerns in production sectors.	address gaps and inadequacies in realizing global and national policy objectives relevant to environment, biodiversity, water resources, climate change, and sustainable development.			of communities particularly marginalized groups is weak due to a fear that their access to natural resources is going to be curtailed or restricted in ways that reduce the income they can derive. Conflict between conservation and local community needs might create difficulty in achievement of intended outcomes. Sectoral departments/ agencies are reluctant, not open to integrate/ cooperate for climate resilient and sustainable land and ecosystem management

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
					approaches. Project benefits are not captured by intended beneficiaries due to lack of adequate measures, transparency, and appropriate compensation measures. Inadequate and inaccurate flow of information may result in misconceptions about the project and hence lead to opposition/ non-participation by some agencies and CSOs. Sectors/ agencies primarily responsible for reduced e-flows are rigid, and continue with conventional approaches resulting into fragmentation

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
					of rivers, reduced e-flows, and decline in water quality.
	Output 1.2 Capacity of government officials and civil society organizations is developed in promoting community driven, climate resilient, sustainable land and ecosystem approaches, and holistic approach to management of river ecosystem.	Capacity of agencies, government officials and CSOs for sustainable land and ecosystem management, ecological rejuvenation and ecological integrity of river ecosystem is built.	Training need assessment carried out. Appropriate training learning material developed. Planned awareness and specialized training programmes on priority themes for various target groups successfully organized. Number of government staff and CSO representatives trained in climate resilient ecosystem management approaches.	Periodic reports, appraisal of training schedules, learning material and feedback obtained from trainee participants. Mid-term and final independent evaluations.	The concept and need of sustainable land and ecosystem management, and climate and its likely impact are not well appreciated by CBOs/ different sectors and agencies. The implementing agencies are new to the subject and expected outputs and outcomes and also widespread with limited financial management and technical capacity. Lack of interest and support for conservation might result in limited use of

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
					training facilities and opportunities. There are flaws in training need assessment and designing appropriate training programmes. Thus, trainings are not appealing and having desired impact.
Project Goal-2	***Aviral Dhara*, *Nirmal Dhara*, Ecological Rejuvenation and Biodiversity Conservation:** Aim to address the drivers and stressors of river ecosystem and promote sustainable use by balancing ecological needs with livelihood needs.				
Outcome 2: Inter-agency and civil society driven, climate resilient approaches for appropriate forestry and other interventions demonstrated in adequate extents of natural, agriculture, and urban	**Project Objective 2:** To carry out appropriate forestry interventions to restore river connectivity, enhance e-flow, improve water quality, and conserve the terrestrial and aquatic biota within the Beas riverscape.				
	Output 2.1 Plans to reduce/ check erosion in the mountainous region and floodplains of Beas and its tributaries by appropriate soil and moisture conservation works and development of optimal	Various soil and moisture conservation strategies and works in target area of - 926315.5 m^3 proposed to be implemented.	Reduced erosion in the hilly tract, reduced and stabilized landslides, decreased bank erosion, and reduced sedimentation rate. Enhanced moisture regime and flow in streams and rivers.	Appraisal of reports on soil and moisture conservation works undertaken, site visits and field observations and assessments, monitoring reports on sedimentation.	Occurrence of natural calamities (e.g. cloudburst, flood, drought, earthquake, landslides, etc). Increase in biotic pressure and enhanced developmental activities (hydropower

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
landscapes of the riverscape.	strategy for riverbed mining. Sites of landslides are adequately treated and stabilized				and road networks) in upstream area without adequate catchment area treatment.
	Output 2.2 Plans for restored and sustainably managed forest lands, agriculture lands in targeted villages and forestry interventions in urban environment for improved forest/ vegetation cover achieved. Enhanced assisted natural regeneration through improved protection and other measures.	Forestry interventions by way of various plantations under different treatment models to be undertaken. Plantations in 14671 ha natural landscapes, 3516 ha in agriculture landscapes, and 412.5 ha in urban landscapes are established and maintained.	Reduced biotic pressure on forests and improved regeneration. Improved forest cover in forest lands and TOFs in two States. Reduction in fuelwood extraction pressure on surrounding forests. Increase in average fodder yields, livestock grazing pressure reduced. Perennial vegetation cover increased on degraded lands. Private/community lands mobilized for reviving forest cover, enhancement of ecosystem health and services.	Field level assessments and verification. Periodic reports on plantation works carried out. Biennial assessment on forest cover by FSI for two States.	Non-availability of suitable nursery techniques, planting material, inadequacies in plantation works i.e. preparation of plantation site, excavation of pits, poor quality of planting material, inadequate protection and constraints of watering, damage by livestock/ wildlife, etc. Non-availability of lands (natural/ agriculture/ urban) for plantations and non-committal and inadequate support of

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
			Rejuvenation and renovation of existing community-based watershed structures.		local communities/ farmers/ urban agencies. Occurrence of natural calamities (e.g. cloudburst, flood, drought, etc.).
	Output 2.3 Plans for improved protected area management by implementing appropriate protection strategies, habitat management (e.g. weed control and water management), research and monitoring inputs, and enhanced capacity.	Strategies for improved PA management implemented, weed control works undertaken, research on priority themes planned and undertaken. Periodic ecological and socio-economic monitoring carried out. Training of frontline/ PA staff and other stakeholders planned and implemented.	Improved protected area management and enhanced management effectiveness. Increased diversity and abundance of species. Enhanced conservation values (e.g. catchment value, carbon sequestration, environmental amelioration, etc). Reduced human-wildlife conflict.	Appraisal of periodic reports and reports of mid-term and terminal evaluation. Report on Management Effectiveness Evaluation (MEE) for respective PAs. Reports on ecological and socio-economic monitoring.	Increased biotic pressure and adverse impact of developmental projects. Increased human-wildlife conflict and non-compatible land use in surrounding lands. Inadequate support of local communities and their engagement. Occurrence of natural calamities (e.g. cloudburst, flood, drought, earthquake, landslides, etc).

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
	Output 2.4 Plans for improved management of prominent wetlands in the riverscape by protection, restoration, zoning, habitat management, and wise use of wetland resources.	Improved wetland management and sustainable use of wetland resources implemented.	Improved and effective management of wetlands accomplished. Wetland habitats restored, effective zone planning accomplished and sustainable wise use of wetland resources promoted.	Periodic reports, appraisal of conservation/ management plans. Site visits and field level assessments. Questionnaire survey and stakeholder consultations.	Enhanced biotic pressure, waste disposal, and more effluents, unsustainable harvests, natural calamity (flood and heavy siltation). Inadequate support of local communities.
	Output 2.5 Plans for improved riverfronts and development of eco-parks.	Riverfronts and eco-parks to be developed.	Improved riverfronts, effective eco-parks, reduced erosion.	Site visits and observations, periodic reports.	Non-compatible land use in surrounds of riverfronts/ river, enhanced biotic pressure on eco-parks, damage of riverfronts by excessive floods and mass congregation.
	Output 2.6 Plans for development of forest and river-based ecotourism.	Forest and river/ water resource-based ecotourism.	Healthy forests and rivers/ water resources are maintained. Reduced biotic pressure, ecologically sustainable, and	Appraisal of periodic reports and ecotourism plans. Site visits and field assessments.	Natural resources are depleted and degraded. Uncontrolled and unregulated mass congregation

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
			socio-economically viable tourism developed.	Feedback from tourists.	and adverse impacts.
Project Goal -3	**Improved Ecosystem Services and Sustainable Livelihoods**: This goal aims to specifically seek enhanced ecosystem services and sustainable livelihoods.				
Outcome 3: Enhanced ecosystem services from natural (forest, river, and wetland ecosystems), agroecosystem and urban landscapes	**Project Objective 3:** To promote improved ecosystem services and support sustainable livelihood opportunities for local communities, particularly forest dwellers and fishermen.				
	Output 3.1 Plans for reduced traditional forest dependence, developed alternate income generation activities, improved livelihoods, and facilitate establishment of viable Small and Micro-Enterprises (SMEs).	Reduced traditional forest dependence and alternate income generation options developed. Improved livelihoods and well-established small and micro-enterprises.	Sustainable livelihoods by way of improved/ enhanced natural resources, effective social institutions, better physical assets, enhanced incomes, improved and skilled human resource, reduced vulnerability, well established SMEs. Change in proportion of project participants who are living above the poverty line. Increase in earnings of families from involvement in sustainable management of degraded forest lands. Number of women	Household surveys, periodic reports, field level assessments, evidences on reduced conflicts, etc.	Enhanced and frequent natural calamities, external market forces and impact of globalization, neglect and over exploitation of natural resources by local communities.
Outcome 4: Sustainable livelihoods, particularly of forest dwellers and fishermen					

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
			participants in SMEs increased. Curtailment of distressed migrations. Number of SMEs operationalized.		
	Output 3.2 Plans for enhanced levels of protection, conservation, and sustainable harvests of medicinal and aromatic plants and development of herbal gardens.	Conservation and sustainable harvests practices implemented for *in situ* and *ex situ* conservation of medicinal and aromatic plants.	Diversity, abundance, and productivity of medicinal and aromatic plants in wild are enhanced. Herbal gardens developed.	Appraisal of periodic reports, site visits, and field level assessments.	Inadequate marketing strategies and mechanisms. Fluctuating market demands, supply, and market rates.
Project Goal 4	**Effective Implementation, Knowledge Management, and Innovative Approaches:** This goal aims to ensure effective implementation of the project, knowledge management, development of innovative approaches (nursery techniques, afforestation, bio-filters and bioremediation), and adopt modern technology.				
Outcome 5 Capacities for adaptive management, learning, and replication of project lessons are developed.	**Project Objective 4:** To adopt, integrate and implement innovative approaches and modern technology for rejuvenation of Ganga and its tributaries, knowledge management, enhanced capacity, and monitoring and evaluation.				
	Output 4.1 Plans developed for integrated, science based, and community-based monitoring and assessment of impacts, as	Improved research and monitoring capacity targeted. Adaptive management approach being implemented.	Improved research infrastructure, well designed monitoring system, enhanced scientific capacity, and effective documentation and dissemination of research and	Project/ research and monitoring reports. Peer reviewed publications, databases, improved natural resource management.	Inadequate support for research and monitoring, lack of incentives, inordinate delays in research permissions, isolationist approach of

Project Strategy	Objectively Verifiable Indicators				
Project Objectives and Outcomes	**Project Output**	**Target**	**Indicator**	**Source of Verification**	**Risks and Assumptions**
	well as periodic evaluation of the project.		monitoring findings. Local level monitoring mechanisms setup. Learnings on best practices and models disseminated within and outside project villages.		research and monitoring, inadequate management oriented research.
	Output 4.2 Plans for documentation of lessons learned and preparation of information dissemination products for wider audiences and applicability.	Innovative approaches for adaptive management of natural resources, particularly river ecosystem targeted. Successful implementation of community driven management of natural resources and river ecosystems implemented.	Successful and effective NRM and river management. Documentation of successful approaches in project design, development, and implementation. Case study on best practices developed.	Reports and periodic evaluation. Case studies and lessons learned, publications, and other documents.	Ineffective research and monitoring and adaptive management approaches. Lack of support for scaling up of riverscape conservation approaches. State level implementing agencies and partner organizations lack capacity to coordinate and monitor project effectively and ensure timely fund flows to landscape/ plantation/ treatment sites.

Annexure 2: Different Plant Species Suitable for Different Plantation Models of Three Landscapes of Beas Riverscape in Himachal Pradesh and Punjab

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
1.	*Abies pindrow* (Royle ex D. Don) Royle	Silver Fir	Pinaceae	Tree	Potent antioxidant and the wood is used for house interior, furniture and fuel.
2.	*Abies spectabilis* (D. Don) Mirb.	Himalayan Fir	Pinaceae	Tree	Leaves are used as astringent and used as expectorant and tonic.
3.	*Acacia catechu* (L.f.) Willd.	Khair	Leguminoceae	Tree	Extract is used in preserving fishing nets, used for dying cotton and silk. Medicinal preparation combats skin disorders.
4.	*Acacia nilotica* (L.) Delile	Babul	Mimosaceae	Tree	The plant has anti-microbial, anti-plasmodia and antioxidant activity.
5.	*Acer cappadocicum* Gled.	Maple	Sapindaceae	Tree	The wood is used for construction, ploughs, bedsteads, and poles to carry loads.
6.	*Acer acuminatum* Wall. ex D. Don	Tapering Leaf Maple	Sapindaceae	Tree	Leaves are used as tea substitute and the leaves are packed around apples to preserve them.
7.	*Acer caesium* Wall. ex Brandis	Bluish Grey Maple	Sapindaceae	Tree	The juice of the bark is used externally to treat muscular swellings, boils and pimples.
8.	*Acer pictum* Thunb.	Yellow-paint Maple	Sapindaceae	Tree	Ornamental plant and the wood is used for ploughs, bedsteads, and poles to carry loads.
9.	*Acer oblongum* Wall. ex DC	Himalayan Maple	Sapindaceae		Used for agricultural implements and minor construction etc.
10.	*Aconitum heterophyllum* Wall. ex Royle	Atish/Patish	Ranunculaceae	Herb	Migraines, headaches, vomiting, piles, burning sensation, etc.
11.	*Aconitum violaceum* Jacquem. ex Stapf	Dudhia-Bis, MithaTelia	Ranunculaceae	Herb	The plant is used in traditional Tibetan medicine.
12.	*Haldina cordifolia* (Roxb.) Ridsdale	Haldu	Rubiaceae	Tree	Used in Ayurvedic medicine preparation treats skin diseases, wounds, vomiting and intestinal worms.
13.	*Aegle marmelos* (L.) Corrêa	Bael	Rutaceae	Tree	Fruit pulp is used to prepare delicacies like murabba, puddings and juice. Bael fruits

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
					are used in the treatment of chronic diarrhea, dysentery and peptic ulcers.
14.	*Aesculus indica* (Wall. ex Cambess.) Hook.	Khanor, Bankhor	Sapindaceae	Tree	It is used in traditional Indian medicine for the treatment of some skin diseases and rheumatism.
15.	*Agropyron longiaristatum* (Boiss.) Boiss.	Wheat grass	Poaceae	Grass	Couch grass has been used as a diuretic in cases of bladder catarrh and bladder/kidney stones.
16.	*Agrostis gigantea* Roth	Bent grass	Poaceae	Grass	Fodder and soil conservation.
17.	*Agrostis palustris* Huds.	Creeping Bent grass	Poaceae		Fodder and soil conservation.
18.	*Agrostis pilosula* Trin.	Bent grass	Poaceae	Grass	Fodder and soil conservation.
19.	*Ailanthus excelsa* Roxb.	Indian Tree of Heaven, Mahanimb	Simaroubacea e		Aromatic leaves have medicinal properties and bark is a febrifuge and can be used as a treatment against asthma, bronchitis and dysentery.
20.	*Ainsliaea aptera* DC.	Tito Butee	Asteraceae	Herb	Roots are dried and crushed in a pestle mortar in a small quantity of water, 2-3 g of paste are then taken orally 3-4 times with lukewarm water to relieve stomachache, constipation and acute fever.
21.	*Ajuga integrifolia* Buch.-Ham.	Neelkanthi	Lamiaceae	Herb	The juice of the root is used in the treatment of diarrhea and dysentery.
22.	*Albizia julibrissin* Durazz.	Persian acacia, Silk tree	Leguminoceae	Tree	Fodder
23.	*Albizia chinensis* (Osbeck) Merr.	Chinese Albizia, Kala Siris	Leguminoceae	Tree	Used for ornamental purpose and is helpful for slope stabilization and soil improvement. Its wood is used to make light furniture and boat building.
24.	*Albizia lebbeck* (L.) Benth.	Siris	Leguminoceae	Tree	Used as an astringent, treats eye diseases, lung problems and also used as tonic.
25.	*Allium humile* Kunth	Wild Onion	Amaryllidacea e	Herb	Wild onion has economic value. Used for spices.
26.	*Alstonia scholaris* (L.) R. Br.	Devil tree, Saptaparni	Apocynaceae	Tree	Its milky juice is used to treat ulcers and its bark is used in ayurvedic medicines. The

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
					leaves and latex are applied externally to treat tumors.
27.	*Anemone tetrasepala* Royle	Four petal Anemone	Ranunculaceae	Herb	Used to treat traumatic injury, rheumatic arthralgia and ascariasis.
28.	*Angelica glauca* Edgew.	Chora	Apiaceae	Herb	Used in the treatment of various skin diseases, bites of poisonous animals, fever, rhinitis, gastric and psychiatric disorders. Used as a spice.
29.	*Apluda mutica* L.	Mauritian Grass, Tachula	Poaceae	Grass	Poultice of the plant is used to cure sores of cattle.
30.	*Araucaria araucana* (Molina) K. Koch	Christmas tree	Araucariaceae	Tree	Ornamental
31.	*Arnebia benthamii* (Wall. ex G. Don) I.M. Johnst.	Mahaarangee, Ratanjot, Ultebhootkeshi	Boraginaceae	Herb	Used in preparation of sherbet (syrup) and jam useful in various diseases of tongue, throat, fever and cardiac disorders. Also used in skin diseases and hair tonic.
32.	*Artemisia* spp.	Artimisia	Asteraceae	Herb	Medicinal herb (Anti Malaria)
33.	*Arundinella nepalensis* Trin.	River grass	Poaceae	Grass	The canes are used for thatching and fencing.
34.	*Avena fatua* L.	Wild Oats	Poaceae	Grass	Straw has wide range of use; fibre, mulch, paper-making & thatching.
35.	*Azadirachta indica* A. Juss.	Neem	Meliaceae	Tree	Neem leaf is used for leprosy, eye disorders, bleeding nose, skin ulcers and intestinal worms.
36.	*Bambusa bambos* (L.) Voss	Indian Thorny Bamboo, Baans	Poaceae	Tree	Leaves are antispasmodic and relieve menstrual pain. Also used as fodder, pulp is used for paper making and the seeds are edible.
37.	*Bauhinia variegata* L.	Kachnar	Leguminoceae	Tree	The leaves and flowers are edible and eaten as vegetables.
38.	*Berberis aristata* DC.	Indian Barberry, Chitra	Berberidaceae	Shrub	Used as tonic and used in treatment of diarrhea, jaundice, skin diseases and urinary disorders.
39.	*Berberis lycium* Royle	Indian Barberry, Darhaldi	Berberidaceae	Shrub	The roots are carminative, febrifuge and ophthalmic. Leaves are used in treatment of jaundice.

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
40.	*Bergenia ciliata* (Haw.) Sternb.	Hairy bergenia, Pather-chut	Saxifragaceae	Herb	The root juice is used to treat coughs and colds, haemorrhoids, asthma and urinary problems.
41.	*Bergenia stracheyi* (Hook.f. & Thomson) Engl.	Pashanbheda	Saxifragaceae	Herb	The root is used as a tonic in the treatment of fevers, diarrhea and pulmonary affections.
42.	*Betula alnoides* Buch.-Ham. ex D. Don	Bhojpatra	Betulaceae	Tree	Inner bark is edible and is used for making cakes and bread.
43.	*Betula utilis* D. Don	Bhojpatra	Betulaceae	Tree	Treatment of various ailments and diseases such as skin disinfectant.
44.	*Boerhavia diffusa* L.	Punarnava	Nyctaginaceae	Grass	Popular in Ayurveda, this herb is known for its anti-inflammatory and analgesic properties.
45.	*Bombax ceiba* L.	Silk Cotton Tree, Shalmali	Bombacaceae	Tree	The plant possesses astringent properties, cooling, stimulant and aphrodisiac.
46.	*Bougainvillea* spp.	Bougainvillea	Nyctaginaceae	Shrub	Landscaping
47.	*Capparis decidua* (Forssk.) Edgew.	Bare Caper, Kair	Capparidaceae	Shrub	The plant is traditionally used to cure toothache, arthritis, asthma, cough and malaria.
48.	*Carpinus viminea* Wall. ex Lindl.	Himalayan Hornbeam	Betulaceae	Tree	Root powder is taken in porridge or in tea. It has hepato protective properties.
49.	*Cedrus deodara* (Roxb. ex D. Don) G. Don	Devdar	Pinaceae	Tree	Timber tree
50.	*Celtis australis* L.	Khirak	Urticaceae	Tree	The decoction can also be used to astringe the mucous membranes in the treatment of diarrhea, dysentery and peptic ulcers. It is good fodder tree.
51.	*Chrysopogon fulvus* (Spreng.) Chiov.	Dholu, Goria	Poaceae	Grass	Used for erosion control, lawns, forage and medicines.
52.	*Cinnamomum tamala* (Buch.-Ham.) T. Nees & Eberm.	Indian Bay Leaf, Tejpatta	Lauraceae	Tree	Treats diabetes, cough, and arthritis and is also used as a spice or flavoring agent.
53.	*Cornus capitata* Wall.	Evergreen Dogwood	Cornaceae	Tree	It is edible but sometimes bitter.
54.	*Cornus*	Large Leaf	Cornaceae	Tree	Anodyne and astringent but

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
	macrophylla Wall.	Dogwood			mainly used for ornamental purpose.
55.	*Cornus oblonga* Wall.	Oblong-Petal Dogwood	Cornaceae	Shrub	Used principally to reduce heavy menstrual bleeding and unusually active secretions.
56.	*Corylus jacquemontii* Decne.	Bhotiya badam	Betulaceae	Tree	The nuts of all hazels are edible.
57.	*Cotoneaster bacillaris* Wall. ex Lindl.	Dhalkephool	Rosaceae	Shrub	Garden shrubs, grown for their attractive habit and decorative fruit.
58.	*Cupressus torulosa* D. Don	Himalayan cypress	Cupressaceae	Tree	Traditionally used in cold and cough. Ornamental.
59.	*Cymbopogon distans* (Nees ex Steud.) W.Watson	Malabar Grass, Lemongrass	Poaceae	Grass	Used as a medical herb and in perfumes.
60.	*Cymbopogon martini* (Roxb.) W.Watson	Gandhabel	Poaceae	Grass	Used as traditional medicine, its oil are used to treat rheumatism, hair loss, arthritis, lumbago and spasms. The essential oil is a strong fungicide.
61.	*Dactylorhiza hatagirea* (D. Don) Soó	Salem Panja,	Orchidaceae	Herb	It is used as a nerve tonic and aphrodisiac.
62.	*Dalbergia sissoo* DC.	Indian rosewood, Shisham	Leguminoceae	Tree	Used as firewood, timber, tool handles. It is used as windbreak and for erosion control.
63.	*Danthonia* spp.	Wallaby grass	Poaceae	Grass	It is used as ornamental grass.
64.	*Daphne oleoides* Schreb.	Kashmir Daphne	Thymelaeaceae	Shrub	An infusion of the bark and leaves are used in the treatment of cutaneous affections.
65.	*Daphne papyracea* Wall. ex G. Don	Indian Paper Plant	Thymelaeaceae	Shrub	Main source of raw material for the production of lokta paper, a hand-made paper from Nepal.
66.	*Debregeasia saeneb* (Forssk.) Hepper & J.R.I.Wood		Urticaceae	Shrub	Fiber is obtained from bark and wood is used for fuel.
67.	*Delphinium denudatum* Wall. ex Hook.f. & Thomson	Nirbishi	Ranunculaceae	Herb	Useful in ailments such as aconite poisoning, brain diseases, fungal infection, piles and toothache as analgesic and astringent.

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
68.	*Dendrocalamus hamiltonii* Nees & Arn. ex Munro	Tama Bamboo	Poaceae	Grass	Culms are used for temporary constructions like houses and bridges.
69.	*Dendrocalamus strictus* (Roxb.) Nees	Calcutta Bamboo, Hard bamboo, solid bamboo, stone bamboo, Bans	Poaceae	Grass	Used as raw material in paper mills and used for light construction, furniture, mats and sticks.
70.	*Desmodium elegans* DC.	Elegant Desmodium, Chamlai	Leguminoceae	Shrub	Roots are carminative, diuretic and used as tonic.
71.	*Desmodium gangeticum* (L.) DC.	Sal Leaved Desmodium, Dhruva.	Leguminoceae	Shrub	Antioxidant and protects body from diseases and boosts immunity.
72.	*Deutzia corymbosa* R.Br. ex G. Don	Clustered Coelogyne	Hydrangeaceae	Shrub	The plant is known to clear heat and toxins, activate blood circulation, promote diuresis and relieve stranguria.
73.	*Deutzia staminea* R.Br. ex Wall.	Clustered Coelogyne	Hydrangeaceae	Shrub	The plant is known to clear heat and toxins and activate blood circulation.
74.	*Diospyros montana* Roxb.	Bombay ebony, Bistendu	Ebenaceae	Tree	The fruits are applied externally to boils and spider stings.
75.	*Drepanostachyum falcatum* (Nees) Keng f.	Nigalo Bans	Poaceae	Grass	Small timber.
76.	*Eulalia aurea* (Bory) Kunth	Hardy pampas grass	Poaceae	Grass	Aggressive grass that has been sold in nurseries for use as an ornamental grass in gardens, and for stabilizing soil to prevent erosion.
77.	*Eucalyptus* spp.	Safeda	Myrtaceae		Essential oil is obtained from the leaves.
78.	*Euonymus tingens* Wall.	Dadul, Dharua	Celastraceae	Shrub	Wood is traditionally used for the making of spindles for spinning wool. Ornamental.
79.	*Ferula jaeschkeana* Vatke	Wild Asafoetida, Hing	Apiaceae	Herb	Treats hysteria, bronchitis, whooping cough and asthma.
80.	*Festuca rubra* L.	Red Fescue	Poaceae		Ornamental
81.	*Ficus benghalensis* L.	Banyan Tree, Barh	Moraceae	Tree	Useful in diseases of head and blood, leprosy and nose bleeding.
82.	*Ficus carica* L.	Common Fig, Anjeer	Moraceae	Tree	Used to treat gastrointestinal tract and urinary tract infection.

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
83.	*Ficus palmata* Forssk.	Punjab Fig, Anjiri	Moraceae	Tree	Fruit is demulcent, emollient and laxative.
84.	*Ficus racemosa* L.	Cluster fig, Goolar	Moraceae	Tree	Treats liver disorders, hemorrhoids and urinary diseases.
85.	*Ficus rumphii* Blume	Golden Rumph's Fig, Pilkhan	Moraceae	Tree	Juice from the plant kills worms and has anti cancer properties.
86.	*Ficus* spp.	Anjeer	Moraceae	Tree	Used to cure diabetes, liver disorders, diarrhea, inflammatory conditions, hemorrhoids, respiratory, and urinary diseases. Fruits are edible.
87.	*Geranium nepalense* Sweet	Nepal Geranium, Bhanda	Geraniaceae	Herb	Astringent and treats renal diseases.
88.	*Geranium wallichianum* D. Don ex Sweet	Raaklaamool	Geraniaceae	Herb	Garden worthy plant.
89.	*Ginkgo biloba* L.	BalKumari	Ginkgoaceae	Tree	Used to treat altitude sickness (prevention), cerebral vascular insufficiency, cognitive disorders and dementia.
90.	*Grewia optiva* J.R. Drumm. ex Burret	Bihul	Malvaceae	Tree	Important agro-forestry tree species and provides fodder, fiber and fuel.
91.	*Hedychium spicatum* Sm.	Spiked Ginger Lily, Sandharlika	Zingiberaceae	Herb	It is aromatic, antiseptic, expectorant and anti inflammatory.
92.	*Heracleum candicans* Wall. ex DC.	Chhataya, Aswal	Apiaceae	Herb	Spices, flavoring, aphrodisiac, tonic, colic, digestive, antipyretic, diaphoretic, itching, skin disorders, etc.
93.	*Heteropogon contortus* (L.) P. Beauv. ex Roem. & Schult.	Bunched Spear Grass	Poaceae	Grass	Planted for erosion control and revegetation of degraded habitats.
94.	*Hibiscus* spp.	Bladder Ketmia	Malvaceae	Shrub	Treat heart and nerve diseases, and as a diuretic to increase urine production.
95.	*Hydrangea* spp.	Wild Hydrangea	Hydrangeaceae	Shrub	Ornamental uses.
96.	*Hyoscyamus niger* L.	Khurasani Ajwain	Solanaceae	Herb	Henbane is used in Homeopathic medicine.
97.	*Hypericum oblongifolium*	Hypericum	Hypericaceae	Shrub	Used as a treatment for numerous ailments, including

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
	Choisy				hepatitis, gastric ulcers and bee stings.
98.	*Hypericum perforatum* L.	Perforate St Johns Wort, Choli Phulya	Hypericaceae	Shrub	Used to treat anxiety, mild to moderate depression and sleep related disorders.
99.	*Indigofera heterantha* Brandis	Himalayan Indigo	Leguminoceae	Shrub	The branches are used in basket making and in making twig bridges.
100.	*Juglans regia* L.	Walnut	Juglandaceae	Tree	The leaves are used to treat skin ailments and purify the blood. Kernel edible.
101.	*Jurinea macrocephala* DC.	Dhup	Asteraceae	Herb	The bruised root is applied as a poultice to eruptions.
102.	*Justicia adhatoda* L.	Malabar Nut, Arus	Acanthaceae	Shrub	Treats asthma, cough and breathing troubles.
103.	*Lonicera quinqueloculari s* Hard.	Long-Flower Honeysuckle	Caprifoliaceae	Shrub	Used as a low hedging plant, and for topiary.
104.	*Lyonia ovalifolia* (Wall.) Drude	Angeri	Ericaceae	Tree	The young leaves and buds are toxic, but they are used externally as an infusion to treat skin diseases and external parasites.
105.	*Maesa indica* (Roxb.) A. DC.	Karmighna	Primulaceae	Shrub	Fruits and bark are used in poisoning fish.
106.	*Magnolia grandiflora* L.	Him champa, Bull Bay	Magnoliaceae	Tree	It is a commonly grown ornamental shrub.
107.	*Magnolia liliiflora* Desr.	Lily Magnolia, Star magnolia	Magnoliaceae	Shrub	It is a commonly grown ornamental shrub.
108.	*Mallotus phillippensis* (Lam.) Müll. Arg.	Kaamala Tree, Kamala	Euphorbiaceae	Tree	Used to treat tape worm infestations and is applied externally for parasitic skin diseases.
109.	*Malus baccata* (L.) Borkh.	Wild apple	Rosaceae	Tree	Wild edible fruits.
110.	*Malus* spp.	Seb	Rosaceae	Tree	Fruits
111.	*Morus alba* L.	Shahtoot	Moraceae	Tree	Used in traditional Chinese medicine to treat asthma, bronchitis, edema, and diabetes. Fodder and silkworm production.
112.	*Murraya koenigii* (L.) Spreng.	Curry Leaf, Kari patta	Rutaceae	Shrub	Used as stimulant and for management of diabetes. Also used to flavor curries.
113.	*Murraya*	Orange	Rutaceae	Shrub	Used to treat cough, hysteria

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
	paniculata (L.) Jack	Jasmine, Kamini			and rheumatism.
114.	*Myrica esculenta* Buch.-Ham. ex D. Don	Box Myrtle, Kaphal	Myricaceae	Tree	Treats cough, asthma, inflammation and anemia.
115.	*Nardostachys jatamansi* (D. Don) DC.	Jatamansi	Valerianaceae	Herb	Roots and rhizomes treat hysteria, epilepsy and mental weakness.
116.	*Neolitsea pallens* (D. Don) Momiy. & H. Hara	Chirchira	Lauraceae	Tree	The bark and leaves are used for treatment of fractures. The powdered leaf is used for dusting the cut surface of coconut inflorescences in the process of toddy tapping.
117.	*Nerium oleander* L.	Kaner	Apocynaceae	Shrub	It is bitter, acrid, anthelmintic, adaptogenic, analgesic, and aphrodisiac anticancer and anti-inflammatory.
118.	*Nyctanthes arbor-tristis* L.	Parijat, Shefali	Oleaceae	Shrub	Used in various ailments like fever, enlargement of the spleen, malaria, blood dysentery, cough and gastritis.
119.	*Oroxylum indicum* (L.) Kurz	Broken Bones Tree, Bhut-vriksha	Bignoniaceae	Tree	Often grown as ornamental tree and is known to treat fever, cough and diarrhea.
120.	*Parrotiopsis jacquemontiana* (Decne.) Rehder	Parrotia, killer	Hamamelidaceae	Shrub	Used for skin infections and in wound healing.
121.	*Machilus duthiei* King	Duthie's Bay Tree	Lauraceae	Tree	Essential oil is extracted from the plant and is used against inflammation and asthma.
122.	*Phleum pratense* L.	Alpine Cat Tail	Poaceae	Grass	Used in small amounts as part of a new hay fever vaccine.
123.	*Phlomoides bracteosa* (Royle ex Benth.) Kamelin & Makhm.	Purple Jerusalem Sage	Lamiaceae	Herb	Analgesic and antidiarrheal properties.
124.	*Phoenix* spp.	Parusakah	Arecaceae	Tree	Date Palm is used in treatment of bladder stones, piles, fevers, dysentery, rectal prolepses, cough, urinary tract infections, etc.
125.	*Phytolacca acinosa* Roxb.	Himalayan Pokeberry	Phytolaccaceae	Herb	The root is antiasthmatic, antibacterial, antidote, antifungal, antitussive, diuretic, expectorant, laxative and

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
					vermifuge.
126.	*Picea smithiana* (Wall.) Boiss.	Himalayan Spruce, Rai	Pinaceae	Tree	Wood used in construction, crates and household purposes.
127.	*Picrorhiza kurroa* Royle ex Benth.	Kutki, Karwi	Scorphulariaceae	Herb	Used to treat disorders of the liver and upper respiratory tract, chronic diarrhea, and scorpion sting.
128.	*Pinus roxburghii* Sarg.	Chir pine	Pinaceae	Tree	Timber, resin and oleoresin.
129.	*Pinus wallichiana* A.B. Jacks.	Himalayan Blue Pine, Kail	Pinaceae	Tree	Used in construction, crates, household purposes.
130.	*Pistacia chinensis* subsp. *integerrima* (J. L. Stewart ex Brandis) Rech. f.	Kakkar, kakra-singi	Anacardiaceae	Tree	Used as timber, dye and fodder. Leaf galls are used in traditional herbalism.
131.	*Pittosporum eriocarpum* Royle	Doon cheesewood	Pittosporaceae	Tree	Used in treatment of narcotic, expectorant and bronchitis.
132.	*Platanus orientalis* L.	Oriental plane	Platanaceae	Tree	The fresh leaves are bruised and applied to the eyes in the treatment of ophthalmic. Ornamental.
133.	*Poa pratensis* L.	Smooth Brome	Poaceae	Grass	Used in lawns and gardens. Fodder.
134.	*Podophyllum hexandrum* Royle	Ban Kakri, Himalayan May Apple	Berberidaceae	Herb	Used to provide symptomatic relief in some of the allergic and inflammatory conditions.
135.	*Polygonatum cirrhifolium* (Wall.) Royle	Coiling Leaf Polygonatum, Mahmeda	Asparagaceae	Herb	Used in the treatment of loss of vigor, pain in the kidneys and hips, swelling and fullness in the abdominal region.
136.	*Polygonatum verticillatum* (L.) All.	Whorled Solomon's Seal, Meda, Salam-misri	Asparagaceae	Herb	Extensively used to cure various health troubles as cardio-tonic, antiperiodic, demulcent, diuretic, energizer, aphrodisiac, sedative, hypoglycemic, antitumor, pain reliever, general tonic, nervine tonic, etc.
137.	*Pongamia pinnata* (L.) Pierre	Pongam Tree, Karanj	Leguminoceae	Tree	Used as crude drug for tumors, piles, skin diseases and ulcers.
138.	*Populus alba* L.	Silver Poplar	Salicaceae	Tree	It is used internally in the treatment of rheumatism,

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
					arthritis, gout, lower back pains. Timber tree.
139.	*Populus ciliata* Wall. ex Royle	Himalayan Poplar, Ban Peepal	Salicaceae	Tree	Timber
140.	*Populus deltoides* Marshall	Necklace Poplar	Salicaceae	Tree	The bark is anodyne, anti-inflammatory and febrifuge. Timber tree.
141.	*Prinsepia utilis* Royle	Bhekhal	Rosaceae	Shrub	As a treatment for rheumatism and muscular pain caused by hard work. Edible oil from kernels.
142.	*Prunus cerasoides* Buch.-Ham. ex D. Don	Padmakashtha	Rosaceae	Tree	Used to treat vomiting, nausea and gastritis.
143.	*Prunus cornuta* (Wall. ex Royle) Steud.	Himalayan bird cherry	Rosaceae	Tree	Edible fruits.
144.	*Pterocarpus marsupium* Roxb.	Indian Kino Tree, Vijayasara	Leguminoceae	Tree	Bark is used for bleeding gums and toothaches.
145.	*Punica granatum* L.	Darru	Punicaceae	Tree	Used for making *anardana* which is used as souring agent in various preparations? It has anti bacterial and anti-tumor properties.
146.	*Pyrus pashia* Buch.-Ham. ex D. Don	Wild pear, Kainth	Rosaceae	Tree	It is used in gastrointestinal disorders, fever and headache, sweating of body. Edible fruits.
147.	*Quercus floribunda* Lindl. ex A. Camus	Mohru Oak, Moru	Fagaceae	Tree	Used as fuelwood, charcoal, timber and fodder.
148.	*Quercus glauca* Thunb.	Glaucous Oak, Banni	Fagaceae	Tree	Fuelwood, charcoal, timber and construction of agricultural implements.
149.	*Quercus oblongata* D. Don	Ban Oak	Fagaceae	Tree	Bark is used to make tea which is effective against diarrhea, fever and cold.
150.	*Quercus semecarpifolia* Sm.	Kharshu	Fagaceae	Tree	Any galls produced on the tree are strongly astringent. The juice of the bark is applied externally to treat muscular pain.
151.	*Rheum australe* D. Don	Himalayan Rhubarb	Polygonaceae	Herb	The root is antiseptic, antispasmodic, antitumor, astringent, demulcent, diuretic, laxative, purgative, stomachic

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
					and tonic.
152.	*Rheum moorcroftianum* Royle	Chukri	Polygonaceae	Herb	It is commonly used for the management of renal function disorders, cancer and improves the memory in senile patients.
153.	*Ricinus communis* L.	Castor bean, Arandi	Euphorbiaceae	Shrub	Castor oil is extracted from it and it has antimicrobial property.
154.	*Rosa moschata* Herrm.	Ban Gulab	Rosaceae	Shrub	Used for the treatment of abdominal spasm and diarrhea.
155.	*Rubus biflorus* Buch.-Ham. ex Sm.	Raspberry	Rosaceae	Shrub	Fruit edible.
156.	*Rubus ellipticus* Sm.	Himalayan raspberry	Rosaceae	Shrub	Fruit is edible and renal tonic is prepared from the plant.
157.	*Rubus macilentus* Jacquem. ex Cambess.		Rosaceae	Shrub	Fruit edible.
158.	*Rubus niveus* Thunb.	Mysore Raspberry, Kala hinsalu	Rosaceae	Shrub	Edible fruit.
159.	*Saccharum bengalense* Retz.	Munj Sweetcane, Sarkanda	Poaceae	Grass	Planted for soil conservation.
160.	*Saccharum spontaneum* L.	Kans grass, Kaans	Poaceae	Grass	Roots are astringent, diuretic, tonic and aphrodisiac.
161.	*Salix alba* L.	White Willow	Salicaceae	Tree	Bark is used for pain, including headache, muscle pain, menstrual cramps. Timber and cricket bats.
162.	*Salix babylonica* L.	Weeping Willow	Salicaceae	Tree	The leaves and bark are antirheumatic, astringent and tonic. Ornamental.
163.	*Salix daphnoides* Vill.	Violet Willow	Salicaceae	Tree	Ornamental purpose and also used as food.
164.	*Sapindus mukorossi* Gaertn.	Chinese Soapberry, Ritha	Sapindaceae	Tree	Seeds are used to remove tan and freckles from the face.
165.	*ActinoActinoscirpus grossus* (L.f.) Goetgh. & D.A.Simpso.	Kaseru, Club-rush	Cyperaceae	Herb	Bio-remediation
166.	*Selinum wallichianum* (DC.) Raizada & H.O. Saxena.	Leaf Milk Parsley	Apiaceae	Herb	Used to treat rheumatism and kidney disease.

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
167.	*Sesbania sesban* (L.) Merr.	Common sesban, Jayanti	Leguminoceae	Tree	Used as forage and green manure.
168.	*Setaria glauca* (L.) P.Beauv.	Bandra, Bankauni	Poaceae	Grass	It is regarded as a fairly good green fodder for cattle. The grains of the wild as well as cultivated types are used as food.
169.	*Setaria viridis* (L.) P. Beauv.	Foxtail grass	Poaceae	Grass	It is regarded as a fairly good green fodder for cattle.
170.	*Shorea robusta* Gaertn.	Sal	Dipterocarpaceae	Tree	Astringent and burned as incense in Hindu ceremonies.
171.	*Spiraea canescens* D. Don	Jhar Mairala	Rosaceae	Shrub	The leaves and flowering stems are alterative, anti-inflammatory, antiseptic, aromatic, astringent, diaphoretic, diuretic, stomachic and tonic.
172.	*Syringa emodi* Wall. ex Royle	Himalayan Lilac	Oleaceae	Shrub	Used as folk medicine
173.	*Syzygium cumini* (L.) Skeels	Jamun	Myrtaceae	Shrub	Used as folk medicine. Fruits have a sweet or slightly acidic flavor, are eaten raw, and may be made into sauces or jam
174.	*Taxus wallichiana* Zucc.	Thuno, Rakhal	Taxaceae	Tree	Anti-cancerous, cold, cough, fever and pain. Ornamental.
175.	*Tecomella undulata* (Sm.) Seem.	Honey Tree, Roheda	Bignoniaceae	Tree	Bark is used as remedy for syphilis.
176.	*Tectona grandis* L. f.	Teak, Sagun	Lamiaceae	Tree	Useful agroforestry tree species. Wood is useful in treatment of piles.
177.	*Tephrosia purpurea* (L.) Pers.	Sarapunkha	Leguminoceae	Shrub	Plant is antihelminthic, alexiteric, restorative and antipyretic.
178.	*Terminalia arjuna* (Roxb. ex DC.) Wight & Arn.	Arjun Tree	Combretaceae	Tree	Used to treat asthma, scorpion stings and poisoning.
179.	*Terminalia bellirica* (Gaertn.) Roxb.	Bedda nut tree, Bahera	Combretaceae	Tree	Protects liver and treats respiratory tract infections.
180.	*Terminalia chebula* Retz.	Chebulic Myrobalan, Harad	Combretaceae	Tree	Used to lower down high cholesterol level and digestive disorders.
181.	*Thamnocalamus spathiflorus*	Hill Bamboo	Poaceae	Shrub	Basket making.

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
	(Trin.) Munro				
182.	*Thysanolaena maxima* (Roxb.) Kuntze	Bamboo Grass	Poaceae	Grass	The leaves provide green forage for livestock, the roots promote soil conservation.
183.	*Toona ciliata* M. Roem.	Toon	Meliaceae	Tree	Bark is used for tanning leather. It is used as astringent and also used as tonic.
184.	*Trifolium pratense* L.	Tripatra	Leguminoceae	Grass	Fodder
185.	*Trillium govanianum* Wall. ex D. Don	Himalayan Trillium, Nagchhatri	Melanthiaceae	Herb	Roots are used to stop postpartum bleeding.
186.	*Ulmus wallichiana* Planch.	Himalayan Elm	Ulmaceae	Tree	Fodder, Medicinal, Fuel and Timber.
187.	*Ulmus villosa* Brandis ex Gamble	Cherry Bark Elm	Ulmaceae	Tree	Fodder and Fuel.
188.	*Valeriana jatamansi* Jones	Mushq Bala, Jatamansi	Valerianaceae	Herb	It is used as a remedy for hysteria, hypochondriasis, nervous unrest and emotional stress.
189.	*Chrysopogon zizanioides* (L.) Roberty	Khas-khas	Poaceae	Grass	Used as coolent and aids in digestion.Considered as high class perfume.
190.	*Viburnum cotinifolium* D. Don	Smoke tree, Leaved Bhatnoi	Adoxaceae	Shrub	Fodder plant.
191.	*Viburnum grandiflorum* Wall. ex DC.	Grand Viburnum	Adoxaceae	Shrub	Leaves are purgative and diuretic and bark is used to treat malaria.
192.	*Viburnum mullaha* Buch.-Ham. ex D. Don	Starry Viburnum	Adoxaceae	Shrub	Treats menstrual pain and morning sickness.
193.	*Viburnum nervosum* D. Don	Molo	Adoxaceae	Shrub	Used in traditional medicine as a blood purifier
194.	*Viola biflora* L.	Yellow Wood Violet, Banaksha	Violaceae	Herb	The flowers are antispasmodic, diaphoretic, emollient and pectoral.
195.	*Viola pilosa* Blume	Banaksha	Violaceae	Herb	Antipyretic, diuretic and febrifuge in action. It treats various respiratory diseases.
196.	*Woodfordia fruiticosa* (L.) Kurz	Red Bell Bush, Dhawai	Lythraceae	Shrub	Flower is applied externally to relieve burning sensation and it is a powerful astringent.

Sr. No.	Botanical Name	Common Name	Family	Habit	Uses
197.	*Zanthoxylum armatum* DC.	Tejphal, Tirmir	Rutaceae	Shrub	Used in many chronic problems such a rheumatism and skin diseases; chilblains, cramp in the leg, varicose veins and varicose ulcers. Also used as spice.
198.	*Ziziphus nummularia* (Burm.f.) Wight & Arn.	Jhar Beri,	Rhamnaceae	Shrub	Analgesic, anti inflammatory and antihelminthic.
199.	*Ziziphus jujuba* Mill.	Ber	Rhamnaceae	Shrub	Fruit is edible and is used to improve muscular strength and weight. It reduces constipation.

Annexure 3: Model-Wise / Activity-Wise Lists of Forest Divisions for Forestry Interventions

Model	Division	Area (ha)
A - Himachal Pradesh		
(a) - Natural Landscape		
BS/HP/NL/01	Dharamshala	5
BS/HP/NL/02	Kullu	15
	Nachan	10
	Parvati	60
BS/HP/NL/03	Kullu	85
	Mandi	20
	Palampur	10
	Parvati	57
	Seraj	40
BS/HP/NL/04	Dalhousie	10
	Joginder Nagar	740
	Kullu	280
	Mandi	150
	Nachan	40
	Palampur	169
	Parvati	85
	Seraj	76
BS/HP/NL/05	Kullu	35
BS/HP/NL/06	Dalhousie	30

	Dharamshala	55
	Hamirpur	282
	Kullu	20
	Mandi	269
	Nachan	40
	Palampur	161
	Parvati	5
	Seraj	5
BS/HP/NL/07	Dalhousie	35
	Dharamshala	120
	Hamirpur	24
	Joginder Nagar	420
	Kullu	84
	Mandi	460
	Nachan	80
	Nurpur	5
	Palampur	65
	Parvati	115
	Seraj	120
	Suket	30
BS/HP/NL/08	Dalhousie	45
	Dehra	131
	Dharamshala	175
	Hamirpur	14
	Joginder Nagar	15
	Mandi	4
	Nurpur	153
	Palampur	154
	Parvati	5
BS/HP/NL/09	Dalhousie	50
	Dehra	444
	Dharamshala	25
	Hamirpur	55
	Mandi	354
	Nachan	10
	Nurpur	30
	Palampur	20
BS/HP/NL/10	Dalhousie	100

	Dehra	430
	Dharamshala	150
	Joginder Nagar	210
	Mandi	355
	Nurpur	50
	Palampur	5
(b) - Fire Protection or Natural Regeneration		
BS/HP/NL/11	Dalhousie	200
	Dehra	320
	Dharamshala	320
	Hamirpur	300
	Joginder Nagar	500
	Karsog	450
	Kullu	230
	Mandi	270
	Nachan	300
	Nurpur	380
	Palampur	300
	Parvati	320
	Seraj	340
	Suket	500
BS/HP/NL/12	Dalhousie	80
	Dehra	170
	Dharamshala	200
	Hamirpur	180
	Joginder Nagar	180
	Karsog	10
	Kullu	45
	Mandi	60
	Nachan	15
	Nurpur	190
	Palampur	110
	Parvati	100
	Seraj	40
	Suket	200

(c) - Agriculture Landscape		
BS/HP/AL/01	Dehra	190
	Dharamshala	150
	Hamirpur	50
	Joginder Nagar	95
	Kullu	45
	Mandi	130
	Nachan	80
	Nurpur	170
	Palampur	120
	Parvati	65
	Seraj	30
	Suket	170
BS/HP/AL/02		
	Dehra	45
	Dharamshala	30
	Joginder Nagar	40
	Kullu	1.5
	Mandi	40
	Nachan	20
	Nurpur	95
	Palampur	60
	Parvati	25.5
	Seraj	15
	Suket	4
(d) - Urban Landscape		
BS/HP/UL/01		
	Dalhousie	1
	Dehra	1.5
	Dharamshala	1.5
	Hamirpur	1
	Joginder Nagar	1
	Kullu	2
	Mandi	1.5
	Nurpur	0.5
	Palampur	1.5
	Parvati	0.5
	Seraj	2
	Suket	1.5

BS/HP/UL/02		
	Dharamshala	0.5
	Hamirpur	0.5
	Kullu	0.5
	Mandi	0.5
	Nurpur	0.5
	Palampur	0.5
	Parvati	1
	Seraj	0.5
	Suket	1
BS/HP/UL/03		
	Dehra	12
	Gurdaspur	10
	Hamirpur	16
	Joginder Nagar	8
	Kullu	7
	Mandi	10
	Nachan	20
	Parvati	6
	Seraj	12
	Suket	16
BS/HP/UL/04		
	Dalhousie	1
	Dehra	0.4
	Dharamshala	0.5
	Hamirpur	1
	Joginder Nagar	1
	Kullu	1
	Mandi	1.5
	Nachan	0.4
	Nurpur	0.6
	Palampur	1
	Parvati	1
	Seraj	0.5
	Suket	0.6
(e) - SMC Interventions		
BS/HP/CI/01		
	Dalhousie	4280
	Dehra	3580
	Dharamshala	9730
	Hamirpur	12699
	Joginder Nagar	19350

	Kullu	680
	Mandi	22630
	Nachan	11480
	Nurpur	8085
	Palampur	26350
	Parvati	4510
	Seraj	10850
	Suket	3150
BS/HP/CI/02		
	Dalhousie	18351.5
	Dehra	13060
	Dharamshala	8940
	Hamirpur	20360
	Joginder Nagar	55070
	Kullu	1350
	Mandi	37320
	Nachan	21660
	Nurpur	7383
	Palampur	21880
	Parvati	20320
	Seraj	16330
	Suket	11970
BS/HP/CI/03	Dalhousie	11520
	Dehra	14850
	Dharamshala	7570
	Hamirpur	11560
	Joginder Nagar	24910
	Kullu	300
	Mandi	11190
	Nachan	11380
	Nurpur	4885
	Palampur	15880
	Parvati	31590
	Seraj	11610
	Suket	3990
BS/HP/CI/04		
	Dalhousie	1190
	Dharamshala	4690
	Hamirpur	5539
	Joginder Nagar	12628
	Kullu	540
	Mandi	15419

	Nachan	7960
	Nurpur	2730
	Palampur	5668
	Parvati	2170
	Seraj	7490
	Suket	2750
BS/HP/CI/05		
	Dalhousie	70
	Dehra	510
	Dharamshala	950
	Hamirpur	1390
	Joginder Nagar	830
	Mandi	530
	Nachan	100
	Nurpur	645
	Palampur	2310
	Parvati	330
	Seraj	100
	Suket	120
(f) - Other Interventions		
BS/HP/CI/06		
	GHNP Shamshi	80
	W L Hamirpur	25
	W L Kullu	5
	WL Div. Kullu	65
BS/HP/CI/07		
	Mandi	25
	W L Hamirpur	30
B - Punjab		
(a) -Natural Landscape		
BS/PB/NL/01	Amritsar	44
	Dasuya	187
	Gurdaspur	542
	Hoshiarpur	10
	Jalandhar	67
	Pathankot	30
BS/PB/NL/02	Dasuya	107
	Gurdaspur	48
	Jalandhar	15
	Pathankot	15

(b) – Agriculture Landscape		
BS/PB/AL/01	Amritsar	1040
	Dasuya	1310
	Gurdaspur	1100
	Hoshiarpur	1160
	Jalandhar	1100
	Pathankot	680
BS/PB/AL/02	Amritsar	170
	Dasuya	120
	Gurdaspur	185
	Hoshiarpur	145
	Jalandhar	120
	Pathankot	95
(c) – Urban Landscape		
BS/PB/UL/01	Amritsar	2
	Dasuya	1
	Gurdaspur	2
	Hoshiarpur	1
	Jalandhar	1
	Pathankot	1
BS/PB/UL/03	Amritsar	50
	Dasuya	50
	Gurdaspur	117
	Hoshiarpur	1.1
	Jalandhar	30
BS/PB/UL/04	Amritsar	1
	Dasuya	1
	Gurdaspur	3.9
	Jalandhar	0.5
	Pathankot	1.5
(d) - SMC Intervention		
BS/PB/CI/01	Tarn Taran*	1110
	Hoshiarpur	30620
	Gurdaspur	66460
	Hoshiarpur	15100
	Kapurthala	1760
BS/ PB /CI/02	Amritsar	1730
	Dasuya	10850
	Gurdaspur	29160
	Hoshiarpur	4770
	Jalandhar	3530
	Pathankot	650
BS/ PB /CI/03	Amritsar	2190
	Dasuya	4200

	Gurdaspur	20780
	Hoshiarpur	280
	Jalandhar	2390
	Pathankot	1190
BS/ PB /CI/04	Dasuya	16645
	Gurdaspur	68108
	Hoshiarpur	13040
BS/ PB /CI/05	Gurdaspur	2300
	Hoshiarpur	190
(e) - Other Interventions		
BS/ PB /CI/06	Wild Life Ferozpur	30
	Wildlife Pathankot	20
BS/ PB /CI/07	Wild Life Ferozpur	30

Annexure 4 : Site wise detail of Natural Landscape in Dalhausie Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																								
Year				I		II				III						IV						V			
Sr. No	Treatment Site name	Range	Model	A	N. C	A	NC	A	AC	A	NC	A	AC	A	CC	A	AC	A	CC	M	MC	A	C	MA	MC
1	Baila	Baklon	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	20	7.09	0	0	0	0	20	24.57	0	0	0	0	20	10.81	0	0	0	0	20	7.94
2	Banoli DPF	Bhatiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	10	0.79	0	0	0	0	10	11.92	0	0	0	0	10	4.94	0	0
3	Bara CII	Bakloh	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	20	7.49	0	0	0	0	20	25.39	0	0	0	0	20	11.28	0	0	0	0	20	8.37
4	Bhatti	Bakloh	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	20	7.09	0	0	0	0	20	24.57	0	0	0	0	20	10.81	0	0	0	0	20	7.94
5	Chabaru (Rellhban DPF)	Bhattiyat Sihunta	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	5	0.42	0	0	0	0	5	5.97	0	0	0	0	5	2.59	0	0
6	Denlho	Bhattiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	5	0.4	0	0	0	0	5	5.96	0	0	0	0	5	2.47	0	0
7	Dharla	Bhattiyat	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	5	0.42	0	0	0	0	5	6.24	0	0	0	0	5	3.19	0	0
8	Findal No.1	Bakloh	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	30	11.24	0	0	0	0	30	38.09	0	0	0	0	30	16.92	0	0	0	0	30	12.55
9	Ghadu	Bhattiyat	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	0	5	7	0	0	0	0	5	3.7	0	0	0	0	5	1.94	0	0	5	1.04

10	Gorat	Bhattiyat	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	0.42	0	0	5	6.24	0	0	0	0	5	3.19	0	0	0	0	5	1.99	0	0	5	1.59
11	Gurniara	Bhattiyat	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	0	5	5.97	0	0	0	0	5	2.59	0	0	0	0	5	1.71	0	0	5	1.38
12	Jamiyaru -1	Bhattiyat	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	0	5	5.97	0	0	0	0	5	2.59	0	0	0	0	5	1.71	0	0	5	1.38
13	Khajurna (1)	Bhattiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	0	5	5.96	0	0	0	0	5	2.47	0	0	0	0	5	1.68	0	0	5	1.36
14	Khapru DPF	Bakloh	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	20	7.09	0	0	20	24.57	0	0	0	0	20	10.81	0	0	0	0	20	7.94	0	0	20	5.01
15	Kharian DPF	Bhatiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	15	1.19	0	0	15	17.88	0	0	0	0	15	7.41	0	0	0	0	15	5.03	0	0	15	4.07
16	Kuddi DPF	Bakloh	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	0	5	5.97	0	0	0	0	5	2.59	0	0	0	0	5	1.71	0	0	5	1.38
17	Kutla	Bhattiyat	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	0	5	7	0	0	0	0	5	3.7	0	0	0	0	5	1.94	0	0	5	1.04
18	Lodhar	Bhattiyat	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	0.42	0	0	5	6.24	0	0	0	0	5	3.19	0	0	0	0	5	1.99	0	0	5	1.59
19	Ludhera	Bhattiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	0	5	5.96	0	0	0	0	5	2.47	0	0	0	0	5	1.68	0	0	5	1.36
20	Mahot DPF	Bakloh	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.84	0	0	0	0	10	11.94	0	0	0	0	10	5.17	0	0
21	Muhallo	Bhattiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	5	0.4	0	0	0	0	5	5.96	0	0	0	0	5	2.47	0	0
22	Naled	Bhattiyat	BS/HP/NL/06 -	0	0	0	0	0	0	5	0.42	0	0	0	0	5	6.2	0	0	0	0	5	3.19	0	0

			Himalayan Chir Pine Fores														4								
23	Nidal	Bhattiyat	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	5	0.42	0	0	0	0	5	6.24	0	0	0	0	5	3.19	0	0
24	Salorka DPF	Bakloh	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	20	7.09	0	0	0	0	20	24.57	0	0	0	0	20	10.81	0	0	0	0	20	7.94
25	Sangola DPF	Bakloh	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	0	5	5.97	0	0	0	0	5	2.59	0	0	0	0	5	1.71	0	0	5	1.38
26	Simble Khota DPF	Bakloh	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	0.42	0	0	5	6.24	0	0	0	0	5	3.19	0	0	0	0	5	1.99	0	0	5	1.59
27	Taragarh No.2 (Bhai-da-Bag)	Bakloh	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	0	0	0	0	20	7.09	0	0	0	0	20	24.57	0	0	0	0	20	10.81	0	0
Total				**90**	**13.46**	**110**	**40**	**90**	**110.97**	**70**	**11.2**	**110**	**137.19**	**90**	**50.49**	**70**	**85.04**	**110**	**60.63**	**90**	**33.02**	**70**	**38.02**	**200**	**68.91**

Annexure 5 : Site wise detail of Natural Landscape in Dalhausie Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**
1	Baila	Bakloh	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	20	5.01	20	4.27	20	1.72	0	0
2	Banoli DPF	Bhatiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	3.36	10	2.72	10	2.25	10	0.86

3	Bara CII	Bakloh	BS/HP/NL/09 – Eradication of Lantana (> 50%)	20	5.21	20	4.36	20	1.72	0	0
4	Bhatti	Bakloh	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	20	5.01	20	4.27	20	1.72	0	0
5	Chabaru (Rellhban DPF)	Bhattiyat Sihunta	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.71	5	1.38	5	1.15	5	0.43
6	Denlho	Bhattiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.68	5	1.36	5	1.13	5	0.43
7	Dharla	Bhattiyat	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.99	5	1.59	5	1.31	5	0.43
8	Findal No.1	Bakloh	BS/HP/NL/09 – Eradication of Lantana (> 50%)	30	7.81	30	6.54	30	2.58	0	0
9	Ghadu	Bhattiyat	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
10	Gorat	Bhattiyat	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.31	5	0.43	0	0	0	0
11	Gurniara	Bhattiyat	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
12	Jamiyaru-1	Bhattiyat	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
13	Khajurna (1)	Bhattiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
14	Khapru DPF	Bakloh	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	20	4.27	20	1.72	0	0	0	0
15	Kharian DPF	Bhatiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	15	3.38	15	1.29	0	0	0	0
16	Kuddi DPF	Bakloh	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
17	Kutla	Bhattiyat	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
18	Lodhar	Bhattiyat	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.31	5	0.43	0	0	0	0
19	Ludhera	Bhattiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
20	Mahot DPF	Bakloh	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86

21	Muhallo	Bhattiyat	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.68	5	1.36	5	1.13	5	0.43
22	Naled	Bhattiyat	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.99	5	1.59	5	1.31	5	0.43
23	Nidal	Bhattiyat	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.99	5	1.59	5	1.31	5	0.43
24	Salorka DPF	Bakloh	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	20	5.01	20	4.27	20	1.72	0	0
25	Sangola DPF	Bakloh	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
26	Simble Khota DPF	Bakloh	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.31	5	0.43	0	0	0	0
27	Taragarh No.2 (Bhai-da-Bag)	Bakloh	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	20	7.94	20	5.01	20	4.27	20	1.72
			Total	**270**	**73.88**	**270**	**50.02**	**180**	**25.61**	**70**	**6.02**

Annexure 6 : Site wise detail of Natural Landscape in Hamirpur Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**NC**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	Govt. land Batran, P-28 Bhounti,P-27 Basaral	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	2.52	0	0	2.52	0	0	37.43	0	0	37.43	0	30	19.17	19.17	0	0	0	0	30	11.94
2	Govt. Land Dharal	Hamirpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	0.79	0	10	11.92	11.92	0	0	0	10	4.94	4.94	0	0	0	0	10	3.36	0	0	10	2.72
3	Govt.Land Mehalaru	Hamirpur	BS/HP/NL/07 - Himalayan Mixed	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38

			Forest																					
4	Kunah khad near ropa village	Hamirpur	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	10	0.84	0	0	0	0.84	12.48	0	0	12.48	0	0	10	6.39	0	0
5	P-15Kashmir, P-16 TEHLI C1A, C1D	BSR	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.87	0	5	6.35	6.35	0	0	0	5	2.82	2.82	0	0	0	0	5	2.09	0	0	5	1.3
6	P-16 Dhar Sidh C-3c	Bijhari	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.32	0	4	4.77	4.77	0	0	0	4	1.98	1.98	0	0	0	0	4	1.34	0	0	4	1.09
7	P-18 Jassai,P-17 Behrar	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	3.36	0	0	3.36	0	0	49.91	0	0	49.91	0	40	25.56	25.56	0	0	0	0	40	15.91
8	P-18 Jassai,P-17 Behrar	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Fores	40	3.36	0	40	49.91	49.91	0	0	0	40	25.56	25.56	0	0	0	0	40	15.91	0	0	40	12.75
9	P-32 Noungi ,UPf jungle Rajputa	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Fores	20	1.68	0	20	24.95	24.95	0	0	0	20	12.78	12.78	0	0	0	0	20	7.96	0	0	20	6.38
10	P-33 Bodh	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	1.26	0	0	1.26	0	0	18.72	0	0	18.72	0	15	9.58	9.58	0	0	0	0	15	5.97
11	P-35 Rarajori	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	30	2.52	0	0	0	2.52	37.43	0	0	37.43	0	0	30	19.17	0	0

12	p-36 Jeehan C3a,C3b, C5b U. 326 Badiyar,U.322 Badiyar	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	5.04	0	0	5.04	0	0	74.86	0	0	74.86	0	60	38.34	38.34	0	0	0	0	60	23.87
13	P-39 Tillu	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	1.68	0	0	1.68	0	0	24.95	0	0	24.95	0	20	12.78	12.78	0	0	0	0	20	7.96
14	P-6 Dhar-Jakhar C10c.	Aghar	BS/HP/NL/06 - Himalayan Chir Pine Fores	7	0.59	0	7	8.73	8.73	0	0	0	7	4.47	4.47	0	0	0	0	7	2.79	0	0	7	2.23
15	P.37 Bakroh	Barsar	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	0.42	0	5	6.24	6.24	0	0	0	5	3.19	3.19	0	0	0	0	5	1.99	0	0	5	1.59
16	P.38 Am Platoo	Barsor	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	0.42	0	5	6.24	6.24	0	0	0	5	3.19	3.19	0	0	0	0	5	1.99	0	0	5	1.59
17	P13 Phal C1d	Barsar	BS/HP/NL/07 - Himalayan Mixed Forest	4	0.34	0	4	4.77	4.77	0	0	0	4	2.07	2.07	0	0	0	0	4	1.37	0	0	4	1.11
18	P1Karot C1D	Hamirpur	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.84	0	0	0.84	0	0	11.94	0	0	11.94	0	10	5.17	5.17	0	0	0	0	10	3.43
19	P1Karot C2d	Hamirpur	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
20	P55 Dhar Chabutra	Hamirpur	BS/HP/NL/09 – Eradication of	50	18.7	0	50	63.4	63.4	0	0	0	5	28.2	28.	0	0	0	0	5	20.9	0	0	50	13.0

			Lantana (> 50%)		3			8	8				0	1	21					0	2				1
Total				**160**	**29.36**	**14.7**	**160**	**199.3**	**214**	**40**	**3.36**	**217.81**	**160**	**94.39**	**315.56**	**49.91**	**175**	**110.6**	**160.51**	**160**	**63.14**	**40**	**25.56**	**335**	**115.61**

Annexure 7: Site wise detail of Natural Landscape in Hamirpur Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**
1	Govt. land Batran, P-28 Bhounti,P-27 Basaral	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Forest	30	9.56	30	7.84	30	2.58	0	0
2	Govt. Land Dharal	Hamirpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	2.25	10	0.86	0	0	0	0
3	Govt.Land Mehalaru	Hamirpur	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
4	Kunah khad near ropa village	Hamirpur	BS/HP/NL/06 - Himalayan Chir Pine Forest	10	3.98	10	3.19	10	2.61	10	0.86
5	P-15Kashmir, P-16 TEHLI C1A, C1D	Barsar	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.09	5	0.43	0	0	0	0
6	P-16 Dhar Sidh C-3c	Bijhari	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.9	4	0.34	0	0	0	0
7	P-18 Jassai,P-17 Behrar	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Forest	40	12.75	40	10.46	40	3.44	0	0
8	P-18 Jassai,P-17 Behrar	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Forest	40	10.46	40	3.44	0	0	0	0
9	P-32 Noungi ,UPf jungle Rajputa	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Forest	20	5.23	20	1.72	0	0	0	0
10	P-33 Bodh	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Forest	15	4.78	15	3.92	15	1.29	0	0

11	P-35 Rarajori	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Forest	30	11.94	30	9.56	30	7.84	30	2.58
12	p-36 Jeehan C3a,C3b, C5b U. 326 Badiyar,U.322 Badiyar	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Forest	60	19.13	60	15.69	60	5.15	0	0
13	P-39 Tillu	Nadaun	BS/HP/NL/06 - Himalayan Chir Pine Forest	20	6.38	20	5.23	20	1.72	0	0
14	P-6 Dhar-Jakhar C10c.	Aghar	BS/HP/NL/06 - Himalayan Chir Pine Forest	7	1.83	7	0.6	0	0	0	0
15	P.37 Bakroh	Barsar	BS/HP/NL/06 - Himalayan Chir Pine Forest	5	1.31	5	0.43	0	0	0	0
16	P.38 Am Platoo	Barsar	BS/HP/NL/06 - Himalayan Chir Pine Forest	5	1.31	5	0.43	0	0	0	0
17	P13 Phal C1d	Barsar	BS/HP/NL/07 - Himalayan Mixed Forest	4	0.92	4	0.34	0	0	0	0
18	P1Karot C1D	Hamirpur	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.77	10	2.29	10	0.86	0	0
19	P1Karot C2d	Hamirpur	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
20	P55 Dhar Chabutra	Hamirpur	BS/HP/NL/09 – Eradication of Lantana (> 50%)	50	10.91	50	4.29	0	0	0	0
			Total	**375**	**109.8**	**375**	**71.92**	**215**	**25.49**	**40**	**3.44**

Annexure 8: Site wise detail of Natural Landscape in Dharamshala Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**N. C**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	145 K./Narwana C-10 [Boon+a]	Malan	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	3.36	0	0	3.36	0	0	47.75	0	0	47.75	0	40	20.7	20.7	0	0	0	0	40	13.71

2	145 KD/Narwana C-10 [Boonta]	Malan	BS/HP/NL/07 - Himalayan Mixed Forest	40	3.36	0	40	47.75	47.75	0	0	0	40	20.7	20.7	0	0	0	0	40	13.71	0	0	40	11.06
3	252 K Sadoon C1	Mallan	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	7.49	0	0	7.49	0	0	25.39	0	0	25.39	0	20	11.28	11.28	0	0	0	0	20	8.37
4	C.F.S Danoo U.2 (Kamlota Village)	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0.79	0	0	0.79	0	0	11.92	0	0	11.92	0	10	4.94	4.94	0	0	0	0	10	3.36
5	C.F.S Jhikli Kothi, Jamloti Beat	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	10	0.79	0	0	0	0.79	11.92	0	0	11.92	0	0	10	4.94	0	0
6	C.F.S Serathana U5	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	5	0.4	0	0	0	0.4	5.96	0	0	5.96	0	0	5	2.47	0	0
7	C.F.S. Danog	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0.79	0	0	0.79	0	0	11.92	0	0	11.92	0	10	4.94	4.94	0	0	0	0	10	3.36
8	C.P.S Kothi	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	0	0	0	0	30	10.64	0	0	0	10.64	36.85	0	0	36.85	0	0	30	16.21	0	0
9	CFS Jhikli Kothi Samloti Beat	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	5	0.4	0	0	0	0.4	5.96	0	0	5.96	0	0	5	2.47	0	0
10	CFS Khaniyara P-16	Dharamshala	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	10	0.84	0	0	0	0.84	12.48	0	0	12.48	0	0	10	6.39	0	0
11	CPS Jhikli Kothi	Mallan	BS/HP/NL/01- Sub-	0	0	0	0	0	0	5	0.	0	0	0	0.6	6.	0	0	6.	0	0	5	1.	0	0

	Smloti Beat		Alpine Conservation								6					04			04				7		
12	Gujrehra	Mallan	BS/HP/NL/06 - Himalayan Chir Pine Fores	20	1.68	0	20	24.95	24.95	0	0	0	20	12.78	12.78	0	0	0	0	20	7.96	0	0	20	6.38
13	H.P 253K Khawa C-1	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
14	P 28 K Mansu C1a	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
15	P-39-K Rartal C4C	Kangra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	0.79	0	10	11.92	11.92	0	0	0	10	4.94	4.94	0	0	0	0	10	3.36	0	0	10	2.72
16	P27K Pathiar C-1	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
17	P39 Ranital C-4C	Kangra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	30	2.38	0	30	35.75	35.75	0	0	0	30	14.82	14.82	0	0	0	0	30	10.07	0	0	30	8.15
18	U/Kothiar	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	6	0.5	0	6	7.16	7.16	0	0	0	6	3.1	3.1	0	0	0	0	6	2.06	0	0	6	1.66
19	UP 145K.D Narwana C-2	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
20	UP 208 K Tanda Masal	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	4	0.34	0	4	4.77	4.77	0	0	0	4	2.07	2.07	0	0	0	0	4	1.37	0	0	4	1.11

21	UP 250K Sarotri C-6	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
22	UP 252 K Sadan	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	30	2.38	0	0	0	2.38	35.75	0	0	35.75	0	0	30	14.82	0	0
23	UP 255 K Pathiar C-1B	Mallan	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	0.84	0	10	12.48	12.48	0	0	0	10	6.39	6.39	0	0	0	0	10	3.98	0	0	10	3.19
24	UP-145 K D/Narwana C-10	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
25	UP-145 K O/Narwana C-6	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
26	UP-170-K Mdird And UP-169-K Nandrool	Kangra	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.87	0	5	6.35	6.35	0	0	0	5	2.82	2.82	0	0	0	0	5	2.09	0	0	5	1.3
27	UP-207 K Dhansu C-2	Mallan	BS/HP/NL/06 - Himalayan Chir Pine Fores	15	1.26	0	15	18.72	18.72	0	0	0	15	9.58	9.58	0	0	0	0	15	5.97	0	0	15	4.78
28	UP-224 K Gujerhra	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	20	7.09	0	20	24.57	24.57	0	0	0	20	10.81	10.81	0	0	0	0	20	7.94	0	0	20	5.01
29	UP.150.K.Sihund	Nallahn	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	0	0	0	0	25	8.87	0	0	0	8.87	30.71	0	0	30.71	0	0	25	13.51	0	0

30	UP.150.K.Sihund C2	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	25	8.87	0	25	30.71	30.71	0	0	0	25	13.51	13.51	0	0	0	0	25	9.92	0	0	25	6.26
31	UP.152.K Runkar C-1	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	3.55	0	0	3.55	0	0	12.28	0	0	12.28	0	10	5.4	5.4	0	0	0	0	10	3.97
32	UP.207 K Dhangu C-2	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	20	1.59	0	0	0	1.59	23.83	0	0	23.83	0	0	20	9.88	0	0
33	UP.253 K Khawa C.14 (Saloo Village)	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	2.78	0	0	2.78	0	0	41.71	0	0	41.71	0	35	17.29	17.29	0	0	0	0	35	11.75
34	UP.253 K Khawa C.14 (Tika Saloa)	Malan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
35	UP250 K Sarotri C-6	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	0	0	0	0	40	14.19	0	0	0	14.19	49.14	0	0	49.14	0	0	40	21.61	0	0
Total				**225**	**32.3**	**18.76**	**225**	**272.87**	**291.63**	**180**	**40.7**	**150.97**	**225**	**122**	**313.67**	**218.64**	**125**	**64.55**	**283.19**	**225**	**82.05**	**180**	**94**	**350**	**107.14**

Annexure 9 : Site wise detail of Natural Landscape in Dharamshala Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				VI		VII		VIII		IX	
Sr. No	Treatment Site name	Range	Model	MA	MC	MA	MC	MA	MC	MA	MC
1	145 K./Narwana C-10 [Boonta]	Malan	BS/HP/NL/07 - Himalayan Mixed Forest	40	11.06	40	9.17	40	3.44	0	0
2	145 KD/Narwana C-10 [Boonta]	Malan	BS/HP/NL/07 - Himalayan Mixed Forest	40	9.17	40	3.44	0	0	0	0
3	252 K Sadoon C1	Mallan	BS/HP/NL/09 – Eradication of Lantana (> 50%)	20	5.21	20	4.36	20	1.72	0	0
4	C.F.S Danoo U.2 (Kamlota Village)	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	2.72	10	2.25	10	0.86	0	0
5	C.F.S Jhikli Kothi, Jamloti Beat	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	3.36	10	2.72	10	2.25	10	0.86
6	C.F.S Serathana U5	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.68	5	1.36	5	1.13	5	0.43
7	C.F.S. Danog	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	2.72	10	2.25	10	0.86	0	0
8	C.P.S Kothi	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	30	11.9	30	7.51	30	6.41	30	2.58
9	CFS Jhikli Kothi Samloti Beat	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.68	5	1.36	5	1.13	5	0.43
10	CFS Khaniyara P-16	Dharamshala	BS/HP/NL/06 - Himalayan Chir Pine Forest	10	3.98	10	3.19	10	2.61	10	0.86
11	CPS Jhikli Kothi Smloti Beat	Mallan	BS/HP/NL/01- Sub-Alpine Conservation	5	1.13	5	0.88	5	0.66	5	0.03
12	Gujrehra	Mallan	BS/HP/NL/06 - Himalayan Chir Pine Forest	20	5.23	20	1.72	0	0	0	0
13	H.P 253K Khawa C-1	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0

14	P 28 K Mansu C1a	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
15	P-39-K Rartal C4C	Kangra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	2.25	10	0.86	0	0	0	0
16	P27K Pathiar C-1	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
17	P39 Ranital C-4C	Kangra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	30	6.76	30	2.58	0	0	0	0
18	U/Kothiar	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	6	1.38	6	0.52	0	0	0	0
19	UP 145K.D Narwana C-2	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
20	UP 208 K Tanda Masal	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	4	0.92	4	0.34	0	0	0	0
21	UP 250K Sarotri C-6	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
22	UP 252 K Sadan	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	30	10.07	30	8.15	30	6.76	30	2.58
23	UP 255 K Pathiar C-1B	Mallan	BS/HP/NL/06 - Himalayan Chir Pine Forest	10	2.61	10	0.86	0	0	0	0
24	UP-145 K D/Narwana C-10	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
25	UP-145 K O/Narwana C-6	Mallan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
26	UP-170-K Mdird And UP-169-K Nandrool	Kangra	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.09	5	0.43	0	0	0	0
27	UP-207 K Dhansu C-2	Mallan	BS/HP/NL/06 - Himalayan Chir Pine Forest	15	3.92	15	1.29	0	0	0	0
28	UP-224 K Gujerhra	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	20	4.27	20	1.72	0	0	0	0
29	UP.150.K.Sihund	Nallahn	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	25	9.92	25	6.26	25	5.34	25	2.15
30	UP.150.K.Sihund C2	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or	25	5.34	25	2.15	0	0	0	0

			<50% Lantana								
31	UP.152.K Runkar C-1	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	10	2.5	10	2.14	10	0.86	0	0
32	UP.207 K Dhangu C-2	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	20	6.71	20	5.43	20	4.5	20	1.72
33	UP.253 K Khawa C.14 (Saloo Village)	Mallan	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	35	9.5	35	7.88	35	3.01	0	0
34	UP.253 K Khawa C.14 (Tika Saloa)	Malan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
35	UP250 K Sarotri C-6	Mallan	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	40	15.87	40	10.02	40	8.55	40	3.44
			Total	**530**	**152.11**	**530**	**94.28**	**305**	**50.09**	**180**	**15.08**

Annexure 10 : Site wise detail of Natural Landscape in Kullu Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**N. C**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	(1) Sarli Pichhe D-III (2) Summa Bihali D-III	Bhathi	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
2	(1) Tiun Pichhe (2) Leskan Dhar	Bhatthi	BS/HP/NL/03 - Temperate Conifer Forest	0	0	2	0	0	2	0	0	29.16	0	0	29.16	0	20	14.75	14.75	0	0	0	0	20	7.41
3	1/1 Bajrundi C VI	Manali	BS/HP/NL/04 -	0	0	0	0	0	0	5	0.	0	0	0	0.	7	0	0	7	0	0	5	3.	0	0

			Temperate Mixed Forest								72				72								7			
4	1/11 CII and CIII Sajlashil	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	20	2.9	0	20	27.99	27.99	0	0	0	20	14.82	14.82	0	0	0	0	20	7.76	0	0	20	4.14
5	1/13 CIII A Karjan (Thakar Nallah)	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
6	1/18 C 11 Jhonsar	Naggar	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.84	0	0	0	0.84	11.94	0	0	11.94	0	0	10	5.17	0	0
7	1/21 C 19 Lower Seshi (Patla Gahan)	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
8	1/37 CII Fts D.P.F	Bhathi	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	10	1.45	0	0	0	1.45	14	0	0	14	0	0	10	7.41	0	0
9	1/4 Dudhlu CIII b	Manali	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
10	1/9 Brunudhar C-V	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	10	1.45	0	0	0	1.45	14	0	0	14	0	0	10	7.41	0	0
11	15 Mile	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
12	17 Mile & 18 Mile	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
13	2/1 Kangni C-I B	Manali	BS/HP/NL/02 - Sub-	1	1.	0	1	13	13	0	0	0	1	2.	2.	0	0	0	0	1	1.	0	0	1	0.

			Alpine Enrichment	0	48		0	.57	.57				0	05	05					0	38			0	9
14	2/10 Padru C-III b	Manali	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
15	2/12 Mathivan C V- a	Manali	BS/HP/NL/02 - Sub-Alpine Enrichment	5	0.74	0	5	6.78	6.78	0	0	0	5	1.02	1.02	0	0	0	0	5	0.69	0	0	5	0.45
16	2/16 Upper Rahni	Manali	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
17	2/17 Hamta Gahar C-II C	Manali	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
18	2/18 Jamari Dhar	Naggar	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
19	2/23 JANGI SHEELA LA PADHAR 20 HEC. / 300 Nos. C/ WIRE	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.9	0	0	2.9	0	0	27.99	0	0	27.99	0	20	14.82	14.82	0	0	0	0	20	7.76
20	2/3 Mang Mill C II a	Manali	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	5	0.5	0	0	0	0.5	7.29	0	0	7.29	0	0	5	3.69	0	0
21	2/42 C IV	Patikuhal	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	5	0.5	0	0	0	0.5	7.29	0	0	7.29	0	0	5	3.69	0	0
22	2/8 C-II B	Manali	BS/HP/NL/03 - Temperate Conifer	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04

			Forest																						
23	Baragran Nallah	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	4	0.34	0	4	4.77	4.77	0	0	0	4	2.07	2.07	0	0	0	0	4	1.37	0	0	4	1.11
24	Brindi Nallah	Kullu	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
25	Chhokas Nallah	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
26	Chobu 2/43 Forest	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.17	0	0	2.17	0	0	20.99	0	0	20.99	0	15	11.11	11.11	0	0	0	0	15	5.82
27	D.P.F. Khanora Nallah	Manali	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
28	Dobhi Bihal MC-III Forest	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.84	0	0	0	0.84	11.94	0	0	11.94	0	0	10	5.17	0	0
29	Dudlu Thach	Patikuhal	BS/HP/NL/05 - Pasture and Grazing Land Development	0	0	9.96	0	0	9.96	0	0	8.24	0	0	8.24	0	15	6.13	6.13	0	0	0	0	15	4.2
30	Galchat MC-III Forest	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
31	Gong Nallah	Bhuthi	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04
32	Goth Nallah	Patikuhal	BS/HP/NL/03 - Temperate Conifer	0	0	2	0	0	2	0	0	29.1	0	0	29.1	0	20	14.7	14.7	0	0	0	0	20	7.41

			Forest									6			6			5	5						
33	Jaung Nallah	Bhuthi	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
34	Jolang 2/43 Forest	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
35	Jurag Joni	Bhatthi	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
36	Kaista	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	15	2.17	0	15	20.99	20.99	0	0	0	15	11.11	11.11	0	0	0	0	15	5.82	0	0	15	3.11
37	Kotanu Dhar (Rahni Nallah)	Kullu	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
38	Maling	Kullu	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	5	0.5	0	0	0	0.5	7.29	0	0	7.29	0	0	5	3.69	0	0
39	Masha- Nallah	Manali	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	5	0.5	0	0	0	0.5	7.29	0	0	7.29	0	0	5	3.69	0	0
40	Mashana Pichhe	Bhatthi	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.9	0	0	2.9	0	0	27.99	0	0	27.99	0	20	14.82	14.82	0	0	0	0	20	7.76
41	Mohal Khadd	Kullu	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	5	0.42	0	0	0	0.42	5.97	0	0	5.97	0	0	5	2.59	0	0
42	Mohili Bihal Naggar-	Naggar	BS/HP/NL/06 -	1	1.	0	1	18	18	0	0	0	1	9.	9.	0	0	0	0	1	5.	0	0	1	4.

	III Forest		Himalayan Chir Pine Fores	5	26		5	.72	.72				5	58	58					5	97			5	78
43	Nagoni Piche	Patikuhal	BS/HP/NL/05 - Pasture and Grazing Land Development	20	13.28	0	20	10.98	10.98	0	0	0	20	8.17	8.17	0	0	0	0	20	5.6	0	0	20	4.14
44	Neoli Nallah	Kullu	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	5	0.42	0	0	0	0.42	5.97	0	0	5.97	0	0	5	2.59	0	0
45	Pamaseri	Patikuhal	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04
46	Petting 2/41	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
47	PulgorNallah Land Slide Naggar-III Forest	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
48	Rangri Bihal 250 Nos. C/wire Naggar - III	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.17	0	0	2.17	0	0	20.99	0	0	20.99	0	15	11.11	11.11	0	0	0	0	15	5.82
49	Runga	Patikuhal	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04
50	Seobag Bihal	Kullu	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	0.42	0	5	6.24	6.24	0	0	0	5	3.19	3.19	0	0	0	0	5	1.99	0	0	5	1.59

51	Shaldhari Nallah	Bhutti	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
52	Shangchar Phat	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
53	Shanther	Kullu	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04
54	Sudri Bag	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
55	Talogi	Kullu	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	1.26	0	0	1.26	0	0	17.91	0	0	17.91	0	15	7.76	7.76	0	0	0	0	15	5.14
56	Tosa-ra-Podhru	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.9	0	0	2.9	0	0	27.99	0	0	27.99	0	20	14.82	14.82	0	0	0	0	20	7.76
57	Upper Damchin	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
Total				**254**	**42.5**	**28.26**	**254**	**328.28**	**356.54**	**105**	**12.46**	**210.42**	**254**	**162.64**	**385.52**	**141.98**	**160**	**110.07**	**252.05**	**254**	**90.62**	**105**	**71**	**414**	**114.91**

Annexure 11: Site wise detail of Natural Landscape in Kullu Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				VI		VII		VIII		IX	
Sr. No	Treatment Site name	Range	Model	M A	MC	M A	MC	M A	MC	MA	MC
1	(1) Sarli Pichhe D-III (2) Summa Bihali D-III	Bhathi	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
2	(1) Tiun Pichhe (2) Leskan Dhar	Bhatthi	BS/HP/NL/03 - Temperate Conifer Forest	20	4.14	20	3.22	20	0.12	0	0
3	1/1 Bajrundi C VI	Manali	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
4	1/11 CII and CIII Sajlashil	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	20	3.22	20	0.12	0	0	0	0
5	1/13 CIII A Karjan (Thakar Nallah)	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
6	1/18 C 11 Jhonsar	Naggar	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86
7	1/21 C 19 Lower Seshi (Patla Gahan)	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
8	1/37 CII Fts D.P.F	Bhathi	BS/HP/NL/04 - Temperate Mixed Forest	10	3.88	10	2.07	10	1.61	10	0.06
9	1/4 Dudhlu CIII b	Manali	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
10	1/9 Brunudhar C-V	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	10	3.88	10	2.07	10	1.61	10	0.06
11	15 Mile	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
12	17 Mile & 18 Mile	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
13	2/1 Kangni C-I B	Manali	BS/HP/NL/02 - Sub-Alpine Enrichment	10	0.33	0	0	0	0	0	0
14	2/10 Padru C-III b	Manali	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0

15	2/12 Mathivan C V- a	Manali	BS/HP/NL/02 - Sub-Alpine Enrichment	5	0.17	0	0	0	0	0	0
16	2/16 Upper Rahni	Manali	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
17	2/17 Hamta Gahar C-II C	Manali	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
18	2/18 Jamari Dhar	Naggar	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
19	2/23 JANGI SHEELA LA PADHAR 20 HEC. / 300 Nos. C/ WIRE	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	20	4.14	20	3.22	20	0.12	0	0
20	2/3 Mang Mill C II a	Manali	BS/HP/NL/03 - Temperate Conifer Forest	5	1.85	5	1.04	5	0.81	5	0.03
21	2/42 C IV	Patikuhal	BS/HP/NL/03 - Temperate Conifer Forest	5	1.85	5	1.04	5	0.81	5	0.03
22	2/8 C-II B	Manali	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
23	Baragran Nallah	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	4	0.92	4	0.34	0	0	0	0
24	Brindi Nallah	Kullu	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
25	Chhokas Nallah	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
26	Chobu 2/43 Forest	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	15	3.11	15	2.42	15	0.09	0	0
27	D.P.F. Khanora Nallah	Manali	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
28	Dobhi Bihal MC-III Forest	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86
29	Dudlu Thach	Patikuhal	BS/HP/NL/05 - Pasture and Grazing Land Development	15	3.11	15	2.42	15	0.09	0	0
30	Galchat MC-III Forest	Patikuhal	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
31	Gong Nallah	Bhuthi	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0

32	Goth Nallah	Patikuhal	BS/HP/NL/03 - Temperate Conifer Forest	20	4.14	20	3.22	20	0.12	0	0
33	Jaung Nallah	Bhuthi	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
34	Jolang 2/43 Forest	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
35	Jurag Joni	Bhatthi	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
36	Kaista	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	15	2.42	15	0.09	0	0	0	0
37	Kotanu Dhar (Rahni Nallah)	Kullu	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
38	Maling	Kullu	BS/HP/NL/03 - Temperate Conifer Forest	5	1.85	5	1.04	5	0.81	5	0.03
39	Masha- Nallah	Manali	BS/HP/NL/03 - Temperate Conifer Forest	5	1.85	5	1.04	5	0.81	5	0.03
40	Mashana Pichhe	Bhatthi	BS/HP/NL/04 - Temperate Mixed Forest	20	4.14	20	3.22	20	0.12	0	0
41	Mohal Khadd	Kullu	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.71	5	1.38	5	1.15	5	0.43
42	Mohili Bihal Naggar-III Forest	Naggar	BS/HP/NL/06 - Himalayan Chir Pine Fores	15	3.92	15	1.29	0	0	0	0
43	Nagoni Piche	Patikuhal	BS/HP/NL/05 - Pasture and Grazing Land Development	20	3.22	20	0.12	0	0	0	0
44	Neoli Nallah	Kullu	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.71	5	1.38	5	1.15	5	0.43
45	Pamaseri	Patikuhal	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
46	Petting 2/41	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
47	PulgorNallah Land Slide Naggar-III Forest	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
48	Rangri Bihal 250 Nos. C/wire Naggar - III	Naggar	BS/HP/NL/04 - Temperate Mixed Forest	15	3.11	15	2.42	15	0.09	0	0

49	Runga	Patikuhal	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
50	Seobag Bihal	Kullu	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.31	5	0.43	0	0	0	0
51	Shaldhari Nallah	Bhutti	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
52	Shangchar Phat	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
53	Shanther	Kullu	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
54	Sudri Bag	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
55	Talogi	Kullu	BS/HP/NL/07 - Himalayan Mixed Forest	15	4.15	15	3.44	15	1.29	0	0
56	Tosa-ra-Podhru	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	20	4.14	20	3.22	20	0.12	0	0
57	Upper Damchin	Patikuhal	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
			Total	**519**	**116.92**	**504**	**56.83**	**265**	**21.17**	**105**	**3.03**

Annexure 12 : Site wise detail of Natural Landscape in Jogindernagar Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**N.C**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	151 Mulsoo DPF	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	70	5.88	0	0	0	5.88	83.56	0	0	83.56	0	0	70	36.22	0	0
2	151 Mulsoo DPF	Urla	BS/HP/NL/04 - Temperate Mixed Forest	0	0	11.59	0	0	11.59	0	0	111.96	0	0	111.96	0	80	59.27	59.27	0	0	0	0	80	31.05

3	172 Thorat DPF NR	Urla	BS/HP/NL/04 - Temperate Mixed Forest	30	4.35	0	30	41.99	41.99	0	0	0	30	22.22	22.22	0	0	0	0	30	11.64	0	0	30	6.21
4	178 Upper Khoya DPF	Urla	BS/HP/NL/04 - Temperate Mixed Forest	0	0	5.07	0	0	5.07	0	0	48.98	0	0	48.98	0	35	25.93	25.93	0	0	0	0	35	13.59
5	180 Chobh-Bharoaru DPF	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	2.52	0	0	2.52	0	0	35.81	0	0	35.81	0	30	15.52	15.52	0	0	0	0	30	10.29
6	189 Noush DPF N.R	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	30	2.52	0	30	35.81	35.81	0	0	0	30	15.52	15.52	0	0	0	0	30	10.29	0	0	30	8.3
7	66 Kadoond D.P.F	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	30	2.52	0	30	35.81	35.81	0	0	0	30	15.52	15.52	0	0	0	0	30	10.29	0	0	30	8.3
8	Along Paiond Khad, Jallong Nallah, Grana Nallah,	Tikkan	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	1.68	0	0	1.68	0	0	23.87	0	0	23.87	0	20	10.35	10.35	0	0	0	0	20	6.86
9	Bhabon Dhar (DPF)	Lad-Bharol	BS/HP/NL/04 - Temperate Mixed Forest	0	0	7.25	0	0	7.25	0	0	69.98	0	0	69.98	0	50	37.04	37.04	0	0	0	0	50	19.41
10	Bhabri Dhar DPF	Lad Bharol	BS/HP/NL/04 - Temperate Mixed Forest	100	14.49	0	100	139.96	139.96	0	0	0	100	74.08	74.08	0	0	0	0	100	38.82	0	0	100	20.71
11	Bhabri Dhar DPF-2	Lad Bharol	BS/HP/NL/04 - Temperate Mixed Forest	0	0	7.25	0	0	7.25	0	0	69.98	0	0	69.98	0	50	37.04	37.04	0	0	0	0	50	19.41
12	Bharanu	Joginder Nagar	BS/HP/NL/07 - Himalayan Mixed	20	1.68	0	20	23.8	23.8	0	0	0	20	10.3	10.35	0	0	0	0	20	6.86	0	0	20	5.53

			Forest					7	7					5											
13	Boaching	Tikkan	BS/HP/NL/07 - Himalayan Mixed Forest	30	2.52	0	30	35.81	35.81	0	0	0	30	15.52	15.52	0	0	0	0	30	10.29	0	0	30	8.3
14	Chukku D.P.F	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	20	1.68	0	0	0	1.68	23.87	0	0	23.87	0	0	20	10.35	0	0
15	D.P.F Bakarjaan	Lad-Bharol	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	100	35.47	0	100	122.84	122.84	0	0	0	100	54.03	54.03	0	0	0	0	100	39.68	0	0	100	25.05
16	D.P.F Chail-Chatra	Lad Bharal	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.9	0	0	2.9	0	0	27.99	0	0	27.99	0	20	14.82	14.82	0	0	0	0	20	7.76
17	D.P.F Murahdhar-1	Dharampur	BS/HP/NL/04 - Temperate Mixed Forest	50	7.25	0	50	69.98	69.98	0	0	0	50	37.04	37.04	0	0	0	0	50	19.41	0	0	50	10.36
18	D.P.F Murahdhar-2	Dharampur	BS/HP/NL/04 - Temperate Mixed Forest	0	0	8.69	0	0	8.69	0	0	83.97	0	0	83.97	0	60	44.45	44.45	0	0	0	0	60	23.29
19	D.P.F Murahdhar-3	Dharampur	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	90	13.04	0	0	0	13.04	125.96	0	0	125.96	0	0	90	66.67	0	0
20	Devdhar	Urla	BS/HP/NL/04 - Temperate Mixed Forest	0	0	4.35	0	0	4.35	0	0	41.99	0	0	41.99	0	30	22.22	22.22	0	0	0	0	30	11.64
21	Dhrangan, Galu, Thuo,	Tibban	BS/HP/NL/04 - Temperate Mixed	30	4.35	0	30	41.9	41.9	0	0	0	30	22.2	22.22	0	0	0	0	30	11.6	0	0	30	6.21

			Forest					9	9					2							4				
22	DPF Chountra	Joginder Nagar	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	110	39.02	0	110	135.12	135.12	0	0	0	110	59.43	59.43	0	0	0	0	110	43.64	0	0	110	27.55
23	DPF Siyuri	Joginder Nagar	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	2.1	0	0	2.1	0	0	29.84	0	0	29.84	0	25	12.93	12.93	0	0	0	0	25	8.57
24	DPF Suhi-1 and DPF Dugagahar-IInd, 1st	Joginder Nagar	BS/HP/NL/07 - Himalayan Mixed Forest	80	6.72	0	80	95.5	95.5	0	0	0	80	41.39	41.39	0	0	0	0	80	27.43	0	0	80	22.12
25	Hurnag ,Shang dhau	Tikkan	BS/HP/NL/04 - Temperate Mixed Forest	20	2.9	0	20	27.99	27.99	0	0	0	20	14.82	14.82	0	0	0	0	20	7.76	0	0	20	4.14
26	Latran ,Madhurwan ,,Bagan	Tikkan	BS/HP/NL/04 - Temperate Mixed Forest	0	0	3.62	0	0	3.62	0	0	34.99	0	0	34.99	0	25	18.52	18.52	0	0	0	0	25	9.7
27	Main Nallah Bhadlang Silh, Hurang,Kortang	Tikkan	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.9	0	0	2.9	0	0	27.99	0	0	27.99	0	20	14.82	14.82	0	0	0	0	20	7.76
28	Mashola	Joginder Nagar	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.9	0	0	2.9	0	0	27.99	0	0	27.99	0	20	14.82	14.82	0	0	0	0	20	7.76
29	OD175 Baddi DPF	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	2.52	0	0	2.52	0	0	35.81	0	0	35.81	0	30	15.52	15.52	0	0	0	0	30	10.29
30	Sachar, Jhukau,	Tikker	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	2.1	0	0	2.1	0	0	29.84	0	0	29.84	0	25	12.93	12.93	0	0	0	0	25	8.57

31	Swar DPF	Urla	BS/HP/NL/04 - Temperate Mixed Forest	0	0	4.35	0	0	4.35	0	0	41.99	0	0	41.99	0	30	22.22	22.22	0	0	0	0	30	11.64
32	Tarswan Khad, Dharmeher Nallah, Shurlu Nallah,Daint Nallah, Durnu Nallah	Tikkan	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
33	UPF Balhara	Lad Bharal	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	1.19	0	0	1.19	0	0	17.88	0	0	17.88	0	15	7.41	7.41	0	0	0	0	15	5.03
Total				**640**	**124.61**	**72.98**	**640**	**818.61**	**891.59**	**180**	**20.6**	**760.86**	**640**	**387.31**	**1168.77**	**233.39**	**565**	**385.81**	**619.2**	**640**	**241.18**	**180**	**113.24**	**1205**	**368.17**

Annexure 13 : Site wise detail of Natural Landscape in Jogindernagar Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**
1	151 Mulsoo DPF	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	70	24	70	19.36	70	16.04	70	6.01
2	151 Mulsoo DPF	Urla	BS/HP/NL/04 - Temperate Mixed Forest	80	16.57	80	12.89	80	0.47	0	0
3	172 Thorat DPF NR	Urla	BS/HP/NL/04 - Temperate Mixed Forest	30	4.83	30	0.17	0	0	0	0

4	178 Upper Khoya DPF	Urla	BS/HP/NL/04 - Temperate Mixed Forest	35	7.25	35	5.64	35	0.2	0	0
5	180 Chobh-Bharoaru DPF	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	30	8.3	30	6.88	30	2.58	0	0
6	189 Noush DPF N.R	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	30	6.88	30	2.58	0	0	0	0
7	66 Kadoond D.P.F	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	30	6.88	30	2.58	0	0	0	0
8	Along Paiond Khad, Jallong Nallah, Grana Nallah,	Tikkan	BS/HP/NL/07 - Himalayan Mixed Forest	20	5.53	20	4.58	20	1.72	0	0
9	Bhabon Dhar (DPF)	Lad-Bharol	BS/HP/NL/04 - Temperate Mixed Forest	50	10.36	50	8.05	50	0.29	0	0
10	Bhabri Dhar DPF	Lad Bharol	BS/HP/NL/04 - Temperate Mixed Forest	100	16.11	100	0.58	0	0	0	0
11	Bhabri Dhar DPF-2	Lad Bharol	BS/HP/NL/04 - Temperate Mixed Forest	50	10.36	50	8.05	50	0.29	0	0
12	Bharanu	Joginder Nagar	BS/HP/NL/07 - Himalayan Mixed Forest	20	4.58	20	1.72	0	0	0	0
13	Boaching	Tikkan	BS/HP/NL/07 - Himalayan Mixed Forest	30	6.88	30	2.58	0	0	0	0
14	Chukku D.P.F	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	20	6.86	20	5.53	20	4.58	20	1.72
15	D.P.F Bakarjaan	Lad-Bharol	BS/HP/NL/10 – Control/ Removal of Invasive Species or	100	21.37	100	8.59	0	0	0	0

			<50% Lantana								
16	D.P.F Chail-Chatra	Lad Bharal	BS/HP/NL/04 - Temperate Mixed Forest	20	4.14	20	3.22	20	0.12	0	0
17	D.P.F Murahdhar-1	Dharampur	BS/HP/NL/04 - Temperate Mixed Forest	50	8.05	50	0.29	0	0	0	0
18	D.P.F Murahdhar-2	Dharampur	BS/HP/NL/04 - Temperate Mixed Forest	60	12.43	60	9.66	60	0.35	0	0
19	D.P.F Murahdhar-3	Dharampur	BS/HP/NL/04 - Temperate Mixed Forest	90	34.93	90	18.64	90	14.5	90	0.52
20	Devdhar	Urla	BS/HP/NL/04 - Temperate Mixed Forest	30	6.21	30	4.83	30	0.17	0	0
21	Dhrangan, Galu, Thuo,	Tibban	BS/HP/NL/04 - Temperate Mixed Forest	30	4.83	30	0.17	0	0	0	0
22	DPF Chountra	Joginder Nagar	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	110	23.51	110	9.45	0	0	0	0
23	DPF Siyuri	Joginder Nagar	BS/HP/NL/07 - Himalayan Mixed Forest	25	6.91	25	5.73	25	2.15	0	0
24	DPF Suhi-1 and DPF Dugagahar-IInd, 1st	Joginder Nagar	BS/HP/NL/07 - Himalayan Mixed Forest	80	18.34	80	6.87	0	0	0	0
25	Hurnag ,Shang dhau	Tikkan	BS/HP/NL/04 - Temperate Mixed Forest	20	3.22	20	0.12	0	0	0	0
26	Latran ,Madhurwan ,,Bagan	Tikkan	BS/HP/NL/04 - Temperate Mixed Forest	25	5.18	25	4.03	25	0.15	0	0

27	Main Nallah Bhadlang Silh, Hurang,Kortang	Tikkan	BS/HP/NL/04 - Temperate Mixed Forest	20	4.14	20	3.22	20	0.12	0	0
28	Mashola	Joginder Nagar	BS/HP/NL/04 - Temperate Mixed Forest	20	4.14	20	3.22	20	0.12	0	0
29	OD175 Baddi DPF	Urla	BS/HP/NL/07 - Himalayan Mixed Forest	30	8.3	30	6.88	30	2.58	0	0
30	Sachar, Jhukau,	Tikker	BS/HP/NL/07 - Himalayan Mixed Forest	25	6.91	25	5.73	25	2.15	0	0
31	Swar DPF	Urla	BS/HP/NL/04 - Temperate Mixed Forest	30	6.21	30	4.83	30	0.17	0	0
32	Tarswan Khad, Dharmeher Nallah, Shurlu Nallah,Daint Nallah, Durnu Nallah	Tikkan	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
33	UPF Balhara	Lad Bharal	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	15	4.07	15	3.38	15	1.29	0	0
			Total	**1385**	**320.57**	**1385**	**180.91**	**745**	**50.04**	**180**	**8.25**

Annexure 14 : Site wise detail of Natural Landscape in Mandi Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area)*

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**N. C**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	Bai Nal	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.8	0	0	0	0.84	11.9	0	0	11.9	0	0	10	5.17	0	0

											4					4			4						
2	Bangot	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	30	11.24	0	30	38.09	38.09	0	0	0	30	16.92	16.92	0	0	0	0	30	12.55	0	0	30	7.81
3	Bangot Lantana Eradication	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	3.75	0	10	12.7	12.7	0	0	0	10	5.64	5.64	0	0	0	0	10	4.18	0	0	10	2.6
4	Banogi Nallah	Panarsa	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	5	0.5	0	0	0	0.5	7.29	0	0	7.29	0	0	5	3.69	0	0
5	Bharmog	Kataula	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	1.26	0	0	1.26	0	0	17.91	0	0	17.91	0	15	7.76	7.76	0	0	0	0	15	5.14
6	Chabhuan	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.42	0	0	0.42	0	0	5.97	0	0	5.97	0	5	2.59	2.59	0	0	0	0	5	1.71
7	Chadani	Panarsa	BS/HP/NL/03 - Temperate Conifer Forest	0	0	1	0	0	1	0	0	14.58	0	0	14.58	0	10	7.38	7.38	0	0	0	0	10	3.7
8	Chalaher D.P.F	Kataula	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	1.68	0	0	1.68	0	0	23.87	0	0	23.87	0	20	10.35	10.35	0	0	0	0	20	6.86
9	Chalaher D.P.F	Kataula	BS/HP/NL/04 - Temperate Mixed Forest	20	2.9	0	20	27.99	27.99	0	0	0	20	14.82	14.82	0	0	0	0	20	7.76	0	0	20	4.14
10	Chhanwari	Mandi	BS/HP/NL/07 -	4	3.3	0	4	47.7	47.	0	0	0	4	20	20.	0	0	0	0	4	13.7	0	0	4	11.0

			Himalayan Mixed Forest	0	6		0	5	75				0	.7	7					0	1			0	6
11	Chhanwari (Lantana)	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	40	14.98	0	40	50.78	50.78	0	0	0	40	22.57	22.57	0	0	0	0	40	16.74	0	0	40	10.41
12	Chhuribain	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
13	Chowki Chendrahan DPF	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	2.1	0	0	2.1	0	0	29.84	0	0	29.84	0	25	12.93	12.93	0	0	0	0	25	8.57
14	Deod	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.84	0	0	0	0.84	11.94	0	0	11.94	0	0	10	5.17	0	0
15	Deonal DPF	Kotli	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0.84	0	0	0.84	0	0	12.48	0	0	12.48	0	10	6.39	6.39	0	0	0	0	10	3.98
16	Dhawal	Drang	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	7.49	0	0	7.49	0	0	25.39	0	0	25.39	0	20	11.28	11.28	0	0	0	0	20	8.37
17	Dobha-1	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	50	7.25	0	50	69.98	69.98	0	0	0	50	37.04	37.04	0	0	0	0	50	19.41	0	0	50	10.36
18	Dobha-2	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	0	0	7.25	0	0	7.25	0	0	69.98	0	0	69.98	0	50	37.04	37.04	0	0	0	0	50	19.41

19	DPF Basodh	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.84	0	0	0	0.84	11.94	0	0	11.94	0	0	10	5.17	0	0
20	DPF Bhamsoi	Panarsa	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	10	0.84	0	0	0	0.84	12.48	0	0	12.48	0	0	10	6.39	0	0
21	DPF Ghurat	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.84	0	0	0	0.84	11.94	0	0	11.94	0	0	10	5.17	0	0
22	DPF-Chamayat (Lantana)-1	Mandi	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	35	12.41	0	35	42.99	42.99	0	0	0	35	18.91	18.91	0	0	0	0	35	13.89	0	0	35	8.77
23	DPF-Chamayat (Lantana)-2	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	7.49	0	0	7.49	0	0	25.39	0	0	25.39	0	20	11.28	11.28	0	0	0	0	20	8.37
24	DPF-Chamayat-1	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	35	2.94	0	35	41.78	41.78	0	0	0	35	18.11	18.11	0	0	0	0	35	12	0	0	35	9.68
25	DPF-Chamayat-2	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	1.68	0	0	1.68	0	0	24.95	0	0	24.95	0	20	12.78	12.78	0	0	0	0	20	7.96
26	DPF-Naintunga (Lantana)-1	Mandi	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	40	14.19	0	40	49.14	49.14	0	0	0	40	21.61	21.61	0	0	0	0	40	15.87	0	0	40	10.02

27	DPF-Naintunga (Lantana)-2	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	11.24	0	0	11.24	0	0	38.09	0	0	38.09	0	30	16.92	16.92	0	0	0	0	30	12.55
28	DPF-Naintunga-1	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	45	3.78	0	45	53.72	53.72	0	0	0	45	23.28	23.28	0	0	0	0	45	15.43	0	0	45	12.44
29	DPF-Naintunga-2	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	2.52	0	0	2.52	0	0	37.43	0	0	37.43	0	30	19.17	19.17	0	0	0	0	30	11.94
30	DPF- Sanora (Lantana)-1	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	30	11.24	0	30	38.09	38.09	0	0	0	30	16.92	16.92	0	0	0	0	30	12.55	0	0	30	7.81
31	DPF- Sanora (Lantana)-2	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	16.48	0	0	16.48	0	0	55.86	0	0	55.86	0	44	24.82	24.82	0	0	0	0	44	18.41
32	DPF- Sanora-1	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	30	2.52	0	30	37.43	37.43	0	0	0	30	19.17	19.17	0	0	0	0	30	11.94	0	0	30	9.56
33	DPF- Sanora-2	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	3.36	0	0	3.36	0	0	49.91	0	0	49.91	0	40	25.56	25.56	0	0	0	0	40	15.91
34	DPF-Tandoo	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	45	16.86	0	45	57.13	57.13	0	0	0	45	25.39	25.39	0	0	0	0	45	18.83	0	0	45	11.71

35	Drubal DPF	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
36	Dukasti	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	0	0	1.45	0	0	1.45	0	0	14	0	0	14	0	10	7.41	7.41	0	0	0	0	10	3.88
37	Fagroo Dhar	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
38	Jalapdhar-1	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	30	2.52	0	30	35.81	35.81	0	0	0	30	15.52	15.52	0	0	0	0	30	10.29	0	0	30	8.3
39	Jalapdhar-2	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	3.78	0	0	3.78	0	0	53.72	0	0	53.72	0	45	23.28	23.28	0	0	0	0	45	15.43
40	Jamana	Kotli	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	30	10.64	0	30	36.85	36.85	0	0	0	30	16.21	16.21	0	0	0	0	30	11.9	0	0	30	7.51
41	Janitary DPF	Kotli	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	0.84	0	10	12.48	12.48	0	0	0	10	6.39	6.39	0	0	0	0	10	3.98	0	0	10	3.19
42	Janitay DPF Baba Kamlahiya Ana	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
43	Jorla- Balh	Kataula	BS/HP/NL/06 - Himalayan Chir Pine	5	0.4	0	5	6.	6.2	0	0	0	5	3.	3.1	0	0	0	0	5	1.	0	0	5	1.

			Fores		2			24	4					19	9						99				59
44	Kaloun	Drang	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
45	Kangni (2 hac. Tall Planting)	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.87	0	5	6.35	6.35	0	0	0	5	2.82	2.82	0	0	0	0	5	2.09	0	0	5	1.3
46	Kangota DPF-1	Kotli	BS/HP/NL/09 – Eradication of Lantana (> 50%)	30	11.24	0	30	38.09	38.09	0	0	0	30	16.92	16.92	0	0	0	0	30	12.55	0	0	30	7.81
47	Kangota DPF-2	Kotli	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	11.24	0	0	11.24	0	0	38.09	0	0	38.09	0	30	16.92	16.92	0	0	0	0	30	12.55
48	Kathwar	Kolti	BS/HP/NL/06 - Himalayan Chir Pine Fores	14	1.18	0	14	17.47	17.47	0	0	0	14	8.95	8.95	0	0	0	0	14	5.57	0	0	14	4.46
49	Khalara	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
50	Khashdhar	Panarsa	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04
51	Kutahar DPF, Halog DPF	Kataula	BS/HP/NL/07 - Himalayan Mixed Forest	30	2.52	0	30	35.81	35.81	0	0	0	30	15.52	15.52	0	0	0	0	30	10.29	0	0	30	8.3

52	Lagdhar	Drang	BS/HP/NL/09 – Eradication of Lantana (> 50%)	20	7.49	0	20	25.39	25.39	0	0	0	20	11.28	11.28	0	0	0	0	20	8.37	0	0	20	5.21
53	Langhwar (Yala)	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
54	Maigal DPF	Drang	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
55	Mehsra DPF	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	2.52	0	0	2.52	0	0	37.43	0	0	37.43	0	30	19.17	19.17	0	0	0	0	30	11.94
56	Nagdhar	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.84	0	0	0	0.84	11.94	0	0	11.94	0	0	10	5.17	0	0
57	Nihara nal	Panaras	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	5	0.42	0	0	0	0.42	5.97	0	0	5.97	0	0	5	2.59	0	0
58	OD 574 Gandharv (Lantana)-1	Mandi	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	53.21	0	0	53.21	0	0	184.26	0	0	184.26	0	150	81.05	81.05	0	0	0	0	150	59.51
59	OD 574 Gandharv (Lantana)-2	Mandi	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	35.47	0	0	35.47	0	0	122.84	0	0	122.84	0	100	54.03	54.03	0	0	0	0	100	39.68
60	Panau	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.8	0	10	11.9	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77

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61	Parthachi, Parthachi DPF	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
62	Pipli	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	70	5.88	0	0	0	5.88	87.34	0	0	87.34	0	0	70	44.73	0	0
63	Ropa	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
64	Ropa- I, II	Kataula	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.32	0	4	4.77	4.77	0	0	0	4	1.98	1.98	0	0	0	0	4	1.34	0	0	4	1.09
65	Saira Nal	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.84	0	0	0.84	0	0	11.94	0	0	11.94	0	10	5.17	5.17	0	0	0	0	10	3.43
66	Sanora	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	30	2.52	0	0	0	2.52	35.81	0	0	35.81	0	0	30	15.52	0	0
67	Shalla 5 Hact	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
68	Surahan DPF	Drang	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04

Total	**723**	**155.4**	**173.32**	**723**	**904.67**	**1077.99**	**175**	**15.08**	**893.93**	**723**	**413.44**	**1322.45**	**215.59**	**714**	**413.28**	**628.87**	**723**	**276.61**	**175**	**102.47**	**1437**	**469.35**

Annexure 15 : Site wise detail of Natural Landscape in Mandi Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II												
Year				**VI**		**VII**		**VIII**		**IX**		
Sr. No	**Treatment Site name**	**Range**	**Model**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**	
1	Bai Nal	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86	
2	Bangot	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	30	6.54	30	2.58	0	0	0	0	
3	Bangot Lantana Eradication	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	2.18	10	0.86	0	0	0	0	
4	Banogi Nallah	Panarsa	BS/HP/NL/03 - Temperate Conifer Forest	5	1.85	5	1.04	5	0.81	5	0.03	
5	Bharmog	Kataula	BS/HP/NL/07 - Himalayan Mixed Forest	15	4.15	15	3.44	15	1.29	0	0	
6	Chabhuan	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.38	5	1.15	5	0.43	0	0	
7	Chadani	Panarsa	BS/HP/NL/03 - Temperate Conifer Forest	10	2.07	10	1.61	10	0.06	0	0	
8	Chalaher D.P.F	Kataula	BS/HP/NL/07 - Himalayan Mixed Forest	20	5.53	20	4.58	20	1.72	0	0	
9	Chalaher D.P.F	Kataula	BS/HP/NL/04 - Temperate Mixed Forest	20	3.22	20	0.12	0	0	0	0	
10	Chhanwari	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	40	9.17	40	3.44	0	0	0	0	

11	Chhanwari (Lantana)	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	40	8.72	40	3.44	0	0	0	0
12	Chhuribain	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
13	Chowki Chendrahan DPF	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	25	6.91	25	5.73	25	2.15	0	0
14	Deod	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86
15	Deonal DPF	Kotli	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	3.19	10	2.61	10	0.86	0	0
16	Dhawal	Drang	BS/HP/NL/09 – Eradication of Lantana (> 50%)	20	5.21	20	4.36	20	1.72	0	0
17	Dobha-1	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	50	8.05	50	0.29	0	0	0	0
18	Dobha-2	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	50	10.36	50	8.05	50	0.29	0	0
19	DPF Basodh	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86
20	DPF Bhamsoi	Panarsa	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	3.98	10	3.19	10	2.61	10	0.86
21	DPF Ghurat	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86
22	DPF- Chamayat (Lantana)-1	Mandi	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	35	7.48	35	3.01	0	0	0	0
23	DPF- Chamayat (Lantana)-2	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	20	5.21	20	4.36	20	1.72	0	0
24	DPF- Chamayat-1	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	35	8.02	35	3.01	0	0	0	0
25	DPF- Chamayat-2	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	20	6.38	20	5.23	20	1.72	0	0
26	DPF- Naintunga (Lantana)-1	Mandi	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	40	8.55	40	3.44	0	0	0	0
27	DPF- Naintunga (Lantana)-	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	30	7.81	30	6.54	30	2.58	0	0

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28	DPF- Naintunga-1	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	45	10.31	45	3.86	0	0	0	0
29	DPF- Naintunga-2	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	30	9.56	30	7.84	30	2.58	0	0
30	DPF- Sanora (Lantana)-1	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	30	6.54	30	2.58	0	0	0	0
31	DPF- Sanora (Lantana)-2	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	44	11.45	44	9.6	44	3.78	0	0
32	DPF- Sanora-1	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	30	7.84	30	2.58	0	0	0	0
33	DPF- Sanora-2	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	40	12.75	40	10.46	40	3.44	0	0
34	DPF-Tandoo	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	45	9.82	45	3.86	0	0	0	0
35	Drubal DPF	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
36	Dukasti	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	10	2.07	10	1.61	10	0.06	0	0
37	Fagroo Dhar	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
38	Jalapdhar-1	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	30	6.88	30	2.58	0	0	0	0
39	Jalapdhar-2	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	45	12.44	45	10.31	45	3.86	0	0
40	Jamana	Kotli	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	30	6.41	30	2.58	0	0	0	0
41	Janitary DPF	Kotli	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	2.61	10	0.86	0	0	0	0
42	Janitay DPF Baba Kamlahiya Ana	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
43	Jorla- Balh	Kataula	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.31	5	0.43	0	0	0	0

44	Kaloun	Drang	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
45	Kangni (2 hac. Tall Planting)	Mandi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.09	5	0.43	0	0	0	0
46	Kangota DPF-1	Kotli	BS/HP/NL/09 – Eradication of Lantana (> 50%)	30	6.54	30	2.58	0	0	0	0
47	Kangota DPF-2	Kotli	BS/HP/NL/09 – Eradication of Lantana (> 50%)	30	7.81	30	6.54	30	2.58	0	0
48	Kathwar	Kolti	BS/HP/NL/06 - Himalayan Chir Pine Fores	14	3.66	14	1.2	0	0	0	0
49	Khalara	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
50	Khashdhar	Panarsa	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
51	Kutahar DPF, Halog DPF	Kataula	BS/HP/NL/07 - Himalayan Mixed Forest	30	6.88	30	2.58	0	0	0	0
52	Lagdhar	Drang	BS/HP/NL/09 – Eradication of Lantana (> 50%)	20	4.36	20	1.72	0	0	0	0
53	Langhwar (Yala)	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
54	Maigal DPF	Drang	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
55	Mehsra DPF	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	30	9.56	30	7.84	30	2.58	0	0
56	Nagdhar	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86
57	Nihara nal	Panaras	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.71	5	1.38	5	1.15	5	0.43
58	OD 574 Gandharv (Lantana)-1	Mandi	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	150	37.57	150	32.06	150	12.88	0	0
59	OD 574 Gandharv (Lantana)-2	Mandi	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	100	25.05	100	21.37	100	8.59	0	0
60	Panau	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0

61	Parthachi, Parthachi DPF	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
62	Pipli	Mandi	BS/HP/NL/06 - Himalayan Chir Pine Fores	70	27.85	70	22.31	70	18.3	70	6.01
63	Ropa	Panarsa	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
64	Ropa- I, II	Kataula	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.9	4	0.34	0	0	0	0
65	Saira Nal	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.77	10	2.29	10	0.86	0	0
66	Sanora	Mandi	BS/HP/NL/07 - Himalayan Mixed Forest	30	10.29	30	8.3	30	6.88	30	2.58
67	Shalla 5 Hact	Panarsa	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
68	Surahan DPF	Drang	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
			Total	**1612**	**411.51**	**1612**	**263.63**	**889**	**97.76**	**175**	**14.24**

Annexure 16 : Site wise detail of Natural Landscape in Nachan Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**N. C**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	Bainal-1	Pandoh	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	2.1	0	0	2.1	0	0	29.84	0	0	29.84	0	25	12.93	12.93	0	0	0	0	25	8.57
2	D.P.F Lah	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04

3	D.P.F Sankar	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
4	D.P.F Seraji Deo	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
5	Dalikar Site	Pandoh	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	2.52	0	0	2.52	0	0	35.81	0	0	35.81	0	30	15.52	15.52	0	0	0	0	30	10.29
6	DPF Bara	Seraj	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.84	0	0	0.84	0	0	11.94	0	0	11.94	0	10	5.17	5.17	0	0	0	0	10	3.43
7	DPF Darotha-DPF Malach	Seraj	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	3.75	0	0	3.75	0	0	12.7	0	0	12.7	0	10	5.64	5.64	0	0	0	0	10	4.18
8	DPF Jhour	Nachan	BS/HP/NL/02 - Sub-Alpine Enrichment	0	0	0.74	0	0	0.74	0	0	6.78	0	0	6.78	0	5	1.02	1.02	0	0	0	0	5	0.69
9	DPF Kudau Sith	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	0	0	1.45	0	0	1.45	0	0	14	0	0	14	0	10	7.41	7.41	0	0	0	0	10	3.88
10	DPF Prali Nal	Seraj	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	5	0.42	0	0	0	0.42	6.24	0	0	6.24	0	0	5	3.19	0	0
11	DPF Shikawari	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0

12	Golhan DPF	Nachan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
13	Gooloun	Pandoh	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	2.94	0	0	2.94	0	0	43.67	0	0	43.67	0	35	22.36	22.36	0	0	0	0	35	13.93
14	Jangohi C-3	Pandoh	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
15	Kalakameshwer	Seraj	BS/HP/NL/02 - Sub-Alpine Enrichment	5	0.74	0	5	6.78	6.78	0	0	0	5	1.02	1.02	0	0	0	0	5	0.69	0	0	5	0.45
16	ND Bhard Gad	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
17	Shalaserpur	Nachan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
18	Togru. DPF	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
Total				**40**	**4.88**	**14.34**	**40**	**52.69**	**67.03**	**15**	**1.86**	**154.74**	**40**	**23.59**	**180.19**	**20.24**	**125**	**70.05**	**90.29**	**40**	**13.58**	**15**	**10.59**	**165**	**53.72**

Annexure 17 : Site wise detail of Natural Landscape in Nachan Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenanc Cost*)

Phase II											
Year				VI		VII		VIII		IX	
Sr. No	Treatment Site name	Range	Model	M A	MC	MA	MC	MA	MC	MA	MC
1	Bainal-1	Pandoh	BS/HP/NL/07 - Himalayan Mixed Forest	25	6.91	25	5.73	25	2.15	0	0
2	D.P.F Lah	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
3	D.P.F Sankar	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
4	D.P.F Seraji Deo	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
5	Dalikar Site	Pandoh	BS/HP/NL/07 - Himalayan Mixed Forest	30	8.3	30	6.88	30	2.58	0	0
6	DPF Bara	Seraj	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.77	10	2.29	10	0.86	0	0
7	DPF Darotha- DPF Malach	Seraj	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	2.6	10	2.18	10	0.86	0	0
8	DPF Jhour	Nachan	BS/HP/NL/02 - Sub-Alpine Enrichment	5	0.45	5	0.17	0	0	0	0
9	DPF Kudau Sith	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	10	2.07	10	1.61	10	0.06	0	0
10	DPF Prali Nal	Seraj	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.99	5	1.59	5	1.31	5	0.43
11	DPF Shikawari	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
12	Golhan DPF	Nachan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
13	Gooloun	Pandoh	BS/HP/NL/06 - Himalayan Chir Pine Fores	35	11.16	35	9.15	35	3.01	0	0
14	Jangohi C-3	Pandoh	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0

15	Kalakameshwer	Seraj	BS/HP/NL/02 - Sub-Alpine Enrichment	5	0.17	0	0	0	0	0	0
16	ND Bhard Gad	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
17	Shalaserpur	Nachan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
18	Togru. DPF	Seraj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
			Total	**180**	**46.99**	**175**	**33.09**	**135**	**12.45**	**15**	**0.49**

Annexure 18 : Site wise detail of Natural Landscape in Parvati Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**NC**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	1/12 Sarahan	Jari	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	10	1	0	0	0	1	14.58	0	0	14.58	0	0	10	7.38	0	0
2	B-III	Hurla	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.84	0	0	0	0.84	11.94	0	0	11.94	0	0	10	5.17	0	0
3	Barchhi Sharan	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	10	1.45	0	0	0	1.45	14	0	0	14	0	0	10	7.41	0	0
4	Bhange re Seri	Bhuntar	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	10	1.45	0	0	0	1.45	14	0	0	14	0	0	10	7.41	0	0

5	Dehuri	Sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	0	0	0	0	0	0	10	1.48	0	0	0	1.48	13.57	0	0	13.57	0	0	10	2.05	0	0
6	Dolnu	Sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	0	0	0	0	0	0	10	1.48	0	0	0	1.48	13.57	0	0	13.57	0	0	10	2.05	0	0
7	Harinal	Sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	5	0.74	0	5	6.78	6.78	0	0	0	5	1.02	1.02	0	0	0	0	5	0.69	0	0	5	0.45
8	K-III	Bhuntar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
9	K-III Forest (VI)	Bhuntar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
10	Kaidikol	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
11	Kareri M-III 5 Hac, Kamond M-III 10 hac Chambagarh Thach	Bhuntar	BS/HP/NL/07 - Himalayan Mixed Forest	15	1.26	0	15	17.91	17.91	0	0	0	15	7.76	7.76	0	0	0	0	15	5.14	0	0	15	4.15
12	KK IIIrd	Hurla	BS/HP/NL/07 - Himalayan Mixed Forest	30	2.52	0	30	35.81	35.81	0	0	0	30	15.52	15.52	0	0	0	0	30	10.29	0	0	30	8.3
13	KK-III Bhuin	Hurla	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
14	KK-III Forest	Hurla	BS/HP/NL/07 -	50	4.2	0	5	59.	59.	0	0	0	5	25.8	25.	0	0	0	0	5	17.1	0	0	5	13.8

			Himalayan Mixed Forest				0	69	69				0	7	87					0	4			0	3
15	KK-III Forest (V)	Bhuntar	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
16	Kungti	Kasol	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
17	Langori 2 hac. Tringar sange 5 hac	Bhuntar	BS/HP/NL/03 - Temperate Conifer Forest	7	0.7	0	7	10.21	10.21	0	0	0	7	5.16	5.16	0	0	0	0	7	2.59	0	0	7	1.45
18	Madrachi	Sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	20	2.96	0	20	27.13	27.13	0	0	0	20	4.09	4.09	0	0	0	0	20	2.76	0	0	20	1.8
19	Madrala	sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	10	1.48	0	10	13.57	13.57	0	0	0	10	2.05	2.05	0	0	0	0	10	1.38	0	0	10	0.9
20	Mahuridhar	Jari	BS/HP/NL/03 - Temperate Conifer Forest	0	0	2	0	0	2	0	0	29.16	0	0	29.16	0	20	14.75	14.75	0	0	0	0	20	7.41
21	Mashgan Piche	Bhuntar	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	5	0.42	0	0	0	0.42	6.24	0	0	6.24	0	0	5	3.19	0	0
22	Poshi Nal Piche	Hurla	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
23	R/11 Hamkadhar	Hurla	BS/HP/NL/03 - Temperate Conifer Forest	0	0	2	0	0	2	0	0	29.16	0	0	29.16	0	20	14.75	14.75	0	0	0	0	20	7.41
24	R/12	Hurla	BS/HP/NL/04 -	0	0	4.	0	0	4.3	0	0	41.	0	0	41.	0	3	22	22.	0	0	0	0	3	11

	Nihoragahar		Temperate Mixed Forest			35			5			99			99		0	.22	22					0	.64
25	Thari nal	Tirthan	BS/HP/NL/02 - Sub-Alpine Enrichment	5	0.74	0	5	6.78	6.78	0	0	0	5	1.02	1.02	0	0	0	0	5	0.69	0	0	5	0.45
Total				**192**	**20.9**	**8.35**	**192**	**244.78**	**253.13**	**65**	**8.12**	**100.31**	**192**	**96.05**	**204.48**	**87.9**	**70**	**51.72**	**139.62**	**192**	**59.37**	**65**	**34.66**	**262**	**69.18**

Annexure 19 : Site wise detail of Natural Landscape in Parvati Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**
1	1/12 Sarahan	Jari	BS/HP/NL/03 - Temperate Conifer Forest	10	3.7	10	2.07	10	1.61	10	0.06
2	B-III	Hurla	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86
3	Barchhi Sharan	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	10	3.88	10	2.07	10	1.61	10	0.06
4	Bhange re Seri	Bhuntar	BS/HP/NL/04 - Temperate Mixed Forest	10	3.88	10	2.07	10	1.61	10	0.06
5	Dehuri	Sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	10	1.38	10	0.9	10	0.33	0	0
6	Dolnu	Sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	10	1.38	10	0.9	10	0.33	0	0
7	Harinal	sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	5	0.17	0	0	0	0	0	0

8	K-III	Bhuntar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
9	K-III Forest (VI)	Bhuntar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
10	Kaidikol	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
11	Kareri M-III 5 Hac, Kamond M-III 10 hac Chambagarh Thach	Bhuntar	BS/HP/NL/07 - Himalayan Mixed Forest	15	3.44	15	1.29	0	0	0	0
12	KK IIIrd	Hurla	BS/HP/NL/07 - Himalayan Mixed Forest	30	6.88	30	2.58	0	0	0	0
13	KK-III Bhuin	Hurla	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
14	KK-III Forest	Hurla	BS/HP/NL/07 - Himalayan Mixed Forest	50	11.46	50	4.29	0	0	0	0
15	KK-III Forest (V)	Bhuntar	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
16	Kungti	Kasol	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
17	Langori 2 hac. Tringar sange 5 hac	Bhuntar	BS/HP/NL/03 - Temperate Conifer Forest	7	1.13	7	0.04	0	0	0	0
18	Madrachi	Sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	20	0.66	0	0	0	0	0	0
19	Madrala	sainj	BS/HP/NL/02 - Sub-Alpine Enrichment	10	0.33	0	0	0	0	0	0
20	Mahuridhar	Jari	BS/HP/NL/03 - Temperate Conifer Forest	20	4.14	20	3.22	20	0.12	0	0
21	Mashgan Piche	Bhuntar	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.99	5	1.59	5	1.31	5	0.43
22	Poshi Nal Piche	Hurla	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
23	R/11 Hamkadhar	Hurla	BS/HP/NL/03 - Temperate Conifer Forest	20	4.14	20	3.22	20	0.12	0	0

24	R/12 Nihoragahar	Hurla	BS/HP/NL/04 - Temperate Mixed Forest	30	6.21	30	4.83	30	0.17	0	0
25	Thari nal	Tirthan	BS/HP/NL/02 - Sub-Alpine Enrichment	5	0.17	0	0	0	0	0	0
			Total	**327**	**67.44**	**287**	**33.34**	**135**	**9.5**	**45**	**1.47**

Annexure 20 : Site wise detail of Natural Landscape in Seraj Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**N. C**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	30 Jalora III b	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	5	0.5	0	0	0	0.5	7.29	0	0	7.29	0	0	5	3.69	0	0
2	34-Balajdhar	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	5	0.5	0	0	0	0.5	7.29	0	0	7.29	0	0	5	3.69	0	0
3	Banahu Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
4	Basheri Nallah	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
5	BashNallah	Banjar	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	0.42	0	5	6.24	6.24	0	0	0	5	3.19	3.19	0	0	0	0	5	1.99	0	0	5	1.59

6	Bhopu Dhar	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	6	0.87	0	0	0	0.87	8.4	0	0	8.4	0	0	6	4.44	0	0
7	Bhumar	Banjar	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	5	0.42	0	0	0	0.42	5.97	0	0	5.97	0	0	5	2.59	0	0
8	Bithu Kanda	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.9	0	0	2.9	0	0	27.99	0	0	27.99	0	20	14.82	14.82	0	0	0	0	20	7.76
9	Chakuni Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	10	0.84	0	0	0	0.84	11.94	0	0	11.94	0	0	10	5.17	0	0
10	Chakurth Nallah	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
11	Chalyali	Tirthan	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
12	Charrandi	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04
13	Chhoayaghe	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.42	0	0	0.42	0	0	5.97	0	0	5.97	0	5	2.59	2.59	0	0	0	0	5	1.71
14	Choi Nallah	Tirthan	BS/HP/NL/07 - Himalayan Mixed	0	0	0.42	0	0	0.42	0	0	5.97	0	0	5.97	0	5	2.59	2.59	0	0	0	0	5	1.71

			Forest																						
15	Dam Site Siund	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
16	Dari Gahi	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	6	0.5	0	0	0	0.5	7.16	0	0	7.16	0	0	6	3.1	0	0
17	Daru Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.42	0	0	0.42	0	0	5.97	0	0	5.97	0	5	2.59	2.59	0	0	0	0	5	1.71
18	Dimarchadi Nallah	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	5	0.5	0	0	0	0.5	7.29	0	0	7.29	0	0	5	3.69	0	0
19	Gandhiseri	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04
20	Gashti F/Pur-III	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0.5	0	0	0.5	0	0	7.29	0	0	7.29	0	5	3.69	3.69	0	0	0	0	5	1.85
21	Gharatgad peeche	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
22	Golgan Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	1.26	0	0	1.26	0	0	17.91	0	0	17.91	0	15	7.76	7.76	0	0	0	0	15	5.14

23	Handu Nal	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
24	Horikho	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04
25	Jaipur	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.42	0	0	0.42	0	0	5.97	0	0	5.97	0	5	2.59	2.59	0	0	0	0	5	1.71
26	Jibhi	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0.72	0	0	0.72	0	0	7	0	0	7	0	5	3.7	3.7	0	0	0	0	5	1.94
27	Khadoaa	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
28	Kotladhar DPF	Banjar	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
29	Kutladhar	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
30	Muharagad	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
31	Niyahi Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed	0	0	0	0	0	0	5	0.42	0	0	0	0.42	5.97	0	0	5.97	0	0	5	2.59	0	0

			Forest																						
32	Pagal Nallah	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	4	0.34	0	4	4.77	4.77	0	0	0	4	2.07	2.07	0	0	0	0	4	1.37	0	0	4	1.11
33	Pokhari Dhar	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04
34	Ropa Nallah	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.42	0	0	0.42	0	0	5.97	0	0	5.97	0	5	2.59	2.59	0	0	0	0	5	1.71
35	Sageda Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.84	0	0	0.84	0	0	11.94	0	0	11.94	0	10	5.17	5.17	0	0	0	0	10	3.43
36	Shekrehad Nallah	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
37	Tata Pani	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
38	Thakur Dawar	Banjar	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
39	Thrimbalani	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.42	0	0	0.42	0	0	5.97	0	0	5.97	0	5	2.59	2.59	0	0	0	0	5	1.71

40	Tindha Nallah	Tirthan	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0.72	0	0	0.72	0	0	7	0	0	7	0	5	3.7	3.7	0	0	0	0	5	1.94
			Total	**94**	**10.03**	**9.46**	**94**	**123.96**	**133.42**	**57**	**5.99**	**114.95**	**94**	**60.36**	**181.3**	**75.31**	**90**	**54.38**	**129.69**	**94**	**34.37**	**57**	**36.36**	**184**	**55.07**

Annexure 21 : Site wise detail of Natural Landscape in Seraj Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**
1	30 Jalora III b	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	1.85	5	1.04	5	0.81	5	0.03
2	34- Balajdhar	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	1.85	5	1.04	5	0.81	5	0.03
3	Banahu Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
4	Basheri Nallah	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
5	BashNallah	Banjar	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.31	5	0.43	0	0	0	0
6	Bhopu Dhar	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	6	2.33	6	1.24	6	0.97	6	0.03
7	Bhumar	Banjar	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.71	5	1.38	5	1.15	5	0.43
8	Bithu Kanda	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	20	4.14	20	3.22	20	0.12	0	0
9	Chakuni Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	10	3.43	10	2.77	10	2.29	10	0.86
10	Chakurth Nallah	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
11	Chalyali	Tirthan	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0

12	Charrandi	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
13	Chhoayaghe	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.38	5	1.15	5	0.43	0	0
14	Choi Nallah	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.38	5	1.15	5	0.43	0	0
15	Dam Site Siund	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
16	Dari Gahi	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	6	2.06	6	1.66	6	1.38	6	0.52
17	Daru Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.38	5	1.15	5	0.43	0	0
18	Dimarchadi Nallah	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	1.85	5	1.04	5	0.81	5	0.03
19	Gandhiseri	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
20	Gashti F/Pur-III	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	1.04	5	0.81	5	0.03	0	0
21	Gharatgad peeche	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
22	Golgan Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	15	4.15	15	3.44	15	1.29	0	0
23	Handu Nal	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
24	Horikho	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
25	Jaipur	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.38	5	1.15	5	0.43	0	0
26	Jibhi	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	5	1.04	5	0.81	5	0.03	0	0
27	Khadoaa	Sainj	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
28	Kotladhar DPF	Banjar	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
29	Kutladhar	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0

30	Muharagad	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
31	Niyahi Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.71	5	1.38	5	1.15	5	0.43
32	Pagal Nallah	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	4	0.92	4	0.34	0	0	0	0
33	Pokhari Dhar	Banjar	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
34	Ropa Nallah	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.38	5	1.15	5	0.43	0	0
35	Sageda Dhar	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.77	10	2.29	10	0.86	0	0
36	Shekrehad Nallah	Banjar	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
37	Tata Pani	Sainj	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
38	Thakur Dawar	Banjar	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
39	Thrimbalani	Tirthan	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.38	5	1.15	5	0.43	0	0
40	Tindha Nallah	Tirthan	BS/HP/NL/04 - Temperate Mixed Forest	5	1.04	5	0.81	5	0.03	0	0
			Total	**241**	**61.5**	**241**	**35.99**	**147**	**15.93**	**57**	**2.42**

Annexure 22 : Site wise detail of Natural Landscape in Nurpur Forest Division of Himachal Pradesh (Phase I)

(**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				I		II				III						IV						V			
Sr. No	Treatment Site name	Range	Model	A	N. C	A	NC	A	AC	A	NC	A	AC	A	CC	A	AC	A	CC	M	MC	A	C	MA	MC
1	Bhadorya Nallah	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	1.99	0	0	1.99	0	0	29.79	0	0	29.79	0	25	12.35	12.35	0	0	0	0	25	8.39
2	C4 UP92 Dharwal-1	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	20	1.59	0	20	23.83	23.83	0	0	0	20	9.88	9.88	0	0	0	0	20	6.71	0	0	20	5.43
3	C4 UP92 Dharwal-2	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	1.59	0	0	1.59	0	0	23.83	0	0	23.83	0	20	9.88	9.88	0	0	0	0	20	6.71
4	CFS rey U-21	Rey	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	0	0	0	0	10	3.75	0	0	0	3.75	12.7	0	0	12.7	0	0	10	5.64	0	0
5	Lodhwan/CFS , Lodhwan C-U-55	Indora	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	50	17.74	0	50	61.42	61.42	0	0	0	50	27.02	27.02	0	0	0	0	50	19.84	0	0	50	12.52
6	R-10 N Talara C2	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
7	R-10n talara C2	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36

			Forest																						
8	U-52 Soldha C-4	Kotla	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0.4	0	0	0.4	0	0	5.96	0	0	5.96	0	5	2.47	2.47	0	0	0	0	5	1.68
9	U.52 Soldha	Kotla	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0.42	0	0	0.42	0	0	5.97	0	0	5.97	0	5	2.59	2.59	0	0	0	0	5	1.71
10	U.52 Soldha C-8,9	Kotla	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	1.87	0	0	1.87	0	0	6.35	0	0	6.35	0	5	2.82	2.82	0	0	0	0	5	2.09
11	U.P.7. Maira Dumal. C.7,2 C.8	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0.4	0	0	0.4	0	0	5.96	0	0	5.96	0	5	2.47	2.47	0	0	0	0	5	1.68
12	U52 Soldha C-4	Kotla	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	1.87	0	0	1.87	0	0	6.35	0	0	6.35	0	5	2.82	2.82	0	0	0	0	5	2.09
13	UP 16 Kopra C-5	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
14	UP-146 Fathehpur C22,C21,C24,C25	Jawali	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	0.79	0	10	11.92	11.92	0	0	0	10	4.94	4.94	0	0	0	0	10	3.36	0	0	10	2.72
15	UP-189 Dhoulpur	Rey	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	0.79	0	10	11.92	11.92	0	0	0	10	4.94	4.94	0	0	0	0	10	3.36	0	0	10	2.72

16	UP-189 Dhoulpur (Lantana)	Rey	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	3.75	0	10	12.7	12.7	0	0	0	10	5.64	5.64	0	0	0	0	10	4.18	0	0	10	2.6
17	UP-68 Bhadroya	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	1.99	0	0	1.99	0	0	29.79	0	0	29.79	0	25	12.35	12.35	0	0	0	0	25	8.39
18	UP-90 Ghoran C4	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
19	UP-90 Ghoran C4 (2)	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	8	0.64	0	8	9.53	9.53	0	0	0	8	3.95	3.95	0	0	0	0	8	2.69	0	0	8	2.17
20	UPf Maira Dumal C.78 C.8	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
Total				**133**	**27.3**	**10.53**	**133**	**161.12**	**171.65**	**10**	**3.75**	**114**	**133**	**68.72**	**186.47**	**12.7**	**95**	**47.75**	**60.45**	**133**	**48.54**	**10**	**5.64**	**228**	**67.7**

Annexure 23 : Site wise detail of Natural Landscape in Nurpur Forest Division of Himachal Pradesh (Phase II) (MA=Maintenance Area*, *MC=Maintenance Cost*)**

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**
1	Bhadorya Nallah	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous	25	6.79	25	5.63	25	2.15	0	0

			Forest								
2	C4 UP92 Dharwal-1	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	20	4.5	20	1.72	0	0	0	0
3	C4 UP92 Dharwal-2	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	20	5.43	20	4.5	20	1.72	0	0
4	CFS rey U-21	Rey	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	4.18	10	2.6	10	2.18	10	0.86
5	Lodhwan/CFS , Lodhwan C-U-55	Indora	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	50	10.69	50	4.29	0	0	0	0
6	R-10 N Talara C2	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
7	R-10n talara C2	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
8	U-52 Soldha C-4	Kotla	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.36	5	1.13	5	0.43	0	0
9	U.52 Soldha	Kotla	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.38	5	1.15	5	0.43	0	0
10	U.52 Soldha C-8,9	Kotla	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.3	5	1.09	5	0.43	0	0
11	U.P.7. Maira Dumal. C.7,2 C.8	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.36	5	1.13	5	0.43	0	0
12	U52 Soldha C-4	Kotla	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.3	5	1.09	5	0.43	0	0
13	UP 16 Kopra C-5	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
14	UP-146 Fathehpur	Jawali	BS/HP/NL/08 - Sub-Tropical Dry Deciduous	10	2.25	10	0.86	0	0	0	0

	C22,C21,C24,C25		Forest								
15	UP-189 Dhoulpur	Rey	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	2.25	10	0.86	0	0	0	0
16	UP-189 Dhoulpur (Lantana)	Rey	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	2.18	10	0.86	0	0	0	0
17	UP-68 Bhadroya	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	25	6.79	25	5.63	25	2.15	0	0
18	UP-90 Ghoran C4	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
19	UP-90 Ghoran C4 (2)	Indora	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	8	1.8	8	0.69	0	0	0	0
20	UPf Maira Dumal C.78 C.8	Nurpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
			Total	**238**	**59.21**	**238**	**35.38**	**105**	**10.35**	**10**	**0.86**

Annexure 24 : Site wise detail of Natural Landscape in Palampur Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**N. C**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	Bm Chachian	Palampur	BS/HP/NL/04 - Temperate Mixed Forest	10	1.45	0	10	14	14	0	0	0	10	7.41	7.41	0	0	0	0	10	3.88	0	0	10	2.07
2	C.F.S Area	Palampur	BS/HP/NL/04 -	30	4.	0	3	41.	41.	0	0	0	3	22.	22.	0	0	0	0	3	11	0	0	3	6.

	Saloh-1		Temperate Mixed Forest		35		0	99	99				0	22	22					0	.64			0	21
3	C.F.S Area Saloh-2	Palampur	BS/HP/NL/04 - Temperate Mixed Forest	0	0	5.8	0	0	5.8	0	0	55.98	0	0	55.98	0	40	29.63	29.63	0	0	0	0	40	15.53
4	C.F.S Area Saloh-3	Palampur	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	34	4.93	0	0	0	4.93	47.58	0	0	47.58	0	0	34	25.19	0	0
5	C.F.S Kusmal Bm 4 a	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
6	C.F.S Porour UP-4 a and 4b	Palampur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	1.59	0	0	1.59	0	0	23.83	0	0	23.83	0	20	9.88	9.88	0	0	0	0	20	6.71
7	C.F.S Punaper UP-29	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	5	0.42	0	0	0	0.42	5.97	0	0	5.97	0	0	5	2.59	0	0
8	P 13 b Baggidhar C-1	Baijnath	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	1.26	0	0	1.26	0	0	17.91	0	0	17.91	0	15	7.76	7.76	0	0	0	0	15	5.14
9	P 20 P Parour C,D, (Bhag Nallah)	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
10	P 46 J-Maila	Jaisingpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36

11	P 58 P Dodh Tikhla	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	5	0.42	0	0	0	0.42	6.24	0	0	6.24	0	0	5	3.19	0	0
12	P 70 P Goart	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	5	0.42	0	0	0	0.42	6.24	0	0	6.24	0	0	5	3.19	0	0
13	P-II-B. Sansal C-4	Baijnath	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
14	P55 P Darang C-1a	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	5	0.42	0	0	0	0.42	5.97	0	0	5.97	0	0	5	2.59	0	0
15	S/L Arth	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	0.84	0	10	12.48	12.48	0	0	0	10	6.39	6.39	0	0	0	0	10	3.98	0	0	10	3.19
16	S/l Latwale	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	0.42	0	5	6.24	6.24	0	0	0	5	3.19	3.19	0	0	0	0	5	1.99	0	0	5	1.59
17	Samlat Bhaglal	Jaisingpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
18	Sgalat Pharer	Palampur	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.87	0	5	6.35	6.35	0	0	0	5	2.82	2.82	0	0	0	0	5	2.09	0	0	5	1.3
19	Shamlat Buhana 1st 1st	Baijnath	BS/HP/NL/06 - Himalayan Chir Pine	10	0.84	0	10	12.48	12.48	0	0	0	10	6.39	6.39	0	0	0	0	10	3.98	0	0	10	3.19

			Fores																						
20	Shamlat Doli	Jaisingpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
21	Shamlat Khaira (Chibri)	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	1.99	0	0	1.99	0	0	29.79	0	0	29.79	0	25	12.35	12.35	0	0	0	0	25	8.39
22	Shamlat Malli	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	10	0.79	0	0	0	0.79	11.92	0	0	11.92	0	0	10	4.94	0	0
23	Shamlat Pamti	Jaisingpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	6	0.48	0	6	7.15	7.15	0	0	0	6	2.96	2.96	0	0	0	0	6	2.01	0	0	6	1.63
24	U 12 P Bhag Nallah	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
25	U 2 P Dodn Upporla c1	Palampur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
26	U 40 P Lulani W-1	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	30	2.52	0	30	37.43	37.43	0	0	0	30	19.17	19.17	0	0	0	0	30	11.94	0	0	30	9.56
27	U 40 P Lulani W-2	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	5.04	0	0	5.04	0	0	74.86	0	0	74.86	0	60	38.34	38.34	0	0	0	0	60	23.87

28	U 40 P Lulani W-3	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	0	0	0	0	0	0	22	1.85	0	0	0	1.85	27.45	0	0	27.45	0	0	22	14.06	0	0
29	U- 24 B Sibber Nal C-1	Baijnath	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	0.84	0	10	12.48	12.48	0	0	0	10	6.39	6.39	0	0	0	0	10	3.98	0	0	10	3.19
30	U-26 B Tar	Baijnath	BS/HP/NL/04 - Temperate Mixed Forest	0	0	2.9	0	0	2.9	0	0	27.99	0	0	27.99	0	20	14.82	14.82	0	0	0	0	20	7.76
31	U-46-Jhikli Bheth C-3	Baijnath	BS/HP/NL/07 - Himalayan Mixed Forest	5	0.42	0	5	5.97	5.97	0	0	0	5	2.59	2.59	0	0	0	0	5	1.71	0	0	5	1.38
32	U.44.B. Ghoar Pith C-2	Baijnath	BS/HP/NL/07 - Himalayan Mixed Forest	10	0.84	0	10	11.94	11.94	0	0	0	10	5.17	5.17	0	0	0	0	10	3.43	0	0	10	2.77
33	UP 105 P Rangru	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	1.59	0	0	1.59	0	0	23.83	0	0	23.83	0	20	9.88	9.88	0	0	0	0	20	6.71
34	UP 11 P Rakh	Palampur	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	5	1.77	0	5	6.14	6.14	0	0	0	5	2.7	2.7	0	0	0	0	5	1.98	0	0	5	1.25
35	UP 112 P Naura C- 5C, C-5 d	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	7	0.56	0	7	8.34	8.34	0	0	0	7	3.46	3.46	0	0	0	0	7	2.35	0	0	7	1.9
36	UP 115 P	Daroh	BS/HP/NL/09 – Eradication of	5	1.	0	5	6.3	6.3	0	0	0	5	2.8	2.8	0	0	0	0	5	2.	0	0	5	1.

	Rajhoon c-2		Lantana (> 50%)		87			5	5					2	2						09				3
37	UP 123.p. Ladhrana	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	0	0	0	0	0	0	5	0.42	0	0	0	0.42	5.97	0	0	5.97	0	0	5	2.59	0	0
38	UP 128 P Rajgundha C-4	Bir	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
39	UP 129 P Kohar 1 C-7	Bir	BS/HP/NL/03 - Temperate Conifer Forest	0	0	0	0	0	0	5	0.5	0	0	0	0.5	7.29	0	0	7.29	0	0	5	3.69	0	0
40	UP 129 P Kohar I C-3 b	Bir	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0	0	0	0	5	0.72	0	0	0	0.72	7	0	0	7	0	0	5	3.7	0	0
41	UP 130 P Kohar II C-4	Bir	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
42	UP 130 P Kohar II C-4 (2)	Bir	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
43	UP 131 P Swar 1st C-16	Bir	BS/HP/NL/04 - Temperate Mixed Forest	5	0.72	0	5	7	7	0	0	0	5	3.7	3.7	0	0	0	0	5	1.94	0	0	5	1.04
44	UP 131 P Swar 1st C-5	Bir	BS/HP/NL/03 - Temperate Conifer Forest	5	0.5	0	5	7.29	7.29	0	0	0	5	3.69	3.69	0	0	0	0	5	1.85	0	0	5	1.04

45	UP 3 P Dyala S/L Kudan	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	4	0.34	0	4	4.99	4.99	0	0	0	4	2.56	2.56	0	0	0	0	4	1.59	0	0	4	1.28
46	UP 40 B Duhak C-3	Baijnath	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	0.79	0	10	11.92	11.92	0	0	0	10	4.94	4.94	0	0	0	0	10	3.36	0	0	10	2.72
47	UP 43 J Jaisinghpur-II C-10 (Tikru)	Jaisinghpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
48	UP 49 J Alampur	Jaisinghpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
49	UP 59 P Thural Khas	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0.48	0	0	0.48	0	0	7.15	0	0	7.15	0	6	2.96	2.96	0	0	0	0	6	2.01
50	UP 97 P Ban Bhatilu C1, C2	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0.4	0	0	0.4	0	0	5.96	0	0	5.96	0	5	2.47	2.47	0	0	0	0	5	1.68
51	UP- 127-P Chakban Kohar C-6	Bir	BS/HP/NL/04 - Temperate Mixed Forest	0	0	0.72	0	0	0.72	0	0	7	0	0	7	0	5	3.7	3.7	0	0	0	0	5	1.94
52	UP-114 P Dheera III C-3	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	0.79	0	10	11.92	11.92	0	0	0	10	4.94	4.94	0	0	0	0	10	3.36	0	0	10	2.72
53	UP-49- J Alampm. C-20	Jaisinghpur	BS/HP/NL/08 - Sub-Tropical Dry	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36

			Deciduous Forest																						
54	UP130P Kohar II C-4	Baijnath	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	3.75	0	10	12.7	12.7	0	0	0	10	5.64	5.64	0	0	0	0	10	4.18	0	0	10	2.6
Total				**257**	**31.88**	**21.77**	**257**	**324.76**	**346.53**	**111**	**12.33**	**274.3**	**257**	**154.19**	**440.82**	**145.63**	**216**	**131.79**	**277.42**	**257**	**95.82**	**111**	**73.13**	**473**	**148.8**

Annexure 25 : Site wise detail of Natural Landscape in Palampur Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**M A**	**MC**	**MA**	**MC**
1	Bm Chachian	Palampur	BS/HP/NL/04 - Temperate Mixed Forest	10	1.61	10	0.06	0	0	0	0
2	C.F.S Area Saloh-1	Palampur	BS/HP/NL/04 - Temperate Mixed Forest	30	4.83	30	0.17	0	0	0	0
3	C.F.S Area Saloh-2	Palampur	BS/HP/NL/04 - Temperate Mixed Forest	40	8.28	40	6.44	40	0.23	0	0
4	C.F.S Area Saloh-3	Palampur	BS/HP/NL/04 - Temperate Mixed Forest	34	13.2	34	7.04	34	5.48	34	0.2
5	C.F.S Kusmal Bm 4 a	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
6	C.F.S Porour UP-4 a and 4b	Palampur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	20	5.43	20	4.5	20	1.72	0	0
7	C.F.S Punaper UP-29	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.71	5	1.38	5	1.15	5	0.43
8	P 13 b Baggidhar C-1	Baijnath	BS/HP/NL/07 - Himalayan Mixed Forest	15	4.15	15	3.44	15	1.29	0	0
9	P 20 P Parour C,D, (Bhag	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0

	Nallah)										
10	P 46 J-Maila	Jaisingpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
11	P 58 P Dodh Tikhla	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.99	5	1.59	5	1.31	5	0.43
12	P 70 P Goart	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.99	5	1.59	5	1.31	5	0.43
13	P-II-B. Sansal C-4	Baijnath	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
14	P55 P Darang C-1a	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.71	5	1.38	5	1.15	5	0.43
15	S/L Arth	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	2.61	10	0.86	0	0	0	0
16	S/l Latwale	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	5	1.31	5	0.43	0	0	0	0
17	Samlat Bhaglal	Jaisingpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
18	Sgalat Pharer	Palampur	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.09	5	0.43	0	0	0	0
19	Shamlat Buhana 1st 1st	Baijnath	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	2.61	10	0.86	0	0	0	0
20	Shamlat Doli	Jaisingpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
21	Shamlat Khaira (Chibri)	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	25	6.79	25	5.63	25	2.15	0	0
22	Shamlat Malli	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	3.36	10	2.72	10	2.25	10	0.86
23	Shamlat Pamti	Jaisingpur	BS/HP/NL/08 - Sub-Tropical Dry	6	1.35	6	0.52	0	0	0	0

			Deciduous Forest								
24	U 12 P Bhag Nallah	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
25	U 2 P Dodn Upporla c1	Palampur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
26	U 40 P Lulani W-1	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	30	7.84	30	2.58	0	0	0	0
27	U 40 P Lulani W-2	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	60	19.13	60	15.69	60	5.15	0	0
28	U 40 P Lulani W-3	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	22	8.75	22	7.01	22	5.75	22	1.89
29	U- 24 B Sibber Nal C-1	Baijnath	BS/HP/NL/06 - Himalayan Chir Pine Fores	10	2.61	10	0.86	0	0	0	0
30	U-26 B Tar	Baijnath	BS/HP/NL/04 - Temperate Mixed Forest	20	4.14	20	3.22	20	0.12	0	0
31	U-46-Jhikli Bheth C-3	Baijnath	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.15	5	0.43	0	0	0	0
32	U.44.B. Ghoar Pith C-2	Baijnath	BS/HP/NL/07 - Himalayan Mixed Forest	10	2.29	10	0.86	0	0	0	0
33	UP 105 P Rangru	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	20	5.43	20	4.5	20	1.72	0	0
34	UP 11 P Rakh	Palampur	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	5	1.07	5	0.43	0	0	0	0
35	UP 112 P Naura C- 5C, C-5 d	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	7	1.58	7	0.6	0	0	0	0
36	UP 115 P Rajhoon c-2	Daroh	BS/HP/NL/09 – Eradication of Lantana (> 50%)	5	1.09	5	0.43	0	0	0	0
37	UP 123.p. Ladhrana	Palampur	BS/HP/NL/07 - Himalayan Mixed Forest	5	1.71	5	1.38	5	1.15	5	0.43
38	UP 128 P Rajgundha C-4	Bir	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03

39	UP 129 P Kohar 1 C-7	Bir	BS/HP/NL/03 - Temperate Conifer Forest	5	1.85	5	1.04	5	0.81	5	0.03
40	UP 129 P Kohar I C-3 b	Bir	BS/HP/NL/04 - Temperate Mixed Forest	5	1.94	5	1.04	5	0.81	5	0.03
41	UP 130 P Kohar II C-4	Bir	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
42	UP 130 P Kohar II C-4 (2)	Bir	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
43	UP 131 P Swar 1st C-16	Bir	BS/HP/NL/04 - Temperate Mixed Forest	5	0.81	5	0.03	0	0	0	0
44	UP 131 P Swar 1st C-5	Bir	BS/HP/NL/03 - Temperate Conifer Forest	5	0.81	5	0.03	0	0	0	0
45	UP 3 P Dyala S/L Kudan	Palampur	BS/HP/NL/06 - Himalayan Chir Pine Fores	4	1.05	4	0.34	0	0	0	0
46	UP 40 B Duhak C-3	Baijnath	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	2.25	10	0.86	0	0	0	0
47	UP 43 J Jaisinghpur-II C-10 (Tikru)	Jaisinghpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
48	UP 49 J Alampur	Jaisinghpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
49	UP 59 P Thural Khas	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	6	1.63	6	1.35	6	0.52	0	0
50	UP 97 P Ban Bhatilu C1, C2	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.36	5	1.13	5	0.43	0	0
51	UP- 127-P Chakban Kohar C-6	Bir	BS/HP/NL/04 - Temperate Mixed Forest	5	1.04	5	0.81	5	0.03	0	0
52	UP-114 P Dheera III C-3	Daroh	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	2.25	10	0.86	0	0	0	0

53	UP-49- J Alampm. C-20	Jaisinghpur	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
54	UP130P Kohar II C-4	Baijnath	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	2.18	10	0.86	0	0	0	0
			Total	**584**	**155.98**	**584**	**92.25**	**327**	**36.15**	**111**	**5.22**

Annexure 26 : Site wise detail of Natural Landscape in Dehra Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																								
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**N.C**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	Dp dadachatwal c-4	Dada Siba	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	0	0	0	0	0	0	10	0.79	0	0	0	0.79	11.92	0	0	11.92	0	0	10	4.94	0	0
2	p 1d ghanban C2 a,C2b,C2c	Nagrota surian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	7.49	0	0	7.49	0	0	25.39	0	0	25.39	0	20	11.28	11.28	0	0	0	0	20	8.37
3	P2 DG Hamirpur C1A-C1B	Nagrota Surian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
4	R-18D Kohli Bolta	Dehra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.32	0	4	4.77	4.77	0	0	0	4	1.98	1.98	0	0	0	0	4	1.34	0	0	4	1.09

5	U 13 D Dhar Paniyali C-2	Nagrota Surian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
6	U 5 D Chowkatu C2	J/Mukhi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	5.24	0	0	5.24	0	0	17.77	0	0	17.77	0	14	7.9	7.9	0	0	0	0	14	5.86
7	U 7 D Magheen-C-10	Khundian	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	17.74	0	0	17.74	0	0	61.42	0	0	61.42	0	50	27.02	27.02	0	0	0	0	50	19.84
8	U 7D Magheen C1	Khundian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	37.46	0	0	37.46	0	0	126.95	0	0	126.95	0	100	56.42	56.42	0	0	0	0	100	41.84
9	U 8 D kuthialta C 6	Khundian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	3.75	0	10	12.7	12.7	0	0	0	10	5.64	5.64	0	0	0	0	10	4.18	0	0	10	2.6
10	U 9D baldoa C-7	Nagrota Sorian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	7.49	0	0	7.49	0	0	25.39	0	0	25.39	0	20	11.28	11.28	0	0	0	0	20	8.37
11	U f sorad bammi abbal	dehra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.32	0	4	4.77	4.77	0	0	0	4	1.98	1.98	0	0	0	0	4	1.34	0	0	4	1.09
12	U P 5 D Chowkatu	J/Mukhi	BS/HP/NL/08 - Sub-Tropical Dry Deciduous	0	0	0	0	0	0	1	0.7	0	0	0	0.	11.	0	0	11.9	0	0	10	4.	0	0

	C2		Forest							0	9				79	92			2				94		
13	U P 6 D Silh C-4	J/Mukni	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	0	0	0	0	30	10.64	0	0	0	10.64	36.85	0	0	36.85	0	0	30	16.21	0	0
14	U PF Rail, UPF Baslahar,DP Kalot	Dada Siba	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	50	3.97	0	50	59.58	59.58	0	0	0	50	24.7	24.7	0	0	0	0	50	16.78	0	0	50	13.58
15	U-11-d jaini masroor c-2	Nagrota surian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	0.4	0	5	5.96	5.96	0	0	0	5	2.47	2.47	0	0	0	0	5	1.68	0	0	5	1.36
16	U-1D Bilaspur C2	Nagrota Surian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	3.75	0	10	12.7	12.7	0	0	0	10	5.64	5.64	0	0	0	0	10	4.18	0	0	10	2.6
17	U-7 D Magheen C-1	Khundian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	0.79	0	10	11.92	11.92	0	0	0	10	4.94	4.94	0	0	0	0	10	3.36	0	0	10	2.72
18	U.8.D kuthialta C-6	Khundian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	0.79	0	10	11.92	11.92	0	0	0	10	4.94	4.94	0	0	0	0	10	3.36	0	0	10	2.72
19	UD 7D Sihorwala C-1	Khundian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	0.79	0	10	11.9	11.92	0	0	0	10	4.94	4.94	0	0	0	0	10	3.36	0	0	10	2.72

								2																
20	UF Kurna C-2	Dehra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.32	0	4	4.77	4.77	0	0	0	4	1.98	1.98	0	0	0	0	4	1.34	0	0	4	1.09
21	UF Nouri	Dehra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.32	0	4	4.77	4.77	0	0	0	4	1.98	1.98	0	0	0	0	4	1.34	0	0	4	1.09
22	UP 7D Sihorwala	Khundian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	3.75	0	10	12.7	12.7	0	0	0	10	5.64	5.64	0	0	0	0	10	4.18	0	0	10	2.6
23	Upf badhol ,uPf Bari, Upf Buhala, DPF ragmi,Upf ghamroor	Dada Siba	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	0	0	0	0	0	0	160	56.75	0	0	0	56.75	196.54	0	0	196.54	0	0	160	86.45	0	0
24	Upf badhol ,uPf Bari, Upf Buhala, DPF ragmi,Upf ghamroor (Lantana)	Dada Siba	BS/HP/NL/09 – Eradication of Lantana (> 50%)	0	0	59.93	0	0	59.93	0	0	203.12	0	0	203.12	0	160	90.27	90.27	0	0	0	0	160	66.95
25	UPF Banuri,UPF sanda,UPF bandol DPF dodoa (Lantana)	Dada Siba	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	190	67.39	0	190	233.39	233.39	0	0	0	190	102.66	102.66	0	0	0	0	190	75.38	0	0	190	47.59
26	UPF Rail, Upf Baslahar,DP Kalot	Dada Siba	BS/HP/NL/09 – Eradication of Lantana (>	10	37.4	0	10	126.	126.	0	0	0	10	56.4	56.4	0	0	0	0	10	41.8	0	0	100	26.03

			50%)	0	6		0	95	95				0	2	2					0	4				
			Total	**431**	**124.92**	**135.354**	**431**	**5306.074**	**6666.09**	**210**	**68.97**	**460.04**	**431**	**230.085**	**759.86**	**257.223**	**364**	**204.17**	**461.4**	**431**	**167.02**	**210**	**112.54**	**795**	**262.83**

Annexure 27 : Site wise detail of Natural Landscape in Dehra Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**
1	Dp dadachatwal c-4	Dada Siba	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	3.36	10	2.72	10	2.25	10	0.86
2	p 1d ghanban C2 a,C2b,C2c	Nagrota surian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	20	5.21	20	4.36	20	1.72	0	0
3	P2 DG Hamirpur C1A-C1B	Nagrota Surian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
4	R-18D Kohli Bolta	Dehra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.9	4	0.34	0	0	0	0
5	U 13 D Dhar Paniyali C-2	Nagrota Surian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
6	U 5 D Chowkatu C2	J/Mukhi	BS/HP/NL/09 – Eradication of Lantana (> 50%)	14	3.64	14	3.05	14	1.2	0	0

7	U 7 D Magheen-C- 10	Khundian	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	50	12.52	50	10.69	50	4.29	0	0
8	U 7D Magheen C1	Khundian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	100	26.03	100	21.81	100	8.59	0	0
9	U 8 D kuthialta C 6	Khundian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	2.18	10	0.86	0	0	0	0
10	U 9D baldoa C-7	Nagrota Sorian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	20	5.21	20	4.36	20	1.72	0	0
11	U f sorad bammi abbal	dehra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.9	4	0.34	0	0	0	0
12	U P 5 D Chowkatu C2	J/Mukhi	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	3.36	10	2.72	10	2.25	10	0.86
13	U P 6 D Silh C-4	J/Mukni	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	30	11.9	30	7.51	30	6.41	30	2.58
14	U PF Rail, UPF Baslahar,DP Kalot	Dada Siba	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	50	11.26	50	4.29	0	0	0	0
15	U-11-d jaini masroor c-2	Nagrota surian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	5	1.13	5	0.43	0	0	0	0
16	U-1D Bilaspur C2	Nagrota Surian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	2.18	10	0.86	0	0	0	0
17	U-7 D Magheen C-1	Khundian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	2.25	10	0.86	0	0	0	0
18	U.8.D kuthialta C-6	Khundian	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	10	2.25	10	0.86	0	0	0	0
19	UD 7D Sihorwala C-1	Khundian	BS/HP/NL/08 - Sub-Tropical	10	2.25	10	0.86	0	0	0	0

			Dry Deciduous Forest								
20	UF Kurna C-2	Dehra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.9	4	0.34	0	0	0	0
21	UF Nouri	Dehra	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	4	0.9	4	0.34	0	0	0	0
22	UP 7D Sihorwala	Khundian	BS/HP/NL/09 – Eradication of Lantana (> 50%)	10	2.18	10	0.86	0	0	0	0
23	Upf badhol ,uPf Bari, Upf Buhala, DPF ragmi,Upf ghamroor	Dada Siba	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	160	63.48	160	40.07	160	34.2	160	13.74
24	Upf badhol ,uPf Bari, Upf Buhala, DPF ragmi,Upf ghamroor (Lantana)	Dada Siba	BS/HP/NL/09 – Eradication of Lantana (> 50%)	160	41.64	160	34.9	160	13.74	0	0
25	UPF Banuri,UPF sanda,UPF bandol DPF dodoa (Lantana)	Dada Siba	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	190	40.61	190	16.32	0	0	0	0
26	UPF Rail, Upf Baslahar,DP Kalot	Dada Siba	BS/HP/NL/09 – Eradication of Lantana (> 50%)	100	21.81	100	8.59	0	0	0	0
			Total	**1005**	**270.31**	**1005**	**169.2**	**574**	**76.37**	**210**	**18.04**

Annexure 28 : Site wise detail of Natural Landscape in Suket Forest Division of Himachal Pradesh (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				I		II				III						IV						V			
Sr. No	Treatment Site name	Range	Model	A	N. C	A	NC	A	AC	A	NC	A	AC	A	CC	A	AC	A	CC	M	MC	A	C	MA	MC
1	Janitary DPF	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	30	2.52	0	30	35.81	35.81	0	0	0	30	15.52	15.52	0	0	0	0	30	10.29	0	0	30	8.3
Total				**30**	**2.52**	**0**	**30**	**35.81**	**35.81**	**0**	**0**	**0**	**30**	**15.52**	**15.52**	**0**	**0**	**0**	**0**	**30**	**10.29**	**0**	**0**	**30**	**8.3**

Annexure 29 : Site wise detail of Natural Landscape in Suket Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				VI		VII		VIII		IX	
Sr. No	Treatment Site name	Range	Model	M A	MC	MA	MC	MA	MC	MA	MC
1	Janitary DPF	Kotli	BS/HP/NL/07 - Himalayan Mixed Forest	30	6.88	30	2.58	0	0	0	0
Total				**30**	**6.88**	**30**	**2.58**	**0**	**0**	**0**	**0**

Annexure 30 : Division Wise Proposed Extent of Plantations in Natural Landscapes for Protection of Forest Fire and Natural Regeneration in Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No	Division	Cost Model	Year										
			Phase I (Extent of Area in ha)						Phase I		Phase II	Phase I &II	
			I	II		III	IV	V	Total		VI	Total Area ha	
			E	E	M	M		M	E	M	Total M	E	M
1	Dalhousie	BS/HP/NL/11 - Protection Model for Natural Regeneration	200	-	200	200	200	200	200	200	-	200	200
		BS/HP/NL/12 - Fire Protection Model	80	-	80	80	80	80	80	80	-	80	80
2	Dehra	BS/HP/NL/11 - Protection Model for Natural Regeneration	150	170	150	320	320	320	320	320	170	320	320
		BS/HP/NL/12 - Fire Protection Model	170	0	170	170	170	170	170	170	0	170	170
3	Dharamshala	BS/HP/NL/11 - Protection Model for Natural Regeneration	120	200	120	320	320	320	320	320	200	320	320
		BS/HP/NL/12 - Fire Protection Model	200	0	200	200	200	200	200	200	0	200	200

4	Hamirpur	BS/HP/NL/11 - Protection Model for Natural Regeneration	140	160	140	300	300	300	300	300	160	300	300
		BS/HP/NL/12 - Fire Protection Model	180	0	180	180	180	180	180	180	0	180	180
5	Joginder Nagar	BS/HP/NL/11 - Protection Model for Natural Regeneration	200	300	200	500	500	500	500	500	300	500	500
		BS/HP/NL/12 - Fire Protection Model	180	0	180	180	180	180	180	180	0	180	180
6	Karsog	BS/HP/NL/11 - Protection Model for Natural Regeneration	200	250	200	450	450	450	450	450	250	450	450
		BS/HP/NL/12 - Fire Protection Model	10	0	10	10	10	10	10	10	0	10	10
7	Kullu	BS/HP/NL/11 - Protection Model for Natural Regeneration	80	150	80	230	230	230	230	230	150	230	230
		BS/HP/NL/12 - Fire Protection Model	45	0	45	45	45	45	45	45	0	45	45
8	Mandi	BS/HP/NL/11 - Protection Model for Natural Regeneration	120	150	120	270	270	270	270	270	150	270	270

		BS/HP/NL/12 - Fire Protection Model	60	0	60	60	60	60	60	60	0	60	60
9	Nachan	BS/HP/NL/11 - Protection Model for Natural Regeneration	120	180	120	300	300	300	300	300	180	300	300
		BS/HP/NL/12 - Fire Protection Model	15	0	15	15	15	15	15	15	0	15	15
10	Nurpur	BS/HP/NL/11 - Protection Model for Natural Regeneration	180	200	180	380	380	380	380	380	200	380	380
		BS/HP/NL/12 - Fire Protection Model	190	0	190	190	190	190	190	190	0	190	190
11	Palampur	BS/HP/NL/11 - Protection Model for Natural Regeneration	120	180	120	300	300	300	300	300	180	300	300
		BS/HP/NL/12 - Fire Protection Model	110	0	110	110	110	110	110	110	0	110	110
12	Parvati	BS/HP/NL/11 - Protection Model for Natural Regeneration	120	200	120	320	320	320	320	320	200	320	320
		BS/HP/NL/12 - Fire Protection Model	100	0	100	100	100	100	100	100	0	100	100

13	Seraj	BS/HP/NL/11 - Protection Model for Natural Regeneration	160	180	160	340	340	340	340	340	180	340	340
		BS/HP/NL/12 - Fire Protection Model	40	0	40	40	40	40	40	40	0	40	40
14	Suket	BS/HP/NL/11 - Protection Model for Natural Regeneration	200	300	200	500	500	500	500	500	300	500	500
		BS/HP/NL/12 - Fire Protection Model	200	0	200	200	200	200	200	200	0	200	200
Total			**3690**	**2620**	**3690**	**6310**	**6310**	**6310**	**6310**	**6310**	**2620**	**6310**	**6310**

Annexure 31 : Division Wise Proposed cost of Plantations in Natural Landscapes for Protection of Forest Fire and Natural Regeneration in Himachal Pradesh (**E=Establishment*, *M=Maintenance*)

Sr. No	Division	Cost Models	Phase I: Year Wise Cost (Rs in Lakhs)							Total Phase I (Rs.in Lakhs)		Phase II (Rs.in Lakhs) VI Year	Total Phase II (Rs.in Lakhs)	Total Phase I & phase II (Rs.in Lakhs)		Grand Total (Rs.in Lakhs)
			I	II		III		IV	V							
			E	E	M	E	M	M	M	E	M	M	M	E	M	
1	Dalhousie	BS/HP/NL/11 - Protection Model for Natural Regeneration	256.60	-	30.78	-	28.43	26.35	16.29	256.60	101.85	-	-	256.60	101.85	**358.45**

		BS/HP/NL/12 - Fire Protection Model	26.29	-	19.57	-	19.41	19.14	18.73	26.29	76.85	-	-	26.29	76.85	**103.14**
2	Dehra	BS/HP/NL/11 - Protection Model for Natural Regeneration	192.45	218.11	23.08	0.00	47.48	43.93	34.62	410.56	149.11	13.85	13.85	410.56	162.96	**573.56**
		BS/HP/NL/12 - Fire Protection Model	55.87	0.00	41.59	0.00	41.25	40.67	39.80	55.87	163.31	0.00	0.00	55.87	163.31	**219.18**
3	Dharamshala	BS/HP/NL/11 - Protection Model for Natural Regeneration	153.96	256.60	18.47	0.00	47.84	44.24	36.13	410.56	146.68	16.29	16.29	410.56	162.97	**573.53**
		BS/HP/NL/12 - Fire Protection Model	65.73	0.00	48.92	0.00	48.53	47.84	46.82	65.73	192.11	0.00	0.00	65.73	192.11	**257.73**
4	Hamirpur	BS/HP/NL/11 - Protection Model for Natural Regeneration	179.62	205.28	21.54	0.00	44.52	41.19	32.48	384.90	139.73	13.03	13.03	384.90	152.76	**537.66**
		BS/HP/NL/12 - Fire Protection Model	59.15	0.00	44.03	0.00	43.68	43.06	42.14	59.15	172.91	0.00	0.00	59.15	172.91	**232.06**
5	Joginder Nagar	BS/HP/NL/11 - Protection Model for Natural Regeneration	256.60	384.90	30.78	0.00	74.60	69.00	55.81	641.50	230.19	24.44	24.44	641.50	254.63	**896.13**

		BS/HP/NL/12 - Fire Protection Model	59.15	0.00	44.03	0.00	43.68	43.06	42.14	59.15	172.91	0.00	0.00	59.15	172.91	**232.06**
6	Karsog	BS/HP/NL/11 - Protection Model for Natural Regeneration	256.60	320.75	30.78	0.00	66.90	61.89	49.23	577.35	208.80	20.37	20.37	577.35	**229.17**	**806.52**
		BS/HP/NL/12 - Fire Protection Model	3.29	0.00	2.45	0.00	2.43	2.39	2.34	3.29	9.61	0.00	0.00	3.29	9.61	**12.90**
7	Kullu	BS/HP/NL/11 - Protection Model for Natural Regeneration	102.64	192.45	12.31	0.00	34.45	31.86	26.28	295.09	104.90	12.22	12.22	295.09	**117.12**	**412.21**
		BS/HP/NL/12 - Fire Protection Model	14.79	0.00	11.01	0.00	10.92	10.76	10.53	14.79	43.22	0.00	0.00	14.79	43.22	**58.01**
8	Mandi	BS/HP/NL/11 - Protection Model for Natural Regeneration	153.96	192.45	18.47	0.00	40.14	37.13	29.54	346.41	125.28	12.22	12.22	346.41	**137.50**	**483.91**
		BS/HP/NL/12 - Fire Protection Model	19.72	0.00	14.68	0.00	14.56	14.35	14.05	19.72	57.64	0.00	0.00	19.72	57.64	**77.36**

9	Nachan	BS/HP/NL/11 - Protection Model for Natural Regeneration	153.96	230.94	18.47	0.00	44.76	41.40	33.49	384.90	138.12	14.66	14.66	384.90	152.78	**537.68**
		BS/HP/NL/12 - Fire Protection Model	4.93	0.00	3.67	0.00	3.64	3.59	3.51	4.93	14.41	0.00	0.00	4.93	14.41	**19.34**
10	Nurpur	BS/HP/NL/11 - Protection Model for Natural Regeneration	230.94	256.60	27.70	0.00	56.37	52.14	41.01	487.54	177.22	16.29	16.29	487.54	193.51	**681.05**
		BS/HP/NL/12 - Fire Protection Model	62.44	0.00	46.48	0.00	46.10	45.45	44.48	62.44	182.51	0.00	0.00	62.44	182.51	**244.95**
11	Palampur	BS/HP/NL/11 - Protection Model for Natural Regeneration	153.96	230.94	18.47	0.00	44.76	41.40	33.49	384.90	138.12	14.66	14.66	384.90	152.78	**537.68**
		BS/HP/NL/12 - Fire Protection Model	36.15	0.00	26.91	0.00	26.69	26.31	25.75	36.15	105.66	0.00	0.00	36.15	105.66	**141.81**
12	Parvati	BS/HP/NL/11 - Protection Model for Natural Regeneration	153.96	256.60	18.47	0.00	47.84	44.24	36.13	410.56	146.68	16.29	16.29	410.56	162.97	**573.53**
		BS/HP/NL/12 - Fire Protection Model	32.86	0.00	24.46	0.00	24.27	23.92	23.41	32.86	96.06	0.00	0.00	32.86	96.06	**128.92**

13	Seraj	BS/HP/NL/11 - Protection Model for Natural Regeneration	205.28	230.94	24.62	0.00	50.45	46.67	36.74	436.22	158.48	14.66	14.66	436.22	173.14	**609.36**
		BS/HP/NL/12 - Fire Protection Model	13.15	0.00	9.78	0.00	9.71	9.57	9.36	13.15	38.42	0.00	0.00	13.15	38.42	**51.57**
14	Suket	BS/HP/NL/11 - Protection Model for Natural Regeneration	256.60	384.90	30.78	0.00	74.60	69.00	55.81	641.50	230.19	24.44	24.44	641.50	254.63	**896.13**
		BS/HP/NL/12 - Fire Protection Model	65.73	0.00	48.92	0.00	48.53	47.84	46.82	65.73	192.11	0.00	0.00	65.73	192.11	**257.84**
Total			**3226.38**	**3361.46**	**711.22**	**0.00**	**1086.54**	**1028.39**	**886.93**	**6587.84**	**3713.08**	**213.42**	**213.42**	**6587.84**	**3926.5**	**10514.27**

Annexure 32 : Division Wise Projected extent of Plantations in Agriculture Landscapes in Himachal Pradesh (**E=Establishment*, *M=Maintenance*)

Sr. No	**Division**	**Cost Model**	**YEAR**										
			Phase I (Extent of Area in ha)						**Phase I**		**Phase II**	**Phase I &II**	
			I	**II**		**III**	**IV**	**V**	**Total**		**VI**	**Total Area ha**	
			E	**E**	**M**	**M**	**M**	**M**	**E**	**M**	**Total M**	**E**	**M**
1	Dehra	BS/HP/AL/01 - Boundary Plantation	70	70	70.00	140	190	120	190	190	50	190	190

		Model											
		BS/HP/AL/02 - Block Plantation Model	20	15	20.00	35	45	25	45	45	10	45	45
2	Dharamshala	BS/HP/AL/01 - Boundary Plantation Model	50	50	50.00	100	150	100	150	150	50	150	150
		BS/HP/AL/02 - Block Plantation Model	10	10	10.00	20	30	20	30	30	10	30	30
3	Hamirpur	S/HP/AL/01 - Boundary Plantation Model	0	0	0.00	0	50	50	50	50	50	50	50
		BS/HP/AL/02 - Block Plantation Model	-	-	-	-	-	-	-	-	-	--	-
4	Joginder Nagar	BS/HP/AL/01 - Boundary Plantation Model	40	30	40.00	70	95	55	95	95	25	95	95

		BS/HP/AL/02 - Block Plantation Model	15	10	15.00	25	40	25	40	40	15	40	40
5	Kullu	BS/HP/AL/01 - Boundary Plantation Model	10	15	10.00	25	45	35	45	45	20	45	45
		BS/HP/AL/02 - Block Plantation Model	0.5	0.5	0.50	1	1.5	1	1.5	1.5	0.5	1.5	1.5
6	Mandi	BS/HP/AL/01 - Boundary Plantation Model	60	30	60.00	90	130	70	130	130	40	130	130
		BS/HP/AL/02 - Block Plantation Model	10	20	10.00	30	40	30	40	40	10	40	40
7	Nachan	BS/HP/AL/01 - Boundary Plantation Model	20	20	20.00	40	80	60	80	80	40	80	80
		BS/HP/AL/02 - Block Plantation Model	5	5	5.00	10	20	15	20	20	10	20	20

8	Nurpur	BS/HP/AL/01 - Boundary Plantation Model	40	70	40.00	110	170	130	170	170	60	170	170
		BS/HP/AL/02 - Block Plantation Model	30	35	30.00	65	95	65	95	95	30	95	95
9	Palampur	BS/HP/AL/01 - Boundary Plantation Model	40	40	40.00	80	120	80	120	120	40	120	120
		BS/HP/AL/02 - Block Plantation Model	20	20	20.00	40	60	40	60	60	20	60	60
10	Parvati	BS/HP/AL/01 - Boundary Plantation Model	20	15	20.00	35	65	45	65	65	30	65	65
		BS/HP/AL/02 - Block Plantation Model	0.5	10	0.50	10.5	25.5	25	25.5	25.5	15	25.5	25.5
11	Seraj	BS/HP/AL/01 - Boundary Plantation Model	10	10	10.00	20	30	20	30	30	10	30	30

		BS/HP/AL/02 - Block Plantation Model	5	5	5.00	10	15	10	15	15	5	15	15
12	Suket	BS/HP/AL/01 - Boundary Plantation Model	60	60	60.00	120	170	110	170	170	50	170	170
		BS/HP/AL/02 - Block Plantation Model	1	2	1.00	3	4	3	4	4	1	4	4
		Total	**537**	**542.5**	**537**	**1079.5**	**1671**	**1134**	**1671**	**1671**	**591.5**	**1671**	**1671**

Annexure 33 : Division Wise Projected Cost of Plantations in Agriculture Landscapes in Himachal Pradesh (**E=Establishment*, *M=Maintenance*)

Sr. No	**Division**	**Cost Models**	**Phase I: Year Wise Cost (Rs in Lakhs)**							**Total Phase I (Rs.in Lakhs)**		**Phase II (Rs.in Lakhs)**	**Total Phase II (Rs.in Lakhs)**	**Total Phase I & phase II (Rs.in Lakhs)**		**Grand Total (Rs.in Lakhs)**
			I	**II**		**III**		**IV**	**V**			**VI Year**				
			E	**E**	**M**	**E**	**M**	**M**	**M**	**E**	**M**	**M**	**M**	**E**	**M**	
1	Dehra	BS/HP/AL/01 - Boundary Plantation Model	6.30	6.30	3.37	4.50	6.98	9.88	6.44	17.10	26.67	2.76	2.76	17.10	29.43	**46.53**

		BS/HP/AL/02 - Block Plantation Model	9.60	7.20	5.14	4.80	9.35	12.57	7.16	21.60	34.22	2.94	2.94	21.60	37.16	**58.76**
2	Dharamshala	BS/HP/AL/01 - Boundary Plantation Model	4.50	4.50	2.41	4.50	4.99	7.75	5.34	13.50	20.49	2.76	2.76	13.50	23.25	**36.75**
		BS/HP/AL/02 - Block Plantation Model	4.80	4.80	2.57	4.80	5.32	8.26	5.69	14.40	21.84	2.94	2.94	14.40	24.78	**39.18**
3	Hamirpur	BS/HP/AL/01 - Boundary Plantation Model	0.00	0.00	4.50	0.00	0.00	2.41	2.58	4.50	4.99	2.76	2.76	4.50	7.75	**12.25**
4	Joginder Nagar	BS/HP/AL/01 - Boundary Plantation Model	3.60	2.70	1.93	2.25	3.50	4.96	2.94	8.55	13.33	1.38	1.38	8.55	14.71	**23.26**
		BS/HP/AL/02 - Block Plantation Model	7.20	4.80	3.85	7.20	6.69	11.01	7.06	19.20	28.61	4.41	4.41	19.20	33.02	**52.22**
5	Kullu	BS/HP/AL/01 - Boundary Plantation Model	0.90	1.35	0.48	1.80	1.24	2.28	1.86	4.05	5.86	1.10	1.10	4.05	6.96	**11.01**
		BS/HP/AL/02 - Block Plantation Model	0.24	0.24	0.13	0.24	0.27	0.42	0.29	0.72	1.11	0.15	0.15	0.72	1.26	**1.98**
6	Mandi	BS/HP/AL/02 - Block Plantation Model	5.40	2.70	2.89	3.60	4.53	6.79	3.71	11.70	17.92	2.21	2.21	11.70	20.13	**31.83**

		BS/HP/AL/01 - Boundary Plantation Model	4.80	9.60	2.57	4.80	7.89	11.01	8.63	19.20	30.10	2.94	2.94	19.20	33.04	**52.24**
7	Nachan	BS/HP/AL/02 - Block Plantation Model	1.80	1.80	0.96	3.60	1.99	4.06	3.16	7.20	10.17	2.21	2.21	7.20	12.38	**19.58**
		BS/HP/AL/02 - Block Plantation Model	2.40	2.40	1.28	4.80	2.65	5.41	4.22	9.60	13.56	2.94	2.94	9.60	16.50	**26.10**
8	Nurpur	BS/HP/AL/01 - Boundary Plantation Model	3.60	6.30	1.92	5.40	5.43	8.70	6.95	15.30	23.00	3.31	3.31	15.30	26.31	**41.61**
		BS/HP/AL/02 - Block Plantation Model	14.40	16.80	7.71	14.40	17.24	26.15	18.54	45.60	69.64	8.82	8.82	45.60	78.46	124.06
9	Palampur	BS/HP/AL/02 - Block Plantation Model	3.60	3.60	1.93	3.60	3.99	6.20	4.27	10.80	16.39	2.21	2.21	10.80	18.60	29.40
		BS/HP/AL/01 - Boundary Plantation Model	9.60	9.60	5.14	9.60	10.64	16.52	11.38	28.80	43.68	5.88	5.88	28.80	49.56	78.36
10	Parvati	BS/HP/AL/02 - Block Plantation Model	1.80	1.35	0.96	2.70	1.75	3.31	2.38	5.85	8.40	1.65	1.65	5.85	10.05	15.90
		BS/HP/AL/02 - Block Plantation Model	0.24	4.80	0.13	7.20	2.71	6.75	7.06	12.24	16.65	4.41	4.41	12.24	21.06	33.30
11	Seraj	BS/HP/AL/01 - Boundary Plantation Model	0.90	0.90	0.48	0.90	1.00	1.55	1.07	2.70	4.10	0.55	0.55	2.70	4.65	7.35

		BS/HP/AL/02 - Block Plantation Model	2.40	2.40	1.28	2.40	2.65	4.12	2.84	7.20	10.89	1.47	1.47	7.20	12.36	19.56
12	Suket	BS/HP/AL/02 - Block Plantation Model	5.40	5.40	2.89	4.50	5.98	8.81	5.89	15.30	23.57	2.76	2.76	15.30	26.33	41.63
			0.48	0.96	0.26	0.48	0.78	1.10	0.86	1.92	3.00	0.29	0.29	1.92	3.29	5.21
		Total	**93.96**	**100.50**	**54.78**	**98.07**	**107.57**	**170.02**	**120.32**	**297.03**	**448.19**	**62.85**	**62.85**	**297.03**	**511.04**	**808.07**

*****_The area shown is virtually for calculation of Budget part. However actual creation of plantation work will start from 3rd year onwards._

Annexure 34 : Division Wise Proposed Extent of Plantations in Urban Landscapes in Himachal Pradesh (*_E=Establishment_**,** _M=Maintenance_**)**

Sr. No	**Division**	**Cost Model**	**Year**										
			Phase I (Extent of Area in ha)						**Phase I Total**		**Phase II**	**Phase I &II Total Area ha**	
			I	**II**		**III**	**IV**	**V**			**VI**		
			E	**E**	**M**	**M**	**M**	**M**	**E**	**M**	**Total M**	**E**	**M**
1	Dalhousie	BS/HP/UL/01 - Bioremediation and Bio-filtration	0	1	0	1	1	1	1	1	0	1	1
		BS/HP/UL/04 - Eco-park Developme	1	0	1	1	1	0	1	1	0	1	1
2	Dehra	BS/HP/UL/01 - Bioremediation and Bio-	0.5	1	0.5	1.5	1.5	1	1.5	1.5	0	1.5	1.5

		filtration											
		BS/HP/UL/03 - Institution Plantation	4	5	4	9	12	8	12	12	3	12	12
		BS/HP/UL/04 - Eco-park Developme	0.4	0	0.4	0.4	0.4	0	0.4	0.4	0	0.4	0.4
3	Dharamshala	BS/HP/UL/01 - Bioremediation and Bio-filtration	1	0	1	1	1.50	0.50	1.5	1.5	0.50	1.5	1.5
		BS/HP/UL/02 - Riverfront Development	0	0.50	0	0.5	0.50	0.50	0.5	0.5	0	0.5	0.5
		BS/HP/UL/04 - Eco-park Developme	0	0	0	0	0.50	0.50	0.5	0.5	0.50	0.5	0.5
4	Hamirpur	BS/HP/UL/01 - Bioremediation and Bio-filtration	1	0	1	1	1	0	1	1	0	1	1
		BS/HP/UL/02 - Riverfront Development	0	0.50	0	0.50	0.50	0.50	0.5	0.5	0	0.5	0.5

		BS/HP/UL/03 - Institution Plantation	5	6	5	11	16	11	16	16	5	16	16
		BS/HP/UL/04 - Eco-park Developme	1	0	1	1	1	0	1	1	0	1	1
5	Joginder Nagar	BS/HP/UL/01 - Bioremediation and Bio-filtration	0	0.5	0	0.5	1	1	1	1	0.5	1	1
		BS/HP/UL/03 - Institution Plantation	3	3	3	6	8	5	8	8	2	8	8
		BS/HP/UL/04 - Eco-park Development	0	1	0	1	1	1	1	1	0	1	1
6	Kullu	BS/HP/UL/01 - Bioremediation and Bio-filtration	1	0	1	1	2	1	2	2	1	1	2
		BS/HP/UL/02 - Riverfront Developmen	0	0.5	0	0.5	0.5	0.5	0.5	0.5	0	0.5	0.5
		BS/HP/UL/03 - Institution Plantation	2	3	2	5	7	5	7	7	2	5	7

		BS/HP/UL/04 - Eco-park Development	1	0	1	1	1	0	1	1	0	0	1
7	Mandi	BS/HP/UL/01 - Bioremediation and Bio-filtration	1	0.5	1			0.5	1.5	1.5	0	1.5	1.5
		BS/HP/UL/02 - Riverfront Developmen	0	0.5	0	1.5	1.5	0.5	0.5	0.5	0	0.5	0.5
		BS/HP/UL/03 - Institution Plantation	2	5	2	0.5	0.5	8	10	10	3	10	10
		BS/HP/UL/04 - Eco-park Development	1.5	0	1.5	7	10	0	1.5	1.5	0	1.5	1.5
8	Nachan	BS/HP/UL/03 - Institution Plantation	6	8	6	14	20	14	20	20	6	20	20
		BS/HP/UL/04 - Eco-park Development	0.4	0	0.4	0.4	0.4	0	0.4	0.4	0	0.4	0.4
9	Nurpur	BS/HP/UL/01 - Bioremediation and Bio-filtration	0.5	0	0.5	0.5	0.5	0	0.5	0.5	0	0.5	0.5

		BS/HP/UL/02 - Riverfront Developmen	0	0.5	0	0.5	0.5	0.5	0.5	0.5	0	0.5	0.5
		BS/HP/UL/04 - Eco-park Development	0.6	0	0.6	0.6	0.6	0	0.6	0.6	0	0.6	0.6
10	Palampur	BS/HP/UL/01 - Bioremediation and Bio-filtration	0.5	1	0.5	1.5	1.5	1	1.5	1.5	0	1.5	1.5
		BS/HP/UL/02 - Riverfront Developmen	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
		BS/HP/UL/04 - Eco-park Development	0	1	0	1	1	1	1	1	0	1	1
11	Parvati	BS/HP/UL/01 - Bioremediation and Bio-filtration	0.5	0	0.5	0.5	0.5	0	0.5	0.5	0	0.5	0.5
		BS/HP/UL/02 - Riverfront Developmen	0	1	0	1	1	22.5	1	1	0	1	1
		BS/HP/UL/03 - Institution Plantation	2	2	2	4	6	1.82	6	6	2	6	6

		BS/HP/UL/04 - Eco-park Development	1	0	1	1	1	0	1	1	0	1	1
12	Seraj	BS/HP/UL/01 - Bioremediation and Bio-filtration	1	0	1	1	2	1	2	2	1	2	2
		BS/HP/UL/02 - Riverfront Developmen	0.5	0	0.5	0.5	0.5	0	0.5	0.5	0	0.5	0.5
		BS/HP/UL/03 - Institution Plantation	4	5	4	9	12	8	12	12	3	12	12
		BS/HP/UL/04 - Eco-park Development	0.5	0	0.5	0.5	0.5	0	0.5	0.5	0	0.5	0.5
13	Suket	BS/HP/UL/01 - Bioremediation and Bio-filtration	1.5	0	1.5	1.5	1.5	0	1.5	1.5	0	1.5	1.5
		BS/HP/UL/02 - Riverfront Developmen	0	1	0	1	1	1	1	1	0	1	1

		BS/HP/UL/03 - Institution Plantation	5	7	5	12	16	11	16	16	4	16	16
		BS/HP/UL/04 - Eco-park Development	0	0.6	0	0.6	0.6	0.6	0.6	0.6	0	0.6	0.6
Total			**49.4**	**55.1**	**49.4**	**103**	**137**	**108.42**	**138.5**	**138.5**	**34**	**134.5**	**138.5**

Annexure 35 : Division Wise Proposed Cost of Plantations in Urban Landscapes in Himachal Pradesh (**E=Establishment*, *M=Maintenance*)

Sr. No	**Division**	**Cost Models**	**Phase I: Year Wise Cost (Rs in Lakhs)**							**Total Phase I (Rs.in Lakhs)**		**Phase II (Rs.in Lakhs)**	**Total Phase II (Rs.in Lakhs)**	**Total Phase I & phase II (Rs.in Lakhs)**		**Grand Total (Rs.in Lakhs)**
			I	**II**		**III**		**IV**	**V**			**VI**				
			E	**E**	**M**	**E**	**M**	**M**	**M**	**E**	**M**	**M**	**M**	**E**	**M**	
1	Dalhousie	BS/HP/UL/01 - Bioremediation and Bio-filtration	0.00	15.00	0.00	0.00	4.50	3.00	2.25	15.00	9.75	0.00	0.00	15.00	9.75	24.75
		BS/HP/UL/04 - Eco-park Developme	150.00	0.00	45.00	0.00	30.00	22.50	0.00	150.00	97.50	0.00	0.00	150.00	97.50	247.50
2	Dehra	BS/HP/UL/01 - Bioremediation and Bio-filtration	7.50	15.00	2.25	0.00	6.00	4.13	2.25	22.50	14.63	0.00	0.00	22.50	14.63	37.13

		BS/HP/UL/03 - Institution Plantation	10.40	13.00	3.12	7.80	5.98	6.50	3.51	31.20	19.11	1.17	1.17	31.20	20.28	51.48
		BS/HP/UL/04 - Eco-park Developme	60.00	0.00	18.00	0.00	12.00	9.00	0.00	60.00	39.00	0.00	0.00	60.00	39.00	99.00
3	Dharamshala	BS/HP/UL/01 - Bioremediation and Bio-filtration	15.00	0.00	4.50	7.50	3.00	4.50	1.50	22.50	13.50	1.13	1.13	22.50	14.63	37.13
		BS/HP/UL/02 - Riverfront Development	0.00	75.00	0.00	0.00	22.50	15.00	11.25	75.00	48.75	0.00	0.00	75.00	48.75	123.75
		BS/HP/UL/04 - Eco-park Developme	0.00	0.00	0.00	75.00	0.00	22.50	15.00	75.00	37.50	11.25	11.25	75.00	48.75	123.75
4	Hamirpur	BS/HP/UL/01 - Bioremediation and Bio-filtration	15.00	0.00	4.50	0.00	3.00	2.25	0.00	15.00	9.75	0.00	0.00	15.00	9.75	24.75
		BS/HP/UL/02 - Riverfront Development	0.00	75.00	0.00	0.00	22.50	15.00	11.25	75.00	48.75	0.00	0.00	75.00	48.75	123.75
		BS/HP/UL/03 - Institution Plantation	13.00	15.60	3.90	13.00	7.28	8.97	4.94	41.60	25.09	1.95	1.95	41.60	27.04	68.64
		BS/HP/UL/04 - Eco-park Developme	150.00	0.00	45.00	0.00	30.00	22.50	0.00	150.00	97.50	0.00	0.00	150.00	97.50	247.50
5	Joginder Nagar	BS/HP/UL/01 - Bioremediation and Bio-filtration	0.00	7.50	0.00	7.50	2.25	3.75	2.63	15.00	8.63	1.13	1.13	15.00	9.76	24.76

		BS/HP/UL/03 - Institution Plantation	7.80	7.80	2.34	5.20	3.90	4.29	2.21	20.80	12.74	0.78	0.78	20.80	13.52	34.32
		BS/HP/UL/04 - Eco-park Development	0.00	150.00	0.00	0.00	45.00	30.00	22.50	150.00	97.50	0.00	0.00	150.00	97.50	247.50
6	Kullu	BS/HP/UL/01 - Bioremediation and Bio-filtration	15.00	0.00	4.50	15.00	3.00	6.75	3.00	30.00	17.25	2.25	2.25	30.00	19.50	49.50
		BS/HP/UL/02 - Riverfront Developmen	0.00	75.00	0.00	0.00	22.50	15.00	11.25	75.00	48.75	0.00	0.00	75.00	48.75	123.75
		BS/HP/UL/03 - Institution Plantation	5.20	7.80	1.56	5.20	3.38	3.90	2.21	18.20	11.05	0.78	0.78	18.20	11.83	30.03
		BS/HP/UL/04 - Eco-park Development	150.00	0.00	45.00	0.00	30.00	22.50	0.00	150.00	97.50	0.00	0.00	150.00	97.50	247.50
7	Mandi	BS/HP/UL/01 - Bioremediation and Bio-filtration	15.00	7.50	4.50	0.00	5.25	3.75	1.13	22.50	14.63	0.00	0.00	22.50	14.63	37.13
		BS/HP/UL/02 - Riverfront Developmen	0.00	75.00	0.00	0.00	22.50	15.00	11.25	75.00	48.75	0.00	0.00	75.00	48.75	123.75
		BS/HP/UL/03 - Institution Plantation	5.20	13.00	1.56	7.80	4.94	5.72	3.51	26.00	15.73	1.17	1.17	26.00	16.90	42.90
		BS/HP/UL/04 - Eco-park Development	225.00	0.00	67.50	0.00	45.00	33.75	0.00	225.00	146.25	0.00	0.00	225.00	146.25	371.25

8	Nachan	BS/HP/UL/03 - Institution Plantation	15.60	20.80	4.68	15.60	9.36	11.18	6.24	52.00	31.46	2.34	2.34	52.00	33.80	85.80
		BS/HP/UL/04 - Eco-park Development	60.00	0.00	18.00	0.00	12.00	9.00	0.00	60.00	39.00	0.00	0.00	60.00	39.00	99.00
9	Nurpur	BS/HP/UL/01 - Bioremediation and Bio-filtration	7.50	0.00	2.25	0.00	1.50	1.13	0.00	7.50	4.88	0.00	0.00	7.50	4.88	12.38
		BS/HP/UL/02 - Riverfront Developmen	0.00	75.00	0.00	0.00	22.50	15.00	11.25	75.00	48.75	0.00	0.00	75.00	48.75	123.75
		BS/HP/UL/04 - Eco-park Development	90.00	0.00	27.00	0.00	18.00	13.50	0.00	90.00	58.50	0.00	0.00	90.00	58.50	148.50
10	Palampur	BS/HP/UL/01 - Bioremediation and Bio-filtration	**7.50**	15.00	2.25	0.00	6.00	4.13	2.25	22.50	14.63	0.00	0.00	22.50	14.63	37.13
		BS/HP/UL/02 - Riverfront Developmen	**0.00**	0.00	0.00	75.00	0.00	22.50	15.00	75.00	37.50	11.25	11.25	75.00	48.75	123.75
		BS/HP/UL/04 - Eco-park Development	**0.00**	150.00	0.00	0.00	45.00	30.00	22.50	150.00	97.50	0.00	0.00	150.00	97.50	247.50
11	Parvati	BS/HP/UL/01 - Bioremediation and Bio-filtration	**7.50**	0.00	2.25	0.00	1.50	1.13	0.00	7.50	4.88	0.00	0.00	7.50	4.88	12.38
		BS/HP/UL/02 - Riverfront Developmen	0.00	150.00	0.00	0.00	45.00	30.00	22.50	150.00	97.50	0.00	0.00	150.00	97.50	247.50

		BS/HP/UL/03 - Institution Plantation	5.20	5.20	1.56	5.20	2.60	3.38	1.82	15.60	9.36	0.78	0.78	15.60	10.14	25.74
		BS/HP/UL/04 - Eco-park Development	150.00	0.00	45.00	0.00	30.00	22.50	0.00	150.00	97.50	0.00	0.00	150.00	97.50	247.50
12	Seraj	BS/HP/UL/01 - Bioremediation and Bio-filtration	15.00	0.00	4.50	15.00	3.00	6.75	3.00	30.00	17.25	2.25	2.25	30.00	19.50	49.50
		BS/HP/UL/02 - Riverfront Developmen	75.00	0.00	22.50	0.00	15.00	11.25	0.00	75.00	48.75	0.00	0.00	75.00	48.75	123.75
		BS/HP/UL/03 - Institution Plantation	10.40	13.00	3.12	7.80	5.98	6.50	3.51	31.20	19.11	1.17	1.17	31.20	20.28	51.48
		BS/HP/UL/04 - Eco-park Development	75.00	0.00	22.50	0.00	15.00	11.25	0.00	75.00	48.75	0.00	0.00	75.00	48.75	123.75
13	Suket	BS/HP/UL/01 - Bioremediation and Bio-filtration	22.50	0.00	6.75	0.00	4.50	3.38	0.00	22.50	14.63	0.00	0.00	22.50	14.63	37.13
		BS/HP/UL/02 - Riverfront Developmen	0.00	150.00	0.00	0.00	45.00	30.00	22.50	150.00	97.50	0.00	0.00	150.00	97.50	247.50
		BS/HP/UL/03 - Institution Plantation	13.00	18.20	3.90	10.40	8.06	8.71	4.81	41.60	25.48	1.56	1.56	41.60	27.04	68.64
		BS/HP/UL/04 - Eco-park Development	0.00	90.00	0.00	0.00	27.00	18.00	13.50	90.00	58.50	0.00	0.00	90.00	58.50	148.50
		Total	**1398.30**	**1239.40**	**419.49**	**273.00**	**651.48**	**539.55**	**240.52**	**2910.70**	**1676.49**	**40.96**	**40.96**	**2910.70**	**1892.00**	**4802.70**

Annexure 36 : Division Wise Proposed Extent for Soil and Moisture Conservation (Area in m^3) for Himachal Pradesh (**E=Establishment*)

Sr. No	Division	Cost Model	Year						Grand Total Area (ha)
			Phase I (Extent of Area in ha)					Phase I Total	
			I	II	III	IV	V		
			E	E	E	E	E	E	E
1	Dalhousie	BS/HP/CI/01 Brushwood Interventions	1590	900	700	790	300	4280	4280
		BS/HP/CI/02 Dry stone activitie	4460	3921.5	4300	2850	2820	18351.5	18351.5
		BS/HP/CI/03 Crate wire activities	2200	3640	2500	2770	410	11520	11520
		BS/HP/CI/04 Water Pon	0	0	590	600	0	1190	1190
		BS/HP/CI/05 Silt Detention Dam Type Activities	0	0	30	0	40	70	70
2	Dehra	BS/HP/CI/01 Brushwood Interventions	2340	0	0	100	1140	3580	3580
		BS/HP/CI/02 Dry stone activitie	2860	4740	1920	2220	1320	13060	13060
		BS/HP/CI/03 Crate wire activities	3880	2500	4640	1880	1950	14850	14850
		BS/HP/CI/05 Silt Detention Dam Type Activities	0	0	0	510	0	510	510
3	Dharamshala	BS/HP/CI/01 Brushwood Interventions	6280	0	540	860	2050	9730	9730

		BS/HP/CI/02 Dry stone activitie	1590	3410	1920	620	1400	8940	8940
		BS/HP/CI/03 Crate wire activities	2200	550	3130	680	1010	7570	7570
		BS/HP/CI/04 Water Pon	0	1770	590	2330	0	4690	4690
		BS/HP/CI/05 Silt Detention Dam Type Activities	0	0	160	790	0	950	950
4	Hamirpur	BS/HP/CI/01 Brushwood Interventions	6970	500	1500	2460	1269	12699	12699
		BS/HP/CI/02 Dry stone activitie	3800	7030	6050	1180	2300	20360	20360
		BS/HP/CI/03 Crate wire activities	4930	3230	2350	450	600	11560	11560
		BS/HP/CI/04 Water Pon	0	2279	1600	1660	0	5539	5539
		BS/HP/CI/05 Silt Detention Dam Type Activities	580	100	0	590	120	1390	1390
5	Joginder Nagar	BS/HP/CI/01 Brushwood Interventions	12230	0	1640	4830	650	19350	19350
		BS/HP/CI/02 Dry stone activitie	11150	17790	13060	6220	6850	55070	55070
		BS/HP/CI/03 Crate wire activities	10320	6430	5680	1810	670	24910	24910
		BS/HP/CI/04 Water Pon	0	3988	5430	3210	0	12628	12628
		BS/HP/CI/05 Silt Detention Dam Type Activities	300	140	30	360	0	830	830
6	Kullu	BS/HP/CI/01 Brushwood Interventions	440	0	0	240	0	680	680

		BS/HP/CI/02 Dry stone activitie	170	490	270	150	270	1350	1350
		BS/HP/CI/03 Crate wire activities	300	0	0	0	0	300	300
		BS/HP/CI/04 Water Pon	0	0	540	0	0	540	540
7	Mandi	BS/HP/CI/01 Brushwood Interventions	14310	100	2750	4730	740	22630	22630
		BS/HP/CI/02 Dry stone activitie	9270	11780	8530	1760	5980	37320	37320
		BS/HP/CI/03 Crate wire activities	2980	2060	2950	2570	630	11190	11190
		BS/HP/CI/04 Water Pon	0	4530	5680	5209	0	15419	15419
		BS/HP/CI/05 Silt Detention Dam Type Activities	140	0	60	330	0	530	530
8	Nachan	BS/HP/CI/01 Brushwood Interventions	6770	0	1440	2670	600	11480	11480
		BS/HP/CI/02 Dry stone activitie	5290	5850	4540	2150	3830	21660	21660
		BS/HP/CI/03 Crate wire activities	2650	3660	2410	2040	620	11380	11380
		BS/HP/CI/04 Water Pon	0	2790	2930	2240	0	7960	7960
		BS/HP/CI/05 Silt Detention Dam Type Activities	0	0	0	100	0	100	100
9	Nurpur	BS/HP/CI/01 Brushwood Interventions	5285	0	250	1160	1390	8085	8085

		BS/HP/CI/02 Dry stone activities	1650	3153	1480	100	1000	7383	7383
		BS/HP/CI/03 Crate wire activities	600	800	1495	1150	840	4885	4885
		BS/HP/CI/04 Water Pon	0	510	1700	520	0	2730	2730
		BS/HP/CI/05 Silt Detention Dam Type Activities	0	0	0	645	0	645	645
10	Palampur	BS/HP/CI/01 Brushwood Interventions	13540	1700	2520	3920	4670	26350	26350
		BS/HP/CI/02 Dry stone activitie	3400	8430	5230	1900	2920	21880	21880
		BS/HP/CI/03 Crate wire activities	3960	2750	5920	2170	1080	15880	15880
		BS/HP/CI/04 Water Pon	0	1740	1678	2250	0	5668	5668
		BS/HP/CI/05 Silt Detention Dam Type Activities	120	80	0	1750	360	2310	2310
11	Parvati	BS/HP/CI/01 Brushwood Interventions	2780	100	260	950	420	4510	4510
		BS/HP/CI/02 Dry stone activitie	4020	6010	5730	1490	3070	20320	20320
		BS/HP/CI/03 Crate wire activities	10730	7050	6630	5260	1920	31590	31590
		BS/HP/CI/04 Water Pon	0	530	1100	540	0	2170	2170
		BS/HP/CI/05 Silt Detention Dam Type Activities	0	100	40	190	0	330	330

12	Seraj	BS/HP/CI/01 Brushwood Interventions	6780	0	0	2610	330	10850	10850
		BS/HP/CI/02 Dry stone activities	2010	6990	6990	520	2800	16330	16330
		BS/HP/CI/03 Crate wire activities	6180	2070	2070	800	0	11610	11610
		BS/HP/CI/04 Water Pond	0	1790	1790	2240	0	7490	7490
		BS/HP/CI/05 Silt Detention Dam Type Activities	0	0	0	100	0	100	100
13	Suket	BS/HP/CI/01 Brushwood Interventions	1910	0	310	930	0	3150	3150
		BS/HP/CI/02 Dry stone activitie	2580	2770	2390	1810	2420	11970	11970
		BS/HP/CI/03 Crate wire activities	820	1200	1010	960	0	3990	3990
		BS/HP/CI/04 Water Pond	0	1060	1130	560	0	2750	2750
		BS/HP/CI/05 Silt Detention Dam Type Activities	0	0	120	0	0	120	120
		Total	**186365**	**143011.5**	**140303**	**98484**	**60789**	**629262.5**	**629262.5**

Annexure 37 : Division Wise Proposed for Soil and Moisture Conservation (Cost in m^3) for Himachal Pradesh (**E=Establishment*)

Sr. No	Division	Cost Model	Year						Grand Total Area (ha)
			Phase I Cost (Rs in Lakhs)					Phase I Total	
			I	II	III	IV	V		
			E	E	E	E	E	E	E
1	Dalhousie	BS/HP/CI/01 Brushwood Interventions	4.77	2.70	2.10	2.37	0.90	12.84	12.84
		BS/HP/CI/02 Dry stone activitie	80.28	70.59	77.40	51.30	50.76	330.33	330.33
		BS/HP/CI/03 Crate wire activities	99.00	163.80	112.50	124.65	18.45	518.40	518.40
		BS/HP/CI/04 Water Pon	0.00	0.00	2.07	2.10	0.00	4.17	4.17
		BS/HP/CI/05 Silt Detention Dam Type Activities	0.00	0.00	1.80	0.00	2.40	4.20	4.20
2	Dehra	BS/HP/CI/01 Brushwood Interventions	7.02	0.00	0.00	0.30	3.42	10.74	10.74
		BS/HP/CI/02 Dry stone activitie	51.48	85.32	34.56	39.96	23.76	235.08	235.08
		BS/HP/CI/03 Crate wire activities	174.60	112.50	208.80	84.60	87.75	668.25	668.25
		BS/HP/CI/05 Silt Detention Dam Type Activities	0.00	0.00	0.00	30.60	0.00	30.60	30.60
3	Dharamshala	BS/HP/CI/01 Brushwood Interventions	18.84	0.00	1.62	2.58	6.15	29.19	29.19
		BS/HP/CI/02 Dry stone activitie	28.62	61.38	34.56	11.16	25.20	160.92	160.92
		BS/HP/CI/03 Crate wire activities	99.00	24.75	140.85	30.60	45.45	340.65	340.65
		BS/HP/CI/04 Water Pon	0.00	6.20	2.07	8.16	0.00	16.42	16.43
		BS/HP/CI/05 Silt Detention Dam Type Activities	0.00	0.00	9.60	47.40	0.00	57.00	57.00
4	Hamirpur	BS/HP/CI/01 Brushwood Interventions	20.91	1.50	4.50	7.38	3.81	38.10	38.10
		BS/HP/CI/02 Dry stone activitie	68.40	126.54	108.90	21.24	41.40	366.48	366.48
		BS/HP/CI/03 Crate wire activities	221.85	145.35	105.75	20.25	27.00	520.20	520.20
		BS/HP/CI/04 Water Pon	0.00	7.98	5.60	5.81	0.00	19.39	19.39
		BS/HP/CI/05 Silt Detention Dam Type Activities	34.80	6.00	0.00	35.40	7.20	83.40	83.40
5	Joginder Nagar	BS/HP/CI/01 Brushwood Interventions	36.69	0.00	4.92	14.49	1.95	58.05	58.05
		BS/HP/CI/02 Dry stone activitie	200.70	320.22	235.08	111.96	123.30	991.26	991.26

		BS/HP/CI/03 Crate wire activities	464.40	289.35	255.60	81.45	30.15	1120.95	1120.95
		BS/HP/CI/04 Water Pon	0.00	13.96	19.01	11.24	0.00	44.20	44.21
		BS/HP/CI/05 Silt Detention Dam Type Activities	18.00	8.40	1.80	21.60	0.00	49.80	49.80
6	Kullu	BS/HP/CI/01 Brushwood Interventions	1.32	0.00	0.00	0.72	0.00	2.04	2.04
		BS/HP/CI/02 Dry stone activitie	3.06	8.82	4.86	2.70	4.86	24.30	24.30
		BS/HP/CI/03 Crate wire activities	13.50	0.00	0.00	0.00	0.00	13.50	13.50
		BS/HP/CI/04 Water Pon	0.00	0.00	1.89	0.00	0.00	1.89	1.89
7	Mandi	BS/HP/CI/01 Brushwood Interventions	42.93	0.30	8.25	14.19	2.22	67.89	67.89
		BS/HP/CI/02 Dry stone activitie	166.86	212.04	153.54	31.68	107.64	671.76	671.76
		BS/HP/CI/03 Crate wire activities	134.10	92.70	132.75	115.65	28.35	503.55	503.55
		BS/HP/CI/04 Water Pon	0.00	15.86	19.88	18.23	0.00	53.97	53.97
		BS/HP/CI/05 Silt Detention Dam Type Activities	8.40	0.00	3.60	19.80	0.00	31.80	31.80
8	Nachan	BS/HP/CI/01 Brushwood Interventions	20.31	0.00	4.32	8.01	1.80	34.44	34.44
		BS/HP/CI/02 Dry stone activitie	95.22	105.30	81.72	38.70	68.94	389.88	389.88
		BS/HP/CI/03 Crate wire activities	119.25	164.70	108.45	91.80	27.90	512.10	512.10
		BS/HP/CI/04 Water Pon	0.00	9.77	10.26	7.84	0.00	27.86	27.87
		BS/HP/CI/05 Silt Detention Dam Type Activities	0.00	0.00	0.00	6.00	0.00	6.00	6.00
9	Nurpur	BS/HP/CI/01 Brushwood Interventions	15.86	0.00	0.75	3.48	4.17	24.26	24.26
		BS/HP/CI/02 Dry stone activitie	29.70	56.75	26.64	1.80	18.00	132.89	132.89
		BS/HP/CI/03 Crate wire activities	27.00	36.00	67.28	51.75	37.80	219.83	219.83
		BS/HP/CI/04 Water Pon	0.00	1.79	5.95	1.82	0.00	9.56	9.56
		BS/HP/CI/05 Silt Detention Dam Type Activities	0.00	0.00	0.00	38.70	0.00	38.70	38.70
10	Palampur	BS/HP/CI/01 Brushwood Interventions	40.62	5.10	7.56	11.76	14.01	79.05	79.05
		BS/HP/CI/02 Dry stone activitie	61.20	151.74	94.14	34.20	52.56	393.84	393.84
		BS/HP/CI/03 Crate wire activities	178.20	123.75	266.40	97.65	48.60	714.60	714.60
		BS/HP/CI/04 Water Pon	0.00	6.09	5.87	7.88	0.00	19.84	19.84

		BS/HP/CI/05 Silt Detention Dam Type Activities	7.20	4.80	0.00	105.00	21.60	138.60	138.60
11	Parvati	BS/HP/CI/01 Brushwood Interventions	8.34	0.30	0.78	2.85	1.26	13.53	13.53
		BS/HP/CI/02 Dry stone activitie	72.36	108.18	103.14	26.82	55.26	365.76	365.76
		BS/HP/CI/03 Crate wire activities	482.85	317.25	298.35	236.70	86.40	1421.55	1421.55
		BS/HP/CI/04 Water Pon	0.00	1.86	3.85	1.89	0.00	7.60	7.60
		BS/HP/CI/05 Silt Detention Dam Type Activities	0.00	6.00	2.40	11.40	0.00	19.80	19.80
12	Seraj	BS/HP/CI/01 Brushwood Interventions	20.34	0.00	3.39	7.83	0.99	32.55	32.55
		BS/HP/CI/02 Dry stone activitie	36.18	125.82	72.18	9.36	50.40	293.94	293.94
		BS/HP/CI/03 Crate wire activities	278.10	93.15	115.20	36.00	0.00	522.45	522.45
		BS/HP/CI/04 Water Pon	0.00	6.27	12.11	7.84	0.00	26.22	26.22
		BS/HP/CI/05 Silt Detention Dam Type Activities	0.00	0.00	0.00	6.00	0.00	6.00	6.00
13	Suket	BS/HP/CI/01 Brushwood Interventions	5.73	0.00	0.93	2.79	0.00	9.45	9.45
		BS/HP/CI/02 Dry stone activitie	46.44	49.86	43.02	32.58	43.56	215.46	215.46
		BS/HP/CI/03 Crate wire activities	36.90	54.00	45.45	43.20	0.00	179.55	179.55
		BS/HP/CI/04 Water Pon	0.00	3.71	3.96	1.96	0.00	9.63	9.63
		BS/HP/CI/05 Silt Detention Dam Type Activities	0.00	0.00	7.20	0.00	0.00	7.20	7.20
		Total	**3581.33**	**3208.45**	**3085.16**	**1903.18**	**1175.37**	**12953.41**	**12953.49**

Annexure 38 : Detail of Riverine and Riparian Wildlife Management of Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No.	Division	Year																			
			Phase I																Phase II		
		Treatment Site name	I		II				III		IV		V		Total Phase I (Rs.in Rs.)				VI		Total Phase II (Rs.in Lakhs)	
			E		E		M		M		M		M		E		M		M		M	
			A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
1	W L Kullu	Bandli Sanctuary	0	0	5	16	0	0	5	14	5	9.5	5	6	5	16	15	29.5	5	4.5	5	4.5
		Inderkilla National Park	0	0	10	32	0	0	10	28	10	19	10	12	10	32	30	59	10	9	10	9
		Kanawar Sanctuary	15	48	0	0	15	42	15	28.5	15	18	15	13.5	15	48	60	102	0	0	0	0
		Khirganga National Park	20	64	0	0	20	56	20	38	20	24	20	18	20	64	80	136	0	0	0	0
		Manali Sanctuary	5	16	0	0	5	14	5	9.5	5	6	5	4.5	5	16	20	34	0	0	0	0
		Nargu Sanctuary	0	0	10	32	0	0	10	28	10	19	10	12	10	32	30	59	10	9	10	9
		Shikari Devi Sanctuary	0	0	5	16	0	0	5	14	5	9.5	5	6	5	16	15	29.5	5	4.5	5	4.5
2	WL Hamirpur	Pong dam Sanctuary	20	64	0	0	20	56	20	38	20	24	20	18	20	64	80	136	0	0	0	0
		Dhauladhar Sanctuary	0	0	5	16	0	0	5	14	5	9.5	5	6	5	16	15	29.5	5	4.5	5	4.5
3	GHNP Shamshi	GHNP 1	50	160	0	0	50	140	50	95	50	60	50	45	50	160	200	340	0	0	0	0
		Sainj Wildlife Sanctuary	0	0	10	32	0	0	10	28	10	19	10	12	10	32	30	59	10	9	10	9

		Tirthan Wildlife Sanctuary	0	0	20	64	0	0	20	56	20	38	20	24	20	64	60	118	20	18	20	18
Total			**110**	**352**	**65**	**208**	**110**	**308**	**175**	**391**	**175**	**255.5**	**175**	**177**	**175**	**560**	**635**	**1131.5**	**65**	**58.5**	**65**	**58.5**

Annexure 39 : Detail of Wetland Management of Himachal Pradesh (**E=Establishment, M=Maintenance*)

Sr. No.	**Division**	**Year**																			
			Phase I																**Phase II**			
		Treatment Site name	**I**		**II**				**III**		**IV**		**V**		**Total Phase I (Rs.in Rs.)**				**VI**		**Total Phase II (Rs.in Lakhs)**	
			E		**E**		**M**		**M**		**M**		**M**		**E**		**M**		**M**		**M**	
			A	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**
1	Mandi	Prashar lake	5	14	0	0	5	12.5	5	8	5	6	5	4.5	5	14	20	31	0	0	0	0
		Rewalsar lake	10	28	0	0	10	25	10	16	10	12	10	9	10	28	40	62	0	0	0	0
		Pandoh Dam	0	0	10	28	0	0	10	25	10	16	10	12	10	28	30	53	10	9	10	9
2	WL Hamirpur	Pong Dam lake	30	84	0	0	30	75	30	48	30	36	30	27	30	84	120	186	0	0	0	0
Total			**45**	**126**	**10**	**28**	**45**	**112.5**	**55**	**97**	**55**	**70**	**55**	**52.5**	**55**	**154**	**210**	**332**	**10**	**9**	**10**	**9**

Annexure 40 : Site wise detail of Natural Landscape in Dasuya Forest Division of Punjab (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				I		II				III						IV						V			
Sr. No	Treatment Site name	Range	Model	A	NC	A	NC	A	AC	A	NC	A	AC	A	CC	A	AC	A	CC	M	MC	A	C	MA	MC
1	Badhan Distributary	Mukerain	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	0	0	0	0	10	1.61	0	0	0	0	0	2.51	0	0	0	0	10	11.04	0	0
2	Bhani Mirza Kha	Dasuya	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	1.61	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15	0	0	10	2.13
3	Kulla Fatta Forest	Dasuya	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	1.61	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15	0	0	10	2.13
4	Mehtabpur-1	Mukerain	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	10	1.61	0	0	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15
5	Mukerain Hydel Channel	Mukerain	BS/PB/NL/02 – Road Side Plantation	0	0	15	5.72	0	0	0	0	15	7.85	0	0	0	0	15	27.06	0	0	0	0	15	18.86
6	Mukerain Hydel Channel P.NO.I	Mukerain	BS/PB/NL/02 – Road Side Plantation	0	0	10	3.81	0	0	0	0	10	5.24	0	0	0	0	10	18.04	0	0	0	0	10	12.57
7	Mukerain Hydel channel Ph:N3	Mukerain	BS/PB/NL/01 - Restoration of Degraded Forests Model	15	2.42	0	0	15	3.77	0	0	0	0	15	16.56	0	0	0	0	15	7.73	0	0	15	3.2
8	Mukerian hydel channel	Mukerain	BS/PB/NL/02 – Road Side Plantation	0	0	10	3.81	0	0	0	0	10	5.24	0	0	0	0	10	18.04	0	0	0	0	10	12.57

9	Muradpur -Badan	Mukerain	BS/PB/NL/02 – Road Side Plantation	0	0	0	0	0	0	10	3.81	0	0	0	0	10	5.24	0	0	0	0	10	18.04	0	0
10	Nai Chack Forest & Chorrian	Dasuya	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	15	2.42	0	0	0	0	15	3.77	0	0	0	0	15	16.56	0	0	0	0	15	7.73
11	Shan Nehe Purani	Mukerain	BS/PB/NL/02 – Road Side Plantation	0	0	10	3.81	0	0	0	0	10	5.24	0	0	0	0	10	18.04	0	0	0	0	10	12.57
12	Shankar Nallah	Mukerain	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	0	0	0	0	10	1.61	0	0	0	0	10	2.51	0	0	0	0	10	11.04	0	0
13	Singowal Distributary	Mukerain	BS/PB/NL/02 – Road Side Plantation	0	0	0	0	0	0	10	3.81	0	0	0	0	10	5.24	0	0	0	0	10	18.04	0	0
14	Tahli	Dasuya	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	1.61	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15	0	0	10	2.13
Total				**45**	**7.25**	**70**	**21.18**	**45**	**11.3**	**40**	**10.84**	**70**	**29.85**	**45**	**49.68**	**40**	**15.5**	**70**	**108.78**	**45**	**23.18**	**40**	**58.16**	**115**	**79.04**

Annexure 41 : Site wise detail of Natural Landscape in Dasuya Forest Division of Himachal Pradesh (Phase II) (**MA=Maintenance Area, MC=Maintenance Cost*)

Phase II											
Year				VI		VII		VIII		IX	
Sr. No	Treatment Site name	Range	Model	MA	MC	MA	MC	MA	MC	MA	MC
1	Badhan Distributary	Mukerain	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	5.15	10	2.13	10	0.74	0	0
2	Bhani Mirza Kha	Dasuya	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	0.74	0	0	0	0	0	0
3	Kulla Fatta Forest	Dasuya	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	0.74	0	0	0	0	0	0
4	Mehtabpur-1	Mukerain	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	2.13	10	0.74	0	0	0	0
5	Mukerain Hydel Channel	Mukerain	BS/PB/NL/02 – Road Side Plantation	15	7.08	15	0.88	0	0	0	0
6	Mukerain Hydel Channel P.NO.I	Mukerain	BS/PB/NL/02 – Road Side Plantation	10	4.72	10	0.59	0	0	0	0
7	Mukerain Hydel channel Ph:N3	Mukerain	BS/PB/NL/01 - Restoration of Degraded Forests Model	15	1.11	0	0	0	0	0	0
8	Mukerian hydel channel	Mukerain	BS/PB/NL/02 – Road Side Plantation	10	4.72	10	0.59	0	0	0	0
9	Muradpur -Badan	Mukerain	BS/PB/NL/02 – Road Side Plantation	10	12.57	10	4.72	10	0.59	0	0
10	Nai Chack Forest & Chorrian	Dasuya	BS/PB/NL/01 - Restoration of Degraded Forests Model	15	3.2	15	1.11	0	0	0	0
11	Shan Nehe Purani	Mukerain	BS/PB/NL/02 – Road Side Plantation	10	4.72	10	0.59	0	0	0	0
12	Shankar Nallah	Mukerain	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	5.15	10	2.13	10	0.74	0	0
13	Singowal Distributary	Mukerain	BS/PB/NL/02 – Road Side Plantation	10	12.57	10	4.72	10	0.59	0	0

14	Tahli	Dasuya	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	0.74	0	0	0	0	0	0
			Total	155	65.34	110	18.2	40	2.66	0	0

Annexure 42 : Site wise detail of Natural Landscape in Gurdaspur Forest Division of Punjab (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**NC**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	Bhaini Mian Khan Drain	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	10	1.61	0	0	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15
2	G.P.Gulehra	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	0	0	0	0	4	0.64	0	0	0	0	4	1	0	0	0	0	4	4.42	0	0
3	G.P.Habibpur	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	3	0.48	0	0	0	0	3	0.75	0	0	0	0	3	3.31	0	0	0	0	3	1.55
4	Kotli-(Harchanda Drain)	Gurdaspur	BS/PB/NL/02 – Road Side Plantation	10	3.81	0	0	10	5.24	0	0	0	0	10	18.04	0	0	0	0	10	12.57	0	0	10	17.29
5	Navi Kiri to Bhet Pattan (Harchawal to Bhet Pattan road)	Qadian	BS/PB/NL/01 - Restoration of Degraded Forests Model	4	0.64	0	0	4	1	0	0	0	0	4	4.42	0	0	0	0	4	2.06	0	0	4	2.92
6	Raju Bela to Dhano Pattan link road	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	2	0.32	0	0	2	0.5	0	0	0	0	2	2.21	0	0	0	0	2	1.03	0	0	2	1.46
7	Randawa Colony	Gurdaspur	BS/PB/NL/02 – Road	0	0	4	1.5	0	0	0	0	4	2.0	0	0	0	0	4	7.	0	0	0	0	4	5.0

			Side Plantation				2						9						22						3
8	Saidowal Kalan to Bhaini Milwan link road	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	5	0.81	0	0	0	0	5	1.26	0	0	0	0	5	5.52	0	0	0	0	5	2.58
9	Samrai Forest	Qadian	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	5	0.81	0	0	0	0	5	1.26	0	0	0	0	5	5.52	0	0	0	0	5	2.58
10	Sidhpur Band R.D 0-50 BS	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	5	0.81	0	0	5	1.26	0	0	0	0	5	5.52	0	0	0	0	5	2.58	0	0	5	3.64
11	Sidhpur Band RD-50 to 130 B/side	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	15	2.42	0	0	15	3.77	0	0	0	0	15	16.56	0	0	0	0	15	7.73	0	0	15	10.93
12	Sidhpur Band to Vill-Sidhpur road	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	1	0.16	0	0	1	0.25	0	0	0	0	1	1.1	0	0	0	0	1	0.52	0	0	1	0.73
13	Sri Hargobindpur City	Qadian	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	2	0.32	0	0	0	0	2	0.5	0	0	0	0	2	2.21	0	0	0	0	2	1.03
Total				**37**	**8.16**	**29**	**5.55**	**37**	**12.02**	**4**	**0.64**	**29**	**8.37**	**37**	**47.85**	**4**	**1**	**29**	**34.82**	**37**	**26.49**	**4**	**4.42**	**66**	**54.89**

Annexure 43 : Site wise detail of Natural Landscape in Gurdaspur Forest Division of Punjab (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				VI		VII		VIII		IX	
Sr. No	Treatment Site name	Range	Model	M A	MC	MA	MC	MA	MC	MA	MC
1	Bhaini Mian Khan Drain	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	2.13	10	0.74	0	0	0	0
2	G.P.Gulehra	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	4	2.06	4	0.85	4	0.3	0	0
3	G.P.Habibpur	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	3	0.64	3	0.22	0	0	0	0
4	Kotli-(Harchanda Drain)	Gurdaspur	BS/PB/NL/02 – Road Side Plantation	10	0.59	0	0	0	0	0	0
5	Navi Kiri to Bhet Pattan (Harchawal to Bhet Pattan road)	Qadian	BS/PB/NL/01 - Restoration of Degraded Forests Model	4	0.3	0	0	0	0	0	0
6	Raju Bela to Dhano Pattan link road	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	2	0.15	0	0	0	0	0	0
7	Randawa Colony	Gurdaspur	BS/PB/NL/02 – Road Side Plantation	4	1.89	4	0.23	0	0	0	0
8	Saidowal Kalan to Bhaini Milwan link road	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	5	1.07	5	0.37	0	0	0	0
9	Samrai Forest	Qadian	BS/PB/NL/01 - Restoration of Degraded Forests Model	5	1.07	5	0.37	0	0	0	0
10	Sidhpur Band R.D 0-50 BS	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	5	0.37	0	0	0	0	0	0

11	Sidhpur Band RD-50 to 130 B/side	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	15	1.11	0	0	0	0	0	0
12	Sidhpur Band to Vill-Sidhpur road	Gurdaspur	BS/PB/NL/01 - Restoration of Degraded Forests Model	1	0.07	0	0	0	0	0	0
13	Sri Hargobindpur City	Qadian	BS/PB/NL/01 - Restoration of Degraded Forests Model	2	0.43	2	0.15	0	0	0	0
			Total	70	11.88	33	2.93	4	0.3	0	0

Annexure 44 : Site wise detail of Natural Landscape in Pathankot Forest Division of Punjab (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				**I**		**II**				**III**						**IV**						**V**			
Sr. No	**Treatment Site name**	**Range**	**Model**	**A**	**NC**	**A**	**NC**	**A**	**AC**	**A**	**NC**	**A**	**AC**	**A**	**CC**	**A**	**AC**	**A**	**CC**	**M**	**MC**	**A**	**C**	**MA**	**MC**
1	Range 1	Dhar	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	1.61	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15	0	0	10	2.13
2	Range 1	Dhar	BS/PB/NL/02 – Road Side Plantation	0	0	5	1.91	0	0	0	0	5	2.62	0	0	0	0	5	9.02	0	0	0	0	5	6.29
3	Range 2	Dunera	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	10	1.61	0	0	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15
4	Range 2	Dunera	BS/PB/NL/02 – Road Side Plantation	5	1.91	0	0	5	2.62	0	0	0	0	5	9.02	0	0	0	0	5	6.29	0	0	5	2.36
5	Range 3	Pathankot	BS/PB/NL/02 – Road	0	0	5	1.9	0	0	0	0	5	2.	0	0	0	0	5	9.0	0	0	0	0	5	6.2

			Side Plantation				1						62						2						9
6	Range 3	Pathankot	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	1.61	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15	0	0	10	2.13
Total				**25**	**5.13**	**20**	**5.43**	**25**	**7.64**	**0**	**0**	**20**	**7.75**	**25**	**31.1**	**0**	**0**	**20**	**29.08**	**25**	**16.59**	**0**	**0**	**45**	**24.35**

Annexure 45 : Site wise detail of Natural Landscape in Pathankot Forest Division of Punjab (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**
1	Range 1	Dhar	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	0.74	0	0	0	0	0	0
2	Range 1	Dhar	BS/PB/NL/02 – Road Side Plantation	5	2.36	5	0.29	0	0	0	0
3	Range 2	Dunera	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	2.13	10	0.74	0	0	0	0
4	Range 2	Dunera	BS/PB/NL/02 – Road Side Plantation	5	0.29	0	0	0	0	0	0
5	Range 3	Pathankot	BS/PB/NL/02 – Road Side Plantation	5	2.36	5	0.29	0	0	0	0
6	Range 3	Pathankot	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	0.74	0	0	0	0	0	0
Total				**45**	**8.62**	**20**	**1.32**	**0**	**0**	**0**	**0**

Annexure 46 : Site wise detail of Natural Landscape in Hoshiarpur Forest Division of Punjab (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				I		II				III						IV						V			
Sr. No	Treatment Site name	Range	Model	A	NC	A	NC	A	AC	A	NC	A	AC	A	CC	A	AC	A	CC	M	MC	A	C	MA	MC
1	Thana	Dhosbaha	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	10	1.61	0	0	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15
Total				**0**	**0**	**10**	**1.61**	**0**	**0**	**0**	**0**	**10**	**2.51**	**0**	**0**	**0**	**0**	**10**	**11.04**	**0**	**0**	**0**	**0**	**10**	**5.15**

Annexure 47 : Site wise detail of Natural Landscape in Hoshiarpur Forest Division of Punjab (Phase II) (**MA=Maintenance Area, MC=Maintenance Cost*)

Phase II											
Year				VI		VII		VIII		IX	
Sr. No	Treatment Site name	Range	Model	MA	MC	MA	MC	MA	MC	MA	MC
1	Thana	Dhosbaha	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	2.13	10	0.74	0	0	0	0
Total				10	2.13	10	0.74	0	0	0	0

Annexure 48 : Site wise detail of Natural Landscape in Amritsar Forest Division of Punjab (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																									
Year				I		II				III						IV						V			
Sr. No	Treatment Site name	Range	Model	A	NC	A	NC	A	AC	A	NC	A	AC	A	CC	A	AC	A	CC	M	MC	A	C	MA	MC
1	Dhun Dhai Wala	Patti	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	10	1.61	0	0	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15
2	Dhunda	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	5	0.81	0	0	0	0	5	1.26	0	0	0	0	5	5.52	0	0	0	0	5	2.58
3	Gharka	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	0	0	0	0	5	0.81	0	0	0	0	5	1.26	0	0	0	0	5	5.52	0	0
4	Johal Dhai Wala	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	0	0	0	0	5	0.81	0	0	0	0	5	1.26	0	0	0	0	5	5.52	0	0
5	Kambho Dhai Wala	Patti	BS/PB/NL/01 - Restoration of Degraded Forests Model	9	1.45	0	0	9	2.26	0	0	0	0	9	9.94	0	0	0	0	9	4.64	0	0	9	1.92
6	Manakdeke	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	0	0	0	0	5	0.81	0	0	0	0	5	1.26	0	0	0	0	5	5.52	0	0
7	Munda Pind	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	0	0	0	0	5	0.81	0	0	0	0	5	1.26	0	0	0	0	5	5.52	0	0

Total	**9**	**1.45**	**15**	**2.42**	**9**	**2.26**	**20**	**3.24**	**15**	**3.77**	**9**	**9.94**	**20**	**5.04**	**15**	**16.56**	**9**	**4.64**	**20**	**22.08**	**24**	**9.65**

Annexure 49 : Site wise detail of Natural Landscape in Amritsar Forest Division of Punjab (Phase II) (**MA=Maintenance Area*, *MC=Maintenance Cost*)

Phase II											
Year				**VI**		**VII**		**VIII**		**IX**	
Sr. No	**Treatment Site name**	**Range**	**Model**	**M A**	**MC**	**MA**	**MC**	**MA**	**MC**	**MA**	**MC**
1	Dhun Dhai Wala	Patti	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	2.13	10	0.74	0	0	0	0
2	Dhunda	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	5	1.07	5	0.37	0	0	0	0
3	Gharka	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	5	2.58	5	1.07	5	0.37	0	0
4	Johal Dhai Wala	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	5	2.58	5	1.07	5	0.37	0	0
5	Kambho Dhai Wala	Patti	BS/PB/NL/01 - Restoration of Degraded Forests Model	9	0.67	0	0	0	0	0	0
6	Manakdeke	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	5	2.58	5	1.07	5	0.37	0	0
7	Munda Pind	Tarn Taran	BS/PB/NL/01 - Restoration of Degraded Forests Model	5	2.58	5	1.07	5	0.37	0	0
			Total	**44**	**14.19**	**35**	**5.39**	**20**	**1.48**	**0**	**0**

Annexure 50 : Site wise detail of Natural Landscape in Jalandhar Forest Division of Punjab (Phase I) (**A=Area, NC=Nursery Cost, CC=Creation Cost, AC=Advance Cost, MC=Maintenance Cost, MA=Maintenance Area*)

Phase I																								
Year				I		II				III						IV						V			
Sr. No	Treatment Site name	Range	Model	A	NC	A	NC	A	AC	A	NC	A	AC	A	CC	A	AC	A	CC	M	MC	A	C	MA	MC
1	East Bein Bandh RD 28 1/2=75	Kapurthala	BS/PB/NL/01 - Restoration of Degraded Forests Model	0	0	10	1.61	0	0	0	0	10	2.51	0	0	0	0	10	11.04	0	0	0	0	10	5.15
2	East bein bandh RD 28.5-75 B/6	Kapurthala	BS/PB/NL/02 – Road Side Plantation	0	0	5	1.91	0	0	0	0	5	2.62	0	0	0	0	5	9.02	0	0	0	0	5	6.29
Total				**0**	**0**	**15**	**3.52**	**0**	**0**	**0**	**0**	**15**	**5.13**	**0**	**0**	**0**	**0**	**15**	**20.06**	**0**	**0**	**0**	**0**	**15**	**11.44**

Annexure 51 : Site wise detail of Natural Landscape in Jalandhar Forest Division of Punjab (Phase II) (**MA=Maintenance Area, MC=Maintenance Cost*)

Phase II											
Year				VI		VII		VIII		IX	
Sr. No	Treatment Site name	Range	Model	MA	MC	MA	MC	MA	MC	MA	MC
1	East Bein Bandh RD 28 1/2=75	Kapurthala	BS/PB/NL/01 - Restoration of Degraded Forests Model	10	2.13	10	0.74	0	0	0	0
2	East bein bandh RD 28.5-75 B/6	Kapurthala	BS/PB/NL/02 – Road Side Plantation	5	2.36	5	0.29	0	0	0	0
Total				**15**	**4.49**	**15**	**1.03**	**0**	**0**	**0**	**0**

Annexure 52 : Division Wise Projected extent of Plantations in Agriculture Landscapes in Punjab (**E= Establishment, M=Maintenance*)

Sr. No	Division	Cost Model	Year										
			Phase I (Extent of Area in ha)						Phase I		Phase II	Phase I &II	
			I	II		III	IV	V	Total		VI	Total Area ha	
			E	E	M	M	M	M	E	M	Total M	E	M
1	Amritsar	BS/PB/AL/01 - Boundary Plantation Model	400	499	400	800	1040	640	1040	1040	240	1040	1040
		BS/PB/AL/02 - Block Plantation Model	100	40	100	30	140	170	70	170	30	170	170
2	Dasuya	BS/PB/AL/01 - Boundary Plantation Model	500	480	500	360	980	240	1340	840	360	1340	1340
		BS/PB/AL/02 - Block Plantation Model	50	40	50	30	90	120	70	120	30	120	120
3	Gurdaspur	BS/PB/AL/01 - Boundary Plantation Model	400	400	400	300	800	1100	700	1100	300	1100	1100
		BS/PB/AL/02 - Block Plantation Model	75	80	75	30	155	185	110	185	30	185	185
4	Hoshiarpur	BS/PB/AL/01 - Boundary Plantation Model	400	400	400	360	800	1160	760	1160	360	1160	1160

		BS/PB/AL/02 - Block Plantation Model	75	40	75	30	115	145	70	145	30	145	145
5	Jalandhar	BS/PB/AL/01 - Boundary Plantation Model	400	400	400	300	800	1100	700	1100	300	1100	1100
		BS/PB/AL/02 - Block Plantation Model	50	40	50	30	90	120	70	120	30	120	120
6	Pathankot	BS/PB/AL/01 - Boundary Plantation Model	200	240	200	240	440	680	480	680	240		680
		BS/PB/AL/02 - Block Plantation Model	25	40	25	30	65	65	70	95	30	95	95
Total			**2675**	**2699**	**2675**	**2540**	**5515**	**5725**	**5480**	**6755**	**1980**	**6575**	**7255**

Annexure 53 : Division Wise Projected Cost of Plantations in Agriculture Landscapes in Punjab (**E= Establishment, M=Maintenance*)

Sr. No	Division	Cost Models	Phase I: Year Wise Cost (Rs in Lakhs)									Phase II (Rs.in Lakhs)	Total Phase II (Rs.in Lakhs)	Total Phase I & phase II (Rs.in Lakhs)		Grand Total (Rs.in Lakhs)
			I	II		III		IV	V	Total Phase I (Rs.in Lakhs)		VI Year				
			E	E	M	E	M	M	M	E	M	M	M	E	M	
1	Amritsar	BS/PB/AL/01 - Boundary Plantation Model	36	36	19.26	21.6	41.31	57.21	36.83	93.60	154.61	14.16	14.16	93.60	168.77	**262.37**
		BS/PB/AL/02 - Block Plantation Model	48	19.20	26.68	14.40	37.75	48.09	20.00	81.6	131.52	8.82	8.82	81.6	140.34	**221.94**
2	Dasuya	BS/PB/AL/01 - Boundary PlantationModel	45	43.20	24.08	32.40	50.68	73.29	48.17	120.60	196.22	21.24	21.24	120.60	217.46	**338.06**
		BS/PB/AL/02 - Block Plantation Model	24.00	19.20	12.84	14.40	24.01	33.39	20.00	57.6	90.24	8.82	8.82	57.6	99.06	**156.66**
3	Gurdaspur	BS/PB/AL/01 - Boundary Plantation Model	36.00	36.00	19.26	27	41.31	60.10	40.14	99.00	160.81	17.70	17.70	99.00	178.51	**277.51**
		BS/PB/AL/02 - Block Plantation Model	36.00	38.40	19.26	14.40	41.15	51.73	31.76	88.8	143.9	8.82	8.82	88.8	152.72	**241.52**
4	Hoshiarpur	BS/PB/AL/01 - Boundary	36.00	36.00	19.26	32.40	41.31	62.98	43.45	104.40	167.00	21.24	21.24	104.40	188.24	**292.64**

Sr. No	Division	Cost Models	Phase I: Year Wise Cost (Rs in Lakhs)									Phase II (Rs.in Lakhs)	Total Phase II (Rs.in Lakhs)	Total Phase I & phase II (Rs.in Lakhs)		Grand Total (Rs.in Lakhs)
			I	II		III		IV	V	Total Phase I (Rs.in Lakhs)		VI Year				
			E	E	M	E	M	M	M	E	M	M	M	E	M	
		Plantation Model														
		BS/PB/AL/02 - Block Plantation Model	36.00	19.20	19.26	14.40	30.88	40.74	20.00	69.60	110.88	8.82	8.82	69.60	119.70	**189.30**
5	Jalandhar	BS/PB/AL/01 - Boundary Plantation Model	36	36	19.26	27	41.31	60.10	40.14	99.00	160.81	17.70	17.70	99.00	178.51	**277.51**
		BS/PB/AL/02 - Block Plantation Model	24.00	19.20	12.84	14.40	24.01	33.39	20-,00	57.60	90.24	8.82	8.82	57.60	99.06	**156.66**
6	Pathankot	BS/PB/AL/01 - Boundary Plantation Model	18.00	21.60	9.63	21.60	22.59	36.59	27.39	61.20	96.20	14.16	14.16	61.20	110.36	**171.56**
		BS/PB/AL/02 - Block Plantation Model	12.00	19.20	6.42	14.40	17.14	26.04	20.00	45.60	69.60	8.82	8.82	45.60	78.42	**124.02**
Total			**387**	**343.2**	**208.05**	**248.4**	**413.45**	**583.65**	**347.88**	**978.6**	**1572.03**	**159.12**	**159.12**	**978.6**	**1731.15**	**2709.75**

***The area shown is virtually for calculation of Budget part. However actual creation of plantation work will start from 3rd year onwards.*

Annexure 54 : Division Wise Proposed Extent of Plantations in Urban Landscapes in Punjab (**E= Establishment, M=Maintenance*)

Sr. No	Division	Cost Model	Year											Grand Total Area (ha)	
			Phase I (Extent of Area in ha)							Phase I (Extent of Area in ha)		Phase II	Total Phase II (Extent of Area in ha) M		
			I	II		III		IV	V	Total		VI			
			E	E	M	E	M	M	M	E	M	M		E	M
1	Amritsar	BS/PB/UL/01 - Bioremediation and Bio-filtration	1.5	0.5	1.5	0	2	2	0.5	2	2	0	0	2	2
		BS/PB/UL/03 - Institution Plantation	20	20	20	10	40	50	30	50	50	10	10	50	50
		BS/PB/UL/04 - Eco-Park Development	0	1	0	0	1	1	1	1	1	0	0	1	1
2	Dasuya	BS/PB/UL/01 - Bioremediation and Bio-filtration	0	1	0	0	1	1	1	1	1	0	0	1	1
		BS/PB/UL/03 - Institution Plantation	20	20	20	10	40	50	30	50	50	10	10	50	50
		BS/PB/UL/04 - Eco-Park Development	1	0	1	0	1	1	0	1	1	0	0	1	1
3	Gurdaspur	BS/PB/UL/01 - Bioremediation and Bio-filtration	1	0.5	1	0.5	1.5	2	1	2	2	0.5	0.5	2	2
		BS/PB/UL/03 - Institution Plantation	60	40	60	27	100	127	67	127	127	27	27	127	127
		BS/PB/UL/04 - Eco-Park Development	1	2.4	1	0.5	3.4	3.9	2.9	3.9	3.9	0.5	0.5	3.9	3.9

Sr. No	Division	Cost Model	Year											Grand Total Area (ha)	
			Phase I (Extent of Area in ha)							Phase I (Extent of Area in ha)		Phase II	Total Phase II (Extent of Area in ha) M		
			I	II		III		IV	V	Total		VI			
			E	E	M	E	M	M	M	E	M	M		E	M
4	Hoshiarpur	BS/PB/UL/01 - Bioremediation and Bio-filtration	0	0.5	0	0.5	0.5	1	1	1	1	0.5	0.5	1	1
		BS/PB/UL/03 - Institution Plantation	0.5	0	0.5	0.6	0.5	1.1	0.6	1.1	1.1	0.6	0.6	1.1	1.1
5	Jalandhar	BS/PB/UL/01 - Bioremediation and Bio-filtration	0.5	0	0.5	0.5	0.5	1	0.5	1	1	0.5	0.5	1	1
		BS/PB/UL/03 - Institution Plantation	10	20	10	0	30	30	20	30	30	0	0	30	30
		BS/PB/UL/04 - Eco-Park Development	0	0.5	0	0	0.5	0.5	0.5	0.5	0.5	0	0	0.5	0.5
6	Pathankot	BS/PB/UL/01 - Bioremediation and Bio-filtration	1	0	1	0	1	1	0	1	1	0	0	1	1
		BS/PB/UL/04 - Eco-Park Development	1	0	1	0.5	1	1.5	0.5	1.5	1.5	0.5	0.5	1.5	1.5
Total			**117.5**	**106.4**	**117.5**	**50.1**	**223.9**	**274**	**156.5**	**274**	**274**	**50.1**	**50.1**	**274**	**274**

Annexure 55 : Division Wise Proposed Cost of Plantations in Urban Landscapes in Punjab (**E= Establishment, M=Maintenance*)

Sr. No	Division	Cost Models	Phase I: Year Wise Cost (Rs in Lakhs)							Total Phase I (Rs.in Lakhs)		Phase II (Rs.in Lakhs) VI Year	Total Phase II (Rs.in Lakhs)	Total Phase I & phase II (Rs.in Lakhs)		Grand Total (Rs.in Lakhs)
			I	II		III		IV	V							
			E	E	M	E	M	M	M	E	M	M	M	E	M	
1	Amritsar	BS/PB/UL/01 - Bioremediation and Bio-filtration	22.50	7.50	6.75	0.00	6.75	4.88	1.13	30.00	19.51	0.00	0.00	30.00	19.51	49.51
		BS/PB/UL/03 - Institution Plantation	52.00	52.00	15.60	26.00	26.00	26.00	13.00	130.00	80.60	3.90	3.90	130.00	84.50	214.50
		BS/PB/UL/04 - Eco-Park Development	0.00	150.00	0.00	0.00	45.00	30.00	22.50	150.00	97.50	0.00	0.00	150.00	97.50	247.50
2	Dasuya	BS/PB/UL/01 - Bioremediation and Bio-filtration	0.00	15.00	0.00	0.00	4.50	3.00	2.25	15.00	9.75	0.00	0.00	15.00	9.75	24.75
		BS/PB/UL/03 - Institution Plantation	52.00	52.00	15.60	26.00	26.00	26.00	13.00	130.00	80.60	3.90	3.90	130.00	84.50	214.50
		BS/PB/UL/04 - Eco-Park Development	150.00	0.00	45.00	0.00	30.00	22.50	0.00	150.00	97.50	0.00	0.00	150.00	97.50	247.50
3	Gurdaspur	BS/PB/UL/01 - Bioremediation and Bio-filtration	15.00	7.50	4.50	7.50	5.25	6.00	2.63	30.00	18.38	1.13	1.13	30.00	19.51	49.51
		BS/PB/UL/03 - Institution Plantation	156.00	104.00	46.80	70.20	62.40	65.26	29.64	330.20	204.10	10.53	10.53	330.20	214.63	544.83

Sr. No	Division	Cost Models	Phase I: Year Wise Cost (Rs in Lakhs)							Total Phase I (Rs.in Lakhs)		Phase II (Rs.in Lakhs) VI Year	Total Phase II (Rs.in Lakhs)	Total Phase I & phase II (Rs.in Lakhs)		Grand Total (Rs.in Lakhs)
			I	II		III		IV	V							
			E	E	M	E	M	M	M	E	M	M	M	E	M	
		BS/PB/UL/04 - Eco-Park Development	150.00	360.00	45.00	75.00	138.00	117.00	69.00	585.00	369.00	11.25	11.25	585.00	380.25	965.25
4	Hoshiarpur	BS/PB/UL/01 - Bioremediation and Bio-filtration	0.00	7.50	0.00	7.50	2.25	3.75	2.63	15.00	8.63	1.13	1.13	15.00	9.76	24.76
		BS/PB/UL/03 - Institution Plantation	1.30	0.00	0.39	1.56	0.26	0.67	0.31	2.86	1.63	0.23	0.23	2.86	1.86	4.72
5	Jalandhar	BS/PB/UL/01 - Bioremediation and Bio-filtration	7.50	0.00	2.25	7.50	1.50	3.38	1.50	15.00	8.63	1.13	1.13	15.00	9.76	24.76
		BS/PB/UL/03 - Institution Plantation	26.00	52.00	7.80	0.00	20.80	14.30	7.80	78.00	50.70	0.00	0.00	78.00	50.70	128.70
		BS/PB/UL/04 - Eco-Park Development	0.00	75.00	0.00	0.00	22.50	15.00	11.25	75.00	48.75	0.00	0.00	75.00	48.75	123.75
6	Pathankot	BS/PB/UL/01 - Bioremediation and Bio-filtration	15.00	0.00	4.50	0.00	3.00	2.25	0.00	15.00	9.75	0.00	0.00	15.00	9.75	24.75
		BS/PB/UL/04 - Eco-Park Development	150.00	0.00	45.00	75.00	30.00	45.00	15.00	225.00	135.00	11.25	11.25	225.00	146.25	371.25
Total			**797.30**	**882.50**	**239.19**	**296.26**	**424.21**	**384.99**	**191.64**	**1976.06**	**1240.03**	**44.45**	**44.45**	**1976.06**	**1284.48**	**3260.54**

Annexure 56 : Division Wise Proposed Extent for Soil and Moisture Conservation (Area in m^3) for Punjab (**E= Establishment*)

Sr. No	Division	Cost Model	Year						Grand Total Area (m^3)
			Phase I (Extent of Area in m^3)					Phase I Total	
			I	II	III	IV	V		
			E	E	E	E	E	E	E
1	Amritsar	BS/PB/CI/01 Brushwood Interventions	300	430	290	90	0	1110	1110
		BS/PB/CI/02 Dry Stone activities	590	450	550	140	0	1730	1730
		BS/PB/CI/03 Crate Wire activities	850	250	850	240	0	2190	2190
2	Dasuya	BS/PB/CI/01 Brushwood Interventions	12160	3000	5300	8030	2130	30620	30620
		BS/PB/CI/02 Dry Stone activities	1000	3770	1780	1000	3300	10850	10850
		BS/PB/CI/03 Crate Wire activities	1200	900	600	800	700	4200	4200
		BS/PB/CI/04 Water Ponds	9	4609	9499	2519	9	16645	16645
3	Gurdaspur	BS/PB/CI/01 Brushwood Interventions	40660	0	4240	17940	3620	66460	66460
		BS/PB/CI/02 Dry Stone activities	410	14210	4720	450	9370	29160	29160
		BS/PB/CI/03 Crate Wire activities	7250	5990	6660	670	210	20780	20780
		BS/PB/CI/04 Water Ponds	0	14780	40248	13080	0	68108	68108
		BS/PB/CI/05 Silt Detention Dam Type	0	0	0	2300	0	2300	2300

Sr. No	Division	Cost Model	Year						Grand Total Area (m^3)
			Phase I (Extent of Area in m^3)					Phase I Total	
			I	II	III	IV	V		
			E	E	E	E	E	E	E
		Activities							
4	Hoshiarpur	BS/PB/CI/01 Brushwood Interventions	8360	1000	2510	2920	310	15100	15100
		BS/PB/CI/02 Dry Stone activities	0	1580	1200	190	1800	4770	4770
		BS/PB/CI/03 Crate Wire activities	0	0	280	0	0	280	280
		BS/PB/CI/04 Water Ponds	0	6960	2690	3390	0	13040	13040
		BS/PB/CI/05 Silt Detention Dam Type Activities	0	0	0	190	0	190	190
5	Jalandhar	BS/PB/CI/01 Brushwood Interventions	400	490	440	330	100	1760	1760
		BS/PB/CI/02 Dry Stone activities	1310	660	700	550	310	3530	3530
		BS/PB/CI/03 Crate Wire activities	450	560	650	730	0	2390	2390
6	Pathankot	BS/PB/CI/02 Dry Stone activities	0	360	290	0	0	650	650
		BS/PB/CI/03 Crate Wire activities	550	0	0	430	210	1190	1190
Total			**75499**	**59999**	**83497**	**55989**	**22069**	**297053**	**297053**

Annexure 57 : Division Wise Proposed for Soil and Moisture Conservation (Cost in m^3) for Punjab (**E= Establishment*)

Sr. No	Division	Cost Model	Year						Grand Total (Rs.in Lakhs)
			Phase I: Year Wise Cost (Rs in Lakhs)					Total Phase I (Rs.in Lakhs) Total	
			I	II	III	IV	V		
			E	E	E	E	E	E	E
1	Amritsar	BS/PB/CI/01 Brushwood Interventions	0.90	1.29	0.87	0.27	0.00	3.33	3.33
		BS/PB/CI/02 Dry Stone activities	10.62	8.10	9.90	2.52	0.00	31.14	31.14
		BS/PB/CI/03 Crate Wire activities	38.25	11.25	38.25	10.80	0.00	98.55	98.55
2	Dasuya	BS/PB/CI/01 Brushwood Interventions	36.48	9.00	15.90	24.09	6.39	91.86	91.86
		BS/PB/CI/02 Dry Stone activities	18.00	67.86	32.04	18.00	59.40	195.30	195.30
		BS/PB/CI/03 Crate Wire activities	54.00	40.50	27.00	36.00	31.50	189.00	189.00
		BS/PB/CI/04 Water Ponds	0.03	16.13	33.25	8.82	0.03	58.26	58.26
3	Gurdaspur	BS/PB/CI/01 Brushwood Interventions	121.98	0.00	12.72	53.82	10.86	199.38	199.38
		BS/PB/CI/02 Dry Stone activities	7.38	255.78	84.96	8.10	168.66	524.88	524.88
		BS/PB/CI/03 Crate Wire activities	326.25	269.55	299.70	30.15	9.45	935.10	935.10
		BS/PB/CI/04 Water Ponds	0.00	51.74	140.87	45.79	0.00	238.38	238.38
		BS/PB/CI/05 Silt Detention Dam Type Activities	0.00	0.00	0.00	138.00	0.00	138.00	138.00
4	Hoshiarpur	BS/PB/CI/01 Brushwood Interventions	25.08	3.00	7.53	8.76	0.93	45.30	45.30
		BS/PB/CI/02 Dry Stone activities	0.00	28.44	21.60	3.42	32.40	85.86	85.86
		BS/PB/CI/03 Crate Wire activities	0.00	0.00	12.60	0.00	0.00	12.60	12.60

Sr. No	Division	Cost Model	Year						Grand Total (Rs.in Lakhs)
			Phase I: Year Wise Cost (Rs in Lakhs)					Total Phase I (Rs.in Lakhs) Total	
			I	II	III	IV	V		
			E	E	E	E	E	E	E
		BS/PB/CI/04 Water Ponds	0.00	24.36	9.42	11.87	0.00	45.64	45.64
		BS/PB/CI/05 Silt Detention Dam Type Activities	0.00	0.00	0.00	11.40	0.00	11.40	11.40
5	Jalandhar	BS/PB/CI/01 Brushwood Interventions	1.20	1.47	1.32	0.99	0.30	5.28	5.28
		BS/PB/CI/02 Dry Stone activities	23.58	11.88	12.60	9.90	5.58	63.54	63.54
		BS/PB/CI/03 Crate Wire activities	20.25	25.20	29.25	32.85	0.00	107.55	107.55
6	Pathankot	BS/PB/CI/02 Dry Stone activities	0.00	6.48	5.22	0.00	0.00	11.70	11.70
		BS/PB/CI/03 Crate Wire activities	24.75	0.00	0.00	19.35	9.45	53.55	53.55
Total			**708.75**	**832.03**	**795.00**	**474.90**	**334.95**	**3145.60**	**3145.60**

Annexure 58 : Detail of Riverine and Riparian Wildlife Management of Punjab (**E= Establishment, M=Maintenance, A=Area, C=Cost*)

Sr. No.	Division	Year																			
		Phase I																		Phase II	
		Treatment Site name	I		II				III		IV		V		Total Phase I (Rs.in Rs.)				VI		Total Phase II (Rs.in Lakhs)
			E		E		M		M		M		M		E		M		M		M
			A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
1	Wild Life Ferozpur	Harike Lake Bird sanctuary	0	0	10	32	0	0	10	28	10	19	10	12	10	32	30	59	10	9	10	9

		Harike Wildlife sanctuary	20	64	0	0	20.00	56	20	38	20	24	20	18	20	64	80	136	0	0	0	0
2	Wildlife Pathankot	Kathlour Kurhallian wild life sanctuary (I)	20	64	0	0	20.00	56	20	38	20	24	20	18	20	64	80	136	0	0	0	0
Total			**40**	**128**	**10**	**32**	**40**	**112**	**50**	**104**	**50**	**67**	**50**	**48**	**50**	**160**	**190**	**331**	**10**	**9**	**10**	**9**

Annexure 59 : Detail of Wetland Management of Punjab *(*E= Establishment, M=Maintenance, A=Area, C=Cost)*

Sr. No.	**Division**	**Treatment Site name**	**Year**																			
			Phase I																**Phase II**			
			I		**II**				**III**		**IV**		**V**		**Total Phase I (Rs.in Rs.)**				**VI**		**Total Phase II (Rs.in Lakhs) M**	
			E		**E**		**M**		**M**		**M**		**M**		**E**		**M**		**M**			
			A	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**	**A**	**C**
1	Wild Life Ferozpur	Beas River Conservation Reserve	0	0	10	28	0	0	10	25	10	16	10	12	10	28	30	53	10	9	10	9
		Harike Wetland	10	28	0	0	10	25	10	16	10	12	10	9	10	28	40	62	0	0	0	0
		Kanjali Wetland	0	0	10	28	0	0	10	25	10	16	10	12	10	28	30	53	10	9	10	9
Total			**10**	**28**	**20**	**56**	**10**	**25**	**30**	**66**	**30**	**44**	**30**	**33**	**30**	**84**	**100**	**168**	**20**	**18**	**20**	**18**

Annexure 60 : The Geo Co-ordinates of Proposed Forestry Intervention Sites in Natural Landscape of Beas Riverscape, in Himachal Pradesh

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
1	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Chamba	Dalhousie	Baila	20	32.4311	75.9289
2	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Chamba	Dalhousie	Banoli DPF	10	32.3003	76.2978
3	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Chamba	Dalhousie	Bara CII	20	32.4746	75.9580
4	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Chamba	Dalhousie	Bhatti	20	32.0377	75.9129
5	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Chamba	Dalhousie	Chabaru (Rellhban DPF)	5	32.4018	76.1672
6	BS/HP/NL/08 - Sub-Tropical Dry	Himachal Pradesh	Chamba	Dalhousie	Denlho	5	32.3205	76.0677

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Deciduous Forest							
7	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Chamba	Dalhousie	Dharla	5	32.3076	76.1269
8	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Chamba	Dalhousie	Findal No.1	30	32.4614	75.9119
9	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Chamba	Dalhousie	Ghadu	5	32.3094	76.1237
10	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Chamba	Dalhousie	Gorat	5	32.2691	76.1383
11	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Chamba	Dalhousie	Gurniara	5	32.4018	76.1672
12	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Chamba	Dalhousie	Jamiyaru-1	5	32.3745	76.1259
13	BS/HP/NL/08 - Sub-	Himachal Pradesh	Chamba	Dalhousie	Khajurna (1)	5	32.2712	76.0475

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Tropical Dry Deciduous Forest							
14	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Chamba	Dalhousie	Khapru DPF	20	32.4761	75.9969
15	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Chamba	Dalhousie	Kharian DPF	15	32.2567	76.1469
16	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Chamba	Dalhousie	Kuddi DPF	5	32.4692	75.9867
17	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Chamba	Dalhousie	Kutla	5	32.3102	76.1231
18	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Chamba	Dalhousie	Lodhar	5	31.5503	76.4356
19	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Chamba	Dalhousie	Ludhera	5	32.2715	76.0497

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
20	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Chamba	Dalhousie	Mahot DPF	10	32.4656	75.9622
21	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Chamba	Dalhousie	Muhallo	5	32.3188	76.0731
22	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Chamba	Dalhousie	Naled	5	32.4373	76.1992
23	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Chamba	Dalhousie	Nidal	5	32.3101	76.1236
24	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Chamba	Dalhousie	Salorka DPF	20	32.4592	75.9261
25	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Chamba	Dalhousie	Sangola DPF	5	32.4511	75.9594
26	BS/HP/NL/06 - Himalayan Chir Pine	Himachal Pradesh	Chamba	Dalhousie	Simble Khota DPF	5	32.3017	76.0882

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Fores							
27	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Chamba	Dalhousie	Taragarh No.2 (Bhai-da-Bag)	20	32.4078	75.9456
28	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Hamirpur	Hamirpur	Govt. land Batran, P-28 Bhounti, P-27 Basaral	30	31.7213	76.4158
29	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Hamirpur	Hamirpur	Govt. land Dharal	10	31.8400	76.6881
30	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Hamirpur	Hamirpur	Govt. land Mehalaru	5	31.8572	76.6761
31	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Hamirpur	Hamirpur	Kunah khad near Ropa village	10	31.7507	76.403438°
32	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Hamirpur	Hamirpur	P-15 Kashmir, P-16 Tehli C1A, C1D	5	32.0736	76.7181

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
33	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Hamirpur	Hamirpur	P-16 Dhar Sidh C-3c	4	31.5820	76.5750
34	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Hamirpur	Hamirpur	P-18 Jassai, P-17 Behrar	40	31.6561	76.4054
35	BS/HP/NL/06 - Himalayan Chir Pine Forest	Himachal Pradesh	Hamirpur	Hamirpur	P-18 Jassai, P-17 Behrar	40	31.6561	76.4054
36	BS/HP/NL/06 - Himalayan Chir Pine Forest	Himachal Pradesh	Hamirpur	Hamirpur	P-32 Noungi, UPF Jungle Rajputa	20	31.7096	76.4430
37	BS/HP/NL/06 - Himalayan Chir Pine Forest	Himachal Pradesh	Hamirpur	Hamirpur	P-33 Bodh	15	31.7767	76.4542
38	BS/HP/NL/06 - Himalayan Chir Pine Forest	Himachal Pradesh	Hamirpur	Hamirpur	P-35 Rarajori	30	31.7725	76.4578
39	BS/HP/NL/06 - Himalayan Chir Pine	Himachal Pradesh	Hamirpur	Hamirpur	P-36 Jeehan C3a, C3b, C5b U. 326 Badiyar, U.322	60	31.7795	76.4378

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest				Badiyar			
40	BS/HP/NL/06 - Himalayan Chir Pine Forest	Himachal Pradesh	Hamirpur	Hamirpur	P-39 Tillu	20	31.7747	76.3522
41	BS/HP/NL/06 - Himalayan Chir Pine Forest	Himachal Pradesh	Hamirpur	Hamirpur	P-6 Dhar-Jakhar C10c.	7	31.5862	76.5765
42	BS/HP/NL/06 - Himalayan Chir Pine Forest	Himachal Pradesh	Hamirpur	Hamirpur	P.37 Bakroh	5	31.5781	76.5106
43	BS/HP/NL/06 - Himalayan Chir Pine Forest	Himachal Pradesh	Hamirpur	Hamirpur	P.38 Am Platoo	5	31.5859	76.4969
44	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Hamirpur	Hamirpur	P13 Phal C1d	4	32.0528	76.7786
45	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Hamirpur	Hamirpur	P1Karot C1D	10	31.7947	76.4814

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
46	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Hamirpur	Hamirpur	P1Karot C2d	5	31.8625	76.5958
47	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Hamirpur	Hamirpur	P55 Dhar Chabutra	50	31.7700	76.4889
48	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	DP Dadachatwal C-4	10	31.9455	76.0631
49	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dehra	P 1D Ghanban C2 a, C2b, C2c	20	32.0430	76.1076
50	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	P2 DG Hamirpur C1A-C1B	5	32.0125	76.1264
51	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	R-18D Kohli Bolta	4	31.9502	76.1558
52	BS/HP/NL/08 - Sub-Tropical Dry	Himachal Pradesh	Kangra	Dehra	U 13 D Dhar Paniyali C-2	5	32.0055	76.1766

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Deciduous Forest							
53	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dehra	U 5 D Chowkatu C2	14	31.9631	76.3903
54	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Dehra	U 7 D Magheen-C-10	50	31.7922	76.4013
55	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dehra	U 7D Magheen C1	100	31.8267	76.3771
56	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dehra	U 8 D Kuthialta C 6	10	31.8425	76.4353
57	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dehra	U 9D Baldoa C-7	20	32.2741	76.0937
58	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	U F Sorad Bammi Abbal	4	31.7622	76.2197

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
59	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	U P 5 D Chowkatu C2	10	31.9594	76.4564
60	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Dehra	U P 6 D Silh C-4	30	31.7883	76.3839
61	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	U PF Rail, UPF Baslahar, DP Kalot	50	32.2370	76.2725
62	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	U-11-D Jaini masroor c-2	5	32.0867	76.1797
63	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dehra	U-1D Bilaspur C2	10	32.0175	76.1408
64	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	U-7 D Magheen C-1	10	31.9842	76.5403
65	BS/HP/NL/08 - Sub-Tropical Dry	Himachal Pradesh	Kangra	Dehra	U.8.D kuthialta C-6	10	31.8653	76.4169

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Deciduous Forest							
66	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	UD 7D Sihorwala C-1	10	31.9126	76.3132
67	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	UF Kurna C-2	4	31.7406	76.2650
68	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dehra	UF Nouri	4	31.7247	76.3128
69	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dehra	UP 7D Sihorwala	10	31.8143	76.4516
70	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Dehra	UPF Badhol, UPF Bari, UPF Buhala, DPF ragmi, UPF Ghamroor	160	31.9506	75.9848
71	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dehra	UPF Badhol, UPF Bari, Upf Buhala, DPF ragmi, UPF Ghamroor	160	31.9522	75.9830

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
					(Lantana)			
72	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Dehra	UPF Banuri, UPF Sanda, UPF Bandol DPF Dodoa (Lantana)	190	32.0999	76.2692
73	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dehra	UPF Rail, UPF Baslahar, DP Kalot	100	32.0999	76.2692
74	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Dharamshala	145 K./Narwana C-10 [Boon+a]	40	32.2151	76.3130
75	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Dharamshala	145 KD/Narwana C-10 [Boonta]	40	32.1746	76.4293
76	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dharamshala	252 K Sadoon C1	20	32.1574	75.9932
77	BS/HP/NL/08 - Sub-Tropical Dry	Himachal Pradesh	Kangra	Dharamshala	C.F.S Danoo U.2 (Kamlota Village)	10	32.0008	76.3039

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Deciduous Forest							
78	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	C.F.S Jhikli Kothi, Jamloti Beat	10	32.0831	76.0414
79	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	C.F.S Serathana U5	5	32.1255	76.3475
80	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	C.F.S. Danog	10	32.00.07	76.18.01
81	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Dharamshala	C.P.S Kothi	30	32.0578	76.3456
82	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	CFS Jhikli Kothi Samloti Beat	5	32.0489	76.3478
83	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Dharamshala	CFS Khaniyara P-16	10	32.2260	76.3666

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
84	BS/HP/NL/01- Sub-Alpine Conservation	Himachal Pradesh	Kangra	Dharamshala	CPS Jhikli Kothi Smloti Beat	5	32.02.56	76.20.52
85	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Dharamshala	Gujrehra	20	32.0727	76.3878
86	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	H.P 253K Khawa C-1	5	32.0000	76.3311
87	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	P 28 K Mansu C1a	5	32.1058	76.3795
88	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	P-39-K Rartal C4C	10	31.9767	76.2773
89	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Dharamshala	P27K Pathiar C-1	5	32.1191	76.4407
90	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	P39 Ranital C-4C	30	32.1113	76.6572

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
91	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Dharamshala	U/Kothiar	6	32.0614	76.3798
92	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Dharamshala	UP 145K.D Narwana C-2	5	32.1928	76.3892
93	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Dharamshala	UP 208 K Tanda Masal	4	32.1000	76.4142
94	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Dharamshala	UP 250K Sarotri C-6	5	32.0382	76.3353
95	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	UP 252 K Sadan	30	32.0204	76.3438
96	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Dharamshala	UP 255 K Pathiar C-1B	10	32.1279	76.4223
97	BS/HP/NL/07 - Himalayan Mixed	Himachal Pradesh	Kangra	Dharamshala	UP-145 K D/Narwana C-10	5	32.1756	76.4264

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest							
98	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Dharamshala	UP-145 K O/Narwana C-6	5	32.1885	76.4015
99	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Dharamshala	UP-170-K Mdird And UP-169-K Nandrool	5	32.1169	76.2378
100	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Dharamshala	UP-207 K Dhansu C-2	15	32.0902	76.3931
101	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Dharamshala	UP-224 K Gujerhra	20	32.1059	76.3807
102	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Dharamshala	UP.150.K.Sihund	25	32.1325	76.3814
103	BS/HP/NL/10 – Control/ Removal of Invasive Species or	Himachal Pradesh	Kangra	Dharamshala	UP.150.K.Sihund C2	25	32.1292	76.3787

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	<50% Lantana							
104	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Dharamshala	UP.152.K Runkar C-1	10	32.1233	76.3478
105	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	UP.207 K Dhangu C-2	20	32.0917	76.3936
106	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Dharamshala	UP.253 K Khawa C.14 (Saloo Village)	35	31.9819	76.4067
107	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Dharamshala	UP.253 K Khawa C.14 (Tika Saloa)	5	31.9825	76.4042
108	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Dharamshala	UP250 K Sarotri C-6	40	32.0409	76.3336
109	BS/HP/NL/08 - Sub-Tropical Dry	Himachal Pradesh	Kangra	Nurpur	Bhadorya Nallah	25	32.1347	75.6892

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Deciduous Forest							
110	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	C4 UP92 Dharwal-1	20	32.1950	75.7564
111	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	C4 UP92 Dharwal-2	20	32.1950	75.7564
112	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Nurpur	CFS rey U-21	10	32.0316	75.8189
113	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Kangra	Nurpur	Lodhwan/CFS , Lodhwan C-U-55	50	32.2875	75.7594
114	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	R-10 N Talara C2	5	32.2562	75.9179
115	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	R-10n talara C2	5	32.2562	75.9179

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
116	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	U-52 Soldha C-4	5	32.2577	76.0486
117	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Nurpur	U.52 Soldha	5	32.1496	76.0115
118	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Nurpur	U.52 Soldha C-8,9	5	32.4016	76.0791
119	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	U.P.7. Maira Dumal. C.7,2 C.8	5	32.3483	75.8293
120	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Nurpur	U52 Soldha C-4	5	32.2577	76.0486
121	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	UP 16 Kopra C-5	5	32.3144	75.8953
122	BS/HP/NL/08 - Sub-Tropical Dry	Himachal Pradesh	Kangra	Nurpur	UP-146 Fathehpur C22, C21, C24,	10	32.0931	75.9271

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Deciduous Forest				C25			
123	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	UP-189 Dhoulpur	10	32.0210	75.8450
124	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Nurpur	UP-189 Dhoulpur (Lantana)	10	32.0210	75.8450
125	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	UP-68 Bhadroya	25	32.2616	75.7040
126	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	UP-90 Ghoran C4	5	32.1925	75.8008
127	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	UP-90 Ghoran C4 (2)	8	32.1925	75.8008
128	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Nurpur	UPf Maira Dumal C.78 C.8	5	32.3483	75.8293
129	BS/HP/NL/04 -	Himachal Pradesh	Kangra	Palampur	Bm Chachian	10	32.0886	76.4700

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Temperate Mixed Forest							
130	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	C.F.S Area Saloh-1	30	32.1378	76.6392
131	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	C.F.S Area Saloh-2	40	32.1378	76.6392
132	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	C.F.S Area Saloh-3	34	32.1378	76.6392
133	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Palampur	C.F.S Kusmal Bm 4 a	10	32.1397	76.4911
134	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	C.F.S Porour UP-4 a and 4b	20	32.0828	76.4619
135	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Palampur	C.F.S Punaper UP-29	5	32.0667	76.4369

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
136	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Palampur	P 13 b Baggidhar C-1	15	32.0521	76.6493
137	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Palampur	P 20 P Parour C,D, (Bhag Nallah)	5	32.0844	76.4625
138	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	P 46 J-Maila	5	31.8801	76.7651
139	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	P 58 P Dodh Tikhla	5	32.1424	76.4261
140	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	P 70 P Goart	5	32.1267	76.5737
141	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	P-II-B. Sansal C-4	5	32.0875	76.7026
142	BS/HP/NL/07 - Himalayan Mixed	Himachal Pradesh	Kangra	Palampur	P55 P Darang C-1a	5	32.0897	76.4467

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest							
143	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	S/L Arth	10	32.0994	76.4730
144	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	S/l Latwale	5	32.0989	76.4886
145	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	Samlat Bhaglal	5	31.9411	76.5144
146	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Palampur	Sgalat Pharer	5	32.0781	76.4730
147	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	Shamlat Buhana 1st 1st	10	32.0567	76.5647
148	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	Shamlat Doli	5	31.9504	76.6354
149	BS/HP/NL/08 - Sub-	Himachal Pradesh	Kangra	Palampur	Shamlat Khaira	25	31.9952	76.5254

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Tropical Dry Deciduous Forest				(Chibri)			
150	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	Shamlat Malli	10	32.0167	76.5247
151	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	Shamlat Pamti	6	31.9468	76.5117
152	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Palampur	U 12 P Bhag Nallah	5	32.1506	76.5544
153	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	U 2 P Dodn Upporla c1	5	32.1563	76.4316
154	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	U 40 P Lulani W-1	30	32.0021	76.1523
155	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	U 40 P Lulani W-2	60	32.0021	76.1523

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
156	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	U 40 P Lulani W-3	22	32.0021	76.1523
157	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	U- 24 B Sibber Nal C-1	10	32.0925	76.6878
158	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	U-26 B Tar	20	32.1577	76.6819
159	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Palampur	U-46-Jhikli Bheth C-3	5	32.0758	76.6268
160	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Palampur	U.44.B. Ghoar Pith C-2	10	32.0851	76.6095
161	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	UP 105 P Rangru	20	32.0081	76.5372
162	BS/HP/NL/10 – Control/ Removal of Invasive Species or	Himachal Pradesh	Kangra	Palampur	UP 11 P Rakh	5	32.1502	76.4824

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	<50% Lantana							
163	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	UP 112 P Naura C-5C, C-5 d	7	31.9730	76.4456
164	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Kangra	Palampur	UP 115 P Rajhoon c-2	5	32.0300	76.4162
165	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kangra	Palampur	UP 123.p. Ladhrana	5	32.0931	76.4294
166	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	UP 128 P Rajgundha C-4	5	32.1003	76.7589
167	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kangra	Palampur	UP 129 P Kohar 1 C-7	5	32.0457	76.8426
168	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	UP 129 P Kohar I C-3 b	5	32.0744	76.7942

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
169	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	UP 130 P Kohar II C-4	5	32.0588	76.8455
170	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	UP 130 P Kohar II C-4 (2)	5	32.0597	76.8453
171	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	UP 131 P Swar 1st C-16	5	32.0687	76.8425
172	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kangra	Palampur	UP 131 P Swar 1st C-5	5	32.0689	76.8413
173	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kangra	Palampur	UP 3 P Dyala S/L Kudan	4	32.1537	76.4687
174	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	UP 40 B Duhak C-3	10	31.9483	76.6811
175	BS/HP/NL/08 - Sub-Tropical Dry	Himachal Pradesh	Kangra	Palampur	UP 43 J Jaisinghpur-II C-10	5	31.8955	76.6519

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Deciduous Forest				(Tikru)			
176	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	UP 49 J Alampur	5	31.8526	76.4958
177	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	UP 59 P Thural Khas	6	31.9134	76.4708
178	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	UP 97 P Ban Bhatilu C1, C2	5	32.0188	76.4825
179	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kangra	Palampur	UP- 127-P Chakban Kohar C-6	5	32.1283	76.7561
180	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	UP-114 P Dheera III C-3	10	31.9991	76.4336
181	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kangra	Palampur	UP-49- J Alampm. C-20	5	31.8855	76.5014
182	BS/HP/NL/09 –	Himachal Pradesh	Kangra	Palampur	UP130P Kohar II	10	32.0851	76.6095

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Eradication of Lantana (> 50%)				C-4			
183	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	(1) Sarli Pichhe D-III (2) Summa Bihali D-III	5	31.9798	77.1544
184	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	(1) Tiun Pichhe (2) Leskan Dhar	20	32.0433	76.9883
185	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	1/1 Bajrundi C VI	5	32.2316	77.1727
186	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	1/11 CII and CIII Sajlashil	20	32.2434	77.1139
187	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	1/13 CIII A Karjan (Thakar Nallah)	10	32.1558	77.1892
188	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	1/18 C 11 Jhonsar	10	32.1278	77.1675

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
189	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	1/21 C 19 Lower Seshi (Patla Gahan)	5	32.1878	77.2011
190	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	1/37 CII Fts D.P.F	10	31.9444	77.0897
191	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	1/4 Dudhlu CIII b	5	32.2449	77.2023
192	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	1/9 Brunudhar C-V	10	32.1955	77.2434
193	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	15 Mile	10	32.1475	77.1589
194	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	17 Mile & 18 Mile	5	32.1785	77.1543
195	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Kullu	Kullu	2/1 Kangni C-I B	10	32.3069	77.1498

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
196	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	2/10 Padru C-III b	5	32.3314	77.1592
197	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Kullu	Kullu	2/12 Mathivan C V- a	5	32.3099	77.1973
198	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	2/16 Upper Rahni	5	32.2564	77.2317
199	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	2/17 Hamta Gahar C-II C	5	32.2545	77.2338
200	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	2/18 Jamari Dhar	10	32.1971	77.2254
201	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	2/23 Jangi Sheela La Padhar 20 Hac. / 300 Nos. C/ Wire	20	32.1281	77.1917
202	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	2/3 Mang Mill C II a	5	32.2825	77.1609

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
203	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	2/42 C IV	5	32.0833	77.0842
204	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	2/8 C-II B	5	32.1988	77.1775
205	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	Baragran Nallah	4	32.1246	77.1468
206	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Brindi Nallah	5	32.0272	77.1511
207	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Chhokas Nallah	5	32.1671	77.1174
208	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Chobu 2/43 Forest	15	32.0750	77.0817
209	BS/HP/NL/04 - Temperate Mixed	Himachal Pradesh	Kullu	Kullu	D.P.F. Khanora Nallah	5	32.3148	77.1948

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest							
210	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	Dobhi Bihal MC-III Forest	10	32.0906	77.1289
211	BS/HP/NL/05 - Pasture and Grazing Land Development	Himachal Pradesh	Kullu	Kullu	Dudlu Thach	15	32.1814	77.1431
212	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	Galchat MC-III Forest	5	32.0942	77.1000
213	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	Gong Nallah	5	31.9817	77.0053
214	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	Goth Nallah	20	32.1749	77.1185
215	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Jaung Nallah	5	31.9900	77.1500
216	BS/HP/NL/04 -	Himachal Pradesh	Kullu	Kullu	Jolang 2/43 Forest	10	32.0789	77.0958

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Temperate Mixed Forest							
217	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Jurag Joni	10	32.0036	77.0306
218	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Kaista	15	32.1264	77.0597
219	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Kotanu Dhar (Rahni Nallah)	5	31.9994	77.0697
220	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	Maling	5	32.0449	77.0823
221	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	Masha- Nallah	5	32.2689	77.1657
222	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Mashana Pichhe	20	31.9929	77.0118

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
223	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	Mohal Khadd	5	31.9161	77.1269
224	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kullu	Kullu	Mohili Bihal Naggar-III Forest	15	32.1078	77.1494
225	BS/HP/NL/05 - Pasture and Grazing Land Development	Himachal Pradesh	Kullu	Kullu	Nagoni Piche	20	32.1594	77.0882
226	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	Neoli Nallah	5	31.9705	77.1325
227	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	Pamaseri	5	32.0942	77.0847
228	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Petting 2/41	10	32.0883	77.0719
229	BS/HP/NL/04 - Temperate Mixed	Himachal Pradesh	Kullu	Kullu	PulgorNallah Land Slide Naggar-III	10	32.1141	77.1643

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest				Forest			
230	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Rangri Bihal 250 Nos. C/wire Naggar -III	15	32.1389	77.1592
231	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	Runga	5	32.0922	77.0797
232	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kullu	Kullu	Seobag Bihal	5	31.9910	77.1332
233	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	Shaldhari Nallah	5	31.8588	77.0653
234	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Shangchar Phat	10	32.1687	77.1520
235	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Kullu	Shanther	5	32.0408	77.0885

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
236	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Sudri Bag	5	32.1494	77.2520
237	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Kullu	Talogi	15	31.9282	77.1241
238	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Tosa-ra-Podhru	20	32.1514	77.1191
239	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Kullu	Upper Damchin	10	32.1144	77.0792
240	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Parvati	1/12 Sarahan	10	31.8862	77.1455
241	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Parvati	B-III	10	31.8242	77.1942
242	BS/HP/NL/04 - Temperate Mixed	Himachal Pradesh	Kullu	Parvati	Barchhi Sharan	10	31.7875	77.4585

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest							
243	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Parvati	Bhange re Seri	10	31.8904	77.0654
244	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Kullu	Parvati	Dehuri	10	31.6431	77.3850
245	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Kullu	Parvati	Dolnu	10	31.7678	77.4692
246	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Kullu	Parvati	Harinal	5	31.7558	77.3619
247	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Parvati	K-III	5	31.8733	77.1208
248	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Parvati	K-III Forest (VI)	5	31.8931	77.1144
249	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Parvati	Kaidikol	5	31.7897	77.5091

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
250	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Parvati	Kareri M-III 5 Hac, Kamond M-III 10 hac Chambagarh Thach	15	32.1567	77.3181
251	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Parvati	KK IIIrd	30	31.8756	77.2119
252	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Parvati	KK-III Bhuin	10	31.8881	77.1581
253	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Parvati	KK-III Forest	50	31.8619	77.2400
254	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Kullu	Parvati	KK-III Forest (V)	5	31.8719	77.1006
255	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Parvati	Kungti	10	32.0007	77.4364
256	BS/HP/NL/03 - Temperate Conifer	Himachal Pradesh	Kullu	Parvati	Langori 2 hac. Tringar sange 5	7	31.8406	77.1058

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest				Hac.			
257	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Kullu	Parvati	Madrachi	20	31.7289	77.3744
258	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Kullu	Parvati	Madrala	10	31.8892	77.1439
259	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Parvati	Mahuridhar	20	32.0006	77.4371
260	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kullu	Parvati	Mashgan Piche	5	31.9556	77.1486
261	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Parvati	Poshi Nal Piche	10	31.8726	77.2119
262	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Parvati	R/11 Hamkadhar	20	31.8864	77.3417
263	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Parvati	R/12 Nihoragahar	30	31.8661	77.3361

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
264	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Kullu	Parvati	Thari nal	5	31.6511	77.4311
265	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Seraj	30 Jalora III b	5	31.5469	77.3787
266	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Seraj	34- Balajdhar	5	31.9804	77.6083
267	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Banahu Dhar	5	31.7257	77.2193
268	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Basheri Nallah	5	31.6345	77.4211
269	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Kullu	Seraj	BashNallah	5	31.6644	77.3078
270	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Bhopu Dhar	6	31.6377	77.3441

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
271	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Bhumar	5	31.6270	77.3393
272	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Bithu Kanda	20	31.7629	77.2463
273	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Chakuni Dhar	10	32.3252	77.4207
274	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Chakurth Nallah	5	31.6759	77.3380
275	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Chalyali	5	31.6663	77.3824
276	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Seraj	Charrandi	5	31.5777	77.3858
277	BS/HP/NL/07 - Himalayan Mixed	Himachal Pradesh	Kullu	Seraj	Chhoayaghe	5	31.6898	77.2996

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest							
278	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Choi Nallah	5	31.6328	77.3964
279	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Dam Site Siund	5	31.7835	77.3384
280	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Dari Gahi	6	31.7970	77.2124
281	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Daru Dhar	5	31.6377	77.3441
282	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Seraj	Dimarchadi Nallah	5	31.5665	77.3133
283	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Seraj	Gandhiseri	5	31.5819	77.3589
284	BS/HP/NL/03 -	Himachal Pradesh	Kullu	Seraj	Gashti F/Pur-III	5	32.0113	77.5346

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Temperate Conifer Forest							
285	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Gharatgad peeche	5	31.6862	77.3510
286	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Golgan Dhar	15	31.7900	77.2922
287	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Handu Nal	5	31.5492	77.3483
288	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Kullu	Seraj	Horikho	5	31.5748	77.3914
289	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Jaipur	5	31.6772	77.3408
290	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Jibhi	5	31.6377	77.3441

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
291	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Khadoaa	10	31.7811	77.3152
292	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Kotladhar DPF	5	31.6050	77.3536
293	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Kutladhar	5	31.5767	77.3118
294	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Muharagad	5	31.6016	77.3119
295	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Niyahi Dhar	5	31.7581	77.3030
296	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Pagal Nallah	4	31.7515	77.2721
297	BS/HP/NL/03 - Temperate Conifer	Himachal Pradesh	Kullu	Seraj	Pokhari Dhar	5	31.5646	77.2771

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest							
298	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Ropa Nallah	5	31.6631	77.3347
299	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Sageda Dhar	10	31.7514	77.2721
300	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Kullu	Seraj	Shekrehad Nallah	5	31.5467	77.3381
301	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Tata Pani	5	31.5661	77.3143
302	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Thakur Dawar	5	31.6360	77.3919
303	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Kullu	Seraj	Thrimbalani	5	31.6868	77.3017
304	BS/HP/NL/04 -	Himachal Pradesh	Kullu	Seraj	Tindha Nallah	5	31.6750	77.3515

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Temperate Mixed Forest							
305	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	151 Mulsoo DPF	70	31.8919	76.8919
306	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	151 Mulsoo DPF	80	31.8920	76.8920
307	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	172 Thorat DPF NR	30	31.9339	76.8503
308	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	178 Upper Khoya DPF	35	31.8820	76.8669
309	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	180 Chobh-Bharoaru DPF	30	31.8756	76.8456
310	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	189 Noush DPF N.R	30	31.9365	76.8687

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
311	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	66 Kadoond D.P.F	30	31.8947	76.8579
312	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Along Paiond Khad, Jallong Nallah, Grana Nallah,	20	31.8794	76.9160
313	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Bhabon Dhar (DPF)	50	31.9249	76.7622
314	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Bhabri Dhar DPF	100	31.9167	76.7587
315	B /HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Bhabri Dhar DPF-2	50	31.9167	76.7587
316	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Bharanu	20	31.9228	76.8025
317	BS/HP/NL/07 - Himalayan Mixed	Himachal Pradesh	Mandi	Joginder Nagar	Boaching	30	31.9992	76.8647

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest							
318	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Chukku D.P.F	20	31.8902	76.8715
319	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Bakarjaan	100	32.0831	76.7458
320	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Chail-Chatra	20	31.9334	76.7002
321	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Murahdhar-1	50	31.7388	76.8131
322	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Murahdhar-2	60	31.7389	76.8130
323	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Murahdhar-3	90	31.7387	76.8133

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
324	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Devdhar	30	31.9104	76.8761
325	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Dhrangan, Galu, Thuo,	30	32.0406	76.8567
326	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Mandi	Joginder Nagar	DPF Chountra	110	32.0161	76.7378
327	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	DPF Siyuri	25	31.9732	76.8173
328	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	DPF Suhi-1 and DPF Dugagahar-IInd, 1st	80	32.0183	76.8094
329	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Hurnag ,Shang dhau	20	31.8794	76.9160
330	BS/HP/NL/04 - Temperate Mixed	Himachal Pradesh	Mandi	Joginder Nagar	Latran,	25	32.0097	76.9039

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest				Madhurwan,,Bagan			
331	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Main Nallah Bhadlang Silh, Hurang, Kortang	20	31.9497	76.9778
332	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Mashola	20	32.0481	76.7839
333	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	OD175 Baddi DPF	30	31.9379	76.8650
334	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Sachar, Jhukau,	25	32.0142	76.9267
335	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Swar DPF	30	31.9576	76.8783
336	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Joginder Nagar	Tarswan Khad, Dharmeher Nallah, Shurlu Nallah, Daint Nallah,	10	31.9300	76.8324

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
					Durnu Nallah			
337	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Mandi	Joginder Nagar	UPF Balhara	15	31.9178	76.9578
338	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Bai Nal	10	31.6951	77.1352
339	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	Bangot	30	31.6665	76.9773
340	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	Bangot Lantana Eradication	10	31.6628	76.9704
341	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Mandi	Mandi	Banogi Nallah	5	31.6863	77.2594
342	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Bharmog	15	31.7376	77.0304

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
343	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Chabhuan	5	31.6619	77.0119
344	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Mandi	Mandi	Chadani	10	31.7735	77.1324
345	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Chalaher D.P.F	20	31.7892	77.0780
346	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Mandi	Chalaher D.P.F	20	31.7977	77.0183
347	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Chhanwari	40	31.6796	76.9384
348	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	Chhanwari (Lantana)	40	31.6796	76.9384
349	BS/HP/NL/04 - Temperate Mixed	Himachal Pradesh	Mandi	Mandi	Chhuribain	5	31.7308	77.1608

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest							
350	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Chowki Chendrahan DPF	25	31.6595	76.8529
351	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Deod	10	31.6964	77.0751
352	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	Deonal DPF	10	31.9675	76.9664
353	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	Dhawal	20	31.8192	76.9297
354	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Mandi	Dobha-1	50	31.7293	77.1896
355	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Mandi	Dobha-2	50	31.7293	77.1896
356	BS/HP/NL/07 -	Himachal Pradesh	Mandi	Mandi	DPF Basodh	10	31.8038	77.1621

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Himalayan Mixed Forest							
357	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	DPF Bhamsoi	10	31.7935	77.1740
358	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	DPF Ghurat	10	31.8039	77.1253
359	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Mandi	Mandi	DPF- Chamayat (Lantana)-1	35	31.6631	76.8692
360	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	DPF- Chamayat (Lantana)-2	20	31.6631	76.8692
361	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	DPF- Chamayat-1	35	31.6631	76.8692
362	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	DPF- Chamayat-2	20	31.6631	76.8692

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
363	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Mandi	Mandi	DPF- Naintunga (Lantana)-1	40	31.6813	76.8645
364	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	DPF- Naintunga (Lantana)-2	30	31.6813	76.8645
365	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	DPF- Naintunga-1	45	31.6813	76.8645
366	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	DPF- Naintunga-2	30	31.6813	76.8645
367	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	DPF- Sanora (Lantana)-1	30	31.5592	76.9105
368	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	DPF- Sanora (Lantana)-2	44	31.5592	76.9105
369	BS/HP/NL/06 - Himalayan Chir Pine	Himachal Pradesh	Mandi	Mandi	DPF- Sanora-1	30	31.5592	76.9105

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Fores							
370	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	DPF- Sanora-2	40	31.5592	76.9105
371	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	DPF-Tandoo	45	31.6656	76.8722
372	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Drubal DPF	10	31.8886	76.8794
373	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Mandi	Dukasti	10	31.8914	77.1069
374	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Fagroo Dhar	5	31.7667	76.9678
375	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Jalapdhar-1	30	31.6343	76.8449
376	BS/HP/NL/07 -	Himachal Pradesh	Mandi	Mandi	Jalapdhar-2	45	31.6343	76.8449

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Himalayan Mixed Forest							
377	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Mandi	Mandi	Jamana	30	31.9267	77.0281
378	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	Janitary DPF	10	31.8305	76.8562
379	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Janitay DPF Baba Kamlahiya Ana	10	31.9206	76.9244
380	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	Jorla- Balh	5	31.8891	76.9764
381	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Mandi	Kaloun	5	31.8883	76.9250
382	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	Kangni (2 hac. Tall Planting)	5	31.6878	76.9373

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
383	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	Kangota DPF-1	30	31.9958	77.1017
384	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Mandi	Kangota DPF-2	30	31.9958	77.1017
385	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	Kathwar	14	31.8003	77.0086
386	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Khalara	10	31.7232	77.0491
387	BS/HP/NL/03 - Temperate Conifer Forest	Himachal Pradesh	Mandi	Mandi	Khashdhar	5	31.8118	77.0985
388	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Kutahar DPF, Halog DPF	30	31.8225	76.9913
389	BS/HP/NL/09 – Eradication of Lantana	Himachal Pradesh	Mandi	Mandi	Lagdhar	20	31.8334	76.8502

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	(> 50%)							
390	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Langhwar (Yala)	5	31.6897	76.9844
391	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Maigal DPF	10	31.7631	76.9447
392	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	Mehsra DPF	30	31.5897	76.8739
393	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Nagdhar	10	31.6964	77.0751
394	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Nihara nal	5	31.7167	77.1771
395	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Mandi	Mandi	OD 574 Gandharv (Lantana)-1	150	31.7015	76.9159

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
396	BS/HP/NL/10 – Control/ Removal of Invasive Species or <50% Lantana	Himachal Pradesh	Mandi	Mandi	OD 574 Gandharv (Lantana)-2	100	31.7015	76.9159
397	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Panau	10	31.7557	77.2046
398	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Parthachi, Parthachi DPF	10	31.8142	77.1414
399	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Mandi	Pipli	70	31.6228	76.8651
400	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Mandi	Ropa	5	31.7206	76.9272
401	BS/HP/NL/08 - Sub-Tropical Dry Deciduous Forest	Himachal Pradesh	Mandi	Mandi	Ropa- I, II	4	31.9067	76.9768
402	BS/HP/NL/07 - Himalayan Mixed	Himachal Pradesh	Mandi	Mandi	Saira Nal	10	31.7005	77.0628

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forest							
403	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Sanora	30	31.5592	76.9105
404	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Mandi	Shalla 5 Hact	5	31.7159	77.1531
405	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Mandi	Surahan DPF	5	31.9256	77.0983
406	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Nachan	Bainal-1	25	31.6330	77.0644
407	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Nachan	D.P.F Lah	5	31.5808	77.2694
408	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Nachan	D.P.F Sankar	5	31.5097	77.2879
409	BS/HP/NL/04 -	Himachal Pradesh	Mandi	Nachan	D.P.F Seraji Deo	5	31.7542	77.4400

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Temperate Mixed Forest							
410	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Nachan	Dalikar Site	30	31.6254	77.0248
411	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Nachan	DPF Bara	10	31.6139	77.1156
412	BS/HP/NL/09 – Eradication of Lantana (> 50%)	Himachal Pradesh	Mandi	Nachan	DPF Darotha- DPF Malach	10	31.5299	77.1470
413	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Mandi	Nachan	DPF Jhour	5	31.5513	77.0133
414	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Nachan	DPF Kudau Sith	10	31.5056	77.2497
415	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Nachan	DPF Prali Nal	5	31.6025	77.1836
416	BS/HP/NL/04 -	Himachal Pradesh	Mandi	Nachan	DPF Shikawari	5	31.5934	77.1643

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Temperate Mixed Forest							
417	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Nachan	Golhan DPF	5	32.1681	77.3464
418	BS/HP/NL/06 - Himalayan Chir Pine Fores	Himachal Pradesh	Mandi	Nachan	Gooloun	35	31.9086	77.0350
419	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Nachan	Jangohi C-3	5	31.6673	77.0536
420	BS/HP/NL/02 - Sub-Alpine Enrichment	Himachal Pradesh	Mandi	Nachan	Kalakameshwer	5	31.5512	76.9168
421	BS/HP/NL/04 - Temperate Mixed Forest	Himachal Pradesh	Mandi	Nachan	ND Bhard Gad	5	31.5282	77.2261
422	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Nachan	Shalaserpur	5	31.5353	77.0372
423	BS/HP/NL/04 -	Himachal Pradesh	Mandi	Nachan	Togru. DPF	5	31.5427	77.1986

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Temperate Mixed Forest							
424	BS/HP/NL/07 - Himalayan Mixed Forest	Himachal Pradesh	Mandi	Suket	Janitary DPF	30	31.9158	76.8961
425	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Chamba	Dalhousie	Dalhousie 1	80	32.5106	76.0161
426	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Chamba	Dalhousie	Dalhousie 2	200	32.5099	76.0308
427	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Hamirpur	Hamirpur	Hamirpur 1	180	31.6881	76.5284
428	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Hamirpur	Hamirpur	Hamirpur 2	140	31.6928	76.5254
429	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Hamirpur	Hamirpur	Hamirpur 3	160	31.6952	76.5166
430	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Kangra	Dehra	Dehra 1	170	31.8849	76.2131

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
431	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kangra	Dehra	Dehra 2	150	31.8832	76.2088
432	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kangra	Dehra	Dehra 3	170	31.8793	76.2096
433	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Kangra	Dharamshala	Dharamshala 1	200	32.2238	76.3279
434	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kangra	Dharamshala	Dharamshala 2	120	32.2268	76.3180
435	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kangra	Dharamshala	Dharamshala 3	200	32.2120	76.3279
436	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 1	190	32.3022	75.8856
437	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kangra	Nurpur	Nurpur 2	180	32.3029	75.8848
438	BS/HP/NL/11 -	Himachal Pradesh	Kangra	Nurpur	Nurpur 3	200	32.3032	75.8842

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Protection Model for Natural Regeneration							
439	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Kangra	Palampur	Palampur 1	110	32.1110	76.5363
440	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kangra	Palampur	Palampur 2	120	32.1107	76.5365
441	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kangra	Palampur	Palampur 3	180	32.1106	76.5368
442	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Kullu	Kullu	Kullu 1	45	31.9600	77.1092
443	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kullu	Kullu	Kullu 2	80	31.9597	77.1089
444	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kullu	Kullu	Kullu 3	150	31.9592	77.1106
445	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Kullu	Parvati	Parvati 1	100	31.9929	77.5492

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
446	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kullu	Parvati	Parvati 2	120	31.9927	77.5440
447	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kullu	Parvati	Parvati 3	200	31.9893	77.5473
448	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Kullu	Seraj	Seraj 1	40	31.5667	77.3148
449	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kullu	Seraj	Seraj 2	160	31.5666	77.3157
450	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Kullu	Seraj	Seraj 3	180	31.5664	77.3145
451	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 1	180	31.9910	76.7901
452	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 2	200	31.9911	76.7901
453	BS/HP/NL/11 -	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 3	300	31.9912	76.7903

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Protection Model for Natural Regeneration							
454	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Mandi	Karsog	Karsog 2	200	31.4720	77.1967
455	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Mandi	Karsog	Karsog 3	250	31.4661	77.2013
456	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Mandi	Karsog	Karsog1	10	31.4653	77.2066
457	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Mandi	Mandi	Mandi 1	60	31.5905	76.9158
458	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Mandi	Mandi	Mandi 2	120	31.5890	76.9128
459	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Mandi	Mandi	Mandi 3	150	31.5888	76.9097
460	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Mandi	Nachan	Nachan 1	15	31.5759	77.0322

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
461	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Mandi	Nachan	Nachan 2	120	31.5756	77.0320
462	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Mandi	Nachan	Nachan 3	180	31.5759	77.0317
463	BS/HP/NL/12 - Fire Protection Model	Himachal Pradesh	Mandi	Suket	Suket 1	200	31.5540	77.0181
464	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Mandi	Suket	Suket 2	200	31.5503	77.0223
465	BS/HP/NL/11 - Protection Model for Natural Regeneration	Himachal Pradesh	Mandi	Suket	Suket 3	300	31.5483	77.0184

Annexure 61 : The Geo Co-ordinates of Proposed Forestry Intervention Sites in Natural Landscape of Beas Riverscape, in Punjab

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
1	BS/PB/NL/01 - Restoration of Degraded	Punjab	Gurdaspur	Gurdaspur	Aulakh	15	31.2433	75.1564

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forests Model							
2	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Bada De Khue	1	32.0222	75.4791
3	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Baghe	12	31.6336	75.4199
4	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Balarwal	10	31.6422	75.4668
5	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhaini Mian Khan Drain	10	31.8842	75.5223
6	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhaini Milwan, Dhariwal	20	31.9700	75.5331
7	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhaini Milwan, Dhariwal (2)	8	31.9700	75.5331
8	BS/PB/NL/01 - Restoration of Degraded	Punjab	Gurdaspur	Gurdaspur	Bhaini Milwan, Dhariwal (3)	20	31.9700	75.5331

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forests Model							
9	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhaini Milwan, Dhariwal (4)	4	31.9700	75.5331
10	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhaini Paswal, Dhariwal	10	31.9370	75.5169
11	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhaini Paswal, Dhariwal (2)	20	31.9370	75.5169
12	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhaini Paswal, Dhariwal (3)	10	31.9370	75.5169
13	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhaini Paswal, Dhariwal (4)	20	31.9370	75.5169
14	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhet	10	31.7672	75.5339
15	BS/PB/NL/01 -	Punjab	Gurdaspur	Gurdaspur	Bhet Pattan. Dhariwal (2)	5	31.7690	75.5321

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Restoration of Degraded Forests Model							
16	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhet Pattan. Dharwal	5	31.7690	75.5321
17	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Bhol	10	31.6141	75.3928
18	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Budha Bala Dhariwal (2)	8	31.8017	75.5530
19	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Budha Bala, Dhariwal	8	31.8017	75.5530
20	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Chal Kalan	2	32.0260	75.4797
21	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Chandu Bhau	2	32.0509	75.4834
22	BS/PB/NL/01 - Restoration of Degraded	Punjab	Gurdaspur	Gurdaspur	Chechian Chaurian, Dhariwal (2)	6	32.0592	75.5557

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forests Model							
23	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Chek Sarif to Munan Khala Road	2	31.9148	75.5375
24	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Darapur to Bhaini Paswal link road	2	31.9451	75.5106
25	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Dhaki, Dinangar	12	32.1281	75.5844
26	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Dhaki, Dinangar(2)	2	32.1281	75.5844
27	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P Burenanole	5	32.0200	75.4851
28	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P Hardoj Hande	5	32.1264	75.4688
29	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	G.P Panchyat Hssen Khurd	1	31.2480	75.1639
30	BS/PB/NL/02 – Road Side	Punjab	Gurdaspur	Gurdaspur	G.P. Anokot Kalan	2	32.0269	75.4876

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Plantation							
31	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Balawal	5	31.6399	75.4199
32	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P. Bhol	5	31.6140	75.3936
33	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P. Chounta	5	32.1122	75.5118
34	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P. Dalla Kalau	5	32.0072	75.5398
35	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P. Khokherwal	3	32.4225	75.8799
36	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P. Patti Tanda	5	31.6469	75.4238
37	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Samrai	2	32.3567	75.7939

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
38	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P. Samrai	5	32.3567	75.7939
39	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	G.P.Baghe/Punjab	1	31.6179	75.3981
40	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P.Bahadapur Rajoa	2	31.6179	75.3981
41	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P.Bhoja	5	31.7940	75.5815
42	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P.Gulehra	4	32.0815	75.5557
43	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P.Habibpur	3	32.1153	75.5886
44	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P.Marri Panwan	5	31.7129	75.4912

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
45	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P.Patti Bulpur	3	31.6763	75.4239
46	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P.Patti Lakhpur	5	31.8100	75.4530
47	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	G.P.Shahpur Arian	3	32.3381	75.7864
48	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Gill Bob	10	31.7340	75.4877
49	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	GP Chinabet	1	32.0322	75.5182
50	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	GP Chitt	1	32.0400	75.4800
51	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	GP.Bianpur	1	32.1300	75.5100
52	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Jagowal to Kisanpur Road	2	31.9265	75.5331

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
53	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Jhandi, Dinangar	5	32.1223	75.5764
54	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Jhandi, Dinangar (2)	5	32.1223	75.5764
55	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Kahnuwan Swaip (Kotkhanonuhhaned) Drain	5	31.9244	75.4595
56	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Kapoora	15	31.9370	75.5169
57	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Kapoora Forest	10	32.0504	75.6826
58	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Khokan Fujian	5	32.1283	75.5308
59	BS/PB/NL/01 - Restoration of Degraded	Punjab	Gurdaspur	Gurdaspur	Khokhowal	6	31.6173	75.4065

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forests Model							
60	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Khokhuwal 2	3	31.6179	75.3981
61	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Kiri Afgana, Dhariwal	7	31.8786	75.4541
62	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Kiri Afgana, Dhariwal (2)	14	31.8784	75.4537
63	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Kiri Afgana, Dhariwal (3)	8	31.8787	75.4532
64	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Kiri Afgana, Dhariwal (4)	14	31.8779	75.4550
65	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Kotli-(Harchanda Drain)	10	31.9739	75.5328
66	BS/PB/NL/01 - Restoration of Degraded	Punjab	Gurdaspur	Gurdaspur	Mari Bhuchain	10	31.6422	75.4668

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forests Model							
67	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Mari Tanda	10	31.6466	75.4234
68	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Mirpur, Dinnangar	10	32.0996	75.5786
69	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Mirpur, Dinnangar (2)	10	32.1001	75.5796
70	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Navi Kiri to Bhet Pattan (Harchawal to Bhet Pattan road)	4	31.7703	75.4892
71	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Patti Dogra	2	31.6461	75.4230
72	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Raju Bela to Dhano Pattan link road	2	31.9085	75.5085
73	BS/PB/NL/01 -	Punjab	Gurdaspur	Gurdaspur	Rampur	7	31.6769	75.4785

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Restoration of Degraded Forests Model							
74	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Randawa Colony	4	31.9538	75.5267
75	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Rengal Nangal	3	32.0549	75.5029
76	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Saidowal Kalan to Bhaini Milwan link road	5	31.9637	75.5340
77	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Samrai	7	31.6689	75.4731
78	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Samrai Forest	5	31.6681	75.4990
79	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Sidhpur Band R.D 0-50 BS	5	32.0937	75.5853
80	BS/PB/NL/01 -	Punjab	Gurdaspur	Gurdaspur	Sidhpur Band RD-50 to	15	31.9602	75.5330

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Restoration of Degraded Forests Model				130 B/side			
81	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Sidhpur Band to Vill-Bianpur link road	1	32.0726	75.5665
82	BS/PB/NL/02 – Road Side Plantation	Punjab	Gurdaspur	Gurdaspur	Sidhpur Band to Vill-Chechian Churiyan road	1	32.0684	75.5620
83	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Sidhpur Band to Vill-Sidhpur road	1	32.0939	75.5851
84	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Sidhpur, Dinangar	7	32.0864	75.5844
85	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Sidhpur, Dinangar (2)	7	32.0864	75.5844
86	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Sri Hargobindpur City	2	31.6852	75.4753
87	BS/PB/NL/01 - Restoration of Degraded	Punjab	Gurdaspur	Gurdaspur	Vaironangal	2	31.8414	75.9144

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forests Model							
88	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Village Fattu Barkat and Ghandwal	15	31.7246	75.5340
89	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Gurdaspur	Gurdaspur	Village Rampur to Mari Buchian	20	31.6395	75.4424
90	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Badhan Distributary	10	31.7920	75.9566
91	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Beh Mawa	5	31.8609	75.8609
92	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Bhani Mirza Kha	10	31.7471	75.5439
93	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Bindraban	10	31.9126	75.8019
94	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Budhobarret Dhussi Bandh R.D 20-60 B/S	10	31.7304	75.5730

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
95	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Chattarpur	5	31.8900	75.8800
96	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Dharampur	10	31.8414	75.9144
97	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Ghugwal, Jugial	10	31.9351	75.7688
98	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Jalandhar Pathankot Road	3	31.9540	75.6044
99	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Kulla Fatta Forest	10	31.7244	75.5419
100	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Mehtabpur-1	10	32.0158	75.5482
101	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Mehtabpur-2	20	32.0576	75.5757
102	BS/PB/NL/02 – Road Side	Punjab	Hoshiarpur	Dasuya	Mukerain Hydel Channel	15	31.8867	75.6050

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Plantation							
103	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Mukerain Hydel Channel P.NO.I	10	31.9565	75.8357
104	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Mukerain Hydel channel Ph:N3	15	31.8269	75.6357
105	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Mukerian Hydel Channel	10	31.9635	75.8028
106	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Muradpur -Badan	10	31.6000	75.5500
107	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Nai Chack Forest & Chorrian	15	31.8071	75.5738
108	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	R IV Karanpur C-4	4	31.9175	75.8580
109	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Salempur Forest	10	31.6801	75.5082
110	BS/PB/NL/01 - Restoration of Degraded	Punjab	Hoshiarpur	Dasuya	Shah Nahar	12	31.2036	75.2214

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forests Model							
111	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Shan Nehe Purani	10	32.0058	75.7522
112	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Shankar Nallah	10	31.6168	75.5238
113	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Shree Pandian	15	31.9178	75.8678
114	BS/PB/NL/02 – Road Side Plantation	Punjab	Hoshiarpur	Dasuya	Singowal Distributary	10	31.9193	75.7790
115	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Sukhchainpur	10	31.8556	75.9042
116	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Tahli	10	31.6737	75.4933
117	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Dasuya	Talwara	15	31.9402	75.8841

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
118	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Hoshiarpur	Hoshiarpur	Thana	10	31.8508	75.8423
119	BS/PB/NL/02 – Road Side Plantation	Punjab	Kapurthala	Jalandhar	Beas dhussi badh Bandh (lower) RD 100-152 B/s	10	31.2931	75.1632
120	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Kapurthala	Jalandhar	Beas dhussi badh Bandh (lower) RD 35-50 B/s	5	31.4537	75.2699
121	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Kapurthala	Jalandhar	Beas Dhussi Bandh	5	31.4537	75.2808
122	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Kapurthala	Jalandhar	Beas Dhussi Bandh (Lower) RD 100-152 B/S	12	31.2931	75.1632
123	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Kapurthala	Jalandhar	Beas dhussi bandh (lower) Rd 68-100 B/S	10	31.2931	75.2931
124	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Kapurthala	Jalandhar	Beas Dhussi Bandh (Lower) Rd 68-100 B/S	15	31.2931	75.1632

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
125	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Kapurthala	Jalandhar	East Bein Bandh RD 28 1/2=75	10	31.1864	75.0708
126	BS/PB/NL/02 – Road Side Plantation	Punjab	Kapurthala	Jalandhar	East bein bandh RD 28.5-75 B/6	5	31.1864	75.0708
127	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Kapurthala	Jalandhar	West Bein Bandh RD 15-75 B/S	10	31.2133	75.1610
128	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Pathankot	Pathankot	Range 1	10	32.3922	75.8188
129	BS/PB/NL/02 – Road Side Plantation	Punjab	Pathankot	Pathankot	Range 1	5	32.4181	75.9011
130	BS/PB/NL/02 – Road Side Plantation	Punjab	Pathankot	Pathankot	Range 2	5	32.3922	75.8188
131	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Pathankot	Pathankot	Range 2	10	32.3922	75.8188
132	BS/PB/NL/01 - Restoration of Degraded	Punjab	Pathankot	Pathankot	Range 3	10	32.3922	75.8188

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forests Model							
133	BS/PB/NL/02 – Road Side Plantation	Punjab	Pathankot	Pathankot	Range 3	5	32.3922	75.8188
134	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Tarn Taran*	Amritsar	Dhun Dhai Wala	10	31.1600	74.9500
135	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Tarn Taran*	Amritsar	Dhunda	5	31.3413	75.1239
136	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Tarn Taran*	Amritsar	Gharka	5	31.2502	75.0626
137	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Tarn Taran*	Amritsar	Johal Dhai Wala	5	31.3118	75.0691
138	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Tarn Taran*	Amritsar	Kambho Dhai Wala	9	31.1922	74.9824
139	BS/PB/NL/01 - Restoration of Degraded	Punjab	Tarn Taran*	Amritsar	Manakdeke	5	31.3363	75.1165

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Forests Model							
140	BS/PB/NL/01 - Restoration of Degraded Forests Model	Punjab	Tarn Taran*	Amritsar	Munda Pind	5	31.2900	75.0684

Annexure 62 : The Geo Co-ordinates of Proposed Forestry Intervention Sites in Agriculture Landscape of Beas Riverscape, in Himachal Pradesh

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
1	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Hamirpur	Hamirpur	Hamirpur 5	50	31.6905	76.5178
2	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Dehra	Dehra 1	20	31.8797	76.2139
3	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Dehra	Dehra 2	15	31.8723	76.21 23
4	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Dehra	Dehra 3	10	31.8736	76.2161
5	BS/HP/AL/01 - Boundary Plantation	Himachal Pradesh	Kangra	Dehra	Dehra 4	70	31.8786	76.2147

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Model							
6	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Dehra	Dehra 5	70	31.8760	76.2152
7	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Dehra	Dehra 6	50	31.8797	76.2139
8	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Dharamshala	Dharamshala 1	10	31.2160	76.3237
9	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Dharamshala	Dharamshala 2	10	31.2162	76.3242
10	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Dharamshala	Dharamshala 3	10	31.2145	76.3232
11	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Dharamshala	Dharmshala 4	50	31.2155	76.3239
12	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Dharamshala	Dharmshala 5	50	31.2152	76.3244

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
13	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Dharamshala	Dharmshala 6	50	31.2144	76.3231
14	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 1	20	31.2977	75.9138
15	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 10	20	31.2966	75.9128
16	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 11	30	32.4748	75.9326
17	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 12	20	32.4749	75.9334
18	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 2	20	31.2967	75.9146
19	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 3	20	31.2975	75.9133
20	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 4	10	31.2982	75.9137

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
21	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 5	15	31.2980	75.9139
22	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 6	10	31.2971	75.9131
23	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 7	20	32.4758	75.9338
24	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 8	40	31.2979	75.9143
25	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Nurpur	Nurpur 9	40	31.2986	75.9146
26	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Palampur	Palampur 1	20	31.131	76.5349
27	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Palampur	Palampur 11	40	31.1307	76.5348
28	BS/HP/AL/01 - Boundary Plantation	Himachal Pradesh	Kangra	Palampur	Palampur 12	40	31.1317	76.5324

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Model							
29	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kangra	Palampur	Palampur 13	40	31.1304	76.5325
30	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Palampur	Palampur 2	20	31.1312	76.5341
31	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kangra	Palampur	Palampur 3	20	31.1308	76.5333
32	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kullu	Kullu	Kullu 1	0.5	31.9565	77.1081
33	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kullu	Kullu	Kullu 2	0.5	31.9568	77.1083
34	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kullu	Kullu	Kullu 3	0.5	31.9562	77.1076
35	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kullu	Kullu	Kullu 4	10	31.9567	77.1092
36	BS/HP/AL/01 - Boundary Plantation	Himachal Pradesh	Kullu	Kullu	Kullu 5	15	31.956	77.1073

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Model							
37	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kullu	Kullu	Kullu 6	20	31.9558	77.1069
38	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kullu	Parvati	Paravati 4	20	31.891	77.1439
39	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kullu	Parvati	Paravati 5	15	31.8902	77.1426
40	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kullu	Parvati	Paravati 6	30	31.8915	77.1446
41	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kullu	Parvati	Parvati 1	0.5	31.8906	77.1435
42	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kullu	Parvati	Parvati 2	10	31.8923	77.1451
43	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kullu	Parvati	Parvati 3	15	31.8928	77.1457

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
44	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kullu	Seraj	Seraj 1	5	31.675	77.3515
45	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kullu	Seraj	Seraj 2	5	31.6754	77.3518
46	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Kullu	Seraj	Seraj 3	5	31.6758	77.352
47	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kullu	Seraj	Seraj 4	10	31.6738	77.3506
48	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kullu	Seraj	Seraj 5	10	31.6766	77.3528
49	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Kullu	Seraj	Seraj 6	10	31.6732	77.3548
50	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 1	15	31.9885	76.7859
51	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 2	10	31.9888	76.7852

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
52	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 3	15	31.9882	76.7846
53	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 4	40	31.9838	76.7859
54	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 5	30	31.9878	76.7851
55	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 6	25	31.9875	76.7870
56	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Mandi	Mandi 1	60	31.7069	76.9311
57	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Mandi	Mandi 11	10	31.7071	76.9315
58	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Mandi	Mandi 12	20	31.7065	76.9323
59	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Mandi	Mandi 13	10	31.7061	76.9325

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
60	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Mandi	Mandi 2	30	31.7058	76.9308
61	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Mandi	Mandi 3	40	31.7053	76.9304
62	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Nachan	Nachan 1	5	31.5757	77.0323
63	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Nachan	Nachan 2	5	31.5759	77.0326
64	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Nachan	Nachan 3	10	31.5762	77.0336
65	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Nachan	Nachan 4	20	31.5766	77.0339
66	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Nachan	Nachan 5	20	31.5767	77.0342
67	BS/HP/AL/01 - Boundary Plantation	Himachal Pradesh	Mandi	Nachan	Nachan 6	40	31.5770	77.0330

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Model							
68	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Suket	Suket 1	1	31.5177	76.8827
69	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Suket	Suket 2	2	31.5180	76.8832
70	BS/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Mandi	Suket	Suket 3	1	31.5183	76.8835
71	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Suket	Suket 4	60	31.5173	76.8826
72	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Suket	Suket 5	60	31.5160	76.8822
73	BS/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Mandi	Suket	Suket 6	50	31.5158	76.8829

Annexure 63 : The Geo Co-ordinates of Proposed Forestry Intervention Sites in Agriculture Landscape of Beas Riverscape, in Punjab

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
1	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Gurdaspur	Gurdaspur	Site 1	Range 1	400	32.0186
2	BS/PB/AL/02 - Block Plantation Model	Punjab	Gurdaspur	Gurdaspur	Site 1	Range 1	75	32.0154
3	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Gurdaspur	Gurdaspur	Site 2	Range 2	400	32.0119
4	BS/PB/AL/02 - Block Plantation Model	Punjab	Gurdaspur	Gurdaspur	Site 2	Range 2	80	31.9987
5	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Gurdaspur	Gurdaspur	Site 3	Range 3	300	31.9861
6	BS/PB/AL/02 - Block Plantation Model	Punjab	Gurdaspur	Gurdaspur	Site 3	Range 3	30	31.9754
7	BS/PB/AL/02 - Block Plantation Model	Punjab	Hoshiarpur	Dasuya	Site 1	Range 1	50	31.4807
8	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Hoshiarpur	Dasuya	Site 1	Range 1	500	31.8131
9	BS/PB/AL/02 - Block Plantation Model	Punjab	Hoshiarpur	Dasuya	Site 2	Range 2	40	31.4449

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
10	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Hoshiarpur	Dasuya	Site 2	Range 2	480	31.8095
11	BS/PB/AL/02 - Block Plantation Model	Punjab	Hoshiarpur	Dasuya	Site 3	Range 3	30	31.401
12	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Hoshiarpur	Dasuya	Site 3	Range 3	360	31.8019
13	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Hoshiarpur	Hoshiarpur	Site 1	Range 1	400	31.6814
14	BS/PB/AL/02 - Block Plantation Model	Punjab	Hoshiarpur	Hoshiarpur	Site 1	Range 1	75	31.6647
15	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Hoshiarpur	Hoshiarpur	Site 2	Range 2	400	31.6989
16	BS/PB/AL/02 - Block Plantation Model	Punjab	Hoshiarpur	Hoshiarpur	Site 2	Range 2	40	31.6907
17	BS/PB/AL/02 - Block Plantation Model	Punjab	Hoshiarpur	Hoshiarpur	Site 3	Range 3	30	31.976
18	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Hoshiarpur	Hoshiarpur	Site 3	Range 2	360	31.7176

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
19	BS/PB/AL/02 - Block Plantation Model	Punjab	Jalandhar	Jalandhar	Site 1	Range 1	50	32.028
20	BS/PB/AL/02 - Block Plantation Model	Punjab	Jalandhar	Jalandhar	Site 2	Range 2	40	32.0097
21	BS/PB/AL/02 - Block Plantation Model	Punjab	Jalandhar	Jalandhar	Site 3	Range 2	30	31.7149
22	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Kapurthala	Jalandhar	Site 1	Range 1	400	31.4056
23	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Kapurthala	Jalandhar	Site 2	Range 2	400	31.4273
24	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Kapurthala	Jalandhar	Site 3	Range 3	300	31.4026
25	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Pathankot	Pathankot	Site 1	Range 1	200	32.2609
26	BS/PB/AL/02 - Block Plantation Model	Punjab	Pathankot	Pathankot	Site 1	Range 1	25	32.2617
27	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Pathankot	Pathankot	Site 2	Range 2	240	32.2586

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
28	BS/PB/AL/02 - Block Plantation Model	Punjab	Pathankot	Pathankot	Site 2	Range 2	40	32.262
29	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Pathankot	Pathankot	Site 3	Range 3	240	32.2612
30	BS/PB/AL/02 - Block Plantation Model	Punjab	Pathankot	Pathankot	Site 3	Range 3	30	32.2648
31	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Tarn Taran*	Amritsar	Site 1	Range 1	400	31.5043
32	BS/PB/AL/02 - Block Plantation Model	Punjab	Tarn Taran*	Amritsar	Site 1	Range 1	100	31.4799
33	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Tarn Taran*	Amritsar	Site 2	Range 2	400	31.4567
34	BS/PB/AL/02 - Block Plantation Model	Punjab	Tarn Taran*	Amritsar	Site 2	Range 2	40	31.4143
35	BS/PB/AL/01 - Boundary Plantation Model	Punjab	Tarn Taran*	Amritsar	Site 3	Range 3	240	31.4057
36	BS/PB/AL/02 - Block Plantation Model	Punjab	Tarn Taran*	Amritsar	Site 3	Range 3	30	31.3966

Annexure 64 : The Geo Co-ordinates of Proposed Forestry Intervention Sites in Urban Landscape of Beas Riverscape, in Himachal Pradesh

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
1	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Chamba	Dalhousie	Dalhousie 1	1	32.3205	76.0677
2	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Chamba	Dalhousie	Dalhousie 2	1	32.4740	76.2180
3	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Hamirpur	Dehra	Hamirpur 1	1	32.0553	76.0930
4	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Hamirpur	Hamirpur	Hamirpur 2	1.5	32.0556	76.0922
5	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Hamirpur	Hamirpur	Hamirpur 1	1	32.1306	76.8767
6	BS/HP/UL/02 - Riverfront Development	Himachal Pradesh	Hamirpur	Hamirpur	Hamirpur 2	0.5	32.1480	76.8897
7	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Hamirpur	Hamirpur	U215 Batneri -3-1	3	32.1446	76.8866

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
8	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Hamirpur	Hamirpur	U215 Batneri -3-2	3	32.1390	76.8702
9	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Hamirpur	Hamirpur	U215 Batneri -3-3	3	32.1328	76.8747
10	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Hamirpur	Hamirpur	U215 Batneri -4-1	2	32.1326	76.8734
11	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Hamirpur	Hamirpur	U215 Batneri -4-2	3	32.1412	76.8667
12	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Hamirpur	Hamirpur	U215 Batneri -4-3	2	32.1322	76.8744
13	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Hamirpur	Hamirpur	U215 Batneri -5	1	32.1317	76.8754
14	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kangra	Dehra	Dehra 3-1	1.9	32.0539	76.0924
15	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Kangra	Dehra	Dehra 1	0.5	31.9455	76.0631
16	BS/HP/UL/01 - Bioremediation and	Himachal Pradesh	Kangra	Dehra	Dehra 2	1	32.0430	76.1076

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Bio-filtration							
17	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kangra	Dehra	Dehra 3-2	4	32.0125	76.1264
18	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kangra	Dehra	Dehra 3-3	5	32.0125	76.1264
19	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kangra	Dehra	Dehra 3-4	3	32.0125	76.1264
20	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Kangra	Dehra	R-18D Kohli Bolta	0.4	31.9502	76.1558
21	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Kangra	Dharamshala	Dharamshala 1	1	32.0949	76.3885
22	BS/HP/UL/02 - Riverfront Development	Himachal Pradesh	Kangra	Dharamshala	Dharamshala 2	0.5	32.1191	76.4436
23	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Kangra	Dharamshala	Dharamshala 3	0.5	32.1080	76.4268

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
24	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Kangra	Dharamshala	UP220 K Bhati	0.5	32.0819	76.3759
25	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Kangra	Nurpur	P39 Ntherkuther C3b	0.6	32.3561	75.9018
26	BS/HP/UL/02 - Riverfront Development	Himachal Pradesh	Kangra	Nurpur	UP-90 Ghoran C4	0.5	32.1925	75.8008
27	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Kangra	Nurpur	UPf Maira Dumal C.78 C.8	0.5	32.3483	75.8293
28	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Kangra	Palampur	Asha Puri Temple(Badhar) Near(G.h.School)	0.5	31.9818	76.5831
29	BS/HP/UL/02 - Riverfront Development	Himachal Pradesh	Kangra	Palampur	Bm Chachian	0.5	32.0886	76.4700
30	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Kangra	Palampur	Bola Bali Mata Temple	1	32.1067	76.6419
31	BS/HP/UL/04 - Eco-	Himachal Pradesh	Kangra	Palampur	Jherupatt SL	1	32.1614	76.6058

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	park Development				Kandwari			
32	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Kullu	Kullu	15 Mile	1	32.1475	77.1589
33	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Kullu	Kullu	2/1 Kangni C-I B	1	32.3069	77.1498
34	BS/HP/UL/02 - Riverfront Development	Himachal Pradesh	Kullu	Kullu	2/10 Padru C-III b	0.5	32.3314	77.1592
35	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Kullu	Kullu	2/10 Padru C-III b	1	32.3314	77.1592
36	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kullu	Kullu	Kullu 2-1	2	32.1137	77.1643
37	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kullu	Kullu	Kullu 2-2	3	32.1141	77.1640
38	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kullu	Kullu	Kullu 2-3	2	32.1139	77.1639
39	BS/HP/UL/01 - Bioremediation and	Himachal Pradesh	Kullu	Parvati	Mashar Nala	0.5	32.0316	77.4524

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Bio-filtration							
40	BS/HP/UL/02 - Riverfront Development	Himachal Pradesh	Kullu	Parvati	Mohal Bihal	1	31.8939	77.1380
41	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Kullu	Parvati	Nature Park Kasol	1	32.0107	77.3150
42	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kullu	Parvati	Nature Park, Mohal-1	2	31.9178	77.1265
43	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kullu	Parvati	Nature Park, Mohal-2	2	31.9178	77.1265
44	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kullu	Parvati	Nature Park, Mohal-3	2	31.9178	77.1265
45	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Kullu	Seraj	Badasari	0.5	31.6103	77.4131
46	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Kullu	Seraj	Chai nala	1	31.6389	77.3978
47	BS/HP/UL/01 - Bioremediation and	Himachal Pradesh	Kullu	Seraj	Chamnal Nal	1	31.6094	77.3592

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Bio-filtration							
48	BS/HP/UL/02 - Riverfront Development	Himachal Pradesh	Kullu	Seraj	Kutla	0.5	31.5601	77.3593
49	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kullu	Seraj	Sukasar-1	4	31.6903	77.3711
50	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kullu	Seraj	Sukasar-2	5	31.6922	77.3735
51	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Kullu	Seraj	Sukasar-3	3	31.6962	77.3785
52	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Mandi	Joginder Nagar	Chaner Nala	1	32.2103	76.7778
53	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 2-1	3	32.0142	76.9267
54	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 2-2	3	32.0146	76.9287
55	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Joginder Nagar	Joginder Nagar 2-3	2	32.0136	76.9252

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
56	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Mandi	Joginder Nagar	Rawanal, dhrangan, Galu, Thuo, Rulang	0.5	32.0406	76.8567
57	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Mandi	Joginder Nagar	Swa nala, Kathog 04, Hurnag nala, Shang dhau Nala	0.5	31.8794	76.9160
58	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Mandi	Bharmog-1	2	31.7376	77.0304
59	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Mandi	Bharmog-2	5	31.7380	77.0320
60	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Mandi	Bharmog-3	3	31.7376	77.0316
61	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Mandi	Mandi	Chabhuan	0.5	31.6619	77.0119
62	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Mandi	Mandi	Chadani	1	31.7735	77.1324
63	BS/HP/UL/02 - Riverfront	Himachal Pradesh	Mandi	Mandi	Chhanwari	0.5	31.6796	76.9384

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Development							
64	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Mandi	Mandi	OD 574 Gandharv	1.5	31.7015	76.9159
65	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Nachan	D.P.F Lah-1	3	31.5808	77.2694
66	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Nachan	D.P.F Lah-2	3	31.5814	77.2684
67	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Nachan	D.P.F Lah-3	3	31.5810	77.2672
68	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Nachan	D.P.F Sankar-1	3	31.5096	77.2879
69	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Nachan	D.P.F Sankar-2	5	31.5096	77.2879
70	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Nachan	D.P.F Sankar-3	3	31.5096	77.2879
71	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Mandi	Nachan	DPF Jhour	0.4	31.5513	77.0132
72	BS/HP/UL/01 - Bioremediation and	Himachal Pradesh	Mandi	Suket	1-OD Bairkot.II	0.5	31.6602	76.8594

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
	Bio-filtration				ND Halyater			
73	BS/HP/UL/04 - Eco-park Development	Himachal Pradesh	Mandi	Suket	Dev Brodta	0.6	31.7312	76.7473
74	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Suket	DPF Dvganal,II DPF Sarsyalu, III DPF Kawalkot-1	3	31.5769	76.8486
75	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Suket	DPF Dvganal,II DPF Sarsyalu, III DPF Kawalkot-2	5	31.5750	76.8454
76	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Suket	DPF Dvganal,II DPF Sarsyalu, III DPF Kawalkot-3	2	31.5745	76.8492
77	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Suket	DPF Sikandra, II DPF Sidhkot,DPF Leda,IV DPF Gurkotha-1	2	31.5479	76.8093
78	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Suket	DPF Sikandra, II DPF Sidhkot,DPF Leda,IV DPF Gurkotha-2	2	31.5468	76.8085

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
79	BS/HP/UL/03 - Institution Plantation	Himachal Pradesh	Mandi	Suket	DPF Sikandra, II DPF Sidhkot,DPF Leda,IV DPF Gurkotha-3	2	31.5462	76.8075
80	BS/HP/UL/02 - Riverfront Development	Himachal Pradesh	Mandi	Suket	Sarkaghat	1	31.6989	76.7324
81	BS/HP/UL/01 - Bioremediation and Bio-filtration	Himachal Pradesh	Mandi	Suket	Tikker	1	31.7942	77.0844

Annexure 65 : The Geo Co-ordinates of Proposed Forestry Intervention Sites in Urban Landscape of Beas Riverscape, in Punjab

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
1	BS/PB/UL/04 - Eco-Park Development	Punjab	Amritsar	Amritsar	Bhalaipur	1	31.5159	75.2553
2	BS/PB/UL/03 - Institution Plantation	Punjab	Amritsar	Amritsar	Bulle Nagal	10	31.5159	75.2553
3	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Amritsar	Amritsar	Cheema Bath	1	31.5228	75.2504

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
4	BS/PB/UL/03 - Institution Plantation	Punjab	Amritsar	Amritsar	Pheruman	10	31.4766	75.1895
5	BS/PB/UL/04 - Eco-Park Development	Punjab	Gurdaspur	Gurdaspur	Chander Bhan	0.5	32.0233	75.5073
6	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P Bhambol	5	31.2909	75.2909
7	BS/PB/UL/04 - Eco-Park Development	Punjab	Gurdaspur	Gurdaspur	G.P Khokherwal Park	0.5	31.6140	75.3936
8	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P Kohali	5	31.7384	75.3340
9	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P Pattitanda	2	31.6469	75.4238
10	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Ainokot	5	31.7229	75.3056
11	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Aulakh Kalan	5	31.4627	75.1703
12	BS/PB/UL/04 - Eco-Park Development	Punjab	Gurdaspur	Gurdaspur	G.P. Baghe	0.5	31.6179	75.3981

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
13	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Bahadurpur Pajoa	5	31.7492	75.5250
14	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Balawal	5	31.6399	75.4199
15	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Bhol	5	31.6204	75.4005
16	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Boja	5	31.6818	75.3061
17	BS/PB/UL/04 - Eco-Park Development	Punjab	Gurdaspur	Gurdaspur	G.P. Chaudriwal	1	31.3139	75.1166
18	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Dalla	5	31.4732	75.1958
19	BS/PB/UL/04 - Eco-Park Development	Punjab	Gurdaspur	Gurdaspur	G.P. Galwal	0.4	31.8086	75.5862
20	BS/HP/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Harpure	10	31.4541	75.1946
21	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Gurdaspur	Gurdaspur	G.P. Kapoora	0.5	31.6335	75.4084

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
22	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Kazampur	10	31.7471	75.3508
23	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Madhra	5	31.7285	75.3540
24	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Mahesh Dogar	5	31.7392	75.5073
25	BS/PB/UL/04 - Eco-Park Development	Punjab	Gurdaspur	Gurdaspur	G.P. Marri Panwan	0.5	31.7102	75.4858
26	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Patti Lakhpur	5	31.2968	75.8179
27	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Peroshah	5	31.6742	35.3005
28	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Gurdaspur	Gurdaspur	G.P. Samrai	1	31.6692	75.4738
29	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Shahpur Arian	5	31.7344	75.3667
30	BS/PB/UL/04 - Eco-Park Development	Punjab	Gurdaspur	Gurdaspur	G.P. Sidhpur	0.5	32.1723	75.5712

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
31	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P.Kotlasuba Singh	5	31.6889	75.2924
32	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Gurdaspur	Gurdaspur	G.P. Mradpur	0.5	31.4715	75.2419
33	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Udanwal	5	31.7342	75.3745
34	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Lulkalan	5	31.8044	75.3814
35	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	G.P. Mannan	5	31.8078	75.2375
36	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	Gram.P. Khokherwal	5	31.7468	75.5242
37	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	Mamrai	5	31.8458	75.2689
38	BS/PB/UL/03 - Institution Plantation	Punjab	Gurdaspur	Gurdaspur	Ranjilpur	5	31.7697	75.2017
39	BS/PB/UL/03 - Institution Plantation	Punjab	Hoshiarpur	Dasuya	Bhani Mirza Kha	20	31.7471	75.5439

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
40	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Hoshiarpur	Dasuya	Bindraban	1	31.9126	75.8019
41	BS/PB/UL/03 - Institution Plantation	Punjab	Hoshiarpur	Dasuya	Chattarpur-1	20	31.8358	75.8775
42	BS/PB/UL/03 - Institution Plantation	Punjab	Hoshiarpur	Dasuya	Chattarpur-2	10	31.8369	75.8778
43	BS/PB/UL/04 - Eco-Park Development	Punjab	Hoshiarpur	Dasuya	Dharampur	1	31.8414	75.9144
44	BS/PB/UL/03 - Institution Plantation	Punjab	Hoshiarpur	Hoshiarpur	Bahera	0.5	31.7601	75.9670
45	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Hoshiarpur	Hoshiarpur	Bassi Babu Khan	0.5	31.6512	75.8472
46	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Hoshiarpur	Hoshiarpur	Chack Sadhu-Dhirowal Choe	0.5	31.4716	76.0377
47	BS/PB/UL/03 - Institution Plantation	Punjab	Hoshiarpur	Hoshiarpur	Thana	0.6	31.7949	75.8884

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
48	BS/PB/UL/03 - Institution Plantation	Punjab	Kapurthala	Jalandhar	Beas Dhussi Badh Bandh (lower) RD 100-152 B/s	20	31.2931	75.1632
49	BS/PB/UL/03 - Institution Plantation	Punjab	Kapurthala	Jalandhar	Beas Dhussi Badh Bandh (lower) RD 100-152 B/s	10	31.2931	75.1632
50	BS/PB/UL/04 - Eco-Park Development	Punjab	Kapurthala	Jalandhar	Beas Dhussi Badh Bandh (lower) RD 35-50 B/s	0.5	31.4537	75.2699
51	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Kapurthala	Jalandhar	Beas Dhussi Badh Bandh (lower) RD 35-50 B/s	0.5	31.4540	75.2686
52	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Kapurthala	Jalandhar	Beas Dhussi Bandh (lower) Rd 68-100 B/S	0.5	31.2931	75.2931
53	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Pathankot	Pathankot	Dhangu Surdh,Shahpurkandi, Suket	1	32.3922	75.8188
54	BS/PB/UL/04 - Eco-Park Development	Punjab	Pathankot	Pathankot	Lehroon,Sarthi,Ralla	0.5	32.4181	75.9011
55	BS/PB/UL/04 - Eco-Park Development	Punjab	Pathankot	Pathankot	Nature Park Pathankot	1	32.2725	75.6691

Sr. No.	Model	State	District	Division	Site Name	Area	Latitude	Longitude
56	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Tarn Taran*	Amritsar	Biharipur	0.5	31.4051	75.1420
57	BS/PB/UL/03 - Institution Plantation	Punjab	Tarn Taran*	Amritsar	Darapur	10	31.4228	75.1630
58	BS/PB/UL/01 - Bioremediation and Bio-filtration	Punjab	Tarn Taran*	Amritsar	Ghagge	0.5	31.4837	75.2012
59	BS/PB/UL/03 - Institution Plantation	Punjab	Tarn Taran*	Amritsar	Khojkipur	10	31.4766	75.1895
60	BS/PB/UL/03 - Institution Plantation	Punjab	Tarn Taran*	Amritsar	Rampur	10	31.4450	75.1560

Annexure 66 : The Geo Co-ordinates of Proposed Forestry Intervention Sites in Conservation Interventions (SMC) of Beas Riverscape in Himachal Pradesh

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
1	Himachal Pradesh	Chamba	Dalhousie	Bhatti Nallah	0	32.4078	75.9558
2	Himachal Pradesh	Chamba	Dalhousie	Chaharu (Ralhban DPF)	5	31.5562	76.4395

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
3	Himachal Pradesh	Chamba	Dalhousie	Dentha	10	32.3214	76.0654
4	Himachal Pradesh	Chamba	Dalhousie	Devigao Nallah/Badhali Nallah	0	32.4411	75.9464
5	Himachal Pradesh	Chamba	Dalhousie	Dharta	5	32.2612	76.2027
6	Himachal Pradesh	Chamba	Dalhousie	Findal DPF	5	32.4617	75.9106
7	Himachal Pradesh	Chamba	Dalhousie	Garkhada Nallah	0	32.4642	75.9706
8	Himachal Pradesh	Chamba	Dalhousie	Ghadu	5	32.3103	76.1233
9	Himachal Pradesh	Chamba	Dalhousie	Gharanu. Mathli Forests	2	32.3666	76.1717
10	Himachal Pradesh	Chamba	Dalhousie	Gorat P.A	5	32.2736	76.1423
11	Himachal Pradesh	Chamba	Dalhousie	Gudhala	5	32.3594	76.1192
12	Himachal Pradesh	Chamba	Dalhousie	Gurniara	5	32.3017	76.0882
13	Himachal Pradesh	Chamba	Dalhousie	Khajurna (1)	15	32.2858	76.0499
14	Himachal Pradesh	Chamba	Dalhousie	Kutla	3	31.4786	77.0903
15	Himachal Pradesh	Chamba	Dalhousie	Lodhar	5	32.2742	76.1421
16	Himachal Pradesh	Chamba	Dalhousie	Ludhera	6	32.2715	76.0497

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
17	Himachal Pradesh	Chamba	Dalhousie	Mahot Nallah	0	32.4594	75.9656
18	Himachal Pradesh	Chamba	Dalhousie	Mathli	3	32.3713	76.1504
19	Himachal Pradesh	Chamba	Dalhousie	Muhalla	10	32.3229	76.0736
20	Himachal Pradesh	Chamba	Dalhousie	Nagban No-3	5	32.2927	76.0952
21	Himachal Pradesh	Chamba	Dalhousie	Naled P.A	5	32.2695	76.1385
22	Himachal Pradesh	Chamba	Dalhousie	Nidal	5	32.3102	76.1232
23	Himachal Pradesh	Chamba	Dalhousie	Rattighar	5	32.3017	76.0882
24	Himachal Pradesh	Chamba	Dalhousie	Riyati Rakhad D.P.F	0	32.4724	75.9254
25	Himachal Pradesh	Chamba	Dalhousie	Salorka Ghar	0	32.4558	75.9261
26	Himachal Pradesh	Hamirpur	Hamirpur	Bandhar	0	31.7680	76.5035
27	Himachal Pradesh	Hamirpur	Hamirpur	Bazaar Nallah (near by Guard Hut Sachvhi	0	31.9514	76.6522
28	Himachal Pradesh	Hamirpur	Hamirpur	Chamiyana, Panoh Patlander, Jal Lambri	0	31.9472	76.6394
29	Himachal Pradesh	Hamirpur	Hamirpur	Gasota(Govt. land Gasota)	0	32.1756	77.0797

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
30	Himachal Pradesh	Hamirpur	Hamirpur	Govt land karot Nallah	0	31.9331	76.4703
31	Himachal Pradesh	Hamirpur	Hamirpur	Govt land Matlana	0	31.8586	76.7739
32	Himachal Pradesh	Hamirpur	Hamirpur	Govt. Land	0	31.8338	76.5054
33	Himachal Pradesh	Hamirpur	Hamirpur	Govt. land Batran, P-28 Bhounti, P-27 Basaral	30	31.7213	76.4158
34	Himachal Pradesh	Hamirpur	Hamirpur	Govt. land Batran, P-28 Bhounti,P-27 Basaral	30	31.7213	76.4158
35	Himachal Pradesh	Hamirpur	Hamirpur	Govt. land Dangui, P-22 Kunna	20	31.7055	76.4227
36	Himachal Pradesh	Hamirpur	Hamirpur	Govt. land Baghera	0	31.8330	76.5052
37	Himachal Pradesh	Hamirpur	Hamirpur	Jagled khad	0	31.8338	76.5054
38	Himachal Pradesh	Hamirpur	Hamirpur	Jandru Nallah-I	0	31.8836	76.7700
39	Himachal Pradesh	Hamirpur	Hamirpur	Jandru Nallah-II	0	31.9361	76.7144
40	Himachal Pradesh	Hamirpur	Hamirpur	Jangal Khad	0	31.9275	76.6244
41	Himachal Pradesh	Hamirpur	Hamirpur	Kasiri Khad & Swahlwar Khad	50	31.7311	76.5699

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
42	Himachal Pradesh	Hamirpur	Hamirpur	Kasiri Khad (Nallah)	0	31.7681	76.6125
43	Himachal Pradesh	Hamirpur	Hamirpur	Kasiri Khad (Nallah)-I	0	31.7681	76.6125
44	Himachal Pradesh	Hamirpur	Hamirpur	Kunah khad near Ropa village	0	31.7496	76.4037
45	Himachal Pradesh	Hamirpur	Hamirpur	Kunah Khad, Salasi, Pung Khad	0	31.7794	76.6853
46	Himachal Pradesh	Hamirpur	Hamirpur	Lambloo	0	31.6689	76.5858
47	Himachal Pradesh	Hamirpur	Hamirpur	Mehli khad	0	31.9317	76.6382
48	Himachal Pradesh	Hamirpur	Hamirpur	P-1 Kitpal, U-@96 C5	20	31.7202	76.3488
49	Himachal Pradesh	Hamirpur	Hamirpur	P-15 Kashmir, U-233 Dar-1	0	31.6318	76.4020
50	Himachal Pradesh	Hamirpur	Hamirpur	P-15 Kashmir, U-233 Dar-2	0	32.2606	76.4020
51	Himachal Pradesh	Hamirpur	Hamirpur	P-15 Kashmir, U-233 Dar-3	0	32.2606	76.4020
52	Himachal Pradesh	Hamirpur	Hamirpur	P-15 Kashmir, U-233 Dar-4	0	31.6319	76.4020
53	Himachal Pradesh	Hamirpur	Hamirpur	P-15 Kashmir, U-233 Dar-5	0	31.6319	76.4021
54	Himachal Pradesh	Hamirpur	Hamirpur	P-18 Jassai,P-17 Behrar	40	31.6561	76.4054

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
55	Himachal Pradesh	Hamirpur	Hamirpur	P-20 Malg	35	31.7112	76.4026
56	Himachal Pradesh	Hamirpur	Hamirpur	P-30 Karour	30	31.7264	76.4378
57	Himachal Pradesh	Hamirpur	Hamirpur	P-32 Noungi ,UPF Jungle Rajputa	20	31.7096	76.4430
58	Himachal Pradesh	Hamirpur	Hamirpur	P-36 Jeehan C3a,C3b, C5b U. 326 Badiyar,U.322 Badiyar	51.2	31.7795	76.4378
59	Himachal Pradesh	Hamirpur	Hamirpur	P-4 Shitlabag	15	31.7211	76.3413
60	Himachal Pradesh	Hamirpur	Hamirpur	P-46 Madians C-1C	0	31.6211	76.5176
61	Himachal Pradesh	Hamirpur	Hamirpur	P-6 Dhar-Jakhar Jakh C10C	25.9	31.5848	76.5765
62	Himachal Pradesh	Hamirpur	Hamirpur	P.6.Dhar Jajor Jakh. C6 D.	0	31.6178	76.5513
63	Himachal Pradesh	Hamirpur	Hamirpur	P1Karot C1a	0	31.8169	76.5194
64	Himachal Pradesh	Hamirpur	Hamirpur	P1Karot C2a & C2b & C2c	0	31.8339	76.5055
65	Himachal Pradesh	Hamirpur	Hamirpur	P1Karot C3a & C3b	0	31.8042	76.4922
66	Himachal Pradesh	Hamirpur	Hamirpur	P38 Am Platoo	0	31.5270	76.4607
67	Himachal Pradesh	Hamirpur	Hamirpur	P55 Dhar Chabutra	0	31.7699	76.4888

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
68	Himachal Pradesh	Hamirpur	Hamirpur	Rangar khad	0	31.9375	76.8428
69	Himachal Pradesh	Hamirpur	Hamirpur	Rangar khad (Nallah)	0	31.7905	76.5874
70	Himachal Pradesh	Hamirpur	Hamirpur	Riyahni Nallah	0	31.8809	76.7358
71	Himachal Pradesh	Hamirpur	Hamirpur	Ropari khad	0	31.8035	76.5904
72	Himachal Pradesh	Hamirpur	Hamirpur	Sachuahi Nallah	0	31.9019	76.7456
73	Himachal Pradesh	Hamirpur	Hamirpur	Salashi Khad-I	0	31.7337	76.4903
74	Himachal Pradesh	Hamirpur	Hamirpur	Salashi Khad-II	0	31.7204	76.4719
75	Himachal Pradesh	Hamirpur	Hamirpur	Salasi Nallah	0	31.7883	77.0178
76	Himachal Pradesh	Hamirpur	Hamirpur	Sujanpur	0	31.8339	76.5053
77	Himachal Pradesh	Hamirpur	Hamirpur	Sukkar Kahd Dhhurkhar Beat U51 Tuklehraa	0	31.6391	76.5107
78	Himachal Pradesh	Hamirpur	Hamirpur	Sukkar Khadd	0	31.5842	76.5353
79	Himachal Pradesh	Hamirpur	Hamirpur	Uhal Beat (Bakar Khad)	150	31.7674	76.5978
80	Himachal Pradesh	Hamirpur	Hamirpur	UPF Nihari	0	31.8169	76.5194
81	Himachal Pradesh	Kangra	Dehra	P1d Ghanban c 2a	15	32.0355	76.1093

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
82	Himachal Pradesh	Kangra	Dehra	R 8 Baliana	12.95	31.8089	76.1975
83	Himachal Pradesh	Kangra	Dehra	CF Sand, CF Dehra+ Both side of Naked Khad+ Local Nallahh	150	31.8844	76.2556
84	Himachal Pradesh	Kangra	Dehra	CFS Paisa & Private land	0	31.9250	76.2072
85	Himachal Pradesh	Kangra	Dehra	DP Dadachatwal c-4	20	31.9346	76.0595
86	Himachal Pradesh	Kangra	Dehra	P2 DG Hamirpur C1A-C1B	41.27	32.0125	76.1264
87	Himachal Pradesh	Kangra	Dehra	R 18 Shantla (C S-C8)	122.27	31.7464	76.2781
88	Himachal Pradesh	Kangra	Dehra	R 6 Bakarar	158.64	31.8581	76.1489
89	Himachal Pradesh	Kangra	Dehra	R 7 Beehan	13.36	31.8414	76.1706
90	Himachal Pradesh	Kangra	Dehra	R-18D Kohli Bolta whole	35.61	31.9500	76.1558
91	Himachal Pradesh	Kangra	Dehra	R-19 Saleti, UC Katoh, R-17 Noun	115.38	31.7217	76.2639
92	Himachal Pradesh	Kangra	Dehra	R-26 D Baldoa and UP-10D Amkla	30	32.0914	76.0907
93	Himachal Pradesh	Kangra	Dehra	R11 Kaloha	11.33	31.7825	76.2189

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
94	Himachal Pradesh	Kangra	Dehra	Sarad Bammi Doam UC C-2 & C-1	7.16	31.7519	76.2169
95	Himachal Pradesh	Kangra	Dehra	U 13 D Dhar Paniyali C-2	0	32.0056	76.1770
96	Himachal Pradesh	Kangra	Dehra	U 5 D Chowkatu C2	14.97	31.9631	76.3903
97	Himachal Pradesh	Kangra	Dehra	U 7D Magheen C1	0	31.8267	76.3771
98	Himachal Pradesh	Kangra	Dehra	U 8 D Kuthialta C 6	10	31.8425	76.4353
99	Himachal Pradesh	Kangra	Dehra	U 9d Baldoa c-6a	14.16	32.0903	76.0698
100	Himachal Pradesh	Kangra	Dehra	U P 6 D Silh C-4	31.57	31.7883	76.3839
101	Himachal Pradesh	Kangra	Dehra	U-12 D Dhangar C-2	0	32.2200	76.2839
102	Himachal Pradesh	Kangra	Dehra	U11d Jaini Masroor	0	32.1986	76.2411
103	Himachal Pradesh	Kangra	Dehra	UC Bihan Upper	12.83	31.8336	76.1475
104	Himachal Pradesh	Kangra	Dehra	UF Beyola	6.19	31.8242	76.2369
105	Himachal Pradesh	Kangra	Dehra	UF Nangal C1 & C2	67.64	31.8619	76.1831
106	Himachal Pradesh	Kangra	Dehra	UF Sehri	11.74	31.7908	76.2083
107	Himachal Pradesh	Kangra	Dehra	UF Tilla Neru	19.41	31.7811	76.2619

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
108	Himachal Pradesh	Kangra	Dehra	UID Bilaspur C-3	0	32.1286	76.9022
109	Himachal Pradesh	Kangra	Dehra	UP 7D Sihorwala	10	31.8143	76.4516
110	Himachal Pradesh	Kangra	Dehra	UPF Badhol ,UPF Bari, UPF Buhala, DPF Ragmi, UPF Ghamroor	160	31.9522	75.9830
111	Himachal Pradesh	Kangra	Dehra	UPF Banuri, UPF Sanda, UPF Bandol DPF Dodoa	197.81	31.9231	76.0064
112	Himachal Pradesh	Kangra	Dehra	UPF Rail, UPF Baslahar, DP Kalot	0	31.6107	76.4000
113	Himachal Pradesh	Kangra	Dharamshala	C.F.S Danoa P50	4.86	31.9825	76.3394
114	Himachal Pradesh	Kangra	Dharamshala	C.F.S Danoo. U.2 (Kamlota Village)	10.52	32.0022	76.3022
115	Himachal Pradesh	Kangra	Dharamshala	C.F.S Jhikli Kothi, Jamloti Beat	7.69	32.0831	76.0414
116	Himachal Pradesh	Kangra	Dharamshala	C.F.S Khaniyara	0	32.2129	76.3737
117	Himachal Pradesh	Kangra	Dharamshala	C.F.S Kothi-Dibber Khad	2	32.0856	76.3486
118	Himachal Pradesh	Kangra	Dharamshala	CFS Khaniyara P-15,P-16,P-	2	31.6935	76.5150

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
				5			
119	Himachal Pradesh	Kangra	Dharamshala	Govt Land Gujrehra & Raneta	5	32.0664	76.3843
120	Himachal Pradesh	Kangra	Dharamshala	Nandrool	0	32.0867	76.2389
121	Himachal Pradesh	Kangra	Dharamshala	P28 K Mansu C1a	18.21	31.6878	76.5197
122	Himachal Pradesh	Kangra	Dharamshala	P31K Sodan	0	32.0017	76.3439
123	Himachal Pradesh	Kangra	Dharamshala	P39 K Ranital C-4C	12	31.6746	76.5290
124	Himachal Pradesh	Kangra	Dharamshala	UP 145 Dhar Nanwarna C-6	5	31.9696	76.4571
125	Himachal Pradesh	Kangra	Dharamshala	UP 145 Dhar Nanwarna C-6	5	32.1884	76.4133
126	Himachal Pradesh	Kangra	Dharamshala	UP 242 K Jassai C-3	18	31.6626	76.4523
127	Himachal Pradesh	Kangra	Dharamshala	UP 250 K Sarotri C-6	63.52	32.0409	76.3336
128	Himachal Pradesh	Kangra	Dharamshala	UP 250 K Sarotri C-6	63.52	32.0409	76.3336
129	Himachal Pradesh	Kangra	Dharamshala	UP 255 K Pathar C-1B	6.79	32.1276	76.4223
130	Himachal Pradesh	Kangra	Dharamshala	UP-145 K D/Narwana C-14	73.24	31.8202	77.2954
131	Himachal Pradesh	Kangra	Dharamshala	UP-152 K Rounkhar C-1	10.5	32.1233	76.3469

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
132	Himachal Pradesh	Kangra	Dharamshala	UP-170-K Maird And Up-169 K Namchool	0	32.1169	76.2378
133	Himachal Pradesh	Kangra	Dharamshala	UP-207 K Dhansu- C-2	24.28	32.0890	76.3949
134	Himachal Pradesh	Kangra	Dharamshala	UP-252.K Sadoon C-1	20.23	31.7672	76.5422
135	Himachal Pradesh	Kangra	Dharamshala	UP.150.K Sihund C2	27.11	32.1325	76.3814
136	Himachal Pradesh	Kangra	Dharamshala	UP.253 K Khawa C-14 (Saloo Village)	50.98	31.9819	76.4067
137	Himachal Pradesh	Kangra	Dharamshala	UP.253 KKhawa C.14	50.98	31.9962	76.3157
138	Himachal Pradesh	Kangra	Nurpur	4P-68 Bhadroya	95.91	31.9532	76.1432
139	Himachal Pradesh	Kangra	Nurpur	CFS Rey -U-79	69.2	32.0158	75.8852
140	Himachal Pradesh	Kangra	Nurpur	CFS Rey- U-79	69.2	32.0155	75.8853
141	Himachal Pradesh	Kangra	Nurpur	Ladhwan /CFS Lodhwan C-55	49.36	32.2875	75.7594
142	Himachal Pradesh	Kangra	Nurpur	Lodhwan/CPS Lodhwan C-U-55	49.36	32.2875	75.7592
143	Himachal Pradesh	Kangra	Nurpur	R-10 N Talara C2	5	32.2562	75.9179

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
144	Himachal Pradesh	Kangra	Nurpur	Thathor/Dharwal Nallah	55.84	32.2097	75.7567
145	Himachal Pradesh	Kangra	Nurpur	Thathor/Dharwal Nallah	55.84	32.2097	75.7567
146	Himachal Pradesh	Kangra	Nurpur	U-52 Soldha C-4	1	32.2575	76.0483
147	Himachal Pradesh	Kangra	Nurpur	U-52 Soldha C-8,-9	1	31.7354	76.3925
148	Himachal Pradesh	Kangra	Nurpur	U.P.7. Maira Dumal. C.7,2 C.8	5	32.3483	75.8293
149	Himachal Pradesh	Kangra	Nurpur	U52 Soldha C-4	1	32.2575	76.0483
150	Himachal Pradesh	Kangra	Nurpur	UP - 42 Panjhor, UP69-Majra, UP41 Auhar	496	32.3364	75.8947
151	Himachal Pradesh	Kangra	Nurpur	UP-114 Nadhor (Madhor)	18.62	32.1346	75.6892
152	Himachal Pradesh	Kangra	Nurpur	UP-146 Fatehpur c22,c21,c24,c25	10	32.1226	75.9239
153	Himachal Pradesh	Kangra	Nurpur	UP-146 Fathehpur C22,C21,C24,c25	10	32.1226	75.9177
154	Himachal Pradesh	Kangra	Nurpur	UP-189 Dhoulpur	33.8	32.0220	75.8429
155	Himachal Pradesh	Kangra	Nurpur	UP-189 Dhoulpur	33.18	32.0220	75.8429

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
156	Himachal Pradesh	Kangra	Nurpur	UP-42 Panjhor, Up-69 Majra,UP41 Aghar	496	32.3364	75.8947
157	Himachal Pradesh	Kangra	Nurpur	UP-68 Bhadroya	95	32.2519	75.6716
158	Himachal Pradesh	Kangra	Nurpur	UP-90 Ghoran	8.09	32.1869	75.7383
159	Himachal Pradesh	Kangra	Nurpur	UP-90 Ghoran C4	8.09	32.1869	75.7383
160	Himachal Pradesh	Kangra	Palampur	Bhagal Nallahh	0	31.9408	76.5148
161	Himachal Pradesh	Kangra	Palampur	Bhulana Nallah	0	31.9702	76.6419
162	Himachal Pradesh	Kangra	Palampur	Bm Chachian	0	32.0886	76.4700
163	Himachal Pradesh	Kangra	Palampur	BM Deol	0	32.0943	76.6801
164	Himachal Pradesh	Kangra	Palampur	C.F.S Area Saloh	124.81	32.1378	76.6392
165	Himachal Pradesh	Kangra	Palampur	C.F.S Kusmal Bm 4 a	0	32.1397	76.4911
166	Himachal Pradesh	Kangra	Palampur	C.F.S Panaper 4P-29	3	32.0672	76.4325
167	Himachal Pradesh	Kangra	Palampur	C.F.S Parour U	11.33	32.0892	76.4614
168	Himachal Pradesh	Kangra	Palampur	CFS Maniara UP-5	0	32.1646	76.5291
169	Himachal Pradesh	Kangra	Palampur	Dandhole Nallahh	0	31.9289	76.6825

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
170	Himachal Pradesh	Kangra	Palampur	Dhan Dhera Nallahh	0	31.9901	76.6245
171	Himachal Pradesh	Kangra	Palampur	Doli Nallah	0	31.9487	76.6403
172	Himachal Pradesh	Kangra	Palampur	Drug Nallahh	0	31.9751	76.6223
173	Himachal Pradesh	Kangra	Palampur	Halrana Nallahh	0	31.9102	76.6107
174	Himachal Pradesh	Kangra	Palampur	Janas Nanwar Nallahh	0	31.9573	76.6424
175	Himachal Pradesh	Kangra	Palampur	Kangu da Paroh Nallahh	0	31.9596	76.6478
176	Himachal Pradesh	Kangra	Palampur	Kawal Nallah	0	31.8567	76.4851
177	Himachal Pradesh	Kangra	Palampur	Khola Nallah	0	31.9529	76.5568
178	Himachal Pradesh	Kangra	Palampur	Khor Nallahh (Nanwar)	0	31.9526	76.6376
179	Himachal Pradesh	Kangra	Palampur	Maila Nallahh	0	31.8782	76.6716
180	Himachal Pradesh	Kangra	Palampur	Masand Basti Nallah	0	31.9464	76.5667
181	Himachal Pradesh	Kangra	Palampur	Moon Nallah	0	31.9685	76.6408
182	Himachal Pradesh	Kangra	Palampur	Nag naguli Nallahh	0	31.9145	76.6350
183	Himachal Pradesh	Kangra	Palampur	Nahlna Bridge Nallah	0	31.9517	76.5464

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
184	Himachal Pradesh	Kangra	Palampur	Netru Nallahh	0	31.9144	76.6106
185	Himachal Pradesh	Kangra	Palampur	P 20 P Parour C, D, (Bhag Nallah)	5	32.0844	76.4625
186	Himachal Pradesh	Kangra	Palampur	P-II-B Sansal	0	32.0875	76.7026
187	Himachal Pradesh	Kangra	Palampur	P43 J Ban Mando Nallahh	0	31.9136	76.6109
188	Himachal Pradesh	Kangra	Palampur	P55 P Darang C-1a	5	32.0897	76.4467
189	Himachal Pradesh	Kangra	Palampur	P61 P Badsar	0	32.1537	76.4687
190	Himachal Pradesh	Kangra	Palampur	Panti Nallah	0	31.9468	76.5117
191	Himachal Pradesh	Kangra	Palampur	Rananagar Nallahh	0	31.9131	76.6564
192	Himachal Pradesh	Kangra	Palampur	S/L Kamlehar	30	32.1024	76.5763
193	Himachal Pradesh	Kangra	Palampur	Salehra Nallahh	0	31.9432	76.6051
194	Himachal Pradesh	Kangra	Palampur	Samlat Kangu to Simbal Nallahh	0	31.9765	76.6514
195	Himachal Pradesh	Kangra	Palampur	Shamlat Khaira (Chibri)	0	31.9956	76.5244
196	Himachal Pradesh	Kangra	Palampur	Shamlat Malli	10	31.9800	76.6256

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
197	Himachal Pradesh	Kangra	Palampur	U 12 P Bhag Nallah	680.97	32.1326	76.5387
198	Himachal Pradesh	Kangra	Palampur	U.44.B. Ghoar Pith C-2	10	32.0851	76.6095
199	Himachal Pradesh	Kangra	Palampur	U8 P Kandi	121.39	32.2668	75.8853
200	Himachal Pradesh	Kangra	Palampur	Ummer Nallah	0	31.9456	76.5853
201	Himachal Pradesh	Kangra	Palampur	UP 105 P Rangru	20	32.0189	76.5671
202	Himachal Pradesh	Kangra	Palampur	UP 11 4 P Dheera III	5	32.0003	76.4283
203	Himachal Pradesh	Kangra	Palampur	UP 112 P Naura C- 4 C	5	31.9834	76.3484
204	Himachal Pradesh	Kangra	Palampur	UP 115 P Rajhoon	5	32.0282	76.4103
205	Himachal Pradesh	Kangra	Palampur	UP 128 P Raggundha C-2	123	32.0750	76.6689
206	Himachal Pradesh	Kangra	Palampur	UP 129 P Kohar I C-I a	98.32	32.0762	76.8036
207	Himachal Pradesh	Kangra	Palampur	UP 130 P Kohar II C-6	34.4	32.0561	76.8174
208	Himachal Pradesh	Kangra	Palampur	UP 131 P Swar IIrd C-6 a UP131P Swas 1st C-5	285	32.0802	76.8674
209	Himachal Pradesh	Kangra	Palampur	UP 131 U Swar C-16	100	32.1128	76.8526
210	Himachal Pradesh	Kangra	Palampur	UP 31 b Baggidhar C-4	56.65	32.0263	76.6711

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
211	Himachal Pradesh	Kangra	Palampur	UP 39 Behot	60	31.9603	76.6798
212	Himachal Pradesh	Kangra	Palampur	UP 41 B Sansoi 1st- C2	0	31.9409	76.6735
213	Himachal Pradesh	Kangra	Palampur	UP 49J Alampur C-20	0	31.8856	76.5026
214	Himachal Pradesh	Kangra	Palampur	UP 59 P Thural Khas	0	31.8957	76.4833
215	Himachal Pradesh	Kangra	Palampur	UP 97 Ban Bhatilu	0	32.0188	76.4825
216	Himachal Pradesh	Kangra	Palampur	UP-127 -P Chakban Kohar C-6	5	32.1283	76.7561
217	Himachal Pradesh	Kangra	Palampur	UP. 123 P Ladhrana	3	32.0925	76.4297
218	Himachal Pradesh	Kangra	Palampur	UP129 P Kohar I C-10 a 9-C-9	300	32.0919	76.7776
219	Himachal Pradesh	Kangra	Palampur	UP130P Kohar II C-4	10	32.0818	76.7885
220	Himachal Pradesh	Kullu	Kullu	Beat	0	31.8099	77.3623
221	Himachal Pradesh	Kullu	Kullu	Shakti & Masror	0	31.8149	77.4662
222	Himachal Pradesh	Kullu	Kullu	Tinder beat	0	31.6486	77.4683
223	Himachal Pradesh	Kullu	Parvati	1. Handu Nallah 2. Pachali Nallah 2. Sandori Nallah	0	32.0094	77.3152

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
224	Himachal Pradesh	Kullu	Parvati	1/32 Shilaghair	0	31.8900	77.3283
225	Himachal Pradesh	Kullu	Parvati	Basaniberh Nallah	0	31.9639	77.2699
226	Himachal Pradesh	Kullu	Parvati	Basona Nallah to Sevoni	0	31.8649	77.1903
227	Himachal Pradesh	Kullu	Parvati	Bharthi Nallah	0	31.9945	77.4396
228	Himachal Pradesh	Kullu	Parvati	Braham Ganga	2	32.0268	77.3540
229	Himachal Pradesh	Kullu	Parvati	Budha Ban	0	32.0268	77.3540
230	Himachal Pradesh	Kullu	Parvati	Chakshi Nallah	0	32.0005	77.4366
231	Himachal Pradesh	Kullu	Parvati	Chalawa Nallah, Shokhni Nallah, Dundan Nallah	0	31.8621	77.0703
232	Himachal Pradesh	Kullu	Parvati	DarliNallah	0	32.0177	77.5128
233	Himachal Pradesh	Kullu	Parvati	Forest Rest House Bhuin	0	31.8906	77.1503
234	Himachal Pradesh	Kullu	Parvati	Garsa Nallah	0	31.8322	77.2019
235	Himachal Pradesh	Kullu	Parvati	Gharat Nallah, Khanour Nallah	0	31.9765	77.1887
236	Himachal Pradesh	Kullu	Parvati	Grahan Nallah	0	32.0107	77.3150

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
237	Himachal Pradesh	Kullu	Parvati	Hurla Nallah	0	31.8294	77.1822
238	Himachal Pradesh	Kullu	Parvati	Jaulla aage	0	31.9468	77.1653
239	Himachal Pradesh	Kullu	Parvati	Johal near the KK-III Forest	3	31.8539	77.2506
240	Himachal Pradesh	Kullu	Parvati	Juli Nallah	0	31.8972	77.2725
241	Himachal Pradesh	Kullu	Parvati	K- III Forest (Mashgan)	0	31.8444	77.1583
242	Himachal Pradesh	Kullu	Parvati	K- III Forest (VII)	0	31.8885	77.1019
243	Himachal Pradesh	Kullu	Parvati	Kahadhar Pichho KK-III	0	31.8861	31.8869
244	Himachal Pradesh	Kullu	Parvati	Kahudhar Pichho KK-III	0	31.8861	77.1642
245	Himachal Pradesh	Kullu	Parvati	Kharli Nallah, Bargi Nallah, Kuhidhar, Barogi	0	31.9098	77.2484
246	Himachal Pradesh	Kullu	Parvati	KK III Forest	0	31.9167	77.2211
247	Himachal Pradesh	Kullu	Parvati	KK III Forest (II)	0	31.8545	77.2012
248	Himachal Pradesh	Kullu	Parvati	KK III Forest (III)-1	0	31.8650	77.3000
249	Himachal Pradesh	Kullu	Parvati	KK III Forest (IV)	0	31.8639	77.1186
250	Himachal Pradesh	Kullu	Parvati	Mashar Nallah	0	32.0316	77.4524

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
251	Himachal Pradesh	Kullu	Parvati	Nature Park Kasol	0	32.0107	77.3150
252	Himachal Pradesh	Kullu	Parvati	Nature Park, Mohal	0.3	31.9178	77.1265
253	Himachal Pradesh	Kullu	Parvati	Near by Tharas	0	31.8300	77.1831
254	Himachal Pradesh	Kullu	Parvati	Near Saraswati Vidya Mandir Bhuntar	0	31.8947	77.1472
255	Himachal Pradesh	Kullu	Parvati	Neul Nallah and Bajaura khad	0	31.8478	77.1128
256	Himachal Pradesh	Kullu	Parvati	Niara Thach	2	31.9927	77.5197
257	Himachal Pradesh	Kullu	Parvati	Pah Nallahh	2	31.8876	77.0745
258	Himachal Pradesh	Kullu	Parvati	Pashi nal (C/wall)	0	31.8734	77.2110
259	Himachal Pradesh	Kullu	Parvati	R/12 Nihoragahar	0	31.8531	77.2978
260	Himachal Pradesh	Kullu	Parvati	Rakotan Nallah	0	31.9996	77.2477
261	Himachal Pradesh	Kullu	Parvati	Range office Hurla	0	31.8884	77.1512
262	Himachal Pradesh	Kullu	Parvati	Ratirahar	0	32.0051	77.4382
263	Himachal Pradesh	Kullu	Parvati	Ruar Nallah	0	31.8308	77.2433

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
264	Himachal Pradesh	Kullu	Parvati	Sarahan Nallah	0	32.0018	77.2435
265	Himachal Pradesh	Kullu	Parvati	Shanghar	0	31.7526	77.3849
266	Himachal Pradesh	Kullu	Parvati	Shansher	0	31.7868	77.3663
267	Himachal Pradesh	Kullu	Parvati	Sharan Barshanu Nallah	0	31.7991	77.3143
268	Himachal Pradesh	Kullu	Parvati	Shat Nallah	0	31.9712	77.2161
269	Himachal Pradesh	Kullu	Parvati	Shelapani Nallah	0	31.9707	77.2146
270	Himachal Pradesh	Kullu	Parvati	Shondadhar (Guard Hut)	0	31.8703	77.2205
271	Himachal Pradesh	Kullu	Parvati	Shondadhar (Water Pond)	0	31.8672	77.2225
272	Himachal Pradesh	Kullu	Parvati	Shorn Chillmore Nallah	0	31.9449	77.1877
273	Himachal Pradesh	Kullu	Parvati	Stona Nallah	0	32.0093	77.2880
274	Himachal Pradesh	Kullu	Parvati	Suchain	0	31.7376	77.3595
275	Himachal Pradesh	Kullu	Parvati	Suchain (2)	0	31.7376	77.3595
276	Himachal Pradesh	Kullu	Parvati	Talaran Nallah	0	32.1000	77.5625
277	Himachal Pradesh	Kullu	Parvati	Talpini Nallah	0	32.0268	77.3511

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
278	Himachal Pradesh	Kullu	Parvati	Thanegad, Dupchi Nal/ Tung IIIrd Forest	0	31.6078	77.5197
279	Himachal Pradesh	Kullu	Parvati	ThunjaNal	2	32.0005	77.3255
280	Himachal Pradesh	Kullu	Seraj	25 Latora Nallah	0	31.5802	77.3525
281	Himachal Pradesh	Kullu	Seraj	30 Jalora	0	31.9422	77.5555
282	Himachal Pradesh	Kullu	Seraj	42 Balwagi DPF & 43 Sai Ropa	176.03	31.6409	77.3670
283	Himachal Pradesh	Kullu	Seraj	42 Balwagi DPF & Skiran DPF	0	31.6266	77.3704
284	Himachal Pradesh	Kullu	Seraj	Bakshal near Sainj River	0	31.7698	77.3055
285	Himachal Pradesh	Kullu	Seraj	Banchat Gad	0	31.7016	77.3465
286	Himachal Pradesh	Kullu	Seraj	Basheri Nallah	0	31.6384	77.4234
287	Himachal Pradesh	Kullu	Seraj	Bihali River Site	0	31.7251	77.2190
288	Himachal Pradesh	Kullu	Seraj	Bira Sari	0	31.6651	77.3093
289	Himachal Pradesh	Kullu	Seraj	Chhaluli Pani	0	31.6164	77.3472
290	Himachal Pradesh	Kullu	Seraj	ChiluNal	0	31.6988	77.3195

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291	Himachal Pradesh	Kullu	Seraj	Choi Nallah	0	31.6381	77.3969
292	Himachal Pradesh	Kullu	Seraj	Dalogi Jheel (Natural)	0	31.7540	77.3568
293	Himachal Pradesh	Kullu	Seraj	Deori	0	31.7464	77.3355
294	Himachal Pradesh	Kullu	Seraj	Dhaugi	0	31.7480	77.3138
295	Himachal Pradesh	Kullu	Seraj	Fagla Nal	0	31.7703	77.3052
296	Himachal Pradesh	Kullu	Seraj	Fagwah Nallah	0	31.6888	77.2876
297	Himachal Pradesh	Kullu	Seraj	Garat Nal	0	31.7514	77.3568
298	Himachal Pradesh	Kullu	Seraj	Gatinal	0	31.6448	77.3248
299	Himachal Pradesh	Kullu	Seraj	Gharatgad Nallah	0	31.6636	77.3838
300	Himachal Pradesh	Kullu	Seraj	Hureh, Talara	0	31.7646	77.2665
301	Himachal Pradesh	Kullu	Seraj	Jogni Galu	0	31.5469	77.3397
302	Himachal Pradesh	Kullu	Seraj	Joul Nallah	0	31.6701	77.3110
303	Himachal Pradesh	Kullu	Seraj	Kachhan Nal	0	31.7515	77.2721
304	Himachal Pradesh	Kullu	Seraj	Kaluropa	0	31.6636	77.3838

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305	Himachal Pradesh	Kullu	Seraj	Kartah river site	0	31.7757	78.2019
306	Himachal Pradesh	Kullu	Seraj	Khoneshi Nallah	0	31.5737	77.3088
307	Himachal Pradesh	Kullu	Seraj	Larji, Shalwar, Trera (Pagal Nallah II)	0	31.7715	77.3059
308	Himachal Pradesh	Kullu	Seraj	Larji, Shalwar, Trera (Pagal Nallah II)	0	31.7584	77.2624
309	Himachal Pradesh	Kullu	Seraj	Madhutan Nallah	0	31.5624	77.3945
310	Himachal Pradesh	Kullu	Seraj	Pagal Nallah	0	31.7515	77.2721
311	Himachal Pradesh	Kullu	Seraj	Panudhar Nallah (F/Pur III)	0	32.0448	77.5406
312	Himachal Pradesh	Kullu	Seraj	Raghu Nal	0	31.6394	77.3214
313	Himachal Pradesh	Kullu	Seraj	Ropa Nallah	0	31.6553	77.3290
314	Himachal Pradesh	Kullu	Seraj	Sachani	0	31.7878-	77.2000
315	Himachal Pradesh	Kullu	Seraj	Sainj	0	31.7314	77.2306
316	Himachal Pradesh	Kullu	Seraj	Sainj River site	0	32.8211	83.9778
317	Himachal Pradesh	Kullu	Seraj	Sainj, Railla	0	31.7696	77.3085

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318	Himachal Pradesh	Kullu	Seraj	Sarthi Thach	0	31.5955	77.3752
319	Himachal Pradesh	Kullu	Seraj	Shalaudi Nallah	0	31.7034	77.2805
320	Himachal Pradesh	Kullu	Seraj	Sheti Dhar Nallah	0	31.7260	77.2175
321	Himachal Pradesh	Kullu	Seraj	Sheti Dhar Nallah	0	31.7260	77.2175
322	Himachal Pradesh	Kullu	Seraj	Shiyangi Land slide and forest area	0	31.7703	77.3052
323	Himachal Pradesh	Kullu	Seraj	Spangani River Site	0	31.7251	77.2190
324	Himachal Pradesh	Kullu	Seraj	Spangani, Bihali, Largi	0	31.7561	77.2575
325	Himachal Pradesh	Kullu	Seraj	Tara Nal	0	31.5646	77.4042
326	Himachal Pradesh	Kullu	Seraj	Trera Nal	0	31.8515	77.3670
327	Himachal Pradesh	Kullu	Seraj	Tuna Gad	0	31.6017	77.3410
328	Himachal Pradesh	Mandi	Joginder Nagar	Awayer Nallah	0	31.9912	76.7896
329	Himachal Pradesh	Mandi	Joginder Nagar	Baba-Nallah	0	31.9542	76.8103
330	Himachal Pradesh	Mandi	Joginder Nagar	Baghair D.P.F Thara-Jajar	30.8	31.8773	76.7467
331	Himachal Pradesh	Mandi	Joginder Nagar	Bagra Nallah	0	32.0175	76.7861

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
332	Himachal Pradesh	Mandi	Joginder Nagar	Bajgar Khad	0	32.0208	76.7392
333	Himachal Pradesh	Mandi	Joginder Nagar	Bamnu Nallah	0	31.9837	76.8323
334	Himachal Pradesh	Mandi	Joginder Nagar	Barnod DPF	101	32.1478	76.7778
335	Himachal Pradesh	Mandi	Joginder Nagar	Baschar Nallah	0	31.9100	76.8072
336	Himachal Pradesh	Mandi	Joginder Nagar	Bedeni Nallah	0	32.0094	76.7703
337	Himachal Pradesh	Mandi	Joginder Nagar	Bhager Nallah	0	32.0144	76.7556
338	Himachal Pradesh	Mandi	Joginder Nagar	Bhajrala Nallah	0	32.0475	76.6814
339	Himachal Pradesh	Mandi	Joginder Nagar	Bharyalu Nallah	0	31.8667	76.7858
340	Himachal Pradesh	Mandi	Joginder Nagar	Bharyara-Nallahha	0	31.8783	76.7861
341	Himachal Pradesh	Mandi	Joginder Nagar	Bhatwari Khad	0	31.9892	76.7889
342	Himachal Pradesh	Mandi	Joginder Nagar	Chalnu Nallah	7	32.0794	76.9381
343	Himachal Pradesh	Mandi	Joginder Nagar	Chaner Nallah	0	32.2103	76.7778
344	Himachal Pradesh	Mandi	Joginder Nagar	Changan Nallah (Majhor) D.P.F Cokhu C-1	56	31.8837	76.7716
345	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Bakarjaan	143.2	32.0831	76.7458

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346	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Bagolo (Rada ra-Nallah)	21.6	32.0369	76.7167
347	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Chail Chatra (1st and Nallah)	16.4	31.9334	76.7002
348	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Kumi Kattkal (Lungu Nallah 1st and 2nd)	3.6	31.9335	76.7002
349	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Mura Dhar	934.22	31.7434	76.8138
350	Himachal Pradesh	Mandi	Joginder Nagar	D.P.F Dadhone/vegetation	10.4	32.0369	76.7167
351	Himachal Pradesh	Mandi	Joginder Nagar	Diglu Nallah	0	31.9912	76.7903
352	Himachal Pradesh	Mandi	Joginder Nagar	Dodar, Manudhar and Sarolhi DPF	286.58	32.1561	77.2247
353	Himachal Pradesh	Mandi	Joginder Nagar	DPF Bambal-Ra-Nallah ND-745	60	32.0625	76.8461
354	Himachal Pradesh	Mandi	Joginder Nagar	DPF Baradhar, Chakroh Nallah, Badhol Nallah, Banni Nallah	0	32.0067	76.8664
355	Himachal Pradesh	Mandi	Joginder Nagar	DPF Bhadiyar	63.84	31.7625	76.7647

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
356	Himachal Pradesh	Mandi	Joginder Nagar	DPF Draman 1st	368	31.8501	76.9675
357	Himachal Pradesh	Mandi	Joginder Nagar	DPF Draman 1st Khadiyar	36	31.8667	76.8892
358	Himachal Pradesh	Mandi	Joginder Nagar	DPF Dugli ND-746	26.4	32.1239	76.8583
359	Himachal Pradesh	Mandi	Joginder Nagar	DPF Jalpa	0	31.9591	76.7861
360	Himachal Pradesh	Mandi	Joginder Nagar	DPF Janitry C	80.39	31.7975	76.8128
361	Himachal Pradesh	Mandi	Joginder Nagar	DPF Jarad Noun	144.76	31.8633	76.9681
362	Himachal Pradesh	Mandi	Joginder Nagar	DPF Kalehri	52.8	31.8146	76.8251
363	Himachal Pradesh	Mandi	Joginder Nagar	DPF Kamlah New and Old	39.78	31.9536	76.9144
364	Himachal Pradesh	Mandi	Joginder Nagar	DPF Khumbal	89.04	31.9081	76.7461
365	Himachal Pradesh	Mandi	Joginder Nagar	DPF Kotla	61.6	32.0900	76.8833
366	Himachal Pradesh	Mandi	Joginder Nagar	DPF Maijharnoo	0	31.9812	76.8008
367	Himachal Pradesh	Mandi	Joginder Nagar	DPF Mathi Banwar	8.5	31.8127	76.7441
368	Himachal Pradesh	Mandi	Joginder Nagar	DPF Paloun	125.6	32.0333	76.8672
369	Himachal Pradesh	Mandi	Joginder Nagar	DPF Siyuri C-2	109.26	31.9804	76.8044

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
370	Himachal Pradesh	Mandi	Joginder Nagar	DPF Siyuri-2	0	31.9838	76.8325
371	Himachal Pradesh	Mandi	Joginder Nagar	DPF Tor	20.8	32.0233	76.8847
372	Himachal Pradesh	Mandi	Joginder Nagar	DPF Zimzima	0	31.9937	76.7986
373	Himachal Pradesh	Mandi	Joginder Nagar	DPF-Kamesh	0	31.8792	76.7833
374	Himachal Pradesh	Mandi	Joginder Nagar	Draman IInd Dhar Nallah	144.6	31.9600	76.8001
375	Himachal Pradesh	Mandi	Joginder Nagar	Fegru Nallah	0	32.0069	76.8011
376	Himachal Pradesh	Mandi	Joginder Nagar	Forest Land. Kanhan Nallah	0	31.9167	76.7336
377	Himachal Pradesh	Mandi	Joginder Nagar	Gaad Nallah	0	31.9910	76.7896
378	Himachal Pradesh	Mandi	Joginder Nagar	Garah Nallah	0	32.0053	76.7693
379	Himachal Pradesh	Mandi	Joginder Nagar	Ghasas Nallah	0	31.8817	76.8217
380	Himachal Pradesh	Mandi	Joginder Nagar	Gugli Khad	0	31.9902	76.7850
381	Himachal Pradesh	Mandi	Joginder Nagar	Gunain Nallah	0	31.9910	76.7902
382	Himachal Pradesh	Mandi	Joginder Nagar	Hurang Nallah, Shangdhar Nallah, Man Nallah	0	31.7443	77.3956
383	Himachal Pradesh	Mandi	Joginder Nagar	Jakhar Nallah (U.P.F)	0	32.1214	76.8936

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
384	Himachal Pradesh	Mandi	Joginder Nagar	Jhakhari, Latan, Knargan, Maduran, Latran DPF	0	32.0097	76.9039
385	Himachal Pradesh	Mandi	Joginder Nagar	Kasherod Nallah	0	31.7265	77.2201
386	Himachal Pradesh	Mandi	Joginder Nagar	Katwali Nallah	0	31.9325	76.8303
387	Himachal Pradesh	Mandi	Joginder Nagar	Khala Nallah, Dhamel, Khaber	40	31.9414	76.7128
388	Himachal Pradesh	Mandi	Joginder Nagar	Khora Nallah, Bag Nallah, Devegarh Nallah, Balhal Nallah	150	31.8361	76.7967
389	Himachal Pradesh	Mandi	Joginder Nagar	Khudi DPF	11.6	31.9002	76.7500
390	Himachal Pradesh	Mandi	Joginder Nagar	Kolang Nallah Forest Land	0	32.0306	76.8450
391	Himachal Pradesh	Mandi	Joginder Nagar	Kothi Nallah	0	31.9211	76.8175
392	Himachal Pradesh	Mandi	Joginder Nagar	Kuthera- Nallah	0	31.8753	76.7881
393	Himachal Pradesh	Mandi	Joginder Nagar	Lahla-Nallah	0	31.8042	76.9445
394	Himachal Pradesh	Mandi	Joginder Nagar	Luni Khad	0	31.9244	76.8042
395	Himachal Pradesh	Mandi	Joginder Nagar	Magru Nallah	0	31.8461	76.8278

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
396	Himachal Pradesh	Mandi	Joginder Nagar	Mandokhar Nallah	0	32.0010	76.8042
397	Himachal Pradesh	Mandi	Joginder Nagar	Matehar Nallah DPF Matehar	14.4	32.0001	76.6667
398	Himachal Pradesh	Mandi	Joginder Nagar	Nagdyara	0	31.8978	76.8172
399	Himachal Pradesh	Mandi	Joginder Nagar	Nalyana, Manyoh, Sakoh,	50	31.9483	76.6450
400	Himachal Pradesh	Mandi	Joginder Nagar	ND- 144 urla Kasyan, Urla Nallah	0	31.9192	76.8853
401	Himachal Pradesh	Mandi	Joginder Nagar	ND- 157 HWN, Talgahar Nallah (C/O C. Dam & Wall	0	31.9317	76.8814
402	Himachal Pradesh	Mandi	Joginder Nagar	ND- 167 Kharnal C/o Farm Pond	0	31.9622	76.8453
403	Himachal Pradesh	Mandi	Joginder Nagar	ND- 180 Chabh- Bhararu DPF	0	31.8756	76.8456
404	Himachal Pradesh	Mandi	Joginder Nagar	ND- 188 Ropinal (C/o Check Dam/ Check Wall)	3.6	31.8885	76.8939
405	Himachal Pradesh	Mandi	Joginder Nagar	ND- 189 Nausha Nallah (C/o Check dam)	0	31.9328	76.8700
406	Himachal Pradesh	Mandi	Joginder Nagar	ND- 189 Nausha Nallah (C/o	0	31.9194	76.8549

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
				Farm Pond)			
407	Himachal Pradesh	Mandi	Joginder Nagar	ND-147 Satiphkot, Kotropi Nallah	0	31.9106	76.8886
408	Himachal Pradesh	Mandi	Joginder Nagar	ND-170 Har (Panchian Nallah)	0	31.9447	76.8631
409	Himachal Pradesh	Mandi	Joginder Nagar	ND.715 Nagashwar Mahadev DPF. Nallahs	39.2	31.9176	76.7019
410	Himachal Pradesh	Mandi	Joginder Nagar	ND.716 Bhedgorangan DPF (Nallahh)	60	31.8375	76.7091
411	Himachal Pradesh	Mandi	Joginder Nagar	Ner-Khad	0	31.9779	76.7950
412	Himachal Pradesh	Mandi	Joginder Nagar	Ner-Khad-1	0	31.9859	76.7978
413	Himachal Pradesh	Mandi	Joginder Nagar	OD- 175 Badli Nallah (C/ dam, C/wall)	0	31.9334	76.8642
414	Himachal Pradesh	Mandi	Joginder Nagar	OD- 59 Silh- swar , Silh-swar Nallah C/ dam, C/wall-II	0	31.9486	76.8719
415	Himachal Pradesh	Mandi	Joginder Nagar	OD- 59 Silh-Swar	0	31.9675	76.8558
416	Himachal Pradesh	Mandi	Joginder Nagar	OD- 59 Silha-Swar, Silhashu-	0	31.9486	76.8719

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
				Nallah C. dam, C. wall I			
417	Himachal Pradesh	Mandi	Joginder Nagar	OD- 66 Kadoond DPF	0	31.8947	76.8579
418	Himachal Pradesh	Mandi	Joginder Nagar	OD- 66 Kadoond DPF (Nagan Nallah) I	0	31.9251	76.8490
419	Himachal Pradesh	Mandi	Joginder Nagar	OD- 66 Kadoond DPF (Nagan Nallah) II	0	31.9030	76.8627
420	Himachal Pradesh	Mandi	Joginder Nagar	OD- 68 Upper Khajri DPF	0	31.8974	76.8451
421	Himachal Pradesh	Mandi	Joginder Nagar	OD- 68 Upper Khajri DPF (Sajehar Nallah)	0	31.8820	76.8669
422	Himachal Pradesh	Mandi	Joginder Nagar	OD-146 DPF Deodhaar	0	31.9169	76.8731
423	Himachal Pradesh	Mandi	Joginder Nagar	OD-152 Dibkan (C/o Farm Pond)	124.24	31.8987	76.8882
424	Himachal Pradesh	Mandi	Joginder Nagar	OD-70 Lower Khajri DPF (Panara- Chowa Nallah)	0	31.8804	76.8570
425	Himachal Pradesh	Mandi	Joginder Nagar	Pat Nallah	0	32.0208	76.7764
426	Himachal Pradesh	Mandi	Joginder Nagar	Raksui, Mangletta, Ghorighor	167.32	31.7500	76.6667
427	Himachal Pradesh	Mandi	Joginder Nagar	Ramsi Nallahh	0	31.8522	76.8122

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
428	Himachal Pradesh	Mandi	Joginder Nagar	Rana Khad (Left Bank)	0	31.9588	76.7741
429	Himachal Pradesh	Mandi	Joginder Nagar	Ranna Khad	0	31.9575	76.7742
430	Himachal Pradesh	Mandi	Joginder Nagar	Rawanal,Dhrangon, Galu	0	32.0464	76.8603
431	Himachal Pradesh	Mandi	Joginder Nagar	Ropa Chehar Nallah	0	31.8361	76.8319
432	Himachal Pradesh	Mandi	Joginder Nagar	Sachan,38 Boaching=39 Rangan, 94	0	32.0169	76.8719
433	Himachal Pradesh	Mandi	Joginder Nagar	Sakrain Khad	0	31.8169	76.7184
434	Himachal Pradesh	Mandi	Joginder Nagar	Sandral Nallah	0	32.0408	76.6833
435	Himachal Pradesh	Mandi	Joginder Nagar	Shingdhar, Bhumchyan Nallah, Galang Nallah	0	31.9883	76.8983
436	Himachal Pradesh	Mandi	Joginder Nagar	Silh Nallahh	0	31.8561	76.8133
437	Himachal Pradesh	Mandi	Joginder Nagar	Soun DPF ND-737	16.4	32.2131	76.9206
438	Himachal Pradesh	Mandi	Joginder Nagar	Sparu Nallah	0	31.9036	76.8206
439	Himachal Pradesh	Mandi	Joginder Nagar	Suka-Nallah	0	31.9836	76.8324
440	Himachal Pradesh	Mandi	Joginder Nagar	Sukahad Khad	0	31.9964	76.7608

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
441	Himachal Pradesh	Mandi	Joginder Nagar	Sukar Khad	0	32.0006	76.7192
442	Himachal Pradesh	Mandi	Joginder Nagar	Swar and Kungri Nallah, Kortang Nallah,	50	31.9497	76.9778
443	Himachal Pradesh	Mandi	Joginder Nagar	Thotu Khad	0	31.8363	76.7249
444	Himachal Pradesh	Mandi	Joginder Nagar	Tikkar Nallah	0	31.8797	76.8303
445	Himachal Pradesh	Mandi	Joginder Nagar	U.P.F Balhara 1st Nallah, 2nd Nallah	6	32.0319	76.9578
446	Himachal Pradesh	Mandi	Joginder Nagar	UPF Maloun	45	31.7917	76.7885
447	Himachal Pradesh	Mandi	Mandi	Algan DPF, Darlog DPF	50	31.8011	77.0153
448	Himachal Pradesh	Mandi	Mandi	Baggi Kawal	32.4	31.7469	76.9469
449	Himachal Pradesh	Mandi	Mandi	Bagloo DPF	229.86	31.9294	77.0892
450	Himachal Pradesh	Mandi	Mandi	Bahi DPF	0	31.8867	76.9164
451	Himachal Pradesh	Mandi	Mandi	Bahi DPF	0	31.8858	76.9153
452	Himachal Pradesh	Mandi	Mandi	Balhidhar DPF	7	31.7778	77.0094
453	Himachal Pradesh	Mandi	Mandi	Banogi Nana and Dol Nallah	60	31.7410	77.1331

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
454	Himachal Pradesh	Mandi	Mandi	Basehad-II DPF	0	31.8717	76.9056
455	Himachal Pradesh	Mandi	Mandi	Bashni Nallah	0	31.7442	77.2067
456	Himachal Pradesh	Mandi	Mandi	Bhuti Nallah	0	31.7182	77.1575
457	Himachal Pradesh	Mandi	Mandi	Bikaner Nallah	0	31.8378	76.8653
458	Himachal Pradesh	Mandi	Mandi	Bunga Ballband DPF	0.5	31.7661	77.0397
459	Himachal Pradesh	Mandi	Mandi	Chalaher DPF	20	31.7892	77.0780
460	Himachal Pradesh	Mandi	Mandi	Chhanwari	40	31.6796	76.9384
461	Himachal Pradesh	Mandi	Mandi	Chhipanu Nallah	0	31.7245	76.9500
462	Himachal Pradesh	Mandi	Mandi	Chobra Khabu DPF	28.4	31.6630	76.8403
463	Himachal Pradesh	Mandi	Mandi	Choura Nallah	0	31.8537	76.8650
464	Himachal Pradesh	Mandi	Mandi	Choura Nallah	0	31.8334	76.8502
465	Himachal Pradesh	Mandi	Mandi	Chowki chandraran DPF	27.6	31.6621	76.8517
466	Himachal Pradesh	Mandi	Mandi	Chubhloo DPF (Chabhloo) Chubhloo Nallah	0	31.7762	77.1644
467	Himachal Pradesh	Mandi	Mandi	Deod. DPF	3	31.6777	77.0770

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
468	Himachal Pradesh	Mandi	Mandi	DPF Siyuri -2	0	31.9836	76.8323
469	Himachal Pradesh	Mandi	Mandi	DPF- Chamayat	58.4	31.6631	76.8692
470	Himachal Pradesh	Mandi	Mandi	DPF- Naintunga	75.6	31.6813	76.8645
471	Himachal Pradesh	Mandi	Mandi	DPF- Sanora	74	31.5592	76.9105
472	Himachal Pradesh	Mandi	Mandi	DPF-Tandoo	47.6	31.6656	76.8722
473	Himachal Pradesh	Mandi	Mandi	Farm Pond at Saroun DPF	0	31.8539	76.8897
474	Himachal Pradesh	Mandi	Mandi	Galudhar Nallah	0	31.7825	76.9347
475	Himachal Pradesh	Mandi	Mandi	Gharahar Nal	0	31.6909	77.1894
476	Himachal Pradesh	Mandi	Mandi	Ghroun DPF	65	31.8025	77.0766
477	Himachal Pradesh	Mandi	Mandi	Ghurat Nallah	0	31.8006	77.1222
478	Himachal Pradesh	Mandi	Mandi	Girju Nallah	0	31.8175	76.9403
479	Himachal Pradesh	Mandi	Mandi	Ichhani halag Nallah	30	31.7044	77.1070
480	Himachal Pradesh	Mandi	Mandi	Jagar Nallah DPF Chabhuan	0	31.6592	77.0058
481	Himachal Pradesh	Mandi	Mandi	Jalpadhar	0	31.6368	76.8482

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
482	Himachal Pradesh	Mandi	Mandi	Jambhar DPF	74.8	31.8861	77.0131
483	Himachal Pradesh	Mandi	Mandi	Jamunal	0	31.6885	77.2798
484	Himachal Pradesh	Mandi	Mandi	Janitary DPF	0	31.8305	76.8563
485	Himachal Pradesh	Mandi	Mandi	Jarli Nal	130	31.7225	77.0332
486	Himachal Pradesh	Mandi	Mandi	Jhajharu- Kufaru DPF	0	31.7953	76.9622
487	Himachal Pradesh	Mandi	Mandi	Jhakrasan Nallah (Jhakrasan Nallah)	0	31.7541	77.1705
488	Himachal Pradesh	Mandi	Mandi	Jhumdhar DPF	0	31.7050	76.8544
489	Himachal Pradesh	Mandi	Mandi	Kashan Nallah	3	31.8511	77.1661
490	Himachal Pradesh	Mandi	Mandi	Khablash Nallah (Khablash Nallah)	0	31.7780	77.1550
491	Himachal Pradesh	Mandi	Mandi	Kutol Chamarua	19.6	31.7514	77.0992
492	Himachal Pradesh	Mandi	Mandi	KWN DPF	38	32.0286	76.8833
493	Himachal Pradesh	Mandi	Mandi	Mahog DPF	32	32.0439	77.5947
494	Himachal Pradesh	Mandi	Mandi	Malwara DPF	0	31.8308	76.9998

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
495	Himachal Pradesh	Mandi	Mandi	Mana Nallah Segaldugh DPF	0	31.8798	76.9160
496	Himachal Pradesh	Mandi	Mandi	Manglana	0	31.8463	76.8618
497	Himachal Pradesh	Mandi	Mandi	Mashan Nallah	140	31.6389	76.9993
498	Himachal Pradesh	Mandi	Mandi	Mehar Nallah (Kadhani DPF)	0	31.6833	76.9875
499	Himachal Pradesh	Mandi	Mandi	Mehsra DPF	68.2	31.5897	76.8739
500	Himachal Pradesh	Mandi	Mandi	Murah Dhar DPF	0	31.7828	76.9506
501	Himachal Pradesh	Mandi	Mandi	Naina Mata Farm Pond	0	31.6160	76.9831
502	Himachal Pradesh	Mandi	Mandi	Narla- Saned DPF	0	31.8739	76.9275
503	Himachal Pradesh	Mandi	Mandi	Nihara Nal	0	31.7722	77.7417
504	Himachal Pradesh	Mandi	Mandi	O.D. Nagan DPF	199.9	31.7264	76.8711
505	Himachal Pradesh	Mandi	Mandi	OD 574 Gandharv	256.17	31.7015	76.9159
506	Himachal Pradesh	Mandi	Mandi	OD- 146 Deodhaar	0	31.9169	76.8731
507	Himachal Pradesh	Mandi	Mandi	Paje Ra Nallah	100	31.6226	76.9950
508	Himachal Pradesh	Mandi	Mandi	Pali Nallah	0	31.8203	76.9353

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
509	Himachal Pradesh	Mandi	Mandi	Pali Nallah	0	31.8200	76.9350
510	Himachal Pradesh	Mandi	Mandi	Pipli	70	31.6228	76.8651
511	Himachal Pradesh	Mandi	Mandi	Rachhera DPF	91.86	31.8647	77.0175
512	Himachal Pradesh	Mandi	Mandi	Rahla Nallah	0	31.8050	77.1233
513	Himachal Pradesh	Mandi	Mandi	Rainsh Nallah	0	31.6884	77.2799
514	Himachal Pradesh	Mandi	Mandi	Raswala Nallah Raswala DPF	0	31.8011	77.1425
515	Himachal Pradesh	Mandi	Mandi	Richani Nallah	0	31.7668	77.1490
516	Himachal Pradesh	Mandi	Mandi	Ropa Nallah	0	31.8052	76.9080
517	Himachal Pradesh	Mandi	Mandi	Ropa- I, II	25	31.9032	76.9660
518	Himachal Pradesh	Mandi	Mandi	Ruhara nal	0	31.7348	77.1639
519	Himachal Pradesh	Mandi	Mandi	Sairanal DPF	0	31.6906	77.0601
520	Himachal Pradesh	Mandi	Mandi	Sakore - Nallah	0	31.7143	76.9716
521	Himachal Pradesh	Mandi	Mandi	Sarda DPF	0	31.8358	76.8923
522	Himachal Pradesh	Mandi	Mandi	Sari Nallah DPF Sari	10	31.7921	77.1598

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
523	Himachal Pradesh	Mandi	Mandi	Sarki Dhar DPF, Prashar Dhar DPF, Manjaili Dhar DPF	0	31.7554	77.1093
524	Himachal Pradesh	Mandi	Mandi	Sarni DPF, Balh DPF, Jorla DPF	70	31.8747	76.9886
525	Himachal Pradesh	Mandi	Mandi	Shalanal	18	31.7111	77.1883
526	Himachal Pradesh	Mandi	Mandi	Sihnal Nallah	0	31.7341	76.9565
527	Himachal Pradesh	Mandi	Mandi	Suketi Bank along Kangni DPF	3	31.6894	76.9360
528	Himachal Pradesh	Mandi	Mandi	Sun Suna Nallah, DPF Langhwar	0	31.6931	77.0022
529	Himachal Pradesh	Mandi	Mandi	Taryambli	0	31.7689	76.9764
530	Himachal Pradesh	Mandi	Mandi	Taryambli By Nallah	0	31.7919	76.9689
531	Himachal Pradesh	Mandi	Mandi	Tikkar Nallah	0	31.8075	77.1508
532	Himachal Pradesh	Mandi	Mandi	Vasahar, Kutahar DPF	1	31.8206	76.9867
533	Himachal Pradesh	Mandi	Nachan	Aali Nallah	0	32.0650	77.1664

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
534	Himachal Pradesh	Mandi	Nachan	Badensa Nallah	3.1	31.8622	77.1942
535	Himachal Pradesh	Mandi	Nachan	Bainal	5	31.6330	77.0644
536	Himachal Pradesh	Mandi	Nachan	Bakala	10	31.6114	77.1250
537	Himachal Pradesh	Mandi	Nachan	Balyandi	10	31.5819	77.0463
538	Himachal Pradesh	Mandi	Nachan	Baya Naal in KarNallah silh DPF	1	31.5312	77.0557
539	Himachal Pradesh	Mandi	Nachan	Bharoon	10	31.5853	77.1267
540	Himachal Pradesh	Mandi	Nachan	Bhella Nallah	3	31.8219	77.3122
541	Himachal Pradesh	Mandi	Nachan	Bhoombhai Nallah	3.5	31.9042	77.3169
542	Himachal Pradesh	Mandi	Nachan	C/O check Dams In DPF Reun Nallah	0	31.5641	77.1017
543	Himachal Pradesh	Mandi	Nachan	C/o Check Dams in Mahithana D.P.F	10	31.9956	77.5833
544	Himachal Pradesh	Mandi	Nachan	Chuli Nal	0	31.5034	77.0846
545	Himachal Pradesh	Mandi	Nachan	D.P.F Baneshidhar	7	31.5550	77.1045
546	Himachal Pradesh	Mandi	Nachan	D.P.F Bharari	10	31.9666	77.2678

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
547	Himachal Pradesh	Mandi	Nachan	D.P.F Devdhar/Sanandhar	0	31.6092	77.1800
548	Himachal Pradesh	Mandi	Nachan	D.P.F Halsigad	5	31.8242	77.4264
549	Himachal Pradesh	Mandi	Nachan	D.P.F Jhurdi	0	31.5312	77.0557
550	Himachal Pradesh	Mandi	Nachan	D.P.F Kalakameshwer, DPF Balaudha Nallah	0	31.7730	76.7416
551	Himachal Pradesh	Mandi	Nachan	D.P.F Kudan silh	2	31.5056	77.2497
552	Himachal Pradesh	Mandi	Nachan	D.P.F Sanbar	5	31.4840	77.2590
553	Himachal Pradesh	Mandi	Nachan	D.P.F Serajideo	0	31.7542	77.4517
554	Himachal Pradesh	Mandi	Nachan	D.P.F Shikawari	10	31.9769	77.2678
555	Himachal Pradesh	Mandi	Nachan	D.P.F Shlhi bagi	0	31.8375	77.2075
556	Himachal Pradesh	Mandi	Nachan	Dalikar Nallah	4	31.6254	77.0248
557	Himachal Pradesh	Mandi	Nachan	Dhar DPF Kakdi Nallah	0	32.1000	77.1028
558	Himachal Pradesh	Mandi	Nachan	DPF Darotha- DPF Malach	3	31.5298	77.1475
559	Himachal Pradesh	Mandi	Nachan	DPF Kandha	0	31.5573	77.1126
560	Himachal Pradesh	Mandi	Nachan	DPF Keuli/Nihri/Sunah and	0	31.5794	77.1847

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
				Gyar			
561	Himachal Pradesh	Mandi	Nachan	Gahar Nallah	3	31.6322	77.0444
562	Himachal Pradesh	Mandi	Nachan	Galhan (DPF Galhan) Nallah	0	31.4833	77.0440
563	Himachal Pradesh	Mandi	Nachan	Goda Nallah	4	31.6629	77.0433
564	Himachal Pradesh	Mandi	Nachan	Gooloun Nallah	3.5	31.9086	77.0350
565	Himachal Pradesh	Mandi	Nachan	Kashan Nallah	3	31.7756	77.3111
566	Himachal Pradesh	Mandi	Nachan	Kholanal	9	31.9119	77.2161
567	Himachal Pradesh	Mandi	Nachan	Kuaa Nallah	5	31.6683	77.0915
568	Himachal Pradesh	Mandi	Nachan	Kumcha Nallah	5	31.5816	77.0462
569	Himachal Pradesh	Mandi	Nachan	Mahu Nallah	5	31.8469	77.2542
570	Himachal Pradesh	Mandi	Nachan	Maloun Naal In Togra DPF	1	31.5219	77.0442
571	Himachal Pradesh	Mandi	Nachan	Pakhari Silh DPF	0	32.2078	78.9481
572	Himachal Pradesh	Mandi	Nachan	Reonsi Nallah	0	31.5575	77.1675
573	Himachal Pradesh	Mandi	Nachan	Shadha Silha D.P.F, Gadoun Silh DPF	17.5	31.8162	77.3521

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
574	Himachal Pradesh	Mandi	Nachan	Sunas D.P.F	8	31.9576	77.3328
575	Himachal Pradesh	Mandi	Nachan	Surah	10	31.5989	77.1733
576	Himachal Pradesh	Mandi	Nachan	Taladhar Nallah	3	31.4585	76.9093
577	Himachal Pradesh	Mandi	Nachan	Tandi Beat Tandi DPF Rahi Nallah	0	31.9492	77.2064
578	Himachal Pradesh	Mandi	Nachan	Tungau Nallah	4	31.7683	77.3369
579	Himachal Pradesh	Mandi	Suket	Bhadarwar	5	31.6698	76.8189
580	Himachal Pradesh	Mandi	Suket	Chandrakari	0	31.7149	76.7009
581	Himachal Pradesh	Mandi	Suket	Deodha Beat (Khad +Nallah)	0	31.5944	76.9281
582	Himachal Pradesh	Mandi	Suket	Dev Brodta	8	31.7312	76.7473
583	Himachal Pradesh	Mandi	Suket	Dhanotu Beat (Dibbereat Khad)	0	32.0020	76.1845
584	Himachal Pradesh	Mandi	Suket	Jamdwar	5	31.7432	76.7742
585	Himachal Pradesh	Mandi	Suket	Janitary DPF	3	31.9158	76.8961
586	Himachal Pradesh	Mandi	Suket	Kaldo	5	31.6437	76.8242

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
587	Himachal Pradesh	Mandi	Suket	Mageran	5	31.6917	76.7667
588	Himachal Pradesh	Mandi	Suket	Nallah in Chamiyar Beat, Nandgarh Blcok, Jai Devi Forest Range	0	31.5118	77.0088
589	Himachal Pradesh	Mandi	Suket	Nallah in Doldhar Beat, Jai Devi Block Forest Range	0	31.4760	76.9738
590	Himachal Pradesh	Mandi	Suket	Nallah in Ghiri Beat, Rohanda Block, Jai Devi Forest Range	0	31.4980	76.9585
591	Himachal Pradesh	Mandi	Suket	Nallah in Hatgarh beat, Nandgarh Block, Jai Devi Forest Range	0	31.5431	76.9731
592	Himachal Pradesh	Mandi	Suket	Nallah in Jai Devi Beat, Jai Devi Blcok, Jai Devi Forest Range	0	31.4774	76.9763
593	Himachal Pradesh	Mandi	Suket	Nallah in Kutachi beat, Nandgarh Block, Jai Devi Forest Range	0	31.5113	76.9957
594	Himachal Pradesh	Mandi	Suket	Pingla (Berodhar)	5	31.6941	76.8071

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
595	Himachal Pradesh	Mandi	Suket	Rajgarh Beat (Khad+Nallahhs)	0	31.5777	76.9701
596	Himachal Pradesh	Mandi	Suket	Sadar Beat of Suket Range	0	31.5000	76.9002
597	Himachal Pradesh	Mandi	Suket	Sarkaghat	0	31.6987	76.7322
598	Himachal Pradesh	Mandi	Suket	Thona	5	31.9875	76.8817
599	Himachal Pradesh	Mandi	Suket	Tikker	19	31.7942	77.0844

Annexure 67 : The Geo Co-ordinates of Proposed Forestry Intervention Sites in Conservation Interventions (SMC) of Beas Riverscape, in Punjab

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
1	Punjab	Gurdaspur	Gurdaspur	Aulakh	15	31.6900	75.4800
2	Punjab	Gurdaspur	Gurdaspur	B.P.Kotli Bhon Singh	0.36	32.0300	75.4800
3	Punjab	Gurdaspur	Gurdaspur	Bada De Khue	0.4	32.0100	75.4700
4	Punjab	Gurdaspur	Gurdaspur	Baghe	12	31.6800	75.4700

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
5	Punjab	Gurdaspur	Gurdaspur	Balarwal	10	31.6806	75.4812
6	Punjab	Gurdaspur	Gurdaspur	Bhaini Milwan, Dhariwal	20	32.0500	75.4900
7	Punjab	Gurdaspur	Gurdaspur	Bhaini Milwan, Dhariwal (2)	8	32.0100	75.4600
8	Punjab	Gurdaspur	Gurdaspur	Bhaini Milwan, Dhariwal (3)	20	32.0300	75.4800
9	Punjab	Gurdaspur	Gurdaspur	Bhaini Milwan, Dhariwal (4)	4	32.0000	75.4580
10	Punjab	Gurdaspur	Gurdaspur	Bhaini Paswal, Dhariwal	10	31.9370	75.5169
11	Punjab	Gurdaspur	Gurdaspur	Bhaini Paswal, Dhariwal (2)	20	31.9379	75.5163
12	Punjab	Gurdaspur	Gurdaspur	Bhaini Paswal, Dhariwal (3)	10	31.9373	75.5163
13	Punjab	Gurdaspur	Gurdaspur	Bhaini Paswal, Dhariwal (4)	20	31.9370	75.5169
14	Punjab	Gurdaspur	Gurdaspur	Bhet	10	31.7672	75.5339
15	Punjab	Gurdaspur	Gurdaspur	Bhet Pattan. Dhariwal (2)	10	31.7693	75.5326
16	Punjab	Gurdaspur	Gurdaspur	Bhet Pattan. Dharwal	10	31.7690	75.5321
17	Punjab	Gurdaspur	Gurdaspur	Bhol	10	31.6141	75.3928

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
18	Punjab	Gurdaspur	Gurdaspur	Budha Bala Dhariwal (2)	8	31.8020	75.5528
19	Punjab	Gurdaspur	Gurdaspur	Budha Bala, Dhariwal	8	31.8017	75.5530
20	Punjab	Gurdaspur	Gurdaspur	Chal Kalan	0.4	31.1003	75.9167
21	Punjab	Gurdaspur	Gurdaspur	Chandu Bhau	0.4	31.0256	75.5086
22	Punjab	Gurdaspur	Gurdaspur	Chean Choupian	0.3	32.7276	75.5364
23	Punjab	Gurdaspur	Gurdaspur	Chechian Chaurian, Dhariwal (2)	6	32.0592	75.5557
24	Punjab	Gurdaspur	Gurdaspur	Dhaki, Dinangar	12	32.1281	75.5844
25	Punjab	Gurdaspur	Gurdaspur	Dhaki, Dinangar(2)	10	32.1278	75.5842
26	Punjab	Gurdaspur	Gurdaspur	G.P Burenanole	0.4	31.6969	75.2436
27	Punjab	Gurdaspur	Gurdaspur	G.P Hardoj Hande	0.4	32.1200	75.5100
28	Punjab	Gurdaspur	Gurdaspur	G.P Panchyat Hssen Khurd	0.18	31.9600	75.4300
29	Punjab	Gurdaspur	Gurdaspur	G.P. P. Veronangal	0.1	31.3500	75.3600
30	Punjab	Gurdaspur	Gurdaspur	G.P. Anokot Kalan	0.3	31.9250	75.4300

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
31	Punjab	Gurdaspur	Gurdaspur	G.P. Bhol	0.4	31.6140	75.3936
32	Punjab	Gurdaspur	Gurdaspur	G.P. Chounta	0.8	32.1000	75.5200
33	Punjab	Gurdaspur	Gurdaspur	G.P. Dalla Kalau	0.6	31.9900	75.4600
34	Punjab	Gurdaspur	Gurdaspur	G.P. Dhandhoi	0.4	32.0500	75.3414
35	Punjab	Gurdaspur	Gurdaspur	G.P. Galowal	0.15	31.8085	75.5881
36	Punjab	Gurdaspur	Gurdaspur	G.P. Karnama	0.4	31.8660	75.5708
37	Punjab	Gurdaspur	Gurdaspur	G.P. Khokherwal	0.125	32.4225	75.8799
38	Punjab	Gurdaspur	Gurdaspur	G.P. Kohali	0.4	31.7700	75.4510
39	Punjab	Gurdaspur	Gurdaspur	G.P. Madhra	0.4	31.6800	75.3100
40	Punjab	Gurdaspur	Gurdaspur	G.P. New Rangar nangal	0.4	31.9960	75.5200
41	Punjab	Gurdaspur	Gurdaspur	G.P. Patti Tanda	0.4	31.6469	75.4238
42	Punjab	Gurdaspur	Gurdaspur	G.P. Purian Khurd	0.4	32.0750	75.4850
43	Punjab	Gurdaspur	Gurdaspur	G.P. Samrai	0.6	32.3567	75.7939

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
44	Punjab	Gurdaspur	Gurdaspur	G.P. Samrai	0.6	32.3572	75.7942
45	Punjab	Gurdaspur	Gurdaspur	G.P. Udanwal	0.3	32.3336	75.7408
46	Punjab	Gurdaspur	Gurdaspur	G.P. Udhowal	0.624	32.0370	75.4890
47	Punjab	Gurdaspur	Gurdaspur	G.P. Baghe/Punjab	0.4	31.6179	75.3981
48	Punjab	Gurdaspur	Gurdaspur	G.P. Bahadapur Rajoa	0.8	31.6182	75.3986
49	Punjab	Gurdaspur	Gurdaspur	G.P. Ballarwal	0.8	31.9200	75.4360
50	Punjab	Gurdaspur	Gurdaspur	G.P. Bhoja	0.8	31.4600	75.2200
51	Punjab	Gurdaspur	Gurdaspur	G.P. Choudriwal	0.4	31.2400	74.9500
52	Punjab	Gurdaspur	Gurdaspur	G.P. Gulehra	0.4	32.0815	75.5557
53	Punjab	Gurdaspur	Gurdaspur	G.P. Habibpur	0.7	31.9394	75.4342
54	Punjab	Gurdaspur	Gurdaspur	G.P. Jandi	0.6	31.1680	74.9600
55	Punjab	Gurdaspur	Gurdaspur	G.P. Kazampur	0.125	31.8120	75.5000
56	Punjab	Gurdaspur	Gurdaspur	G.P. Kotlasuba Singh	0.15	31.9600	75.4570

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
57	Punjab	Gurdaspur	Gurdaspur	G.P. Marri Panwan	0.35	31.7101	75.4854
58	Punjab	Gurdaspur	Gurdaspur	G.P. Patti Bulpur	0.6	31.6763	75.4239
59	Punjab	Gurdaspur	Gurdaspur	G.P. Patti Lakhpur	0.6	31.9386	75.4310
60	Punjab	Gurdaspur	Gurdaspur	G.P. Shahpur Arian	0.15	32.3381	75.7864
61	Punjab	Gurdaspur	Gurdaspur	Gill Bob	10	31.7340	75.4877
62	Punjab	Gurdaspur	Gurdaspur	GP Addowali	0.4	31.9706	75.4670
63	Punjab	Gurdaspur	Gurdaspur	GP Basrai	0.4	31.9369	75.4302
64	Punjab	Gurdaspur	Gurdaspur	GP Chal Khunu	0.4	31.3880	75.3711
65	Punjab	Gurdaspur	Gurdaspur	GP Chinabet	0.4	32.0321	75.5182
66	Punjab	Gurdaspur	Gurdaspur	GP Chitt	0.4	32.0712	75.6672
67	Punjab	Gurdaspur	Gurdaspur	GP Dhanne	0.5	31.7468	75.5440
68	Punjab	Gurdaspur	Gurdaspur	GP Dhapai	0.8	31.3838	75.4050
69	Punjab	Gurdaspur	Gurdaspur	GP Harpura	0.6	31.7339	75.4000

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
70	Punjab	Gurdaspur	Gurdaspur	GP Kahalwan	0.6	31.2390	75.2416
71	Punjab	Gurdaspur	Gurdaspur	GP Kotli Bhan Singh	0.36	31.7380	75.4251
72	Punjab	Gurdaspur	Gurdaspur	GP Mirpur	1.2	31.2100	75.2100
73	Punjab	Gurdaspur	Gurdaspur	GP Nathpur	0.2	32.0200	75.5710
74	Punjab	Gurdaspur	Gurdaspur	GP Natt	0.2	31.6200	75.4054
75	Punjab	Gurdaspur	Gurdaspur	GP Radhan	0.6	31.6410	75.4397
76	Punjab	Gurdaspur	Gurdaspur	GP Rampur	0.4	31.2080	75.2190
77	Punjab	Gurdaspur	Gurdaspur	GP Said Mubarak	0.096	31.6210	75.4055
78	Punjab	Gurdaspur	Gurdaspur	GP Shekupur Khurd	0.2	31.1460	75.1040
79	Punjab	Gurdaspur	Gurdaspur	GP.Bianpur	0.4	32.0810	75.5810
80	Punjab	Gurdaspur	Gurdaspur	Jahadpur	0.8	31.6245	75.4030
81	Punjab	Gurdaspur	Gurdaspur	Jhandi, Dinangar	5	32.1223	75.5764
82	Punjab	Gurdaspur	Gurdaspur	Jhandi, Dinangar (2)	5	32.1223	75.5764

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
83	Punjab	Gurdaspur	Gurdaspur	Jouto Serga	0.4	31.1471	75.1044
84	Punjab	Gurdaspur	Gurdaspur	Kapoora	15	31.9370	75.5169
85	Punjab	Gurdaspur	Gurdaspur	Khaira, Dhariwal	7	31.2040	75.1930
86	Punjab	Gurdaspur	Gurdaspur	Khaira, Dhariwal (3)	7	31.6982	75.3712
87	Punjab	Gurdaspur	Gurdaspur	Khaira, Dhariwal (4)	7	31.6613	75.3430
88	Punjab	Gurdaspur	Gurdaspur	Khaira, Dhariwal (4)	7	31.6881	75.6241
89	Punjab	Gurdaspur	Gurdaspur	Khaira, Dharwal (2)	7	31.6280	75.4090
90	Punjab	Gurdaspur	Gurdaspur	Khokan Fujian	0.2917	31.9728	75.4690
91	Punjab	Gurdaspur	Gurdaspur	Khokhowal	6	31.6173	75.4065
92	Punjab	Gurdaspur	Gurdaspur	Khokhuwal	0.4	31.6179	75.3981
93	Punjab	Gurdaspur	Gurdaspur	Kiri Afgana, Dhariwal	7	31.8786	75.4541
94	Punjab	Gurdaspur	Gurdaspur	Kiri Afgana, Dhariwal (2)	14	31.8789	75.4538
95	Punjab	Gurdaspur	Gurdaspur	Kiri Afgana, Dhariwal (3)	8	31.8792	75.4548

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
96	Punjab	Gurdaspur	Gurdaspur	Kiri Afgana, Dhariwal (4)	14	31.8795	75.4537
97	Punjab	Gurdaspur	Gurdaspur	Kotla Sanrel	0.29	31.5050	75.4653
98	Punjab	Gurdaspur	Gurdaspur	Logowal Kalan	0.0307	31.8391	75.5081
99	Punjab	Gurdaspur	Gurdaspur	Mannan, Dhariwal (2)	10	31.4900	75.4880
100	Punjab	Gurdaspur	Gurdaspur	Mari Bhuchain	10	31.6422	75.4668
101	Punjab	Gurdaspur	Gurdaspur	Mari Tanda	10	31.6466	75.4234
102	Punjab	Gurdaspur	Gurdaspur	Mirpur, Dinnangar	10	32.0996	75.5786
103	Punjab	Gurdaspur	Gurdaspur	Mirpur, Dinnangar (2)	10	32.0996	75.5786
104	Punjab	Gurdaspur	Gurdaspur	Nathual	1	31.2030	75.0113
105	Punjab	Gurdaspur	Gurdaspur	Nawan Cahlo Cahal	0.0307	31.4651	75.2410
106	Punjab	Gurdaspur	Gurdaspur	Palti Nondk Nungal	0.2	31.4240	75.4317
107	Punjab	Gurdaspur	Gurdaspur	Patti Dogra	0.4	31.6461	75.4230
108	Punjab	Gurdaspur	Gurdaspur	Rampur	7	31.6769	75.4785

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
109	Punjab	Gurdaspur	Gurdaspur	Rengal Nangal	0.6	31.4460	75.1873
110	Punjab	Gurdaspur	Gurdaspur	Samrai	7	31.6689	75.4731
111	Punjab	Gurdaspur	Gurdaspur	Sekhupur	0.086	31.2000	75.2100
112	Punjab	Gurdaspur	Gurdaspur	Sekhupur Khuarde	0.033	31.2300	75.2400
113	Punjab	Gurdaspur	Gurdaspur	Sidhpur, Dinangar	7	32.0864	75.5844
114	Punjab	Gurdaspur	Gurdaspur	Sidhpur, Dinangar (2)	7	32.0868	75.5848
115	Punjab	Gurdaspur	Gurdaspur	Vaironangal	0.8	31.6540	75.3200
116	Punjab	Gurdaspur	Gurdaspur	Village Fattu Barkat and Ghandwal	15	31.7246	75.5340
117	Punjab	Gurdaspur	Gurdaspur	Village Rampur to Mari Buchian	20	31.6395	75.4424
118	Punjab	Hoshiarpur	Dasuya	Badla	0	31.5840	75.5340
119	Punjab	Hoshiarpur	Dasuya	Beh Nangal, Beh Atta, Beh Bidhia	0	31.8539	75.8427
120	Punjab	Hoshiarpur	Dasuya	Bering	20	31.9303	75.8357
121	Punjab	Hoshiarpur	Dasuya	Bindraban C-1A, C-1B,C-2	0	31.9414	75.7633

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
122	Punjab	Hoshiarpur	Dasuya	Bindraban C-3,4,5,6,	0	31.9106	75.7915
123	Punjab	Hoshiarpur	Dasuya	Chattarpur	0	31.9311	75.8941
124	Punjab	Hoshiarpur	Dasuya	Dadial	0	31.8570	75.8330
125	Punjab	Hoshiarpur	Dasuya	Dharampur	0	31.8414	75.9144
126	Punjab	Hoshiarpur	Dasuya	Ghugwal, Jugail, Swar, Asafpur	0	31.9414	75.7633
127	Punjab	Hoshiarpur	Dasuya	Labbar	0	31.8450	75.8630
128	Punjab	Hoshiarpur	Dasuya	Mackowal	0	31.7120	75.3700
129	Punjab	Hoshiarpur	Dasuya	Mackowal	0	31.7000	75.3700
130	Punjab	Hoshiarpur	Dasuya	Mawa	0	31.9300	75.7800
131	Punjab	Hoshiarpur	Dasuya	Nathuwal, Rakri, Bhadiaran	0	31.9018	75.8279
132	Punjab	Hoshiarpur	Dasuya	Neknama	0	31.8000	75.8200
133	Punjab	Hoshiarpur	Dasuya	Pohari	0	31.9315	75.8943
134	Punjab	Hoshiarpur	Dasuya	Rampur	0	31.2200	75.2100

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
135	Punjab	Hoshiarpur	Dasuya	Sahoura Kandi	0	31.9300	75.7500
136	Punjab	Hoshiarpur	Dasuya	Sanghwal	0	31.5000	75.4600
137	Punjab	Hoshiarpur	Dasuya	Sansarpur	0	31.2500	75.2300
138	Punjab	Hoshiarpur	Dasuya	Shree Pandian (R-IV Karanpur)	0	31.9215	75.8678
139	Punjab	Hoshiarpur	Dasuya	Sukhchainpur	0	31.8600	75.9000
140	Punjab	Hoshiarpur	Dasuya	Talwara	50	31.8942	75.8943
141	Punjab	Hoshiarpur	Hoshiarpur	Bahera	2	31.7900	75.9500
142	Punjab	Hoshiarpur	Hoshiarpur	Bassi Babu Khan	0	31.6700	75.5600
143	Punjab	Hoshiarpur	Hoshiarpur	Chack Sadhu-Dhirowal Choe	2	31.7800	75.9700
144	Punjab	Hoshiarpur	Hoshiarpur	Dandoh	0	31.6900	75.5900
145	Punjab	Hoshiarpur	Hoshiarpur	Dhosbaha	2	31.8100	76.0100
146	Punjab	Hoshiarpur	Hoshiarpur	Hariana Choe	0	31.3000	75.3100
147	Punjab	Hoshiarpur	Hoshiarpur	Janauri	0	31.8000	75.9700

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
148	Punjab	Hoshiarpur	Hoshiarpur	Khangwari	2	31.8300	75.9000
149	Punjab	Hoshiarpur	Hoshiarpur	Khepran Choe	0	31.6900	75.5900
150	Punjab	Hoshiarpur	Hoshiarpur	Lalpur Choe	0	31.9000	75.7900
151	Punjab	Hoshiarpur	Hoshiarpur	Mehangrowal	9	31.6000	75.5600
152	Punjab	Hoshiarpur	Hoshiarpur	Patti Choe	2	31.2600	74.9700
153	Punjab	Hoshiarpur	Hoshiarpur	Phaphial	0	31.8300	75.8500
154	Punjab	Hoshiarpur	Hoshiarpur	Rajni Devi Choe	2	31.8014	76.2080
155	Punjab	Hoshiarpur	Hoshiarpur	Sherpur Choe	31	31.2500	75.2500
156	Punjab	Hoshiarpur	Hoshiarpur	Takhni Forest	0	31.8800	75.8800
157	Punjab	Hoshiarpur	Hoshiarpur	Thana Choe	2	31.6500	75.4700
158	Punjab	Kapurthala	Jalandhar	Range 1	5	31.1864	75.0708
159	Punjab	Kapurthala	Jalandhar	Range 2	10	31.2931	75.1632
160	Punjab	Kapurthala	Jalandhar	Range 3	10	31.2985	75.0607

Sr. No.	State	District	Division	Site Name	Area	Latitude	Longitude
161	Punjab	Kapurthala	Jalandhar	Range 4	5	31.1864	75.0708
162	Punjab	Pathankot	Pathankot	Dhangu Surdh,Shahpurkandi, Suket	0	32.3922	75.8188
163	Punjab	Pathankot	Pathankot	Lehroon,Sarthi,Ralla	0	32.4181	75.9011
164	Punjab	Tarn Taran	Amritsar	Range 1	5	31.3200	75.1200
165	Punjab	Tarn Taran	Amritsar	Range 2	5	31.3358	75.1219
166	Punjab	Tarn Taran	Amritsar	Range 3	9	31.2983	75.0602

Annexure 68 : Consent letter on availability of land for various forestry intervention in state of Punjab

Government of Punjab
Department of Forest & Wildlife Preservation
O/o Principal Chief Conservator of Forests (HoFF),
Forest Complex, Sector 68, SAS Nagar (Mohali)

To

Director General,
Indian Council of Forestry Research &Education,
P.O. New Forest,
Dehradun.

No.
Dated:

Subject: **Feedback and comments on availability of land for forestry Interventions proposed in the DPR for Rejuvenation of Rivers.**

Reference: Your letter No. 41-58/2019/ADG (M&E) /ICFRE/DPR/ VOL.II/ 113 dated 12/10/2020 and NAEB letter No.12-4/2017 B-III (NAEB) dated 17/09/2020

With reference to above mentioned letters concerning the availability of land to carry out the prescribed forestry interventions, it is intimated that the required information has been provided by the respective divisions of the Punjab Forest Department with regard to the locations along the river scapes of Beas, Ravi and Satluj and its tributaries. The proposed forestry interventions have been deliberated in the stake holders meeting.

In view of above, it is intimated that the sufficient land is available to take up the forestry interventions along the river scapes of Beas, Ravi and Satluj in respective forest divisions of Punjab State.

Principal Chief Conservator of Forest (HoFF)
Punjab, SAS Nagar, Mohali.

No. SP1/1730-31 Dated:- 27/10/2020

Copy is forwarded to the following for information and necessary action.

1. Assistant Commissioner (Forest), Ministry of Environment Forest & Climate Change (NAEB), New Delhi.
2. Director, HFRI, Shimla, Himachal Pradesh.

Principal Chief Conservator of Forest (HoFF)
Punjab, SAS Nagar, Mohali.

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Annexure 69 :Consent letter on availability of land for various forestry intervention in state of Himachal Pradesh

Office of
Principal Chief Conservator of Forests
(Head of Forest Force)
Himachal Pradesh Forest Department Headquarters, Talland, Shimla-171 001

No. Ft.15-642/2019(D)DPR/IRB
Himachal Pradesh Forest Department

To

The Director,
Himalayan Forestry Research Institute,
Conifer Campus, Panthaghati, Shimla-1710013.

Dated Shimla-1, the - 3 NOV 2020

Subject Request to provide information on availability of land for forestry interventions and certificate of verification of plantation and cost.

Sir,

Kindly refer to your office letter No.4 (Vistar-28) Hi.v.a.s./2020/ 1288 dated 25.09.2020 on the subject cited above.

2. In this regard it is certified that land is available in the concerned Forest Divisions for proposed forestry inventions as mentioned in the Draft Detailed Project Reports (DPRs) for rejuvenation of five major rivers i.e. Beas, Chenab, Jhelum, Ravi & Satluj prepared/finalized by the Himalayan Forest Research Institute, Shimla in consultation with the field officers of this department as per geo coordinates given in the DPRs.

Yours faithfully,

Chief Conservator of Forests (Fin.)
Himachal Pradesh.

3.11.2020

Tel.No. 0177-2624207, 2623147, 2624186, Fax: 0177-2624192, E-mail: pccf-hp@nic.in