

DRAFT

Volume - II

Detailed Project Report



Forestry Interventions for Rejuvenation of Chenab River Basin



Prepared by

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HIMACHAL PRADESH

Chapter 1

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 hilly states of India, and has many beautiful hill stations like Shimla, Kullu, Mandi, Chamba, Dalhousie, Manali and Dharamshala. It consists of many charming and attractive valleys, lakes, mountains, tribal people, and has been considered to be the paradise for the trackers, climbers and campers. The State is often referred as the Devbhoomi (The Land of God) due to the numerous temples and pilgrimage centers located mostly along the rivers. Shimla is the capital of this State which was once the summer capital of the English Rulers of India. The State is divided into 12 districts for administrative purpose. The drainage systems of the state are the Chenab, Ravi, Beas, Sutlej and Yamuna Rivers. These rivers are perennial, and are fed by glaciers/snow and rainfall.

1.2 State Profile

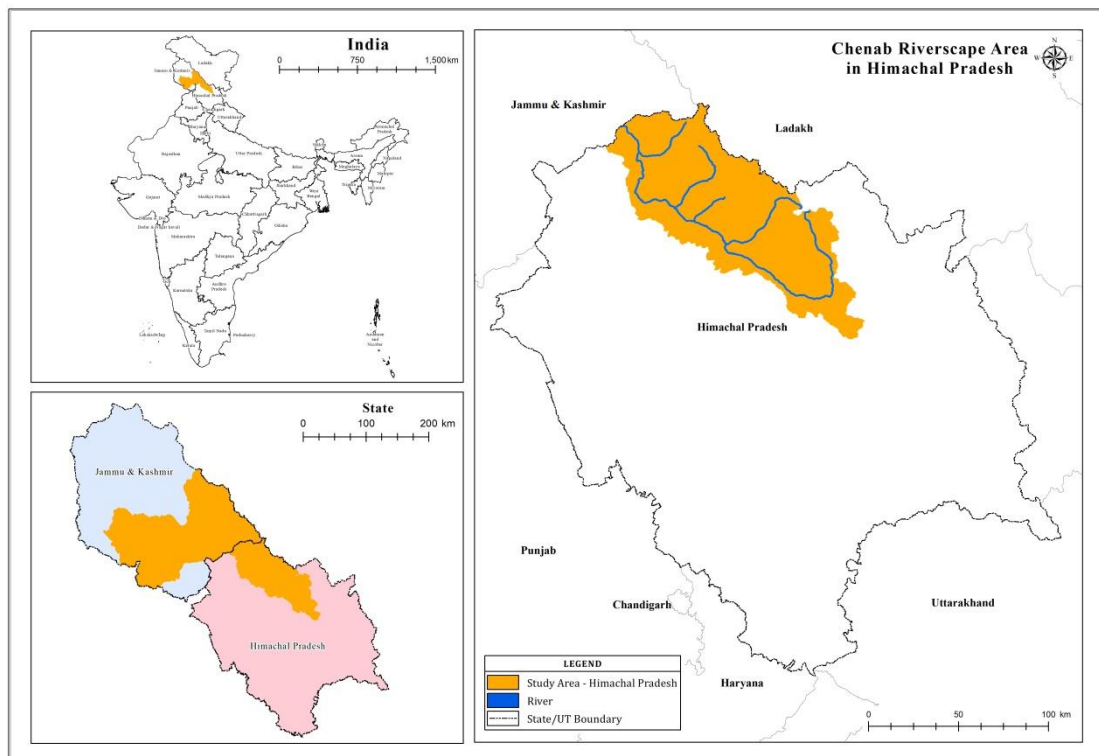


Fig. 1.1- Chenab Riverscape Area in Himachal Pradesh

1.2.1 Geographical Extent

The state covers a geographical area of 55,673 km² which is about 1.69% of India's total area and extends between 30°22' N and 33°12' N Latitudes and 75°45' E and 79°04' E Longitudes. Physiographically, the state can be divided into four zones namely, Outer Himalaya or the Shivaliks, inner Himalaya or Mid Himalaya and Greater Himalaya and Trans Himalaya. Himachal Pradesh is largely made up of hills and mountains ranging between 350 - 6,975 m amsl (FSI, 2011). There is 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. Towards north, there are higher mountain ranges and deep valleys.

The physiography of State is 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 Great Himalaya 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

Geology

The Himachal Pradesh is covered by the rocks ranging in age from Precambrian to Recent. 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 Kunzaml 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).

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 lower-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 sub-tropical forests. The altitude ranges from 350-1,500 m amsl. This area is suitable for the cultivation of maize, wheat, ginger, sugarcane, paddy, table potatoes, guajava, papaya, mango, lemon, kinnu, etc. The Inner Himalaya or Middle Himalayan zone falls in upper areas or the tehsils of Peachhad 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 ranges 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, Pangti tehsil of Chamba district and some areas of Lahaul-Spiti. The altitude ranges from 4500 m and above mean sea level. The western Himalayan sub-alpine conifer forests, Western Himalayan alpine scrubs and alpine pastures form 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.

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, podsollic 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 Shiwalik and Lesser Himalayan regions and cover 42.16% of the State's area. The middle and Greater Himalayan zones are characterized by podsollic 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 thin, 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 has been recorded in Dharmasala is 3,400 mm. The average annual rainfall is about 1800 mm. The average temperature in the summer months vary from 22° C to 37° C. Throughout the State, temperature during winter months ranges from sub zero to 15° C.

1.2.4 River System and Hydrology

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 are the Chandra Baga or the 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).

Sutlej River

The Sutlej River rises from beyond Indian borders in the southern slopes of the Kailash mountain near Mansarovar Lake from Rakash Lake, as Longchen 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 3,930 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 km². The Sutlej finally drains into the Indus River in Pakistan. The basin consists of 2,026 glaciers covering an area of 1,426 km² 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, Pooh, Kalpa, Reckongpeo, Tapri, Jhakri, Rampur, Tattapani, Sunni 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 River 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 are 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 summers 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, Bahlui, 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 (mg/l)	7	6	6	1.2	27
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)

Beas River

The Beas River emerges from a cavern at the Rohtang Pass at an elevation of 4,350m 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, Patlikulhal, Bhuntar, Kullu, Bajaura, Nagwai, Pandoh, Mandi, Dharampur, Sujampur Tihra, Nadaun and Dehra-Gopipur. The total length of this river is 460 km.

Tributaries: The important tributaries of the Beas River are given as below.

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.

Baner: 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 rain fed 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 Khad 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 flank 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.

Patlikuhel Khad: This Khad is a tributary of the Beas River in Kullu district. It rises from the 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 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.

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 ($^{\circ}$ 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)

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 2,286 m to form the river Chenab. The Chandra rises from the Chandertal, of Baralacha Pass and Bhaga from the north-west of the Baralacha Pass. It enters Pangri Valley of Chamba district near Bhujind and leaves the district at Sansari Nala 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 km², out of which 7,500 km² 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 below.

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 characterise 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 & 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 parameter of water of Chenab River is 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 (°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
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 below.

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 the snows 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 shoot of 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 Nallah	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)

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 areas, 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).

Water Resources Issues

Himachal Pradesh having the mountain ecosystems harbour a wide range of natural resources, and are particularly sensitive to change. Himalayan ecosystem is 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 ecosystem 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 ecosystem for maintaining ecological flow of the 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 km², out of which, 16,263 km² (29.21%) is under forests and tree cover. Out of the total forested area, 3,113 km² is under very dense forest cover, 7,126 km² under moderately dense forest cover, while 5,195 km² falls under open forests (FSI, 2019; Table 1.5 and Table 1.6). The growing stock in recorded forest area and Trees Outside Forests (TOFs) are 347.07 and 25.19 million m³, 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 Forests (km ²)	Tree Cover (km ²)	Total Forests and Tree Cover (km ²)
3,113	7,126	5,195	15,434	829	16,263

(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)

Table: 1.7- Forest Types of Himachal Pradesh

Group	Forest types	Altitude (m)	Dominant Species
1. Tropical Moist Deciduous Forests	1. Bhabar-Dun Sal Forests	< 650 m	<i>Shorea robusta</i> , <i>Lagerstroemia parviflora</i> , <i>Mallotus philippensis</i> , <i>Cassia fistula</i> & <i>Acacia catechu</i>
2. Tropical Dry Deciduous Forests	1. Northern Dry Mixed Deciduous Forests	< 750 m	<i>Anogeissus latifolia</i> , <i>Acacia catechu</i> & <i>Diospyros montana</i>
	2. Dry Deciduous Scrubs	< 750 m	<i>Acacia catechu</i> , <i>Butea monosperma</i> , <i>Lannea coromandelica</i> , <i>Nyctanthes arbor-tristis</i> , <i>Dodonaea viscosa</i> & <i>Woodfordia fruticosa</i>
	3. Euphorbia Scrubs	< 750 m	<i>Euphorbia</i> spp. & <i>Acacia</i> spp.
	4. Khair-Sissu Forests	< 750 m	<i>Dalbergia sissoo</i> & <i>Acacia catechu</i>
	5. Dry Bamboo Brake	< 750 m	<i>Dendrocalamus strictus</i>
3. Subtropical Pine Forests	1. Lower or Shiwalik Chir Pine Forests	800-1,700 m	<i>Pinus roxburghii</i>
	2. Upper or Himalayan Chir Pine Forests	1,200-1,700 m	<i>Pinus roxburghii</i> , <i>Quercus oblongata</i> & <i>Rhododendron arboreum</i>
	3. Himalayan Subtropical Scrubs	< 1,000 m	<i>Carissa opaca</i> , <i>Dodonaea viscosa</i> & <i>Rhus parviflora</i>
4. Himalayan Moist Temperate Forests	1. Ban Oak Forests	1,600-2,300 m	<i>Quercus oblongata</i> , <i>Rhododendron arboreum</i> & <i>Lyoia ovalifolia</i>
	2. Moru Oak Forests	1,200-2,250 m	<i>Quercus floribunda</i> , <i>Quercus oblongata</i> , <i>Pinus wallichiana</i> , <i>Cedrus deodara</i> & <i>Rhododendron arboreum</i>
	3. Oak Scrubs	1,200-2,200 m	<i>Berberis</i> spp., <i>Pyracantha crenulata</i> , <i>Rosa</i> spp., <i>Prinsepia utilis</i> & <i>Zanthoxylum armatum</i>
	4. Moist Deodar Forests	1,700-3,500 m	<i>Cedrus deodara</i> , <i>Pinus wallichiana</i> , <i>Picea smithiana</i> & <i>Abies pindrow</i>
	5. Western Mixed Coniferous Forests	2,100-3,000 m	<i>Picea smithiana</i> , <i>Abies pindrow</i> , <i>Pinus wallichiana</i> , <i>Cedrus deodara</i> & <i>Quercus</i> spp.

	6. Moist Temperate Deciduous Forests	1,800-2,750 m	<i>Acer caesium</i> , <i>A. pictum</i> , <i>Betula alnoides</i> , <i>Ulmus wallichiana</i> & <i>Abies pindrow</i>
	7. Low-Level Blue Pine Forests	1,800-2,750 m	<i>Pinus wallichiana</i>
	8. Oak Scrubs	1,200-2,750 m	<i>Rosa moshchata</i> , <i>Pyracantha crenulata</i> , <i>Rhus parviflora</i> , <i>Rubus ellipticus</i> , <i>Berberis</i> spp., <i>Desmodium elegans</i> , <i>Quercus oblongata</i> & <i>Indigofera heterantha</i>
	9. Himalayan Temperate Secondary Scrubs	1,200-2,750 m	<i>Plectranthus rugosus</i> , <i>Berberis asiatica</i> , <i>Berberis lyceum</i> , <i>Caryopteris</i> spp., <i>Myrsine africana</i> , <i>Rosa moshchata</i> & <i>Zanthoxylum armatum</i>
	10. Kharsu Oak Forests	2,600-3,500 m	<i>Quercus semecarpifolia</i> , <i>Picea smithiana</i> , <i>Pinus wallichiana</i> , <i>Rhododendron arboreum</i> , <i>Ilex diphyrena</i> , <i>Prunus cornuta</i> , <i>Betula utilis</i> & <i>Acer accuminatum</i>
	11. West Himalayan Upper Oak/Fir Forests	2,600-3,000 m	<i>Abies pindrow</i> , <i>Pinus wallichiana</i> , <i>Quercus semecarpifolia</i> , <i>Taxus wallichiana</i> , <i>Betula utilis</i> & <i>Acer</i> spp.
	12. Montane Bamboo Brakes	> 2,400 m	<i>Drepanostachyum falcatum</i> , <i>Thamnocalamus spathiflorus</i> , <i>Quercus</i> spp. & <i>Rhododendron</i> spp.
	13. Cypress Forests	1,800-2,800 m	<i>Cupressus torulosa</i> , <i>Cedrus deodara</i> , <i>Quercus floribunda</i> & <i>Pyrus pashia</i>
	14. Alder Forests	1,000-3,000 m	<i>Alnus nitida</i> , <i>Populus ciliata</i> , <i>Celtis australis</i> & <i>Ulmus wallichiana</i>
5. Himalayan Dry Temperate Forests	1. Dry Broadleaves and Coniferous Forests	2,000-2,400 m	<i>Pinus gerardiana</i> , <i>Cedrus deodara</i> & <i>Quercus ilex</i>
	2. Neoza Pine Forests	1,700-3,000 m	<i>Pinus gerardiana</i> & <i>Cedrus deodara</i>
	3. Dry Deodar Forests	2,100-3,250 m	<i>Cedrus deodara</i> , <i>Pinus wallichiana</i> & <i>Picea smithiana</i>
	4. West Himalayan	2,900-3,600 m	<i>Acer caesium</i> , <i>A. pictum</i> , <i>Betula</i>

	Dry Temperate Deciduous Forests		<i>alnoides</i> & <i>Ulmus wallichiana</i>
	5. West Himalayan High- Level Dry Blue Pine Forests	3,000-3,600 m	<i>Pinus wallichiana</i> , <i>Pinus gerardiana</i> & <i>Abies pindrow</i>
	6. West Himalayan Dry Juniper Forests	2,500-4,300 m	<i>Juniperus polycarpus</i> , <i>Fraxinus xanthoxyloides</i> & <i>Rosa</i> spp.
	7. Populus/Salix Forests	3,000-4,000 m	<i>Populus euphratica</i> & <i>Salix</i> spp.
	8. Western High-Level Dry Blue Pine Forests	3,000-3,600 m	<i>Pinus wallichiana</i> , <i>Pinus gerardiana</i> , <i>Abies spectabilis</i> , <i>Betula utilis</i> , <i>Rhododendron campanulatum</i> , <i>Juniperus indica</i> & <i>Juniperus wallichiana</i>
6. Sub Alpine Forests	1. West Himalayan Sub-Alpine Fir Forests	2,900-3,050 m	<i>Abies pindrow</i> , <i>Pinus wallichiana</i> & <i>Picea smithiana</i>
	2. West Himalayan Sub-Alpine Birch/Fir Forests	2,900-3,050 m	<i>Abies pindrow</i> , <i>Betula utilis</i> , <i>Rhododendron</i> spp. & <i>Quercus semecarpifolia</i>
7. Moist Alpine Scrubs	3. Birch/Rhododendron Scrub Forests	>3,500 m	<i>Rhododendron</i> spp.
	4. Deciduous Alpine Scrubs	>3,350 m	<i>Betula utilis</i> , <i>Syringa emodi</i> , <i>Salix</i> spp., <i>Lonicera</i> spp. & <i>Berberis</i> spp.
	5. Dwarf Rhododendron Scrubs	3,350-4,600 m	<i>Rhododendron</i> spp.
8. Dry Alpine Scrubs	1. Dry Alpine Scrubs	2,800-4,300 m	<i>Hippophae</i> spp., <i>Juniperus wallichiana</i> & <i>Juniperus indica</i>
	2. Dwarf Juniper Scrubs	2,900-4,200 m	<i>Juniperus wallichiana</i> & <i>Juniperus indica</i>

(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, oilseed, buckwheat, minor millets, potato, ginger, tea, peas, kuth, hops and a variety of vegetables. The fruit, 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 food grains production, it has gained importance in the production of vegetables and fruits such as seed potato, vegetables, ginger, chicory seeds, hops, stone fruits, apples and mushrooms, besides certain medicinal and aromatic plants. Land use pattern of Himachal Pradesh State during 2013-14 is given in Table 1.8.

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 Utilisation	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
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 55,673 km², area of operational holding is about 9,560 km² 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 sheeps are reared by mostly every family in the rural areas. These animals graze in open areas i.e., 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 aesthetic, cultural, commercial and genetic values. The State has great diversity in the biological resources because of its varied topography, geological formations, altitudinal ranges, and climatic conditions. The biodiversity elements in the State varied from tropical, sub-tropical, temperate, sub-alpine and alpine types. 95% of the floral and faunal species available in the State are endemic and 5% of the other species existing are of exotic nature.

Out of the total 47,000 plant species found in the country as many as 3,256 species are reported from Himachal Pradesh. There are 3120 species of Angiosperms, 13 species of Gymnosperms and 124 Pteridophytes and 13 species of Orchids. The fauna of Himachal Pradesh is very diverse and unique. Out of 89,451 species of animals in India, the State harbors 5,721 species of the Indian fauna which shows richness of biological resources of the State considering its small geographical area. The faunal diversity includes 666 Chordates (77 Mammals, 447 Birds, 44 Reptiles, 17 Amphibians and 81 Fishes), 4543 Arthropods (2 Bryozoa, 4362 Insects, 195 Arachnids, 11 Myriopods and 73 Crustaceans) and 412 others (60 Annelids, 73 Molluscs, 2 Acanthocephala, 132 Nematodes, 16 Rotifers, 90 Platyhelminthes, 2 Cnidaria, 3 Porifera and 34 Protozoans). The Western Tragopan (*Tragopan melanocephalus*), a rare and endangered species, is confined only to the North Western Himalaya. Himachal Pradesh also has probably the largest population of Chir Pheasant (*Catreus wallichii*) in the world (HIMCOSTE, 2005).

There are 1 Biosphere Reserve, 5 National Parks, 26 Wildlife Sanctuaries and 3 Conservation Reserves covering 8391 km² and 15.11% of geographical area of Himachal Pradesh (Rana *et al.*, 2012). 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, including many medicinal herbs, 31 mammals and 209 bird, 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 (*Moschus moschiferus*) and the Western Tragopan (*Tragopan melanocephalus*).

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 female, 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 & Spiti is the largest and Hamirpur is the smallest district of the state with geographical area of 12,835 km² and 1,118 km², 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/km² in Lahaul and Spiti district to 406 persons/km² in Hamirpur district as

compared to the State average of 128 persons/km². 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 thousands or more temples all over the State. The State has a number of tourist destinations and places of pilgrimage e.g., Manali, Kullu, Manikaran, Shimla, Dharamshala, Kasauli, Malana, Dalhousie, Kaza, Tabo, Kasol, Khajjiar, Kufri, Chail, Solang Valley, Chamba, Kangra, Brajeshwari Temple, Jwalamukhi Temple, Chamunda Devi Temple, Chintpurni Temple, Rewalsar, Shikari Devi, Bijli Mahadev Temple, Bhimakali Temple, Hatkoti, Jakhu, Naina Devi Temple, Kamrunag, Prashar, Renuka, Chandertal, Surajtal, 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 riverscape includes areas of all micro-watersheds in Chenab River Basin, Himachal Pradesh. Image processing and GIS tools used in the present assessment were ERDAS Imagine 2018, Geomedia Professional 2018, ArcGIS, etc. These GIS software in-fact provides the tools needed to store, analyze and display the required geographic information. Landsat TM, Landsat 8 and Landsat ETM datasets specific to the riverscape were downloaded from www.earthexplorer.usgs.gov. The time frame was selected keeping in view the pre- monsoon and post-monsoon seasons, maximum differentiation in various land-cover features, and the historical dates of maximum flooded area. A list of data downloaded and used is given in Table 1.10.

Table: 1.10- List of Data Downloaded and Used for Preparation of DPR of Chenab Riverscape in Himachal Pradesh

State	Path	Row	Date of Pass	Satellite
Himachal Pradesh	147	037	10-11-2018	Landsat-8
	147	038	10-11-2018	
	148	037	03-12-2018	
	146	038	21-12-2018	

1.3.2 Riverscape Analysis and Riverscape Profile

(A) Spatial Extent

The Himachal Pradesh with geographical area of 55,673 km², represents 1.69% geographical area of the country. Out of this, the spatial extent covered by in the Chenab Riverscape is 7755.44 km² which represents 26.45% area of the delineated Riverscape (Table 2.1). The select area of the riverscape falls in two administrative districts i.e., Lahaul & Spiti and Chamba forming the upper reaches of Chenab River Basin. Chenab River and its 17 major tributaries i.e., Saichu Nallah, Chandra River, Bhaga River, Thiror, Miyar Nallah, Bhut Nallah, Marusudar River, Kal Nai River, Neeru, Lidar River, Manawar Tawi River, Raggi, Bichlari River, Ans River, Mihari Tawi River, Nowshera Tawi River falling in 3,657 micro-watersheds have been included in the river-scape. Out of 17 tributaries, 5 originate in different parts of Himachal Pradesh from Pir Panjal Range, Great Himalayan Range and Zaskar Range. Since, entire basin has been delineated as riverscape, therefore, all tributaries and sub-tributaries are covered in the present DPR (Fig. 1.2) and spatial extents are presented in Table 1.11.

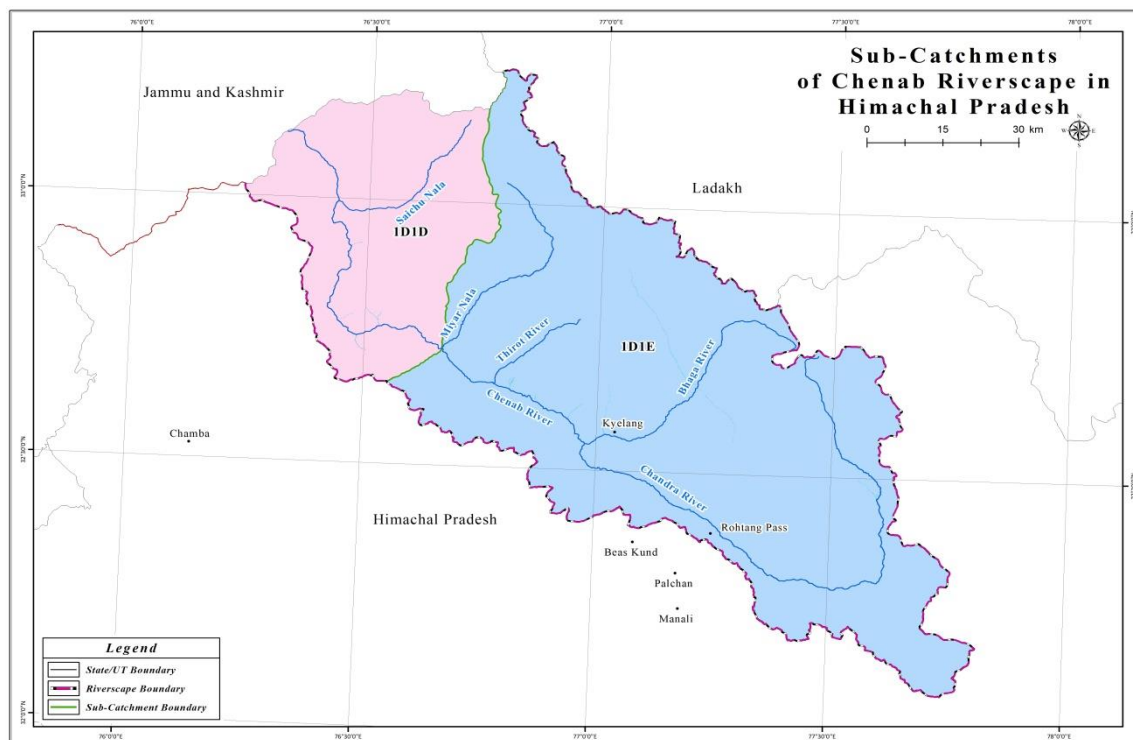


Fig. 1.2- Chenab Riverscape with its Tributaries and Sub – Catchments

Table: 1.11 - Details of the Spatial Extent of Chenab Riverscape in Himachal Pradesh Considered for the Preparation of Detailed Project Report

State	Geographical Area (km ²)	Geographical Coordinates		Riverscape Area (km ²)	% Area of UT
		N Lat.	E Long.		
Himachal Pradesh	55,673	32° 02' 41.741" N to 33° 17' 00.592" N	76° 16' 50.347" E to 77° 46' 35.393" E	7755.44	13.93

(B) Land Use and Land Cover

The geospatial analysis of Chenab Riverscape identified altogether 13 land use and land cover categories. Onscreen visual interpretation technique was used for delineating major land use and land cover types i.e., Agriculture, Alpine pastures, Barren, Cloud, Dense forests, Moderately dense forests, Open forests, River (Dry)/River Sand, River (Perennial), Scrubs, Settlements, Snow/Glaciers and Waterbody in the riverscape. The maximum area of the riverscape was covered by snow/glaciers, representing 86.5 % extent of the total area (Table 1.12). Agriculture land shared 0.7 % area of the riverscape. The distribution of land use and land cover categories in Chenab Riverscape is depicted in Fig 1.3.

Table: 1.12 - Distribution of Area under Different Land Use and Land Cover Categories in Chenab Riverscape, Himachal Pradesh

Sr. No.	Land Use and Land Cover	Area (km ²)	Percentage of Total Area (%)
1.	Agriculture	57.54	0.7
2.	Alpine Pastures	0.88	0.0
3.	Barren	456.52	5.9
4.	Cloud	79.93	1.0
5.	Dense Forests	50.86	0.7
6.	Moderately Dense Forests	11.7	0.2
7.	Open Forests	162.23	2.1
8.	River (Dry)/ River Sand	0.83	0.0
9.	River (Perennial)	17.8	0.2
10.	Scrubs	210.81	2.7
11.	Settlements	0.9	0.0
12.	Snow/Glaciers	6,704.92	86.5
13.	Water-body	0.52	0.0
	Total	7,755.44	100

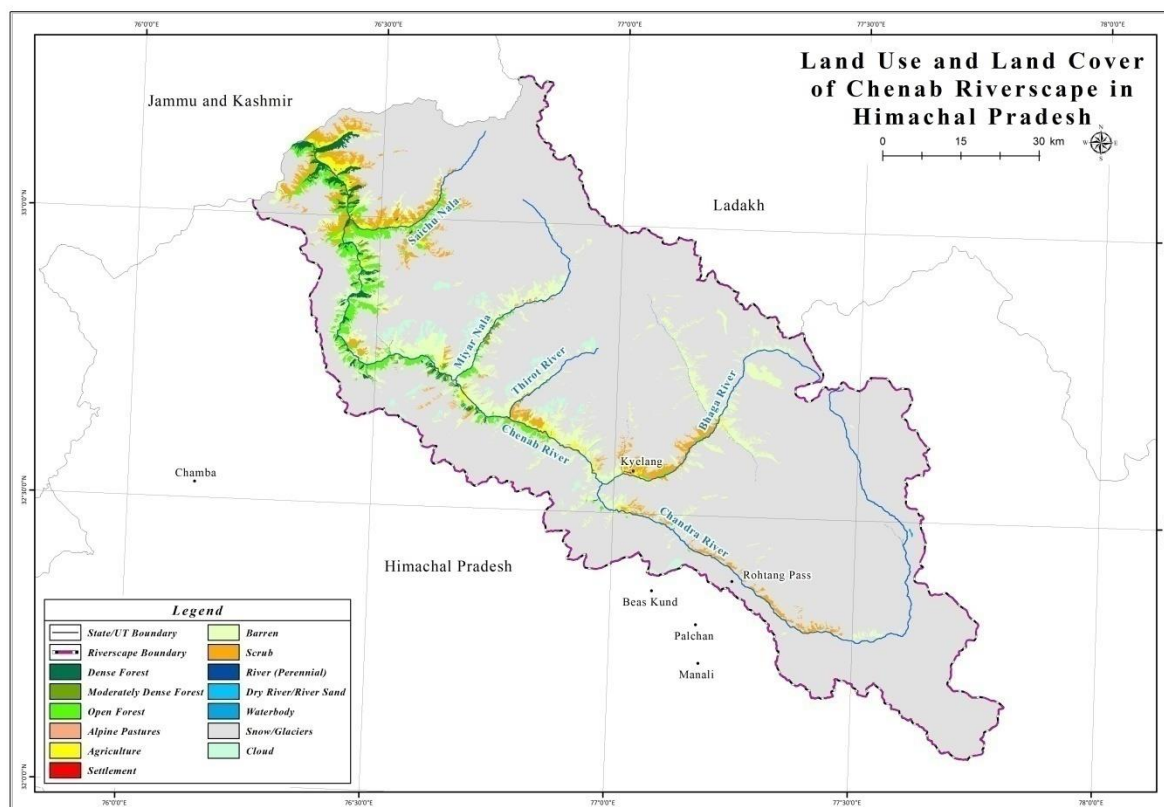


Fig. 1.3 - Land Use and Land Cover Categories of Chenab Riverscape, Himachal Pradesh

(C) Altitude

The Chenab riverscape from North-East to South-West direction depicts large altitudinal variation from 1,500 – 5,000 m amsl. The different elevation classes were regrouped and a total of 5 elevation classes have been derived. The distribution of areas under different elevation classes within the riverscape given in Table 1.13 revealed that the maximum extent of 3,442.59 km² (44.4%) area of the riverscape lies between 4,000 – 5,000 m amsl.

Table: 1.13 - Distribution of Area under Different Elevation Categories in Chenab Riverscape, Himachal Pradesh

Sr. No.	Elevation Classes	Area (km ²)	Representation of the Class (%)
1.	> 1500 to<2000 m	0.28	0.0
2.	2000 to<2500 m	58.44	0.8
3.	2500 to<3000 m	246.89	3.2
4.	3000 to<4000 m	1,469.43	18.9
5.	4000 to<5000m	3,442.59	44.4
6.	> 5000 m	2,537.81	32.7
Total		7,755.44	100

Areas which are degraded and devoid of vegetation can be utilized for forestry interventions. Areas above 3,000 m amsl representing nearly 96% area of the riverscape have little opportunities for forestry interventions except in lower parts of this elevation class that is >3,000 - 3,500 m amsl due to steep slopes with poor soil conditions, snow-covered and avalanche prone areas exhibiting cold desert like conditions. The altitudinal variation of Chenab Riverscape is depicted in Fig. 1.4.

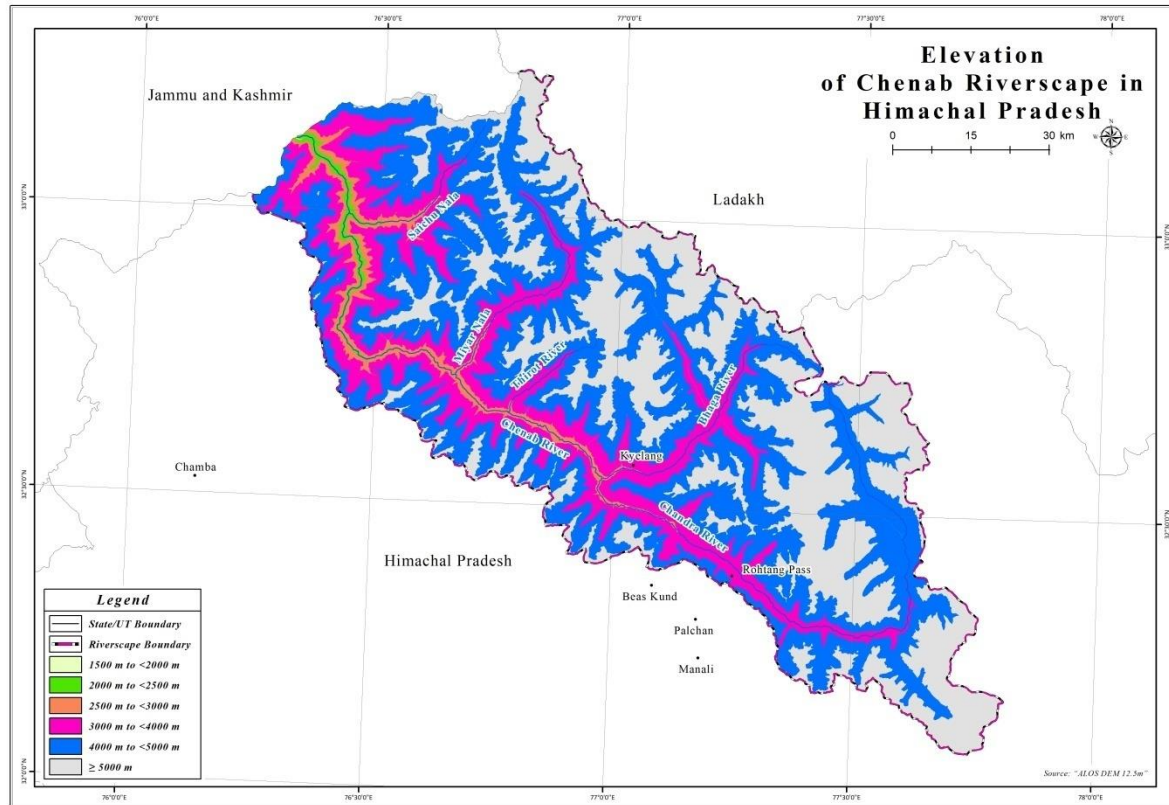


Fig. 1.4 - The Altitudinal Variation in Chenab Riverscape, Himachal Pradesh

(D) Slope

Slope plays an important role in suggesting suitability of areas for forestry interventions, particularly plantations and soil moisture conservation works in Himalayan regions. A total of 10 classes of slope were derived in the riverscape and appropriately named. The higher degree of slopes ($>30^\circ$) usually results in lot of soil erosion, and are prone to landslides, greater runoff, etc. Thus, areas with slopes $>30^\circ$ to 45° require safeguards from erosion while raising plantations of multiple values (i.e., fuel-wood, fodder, small timber, etc.). These types of forest resources are in heavy demand in higher reaches by increasing pressure of pilgrimage, presence of paramilitary forces, transhumance pastorals and widespread human settlements. The distribution of areas under different slope classes is given in Table 1.14 and Fig. 1.5.

Table: 1.14 - Distribution of Area under Different Slope Categories in Chenab Riverscape, Himachal Pradesh

Sr. No.	Slope	Slope Category	Area (km ²)	Percentage of Total Area (%)
1	< 2.5°	Nearly Level	72.85	0.94
2	2.5° to <5°	Gently Undulating	198.76	2.56
3	5° to <10°	Gently Rolling	561.34	7.24
4	10° to <15°	Moderately Rolling	550.07	7.09
5	15° to <20°	Strong Rolling	624.98	8.06
6	20° to <25°	Moderately Steep	732.58	9.45
7	25° to <30°	Steep	996.54	12.85
8	30° to <35°	Very Steep	1,127.99	14.54
9	35° to <40°	Extremely Steep	1,055.22	13.61
10	> 40°	Escarpment	1,835.11	23.66
Total			7,755.44	100

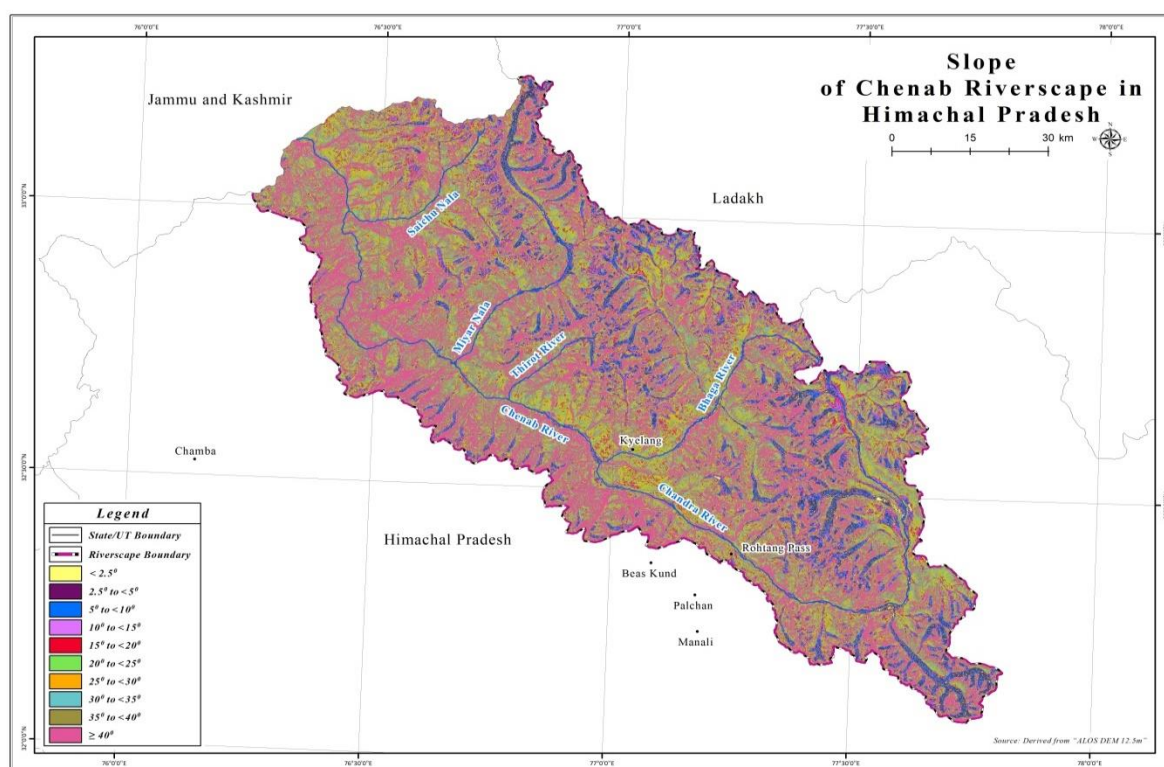


Fig. 1.5 - Distribution of Area under Different Slope Categories in Chenab Riverscape, Himachal Pradesh

(E) Soil Erosion

Based on information obtained from the Indian Institute of Soil and Water Conservation, Dehradun an insight on the status of soil erosion has been developed. A total five categories of erosion classes have been mapped in the riverscape, viz., < 5 tons-ha⁻¹year⁻¹; 5 to < 10 tons-ha⁻¹year⁻¹; 10 to < 20 tons-ha⁻¹year⁻¹; 20 to < 40 tons ha⁻¹year⁻¹; and >40 tons-ha⁻¹year⁻¹. An area of 6,518.78 km² falls under non-soil category. These areas may not be suitable for forest plantations. The distribution of areas under different erosion classes and their area is presented in Table 1.15 and Fig.1.6.

Table: 1.15 - Distribution of Area under Different Soil Erosion Categories of Chenab Riverscape, Himachal Pradesh

Sr. No.	Soil Erosion(tons/hectare/year)	Area (km ²)	Percentage of Total Area (%)
1	<5	144.05	1.86
2	5 to <10	600.42	7.74
3	10 to <20	352.46	4.54
4	20 to <40	92.51	1.19
5	>40	47.22	0.61
6	Non Soil	6,518.78	84.05
Total		7,755.44	100

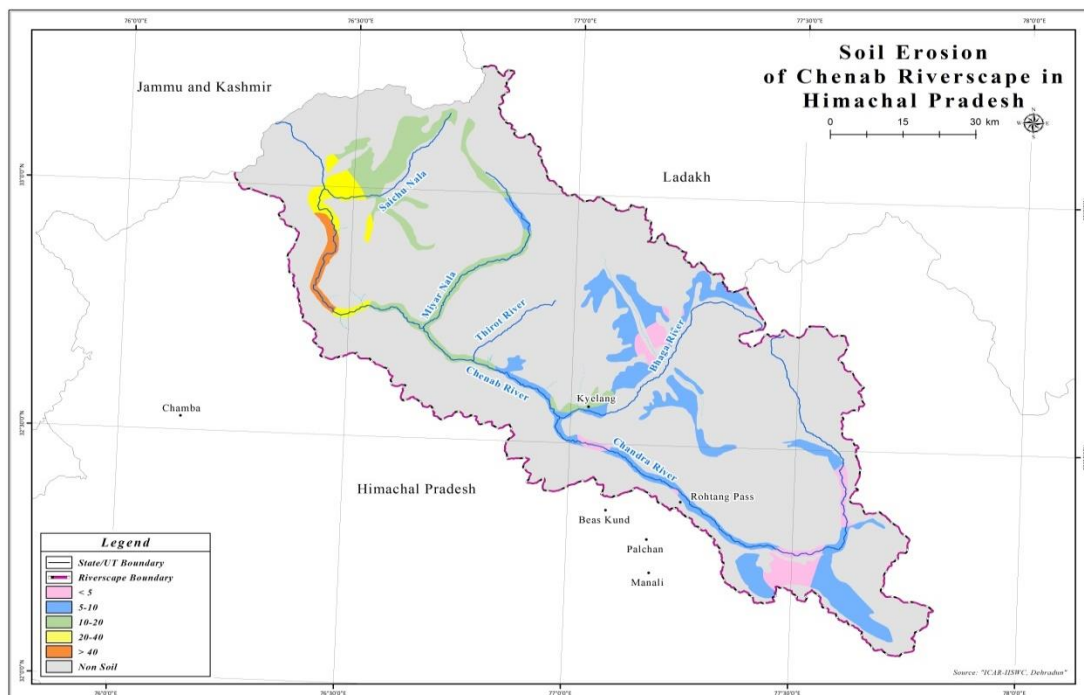


Fig. 1.6 - Extent of Soil Erosion in Chenab Riverscape, Himachal Pradesh

(F) Soil Depth

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 is another important variable for suggesting suitability of tree species for a plantation model. The depth is important for the penetration of the roots of plant or tree species. Four depth classes i.e., Deep, Moderately Deep, Non Soil and Shallow have been mapped (Fig. 1.7). These areas could be suggested as suitable for plantations based on other ground parameters. The distribution of area under different soil depth classes is given in Table 1.16.

Table: 1.16 - Distribution of Area under Different Soil Depth Categories of Chenab Riverscape, Himachal Pradesh

Sr. No.	Soil depth	Area (km ²)	Percentage of Total Area (%)
1.	Deep	727.68	9.38
2.	Moderately Deep	2,287.16	29.49
3.	Non Soil	3,996.58	51.53
4.	Shallow	744.02	9.59
Total		7,755.44	100

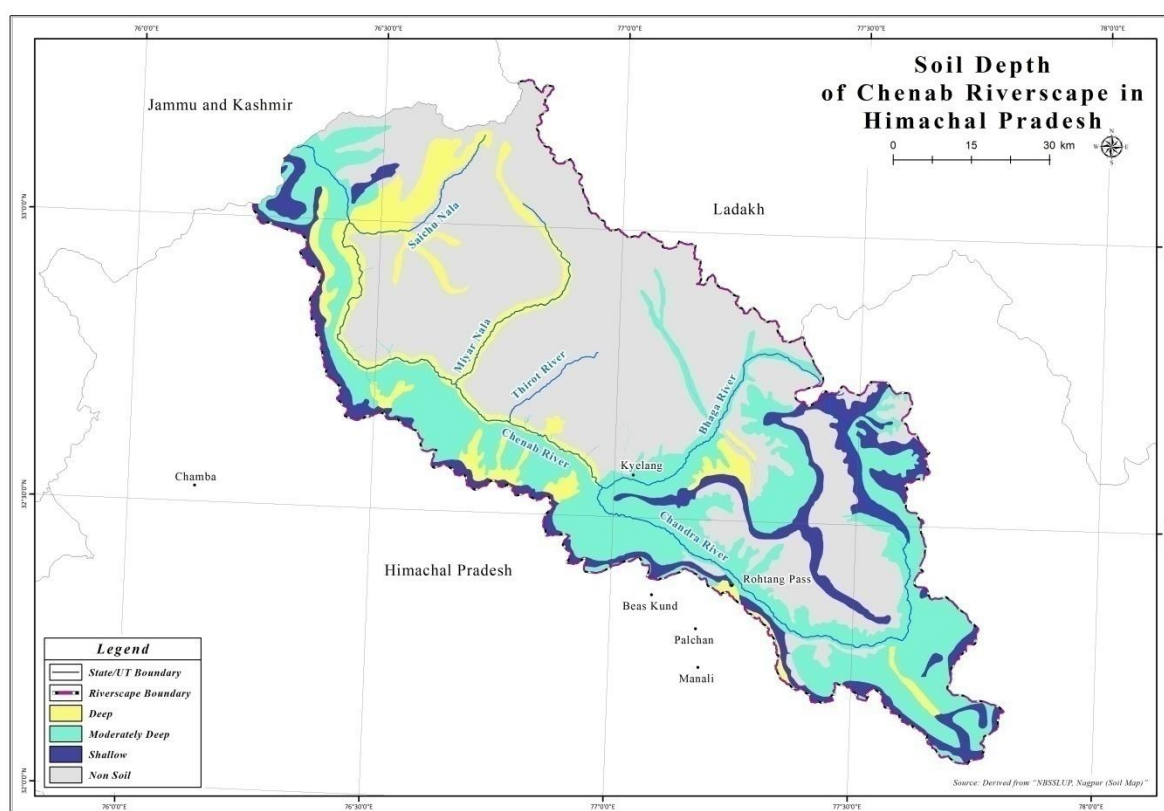


Fig. 1.7 - The Variation in Soil Depth in Chenab Riverscape, Himachal Pradesh

(G) Aspect

Aspect, particularly in the Himalaya, influences the diversity and distribution of vegetation and microclimate. In the Himalaya, this effect can be seen to an extreme degree. North and south facing opposing slopes 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. The aspect map has been derived from the ALOS DEM. A total of 09 categories viz., North, North-East, East, South-East, South, South-West, West, North-West and the Flat land have been analyzed in the study area. The distribution of areas under different aspect classes is given in Table 1.17 and Fig. 1.8.

Table: 1.17 - Distribution of Area in Different Aspect Categories of Chenab Riverscape, Himachal Pradesh

Sr. No.	Aspect	Area (km ²)	Percentage of Total Area (%)
1.	Flat (-1)	10.31	0.13
2.	North (0-<22.5) & (>337.5-360)	925.08	11.93
3.	Northeast (22.5-<67.5)	882.72	11.38
4.	East (67.5-<112.5)	916.71	11.82
5.	Southeast (112.5-<157.5)	1,050.55	13.55
6.	South (157.5-<202.5)	951.78	12.27
7.	Southwest (202.5-<247.5)	1,059.86	13.67
8.	West (247.5-<292.5)	968.94	12.49
9.	Northwest (292.5-<337.5)	989.49	12.76
	Total	7,755.44	100

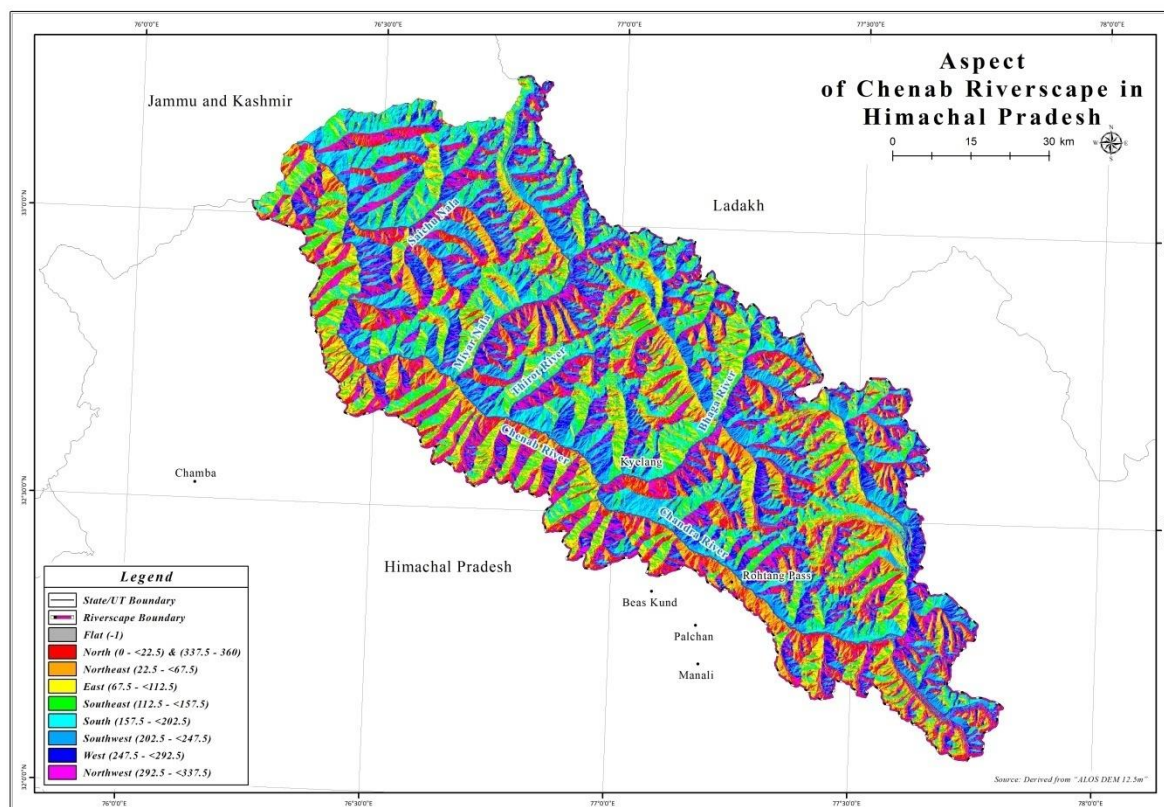


Fig. 1.8 - The Distribution of Area under Different Types of Aspects in Chenab Riverscape, Himachal Pradesh

1.4 Need for Forestry Interventions for Chenab River Basin

The course of Chenab River along with its tributaries in Himachal Pradesh can be broadly classed as mountaineous in the greater part. The area is marked by steep slopes and cold climate. Glaciers and snow clad mountains at high altitude of the Himalaya feed an unending supply of water to the river from melting ice and snow during the summer season. River water features are the principle components that add to its scenic beauty. However, the distribution of the water resources is extremely uneven due to its geomorphic features. Water being the elixir of life has been the driving force behind flourishing and development of new civilizations. Therefore, for availability, quantity and quality of water is still the fundamental cause of socio-economic prosperity and well-being of any region. Main sectors of the state, which are directly dependent on water resources, include agriculture, irrigation, horticulture, hydroelectricity and tourism.

The availability and quality of clean water in many regions of the world is increasingly threatened by overuse, misuse and pollution. The intricate relationship between forests and water has been of interest for long to natural resource professionals and policy makers. It is a common knowledge that forests not only influence the hydrological cycle but they also have an effect on water resources both quantitatively and qualitatively (FAO, 2013). Forests make their most significant contribution in supplying the water. Forests help in the stabilization of

soils, minimize erosion, trapping sediments and pollutants from other up-slope land uses and activities. Forests can protect water bodies and water courses, increase intercepting of precipitation, decrease evaporation of moisture from vegetative surfaces, transpiring soil moisture and play role in capturing fog water and maintaining soil infiltration. Since, forests improve soil infiltration and soil water-storage capacity; therefore, they influence the timing of water delivery. Despite of providing wide range of services by forests, their role in the regulation of water flows and safe water supply is often overlooked, and not taken into account when developing policies or water management plans. Hence, there is need to recognize and consider forest and water interaction in the broader landscape context.

1.5 Prioritization of Sites for Forestry Interventions

The multi-stakeholder approach was followed for preparing this DPR on forestry interventions. The preparation of DPR included review of literature, primary and secondary data collection and analysis, expert consultations and receiving inputs from the wide ranging stakeholders viz., policy and decision makers; central and state governments; HP state forest department; relevant authorities; scientific organizations dealing with environment, forestry, and wildlife; civil society; non-governmental organizations; and other interest groups.

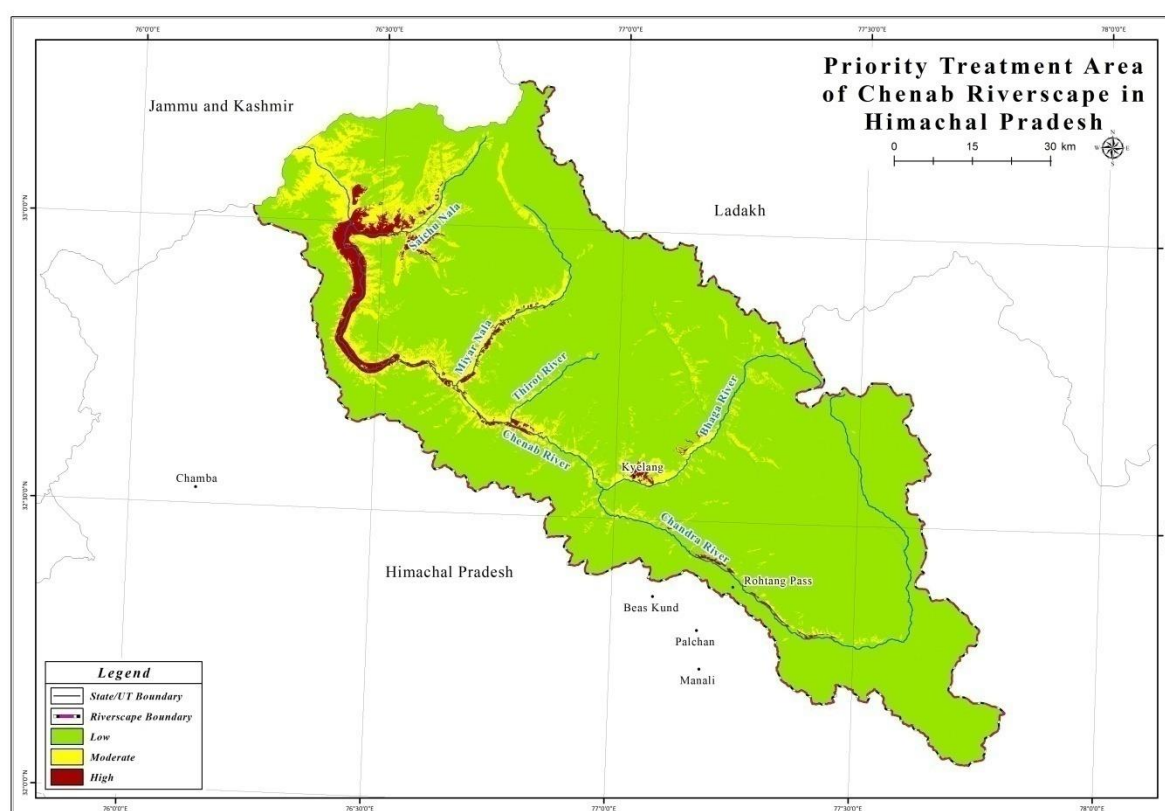


Fig. 1.9 - Priority Zones Identified for Carrying out Forestry Interventions in Chenab Riverscape, Himachal Pradesh

1.5.1 Priority Classes

Statistical analysis estimates of the area show that 172.40 ha area is in high priority region, 692.35 ha area in moderate priority region and 6,890.69 ha area in low priority region for Himachal Pradesh (Table 1.18).

Table: 1.18 - Priority Treatment Areas of Chenab Riverscape in Himachal Pradesh

Priority Class	Area (in km ²)	Percentage of Total Area (%)
Low	6,890.69	88.85
Moderate	692.35	8.93
High	172.40	2.22
Total	7,755.44	100.00

1.6 Proposed Forestry Interventions

Various forestry interventions have been proposed in the Chenab River Basin. The following three lower order landscapes have been delineated in the riverscape for the purpose of forestry interventions.

(I) Natural landscapes

(II) Agricultural landscapes

(III) Urban landscapes

In Himachal Pradesh interventions will be executed in the entire catchment of Chenab River and its tributaries from the origin of Chenab River to Sansari *Nallah* along the river.

In general, following guidelines would be applicable to all proposed Plantation Models meant for three different Landscapes viz. Natural, Agriculture and Urban Landscape and Three types of Conservation Interventions viz. Soil & Water Conservation, Riverine and Riparian Management, and Wetland Management within the riverscape:

1. All the Models/ Interventions are prescribed which come under Forestry Interventions in proposed DPR of Rivers.
2. Native species of trees, shrubs, herbs and grasses would be selected for proposed treatment models/ plantations in consultation with stakeholders of the respective States/UT. Traditional and prominent horticultural and ornamental species those under cultivation in the region for quite some time, are proposed in the Agriculture and Urban Landscapes. Mixed plantations are proposed as far as possible instead of monoculture for enhancing plant diversity and greater ecosystem services. The species are proposed according to their occurrence in the altitudinal zones however, Implementing Agencies may plant site specific species also (Annexure-2).
3. Suitable native species suggested for different plantation models are finalized after due consultation with Forest Department and other stakeholders of concerned States/UTs. Native species proposed for plantation under each treatment models are provided in the following section. In addition, landscape-wise model description has

been further supplemented with the species-wise attributes and model-wise listing in Annexure 5.

4. The necessary preparations for planting works including digging of pits would be completed two-three months before the onset of monsoon or planting season. However, the period between pit digging and scheduled planting time would not be more than four months so that run-off of soil by wind and water could be minimized.
5. Appropriate quantity of farmyard or organic manure or AM would be applied to boost plant growth in nurseries and plantation sites. Eco-friendly measures (i.e. physical or mechanical methods, use of natural products, etc.) for weed and pest control would be adopted without resorting to the use of synthetic chemicals
6. Plantation sites would be protected against all types of biotic disturbances and abiotic stresses so as to effectively safeguard planted material for three years through fence, watch and ward, as well as local public awareness programmes and their active involvement.
7. The Implementing Agency should either develop modern and centralized nurseries or identify various certified Research Institutes, Universities, NGOs, Institutions and progressive farmers for supply of best quality planting material.
8. The Schedule of Rates (SoR) is adopted from prevailing SoR of respective States/UTs. For Himachal Pradesh, SoR of Shimla Forest Circle for the year 2012-13 @ wage rate of Rs.150/- with increase of 66.66% i.e., Rs. 250/-, for J&K UT SoR of 2017 @ Rs. 225/- has been applied. Also an increase of 7% has been added each year i.e., 2nd year onwards to compensate inflation.
9. The budget will be provided after submission of Annual Plan Operations (APO) for each year. So the prevailing wage rate will be applicable whenever DPR is implemented. Also site can be changed as per the availability at the time of implementation wherever required.
10. In Himachal Pradesh, further 25% hike in wage rates would be applied for Tribal Areas
11. The fencing cost has been calculated on average basis of enclosure of area to the extent of 5 hectare and average carriage lead is taken as 1 km (up & down)
12. The nursery time for plants in multitier model is taken on average basis i.e., 1.5 – 4.5 year so average is 3 years, for calculating the norm. Also the plant cost is taken from the norm prescribed by the Forest Department of respective States.
13. These cost Norms indicate the upper limits. The expenditure will be booked under various items shown in the detailed models as per actual work done in the field as per Schedule of Labour rates of the respective States/UTs and will not exceed these Departmental Norms.
14. The suggestive cost models are to create multistoried forest cover for improving the bio-diversity of the area which in turn conserves the water and soil in-situ.
15. In *Lantana* eradication models or wherever *Lantana* removal is involved, the Cut Root Stock (CRS) method should be adopted.
16. The fencing work includes the 4-strands of barbered wire with interlacing of thorny bushes.

17. In Fire Protection Model, as area is virtually targeted, hence Implementing Agency should rotate fire protection operations in areas of the Division so that each selected area takes operations after 3 years.
18. In Agriculture models the guidelines of Sub-Mission on Agroforestry (SMAF) of Central Government should be considered as being adopted in States and UT.
19. Under Urban Landscape, the Seechewal Model (Punjab) for bio-remediation and bio-filtration may be taken into consideration.
20. Also in Urban Landscape, Eco-Park Development, Institutional Plantation and Riverfront Development models can be converged with Nagar Van Yojna as launched by GoI.
21. In Soil and water conservation models, the watershed approach and techniques should be adopted for desired results. For this intervention the Annual Plan Operation (APO) should be submitted each year with the proposal of micro plan of specific sites with detailed estimates.
22. In Riverine and Riparian Management and Wetland Management models, areas shown in budgetary provisions are virtual and concerned Implementing Agency (IA) should clearly mention the proposed activities in Annual Plan operation (APO) to be taken up in particular area with detailed microplan and estimates.
23. Plantation models are for the general areas as proposed by the Territorial Divisions but for the protected areas, two models under Conservation Intervention viz. Riverine and Riparian Management and Wetland Management.

1.6.1 Natural Landscapes

Various forestry interventions are proposed to be implemented in the entire upper basin of the Chenab River and its tributaries. Primarily, the proposed models would be executed during plantation on forest land by the State Forest Department (SFD). The proposed treatment sites would mainly include areas under open forests, scrubs, grasslands, alpine pastures and cold deserts or along the river and its tributaries. Eight treatment models prescribed in the Natural Landscape are presented in Table 1.19. (Annexure: 7 - Annexure: 10).

Table: 1.19 - Model Proposed for Natural Landscapes of Chenab River in Himachal Pradesh

Model Number	Name of Model	Brief Description
CN/HP/NL/01	Cold Desert Greening	This model is proposed to green cold desert areas with the blend of exotic and native species around water channels, <i>nallah</i> , rivers and other water bodies. In this model, trees@800plants/ha at 3mx3m spacing and shrubs @ 400/ ha at 2m x2m spacing will be planted. Dry shrubs will be planted towards hill side and moisture loving shrubs near <i>nallah</i> side. The cold desert species require 3 years nursery period and

		planting will be done in the 4 th year.
CN/HP/NL/02	Cold Desert Conservation	This model is proposed to plant shrubs and herbaceous species of cold desert areas for soil conservation purpose beyond water channels and water bodies. In this model, shrubs @800plants/ha at 2m x 4m spacing and herbs @ 600 patches/ha at 2m x 8m spacing along with grasses @ 600 patches/ha at 2m x 8m spacing will be planted.
CN/HP/NL/03	Alpine Conservation	Under this model, it is proposed to conserve and augment vegetation of the alpine meadows. Under this model, medicinal plants will be planted at the rate of 2,400 plants/ha in the blank areas in 600/ha patches. Root slips/ seeds of native grasses will be put in continuous contour strips immediately after melting of snow in 600/ha patches. The high altitude medicinal plants require at least two years nursery period and third year planting in the field along with grasses.
CN/HP/NL/04	Sub-alpine Enrichment	This model is proposed to conserve and augment vegetation in sub-alpine zone by adopting specific interventions to enrich such areas. In this model, native trees @ 200 plants/ha at 6 m x 8 m spacing and medicinal plants @ 800 plants/ha at 6 m x 8 m spacing in 200/ha patches will be planted in blank areas.
CN/HP/NL/05	Temperate Conifer Forest	This model is proposed to conserve area lies between 1,700 - 3,500 m amsl. Planting of 300/ha plants of various tree species and 300/ha shrub species will be carried out per hectare. In addition, 300/ha patches of medicinal plants with 1200 plants/ha will also be planted in the treatment site. The small stream or <i>nallah</i> facing side of the treatment area will be planted with two rows of hill bamboos at 2 m x 2 m spacing with 200/ha plants of hill bamboos.
CN/HP/NL/06	Temperate Mixed Forest	This model has been proposed specifically for the blank and degraded patches within the temperate zone. 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 @300 plants/ha will be carried out in between the trees planted. The medicinal plants will also be planted in patches @ 4 plants/ patch and that means planting of total of 1,200 medicinal plants/ ha. The

		small stream or <i>nallah</i> facing side of the treatment site will be planted with two rows of hill bamboos @ 200/ha at 2 m x 2 m spacing
CN/HP/NL/07	Pasture and Grazing Land Development	This model has been proposed specifically for moist temperate areas located between 1900m -4,500 m amsl, particularly on southern slope and around habitations, and are characterized by pasture and grazing lands. Under this model, pastures and grazing land development are proposed by protection, development and enrichment of areas within this zone. 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. Selected species will be raised / maintained in the nursery during 1 st year and planting will be done in the second year. The grasses will be replenished in the field during 3 rd and 4 th years.
CN/HP/NL/08	Protection Model for Natural Regeneration	This treatment model 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 will be carried out viz., climber cutting, removal of obnoxious weeds and unwanted species, pruning of plants, removing dead and dying trees. The broadcasting of desired seeds will be done in the closed area to supplement the natural regeneration.

Table: 1.20 - List of Suggested Species for Plantations in Natural Landscapes

Model Number	Suggested Species
CN/HP/NL/01	Trees: <i>Juniperus polycarpus</i>, <i>Betula utilis</i>, <i>Hippophae salicifolia</i>, <i>Abies pindrow</i>, <i>Pinus wallichiana</i>, <i>Salix alba</i>, <i>S. tetrasperma</i>, <i>S. fragilis</i>, <i>S. flagillaris</i>, <i>S. daphnoides</i>, <i>Populus ciliata</i>, <i>P. alba</i>, etc. Shrubs: (Near water bodies): <i>Hippophae rhamnoides</i> ssp. <i>turkestanica</i>, <i>H. salicifolia</i>, <i>Myricaria germanica</i>, <i>M. elegans</i>, <i>Lonicera hypoleuca</i>, etc. Shrubs: (Dry Areas): <i>Ephedra gerardiana</i>, <i>Capparis spinosa</i>, <i>Rosa webbiana</i>, <i>Colutea nepalensis</i>, <i>Caragana brevifolia</i>, <i>C. versicolor</i>, <i>Ribes orientale</i>, <i>R. alpestre</i>, <i>R. himalense</i>, etc.
CN/HP/NL/02	Shrubs: <i>Ephedra gerardiana</i>, <i>Capparis spinosa</i>, <i>Hippophae rhamnoides</i> ssp. <i>turkestanica</i>, <i>Salix denticulata</i>, <i>Rosa webbiana</i>, <i>Colutea nepalensis</i>, <i>Caragana brevifolia</i>, <i>Ribes orientale</i>, <i>R. alpestre</i>, <i>R. himalense</i>, etc. Herbs: <i>Dactyloriza hatagirea</i>, <i>Aconitum heterophyllum</i>, <i>Picrorhiza kurroa</i>, <i>Eremurus himalaicus</i>, <i>Arnebia euchroma</i>, <i>Achillea millifolium</i>, <i>Artemisia maritima</i>, <i>Heracleum candicans</i>, <i>Rheum australe</i>, <i>R. webbianum</i>, <i>Inula racemosa</i>, <i>Hyssopus officinalis</i>, <i>Hyoscyamus niger</i>, <i>Allium carolinianum</i>, etc. Grasses/Forbs: <i>Danthonia cachemyriana</i>, <i>Cicer sonyaricum</i>, <i>Festuca pratensis</i>, <i>Trifolium pratense</i>, <i>Poa pratensis</i>, <i>P. annua</i>, <i>Dactylis glomerata</i>, <i>Eragrostis</i> spp., <i>Melilotus</i> spp., <i>Koeleria</i> spp., etc.
CN/HP/NL/03	Herbs/Medicinal Plants: <i>Aconitum heterophyllum</i>, <i>Achillea millifolium</i>, <i>Ainsliaea aptera</i>, <i>Arnebia benthamii</i>, <i>Dactylorhiza hatagirea</i>, <i>Heracleum candicans</i>, <i>Angelica glauca</i>, <i>Polygonatum verticillatum</i>, <i>P. cirrhifolium</i>, <i>Selinum tenuifolium</i>, <i>Allium humile</i>, <i>Geranium wallichianum</i>, <i>Rheum australe</i>, <i>R. moorcroftianum</i>, <i>Sinopodophyllum hexandrum</i>, <i>Saussurea costus</i>, <i>Inula racemosa</i>, etc. Grasses and Forbs: <i>Festuca pratensis</i>, <i>F. valesiaca</i>, <i>Trifolium pratense</i>, <i>Poa pratensis</i>, <i>P. annua</i>, <i>Dactylis glomerata</i>, <i>Erianthus</i> sp., <i>Agrostis gigantea</i>, <i>A. pilosula</i>, <i>A. munroana</i>, <i>Agropyron</i> sp. <i>Danthonia cachemyriana</i>, <i>Calamagrostis montana</i>, <i>Koeleria</i> spp., <i>Brachypodium sylvaticum</i>, <i>Bromus himalaicus</i>, <i>B. ramosus</i>, <i>Danthonia cumminsii</i>, <i>Stipa roylei</i>, etc.

CN/HP/NL/04	Trees: <i>Betula utilis</i>, <i>Pinus wallichiana</i>, <i>Picea smithiana</i>, <i>Abies pindrow</i>, <i>Juniperus polycarpus</i>, <i>Salix daphnoides</i>, <i>Hippophae salicifolia</i>, <i>Prunus cornuta</i>, etc. Herbs/Medicinal Plants: <i>Aconitum heterophyllum</i>, <i>Arnebia benthamii</i>, <i>Dactylorhiza hatagirea</i>, <i>Heracleum candicans</i>, <i>Polygonatum verticillatum</i>, <i>P. cirrhifolium</i>, <i>Selinum tenuifolium</i>, <i>Allium humile</i>, <i>Geranium wallichianum</i>, <i>Bergenia stracheyi</i>, <i>Angelica glauca</i>, <i>Picrorhiza kurroa</i>, <i>Eremurus himalaicus</i>, <i>Artemisia maritima</i>, etc.
CN/HP/NL/05	Trees: <i>Cedrus deodara</i>, <i>Pinus wallichiana</i>, <i>Picea smithiana</i>, <i>Taxus wallichiana</i>, <i>Abies pindrow</i>, <i>Fraxinus xanthoxyloides</i>, <i>Crataegus</i> sp., <i>Populus ciliata</i>, <i>Corylus jacquemontii</i>, <i>Juglans regia</i>, etc. Shrubs: <i>Drepanostachyum falcatum</i>, <i>Daphne papyracea</i>, <i>Prinsepia utilis</i>, <i>Rosa sericea</i>, <i>R. macrophylla</i>, <i>Cotoneaster bacillaris</i>, <i>C. acuminatus</i>, <i>Viburnum grandiflorum</i>, <i>Thamnocalamus spathiflorus</i>, <i>Inula cuspidata</i>, <i>Skimmia laureola</i>, <i>Salix denticulata</i>, <i>Hippophae rhamnoides</i> ssp. <i>turkestanica</i>, <i>Lonicera quinquelocularis</i>, <i>Berberis pseudumbelata</i>, <i>Berberis jaeschkeana</i>, <i>Syringa emodi</i>, <i>Indigofera heterantha</i>, <i>Desmodium elegans</i>, <i>Hypericum oblongifolium</i>, etc. Herbs: <i>Aconitum heterophyllum</i>, <i>Picrorhiza kurroa</i>, <i>Heracleum candicans</i>, <i>Angelica glauca</i>, <i>Geranium wallichianum</i>, <i>Sinopodophyllum hexandrum</i>, <i>Polygonatum verticillatum</i>, <i>P. cirrhifolium</i>, <i>Bergenia stracheyi</i>, <i>Bergenia ciliata</i>, <i>Viola biflora</i>, <i>Trillium govanianum</i>, <i>Phytolacca acinosa</i>, <i>Valeriana jatamansi</i>, etc.
CN/HP/NL/06	Trees: <i>Cedrus deodara</i>, <i>Pinus wallichiana</i>, <i>Picea smithiana</i>, <i>Taxus wallichiana</i>, <i>Aesculus indica</i>, <i>Prunus cornuta</i>, <i>P. cerasoides</i>, <i>Acer acuminatum</i>, <i>Corylus jacquemontii</i>, <i>Cornus macrophylla</i>, <i>Neolitsea pallens</i>, <i>Alnus nitida</i>, <i>A. nepalensis</i>, <i>Ulmus wallichiana</i>, <i>Quercus</i> spp., <i>Olea ferruginea</i>, etc. Shrubs: <i>Daphne papyracea</i>, <i>Prinsepia utilis</i>, <i>Rosa macrophylla</i>, <i>R. sericea</i>, <i>Debregeasia hypoleuca</i>, <i>D. longifolia</i>, <i>Cotoneaster bacillaris</i>, <i>C. acuminatus</i>, <i>Viburnum grandiflorum</i>, <i>Elaeagnus conferta</i>, <i>Hypericum oblongifolium</i>, <i>Rubus biflorus</i>, <i>R. niveus</i>, <i>R. foliosus</i>, <i>Inula cuspidata</i>, <i>Lonicera quinquelocularis</i>, <i>Drepanostachyum falcatum</i>, etc. Herbs: <i>Trillium govanianum</i>, <i>Heracleum candicans</i>, <i>Angelica glauca</i>, <i>Polygonatum verticillatum</i>, <i>P. cirrhifolium</i>, <i>Sinopodophyllum hexandrum</i>, <i>Bergenia ciliata</i>, <i>Viola canescens</i>, <i>Valeriana jatamansi</i>, <i>Hedychium spicatum</i>, etc.
CN/HP/NL/07	Grasses and Forbs: <i>Festuca pratensis</i>, <i>Trifolium pratense</i>, <i>T. repens</i>, <i>Poa pratensis</i>, <i>P. annua</i>, <i>Dactylis glomerata</i>, <i>Erianthus rufipilus</i>, <i>Agrostis munroana</i>, <i>Danthonia cachemyriana</i>, <i>Calamagrostis</i> spp.,

	<i>Koeleria</i> spp., <i>Saccharum spontaneum</i> , <i>Chrysopogon gryllus</i> , <i>Arundinella nepalensis</i> , <i>A. pumila</i> , <i>Cymbopogon distans</i> , <i>Setaria glauca</i> , <i>Alopecurus aequalis</i> , <i>A. nepalensis</i> , <i>Bothriochloa pertusa</i> , <i>B. parviflora</i> , etc.
CN/HP/NL/08	No plantation proposed. This treatment model is proposed to protect and conserve the vegetation and promote natural regeneration.

Fig. 1.10 - Plantation Design Model CN/HP/NL/01- Cold Desert Greening

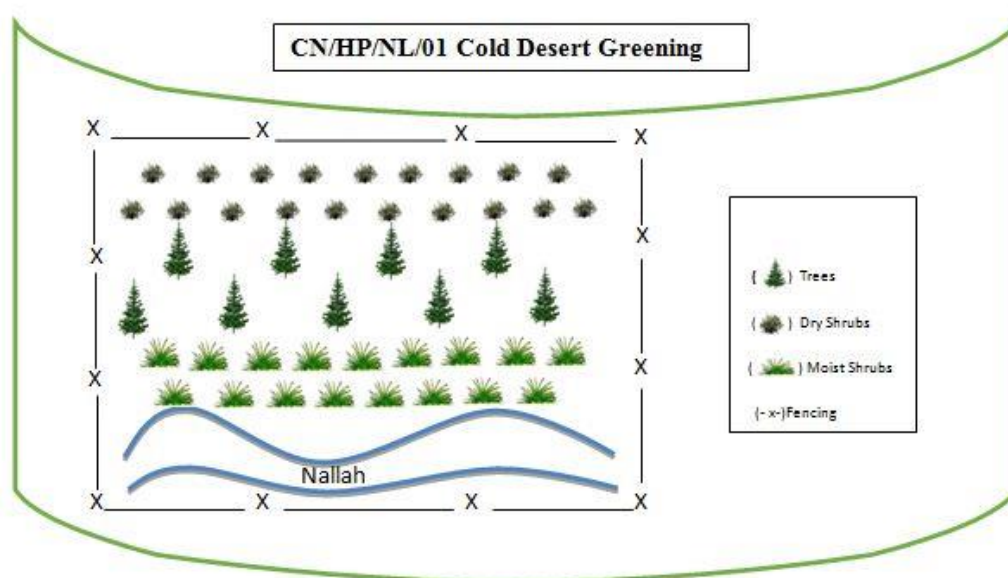


Fig. 1.11 - Plantation Design Model CN/HP/NL/02- Cold Desert Conservation

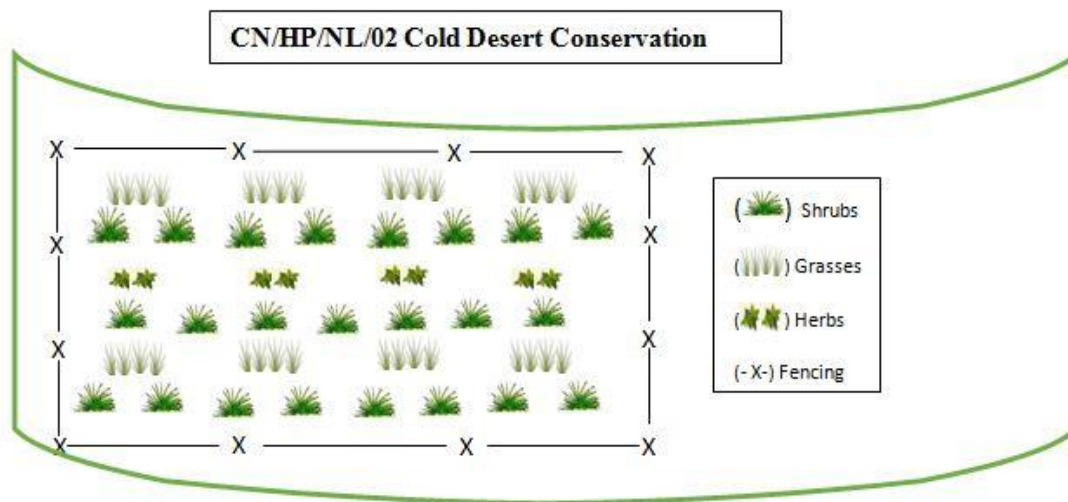


Fig. 1.12 - Plantation Design Model CN/HP/NL/03- Alpine Conservation

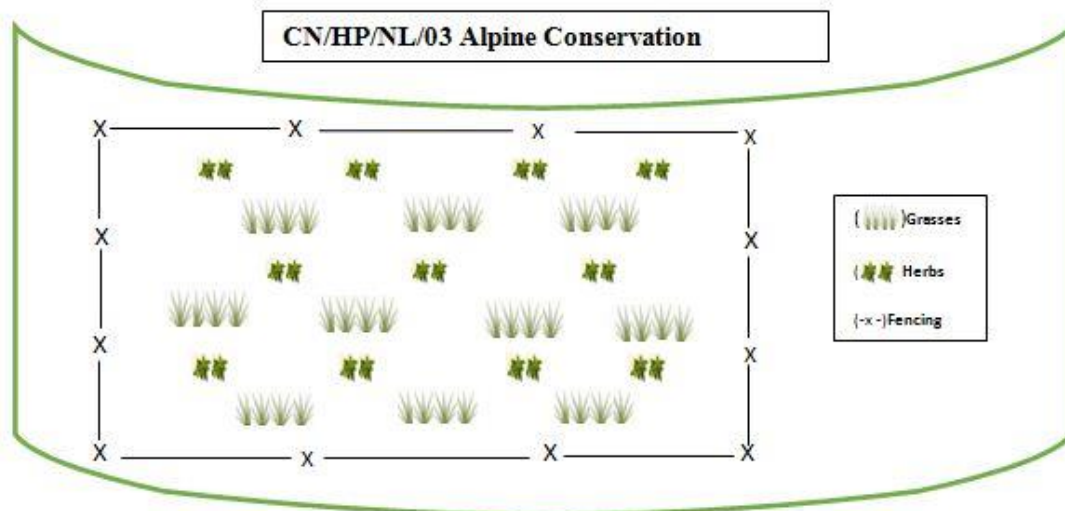


Fig. 1.13 - Plantation Design Model CN/HP/NL/04- Sub-Alpine Enrichment

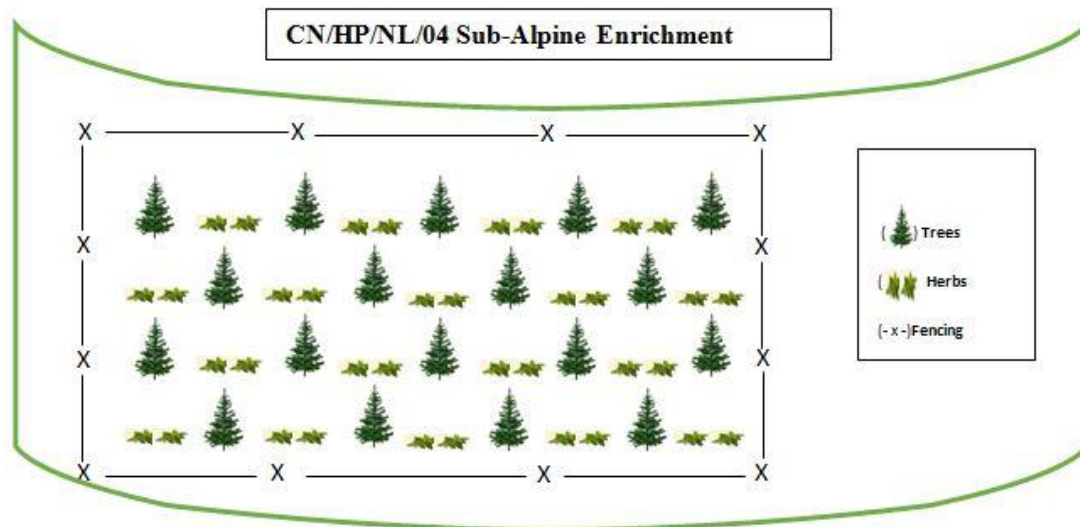


Fig. 1.14 - Plantation Design Model CN/HP/NL/05 - Temperate Conifer Forest

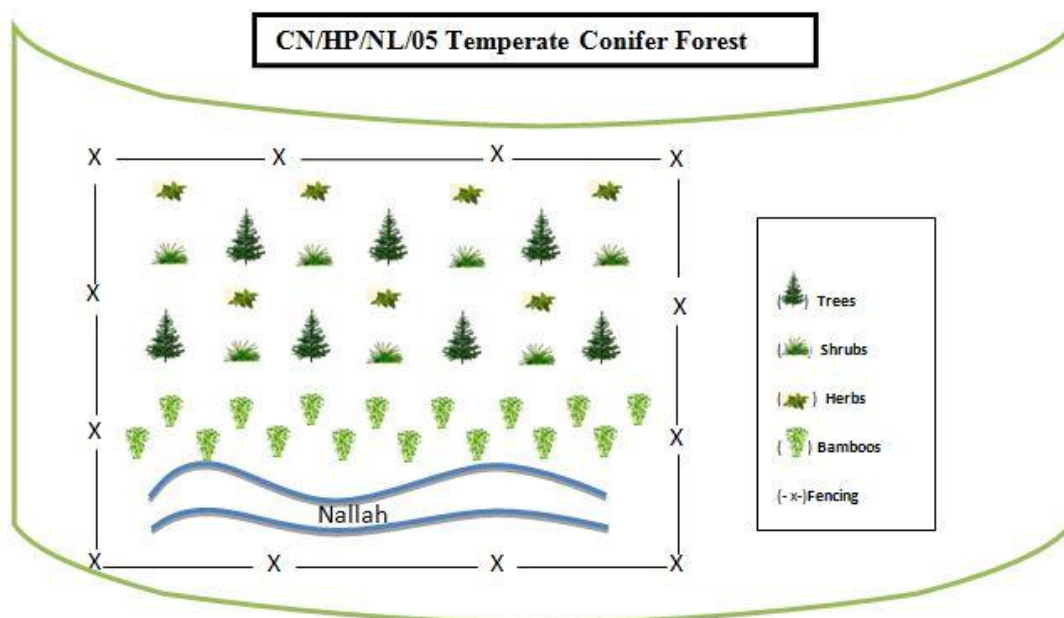


Fig. 1.15 - Plantation Design Model CN/HP/NL/06-Temperate Mixed Forest

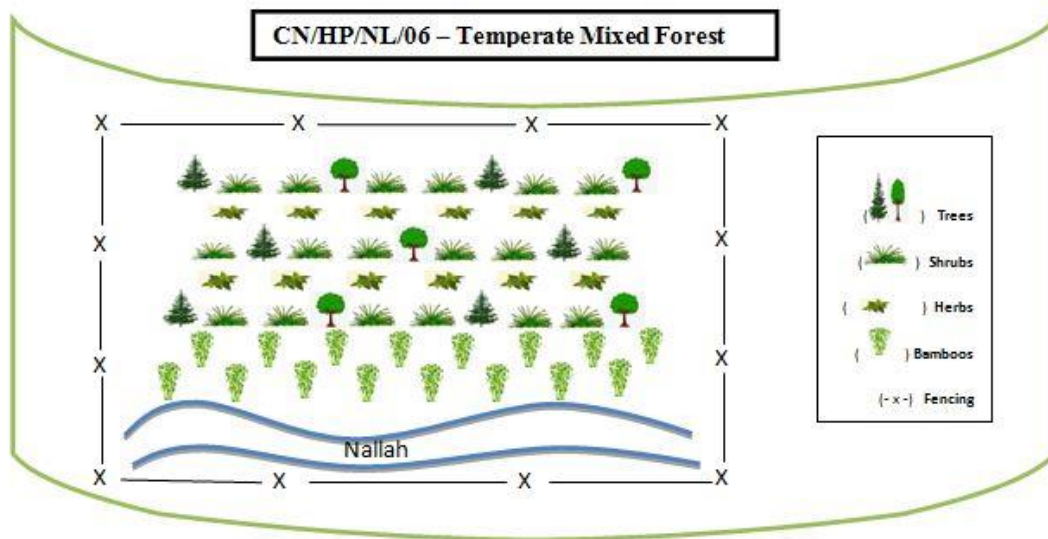


Fig. 1.16 - Plantation Design Model CN/HP/NL/07 - Pasture and Grazing Land Development

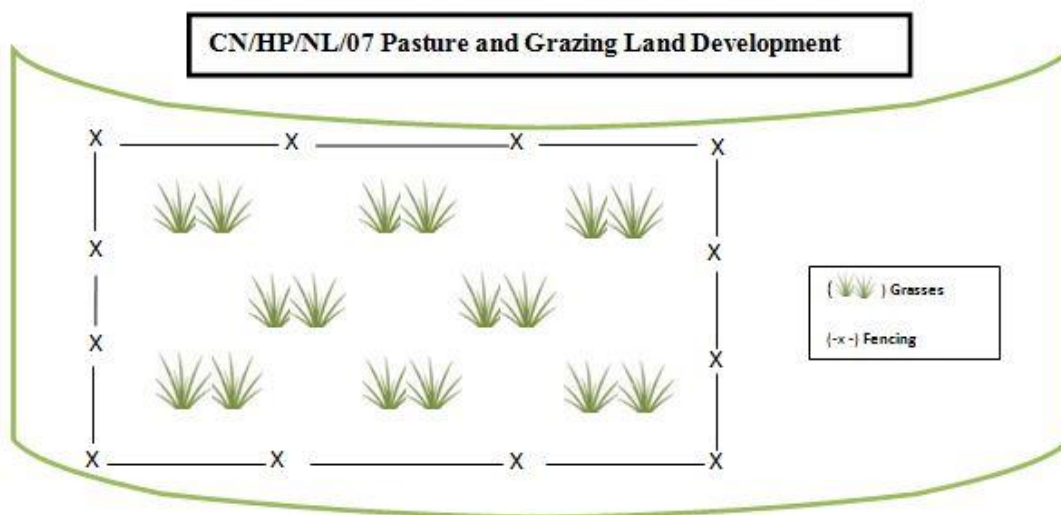


Table: 1.21 - Cost Norms Model CN/HP/NL/01

Plantation Cost- Model CN/HP/NL/01 Cold Desert Greening (in Tribal area)				
Year	Item	Details of works	Amount	Man days
Number of Plants (No.)		Plants- 800, Shrubs –400		
1 st Year	Advance Work Labour Cost (Rs.)	Establishment of Nursery	1,400	4
2 nd year	Advance Work Labour Cost (Rs.)	Establishment of 1 st year and maintenance of plants	13,351	41
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery of herbs+ 1 st and 2 nd year maintenance of plant nursery.	17,968	50
4 th year	Advance Work Labour Cost (Rs.)	Nursery 1st year of herbs+ 1 st , 2nd and 3 rd years Maintenance of trees nursery.	47,665	124
4 th year	Advance Work Material (Rs.)	Cost of Seeds, Farm Yard Manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	52,000	0
4 th 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 of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing of poles, Stretching & fixing of Barbed wire	75,775	198
5 th year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery for creation and maintenance works 1 st and 2 nd years	29,248	71
5 th year	Creation (Rs.)	Carriage of plants, Layout of pits and patches, Pitting & planting of plants, Patches & planting of herbs, Preparation of strips including (i/c) sowing in strips, Weeding and mulching	70,055	171
	Total Establishment Cost (Rs.)		3,07,462	659
MAINTENANCE				
6 th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery maintenance, material cost, planting cost & other maintenance works	36,950	82
7 th year	Maintenance Cost - II Year (Rs.)	Nursery maintenance, material cost, planting cost & other maintenance works	26,546	55
8 th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, material cost, planting cost & other maintenance works	15,820	30
	Total Maintenance Cost (Rs.)		79,316	167
		Total cost of plantation	3,86,978	826

Table: 1.22– Cost Norms for Model CN/HP/NL/02

Plantation Cost- Model CN/HP/NL//02 Cold Desert Conservation				
Year	Item	Details of work	Amount (Rs)/ ha	Man days
Number of Plants (No.)		Shrubs- 800, 2400 herbs and 600 patch of Grasses		
1 st Year	Advance Work Labour Cost	Establishment of Nursery	16,916	54
2 nd year	Advance Work Labour Cost	Maintenance of Nursery+ Establishment of 1 st year maintenance	49,492	148
2 nd year	Advance Work Material	Cost of Seeds, Farm Yard Manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	58,000	0
2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation , Bush cutting in strips, Collection of debris, Burning of debris, Preparation of inspection path, Carriage of RCC poles, Digging of holes and Fixing for poles, Stretching & fixing of Barbed wire	66,185	198
3 rd year	Advance Work Labour Cost	Maintenance of Nursery for creation and maintenance work in 1 st and 2 nd year	38,623	108
3 rd year	Creation	Carriage of plants, Layout of pits and patches, Pitting & planting of plants, Patches & planting of herbs, Preparation of strips including (i/c) sowing in strips, Weeding and mulching, etc.	66,765	187
	Total Establishment Cost		2,95,981	695
MAINTENANCE				
4 th year	Maintenance Cost - I Year i/c Material	Nursery maintenance, cost of material, planting & other maintenance works	50,566	126
5 th year	Maintenance Cost - II Year	Nursery maintenance, cost of material, planting & other maintenance works	38,328	89
6 th year	Maintenance Cost - III Year	Nursery maintenance, cost of material, planting & other maintenance works	25,792	56
7 th year	Maintenance Cost - IV Year	Maintenance cost of fencing	728	2
	Total Maintenance Cost		1,15,414	273
		Total cost of plantation	4,11,394	968

Table: 1.23– Cost Norms for Model CN/HP/NL/03

Plantation Cost- Model CN/HP/NL/03 Alpine Conservation				
Year	Item	Details of work	Amount (Rs)/ ha	Man days
Number of Plants (No.)		2400 herbs + 600 patch of Grasses		
1 st Year	Advance Work Labour Cost	Establishment of Nursery	15,000	48
2 nd year	Advance Work Labour Cost	Maintenance of Nursery+ Establishment of 1 st year maintenance.	12,000	36
2 nd year	Advance Work Material	Cost of Seeds, Farm Yard Manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	55,600	0
2 nd year	Advance Work Labour Cost	Site preparation i/c survey & demarcation, Bush Cutting in strips, Collection of debris, Burning of debris, Preparation of inspection path, Carriage of RCC poles, Digging of holes and fixing for poles, Stretching & fixing of barbed wire	66,185	198
3 rd year	Advance Work Labour Cost	Maintenance of Nursery for creation and maintenance work 1 st and 2 nd year	10,200	29
3 rd year	Creation	Carriage of plants, Layout of pits and patches, Pitting & planting of plants, Patches & planting of herbs, Preparation of strips including (i/c) sowing in strips, Weeding and mulching, etc.	23,686	66
	Total Establishment Cost		1,82,671	377
MAINTENANCE				
4 th year	Maintenance Cost - I Year i/c Material	Nursery maintenance, cost of material, planting & other maintenance works.	24,132	58
5 th year	Maintenance Cost - II Year	Nursery maintenance, cost of material, planting & other maintenance works.	18,906	43
6 th year	Maintenance Cost - III Year	Nursery maintenance, cost of material, planting & other maintenance works.	14,337	30
7 th year	Maintenance Cost - IV Year	Maintenance cost of fencing.	728	2
	Total Maintenance Cost		58,103	133
		Total cost of plantation	2,40,775	510

Table: 1.24 – Cost Norms for Model CN/HP/NL/04

Plantation Cost – Model CN/HP/NL/04 Sub-Alpine Enrichment				
Year	Item	Details of works	Amount Rs	Man days
Number of Plants (No.)		Shrubs: 200, herbs 800		
1 st Year	Advance Work Labour Cost (Rs.)	Establishment of Nursery	500	2
2 nd year	Advance Work Labour Cost (Rs.)	Establishment of 1 st year maintenance of plant	4,682	14
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery of herbs+ 1st and 2nd year maintenance of plant nursery	13,312	37
4 th year	Advance Work Labour Cost (Rs.)	Nursery 1st of herbs+ 1st, 2 nd and 3 rd years maintenance of trees nursery	22,234	12
4 th year	Advance Work Material (Rs.)	Cost of Seeds, Farm yard Manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	51,400	0
4 th 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 of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing for poles, Stretching & fixing of Barbed wire	75,775	198
5 th year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery for creation and maintenance. works 1 st and 2 nd year	16,006	39
5 th year	Creation (Rs.)	Carriage of plants, Layout of pits and patches, Pitting & planting of plants, Patches & planting of herbs, Preparation of strips including (i/c) sowing in strips, weeding and mulching	7,252	18
	Total Establishment Cost (Rs.)		1,91,161	320
MAINTENANCE				
6 th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery maintenance, cost of material, Planting & other maintenance works	14,798	32
7 th year	Maintenance Cost - II Year (Rs.)	Nursery maintenance, cost of material, Planting & other maintenance works	9,659	19
8 th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, cost of material, Planting & other maintenance works	2,917	5
	Total Maintenance Cost (Rs.)		27,374	56
		Total cost of plantation	2,18,535	376

Table: 1.25 – Cost Norms for Model CN/HP/NL/05

CN/HP/NL/05 Temperate Conifer Forest				
Year	Item	Details of work	Amount Rs/ha	Man days
Number of Plants (No.)		Plants- 300 No., Bamboos-200 no., Shrubs-300 no., Herbs- 1200 no. (300 no. patches)		
1 st Year	Advance Work Labour Cost (Rs.)	Establishment of Nursery	10,000	40
2 nd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery+ Establishment of 1 st year maintenance	38,879	145
2 nd year	Advance Work Material (Rs.)	Cost of Seeds, Farm Yard Manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	52,000	0
2 nd 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 of inspection path, Carriage of RCC poles, Digging of holes and fixing for poles, Stretching & fixing of Barbed wire in 4 strands	54,910	205
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery for creation and Maintenance works 1 st and 2 nd year	28,603	100
3 rd year	Creation (Rs.)	Carriage of plants, Layout of pits and patches, Pitting & planting of plants, Patches & planting of herbs, Preparation of strips including (i/c) sowing in strips, Weeding and mulching	45,157	158
	Total Establishment Cost (Rs.)		2,29,549	648
MAINTENANCE				
4 th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery maintenance, Cost of material cost, Planting & other maintenance works	37,034	118
5 th year	Maintenance Cost - II Year (Rs.)	Nursery maintenance, Cost of material cost, Planting & other maintenance works	20,711	61
6 th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, Cost of material cost, Planting & other maintenance works	16,107	44
7 th year	Maintenance Cost - IV Year (Rs.)	Maintenance cost of fencing	582	2
	Total Maintenance Cost (Rs.)		74,434	225
		Total cost of plantation	3,03,985	873

Table: 1.26 – Cost Norms for Model CN/HP/NL/06

Plantation Cost – Model CN/HP/NL/06 Temperate Mixed Forest				
Year	Item	Details of works	Amount Rs/ ha	Man days
Number of Plants (No.)		Plants- 300 No., Bamboos-200, Shrubs-300 No., Herbs- 1200 No. (300 no. patches)		
1 st Year	Advance Work Labour Cost (Rs.)	Establishment of Nursery	14,491	58
2 nd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery+ Establishment of 1 st year maintenance	33,045	124
2 nd year	Advance Work Material (Rs.)	Cost of Seeds, Farm Yard Manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	52,000	0
2 nd 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 of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing for poles, Stretching & fixing of Barbed wire	54,910	205
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery for creation and Maintenance. works 1 st and 2 nd year	28,925	101
3 rd year	Creation (Rs.)	Carriage of plants, Layout of pits and patches, Pitting & planting of plants, Patches & planting of herbs, Preparation of strips including (i/c) sowing in strips, Weeding and mulching	45,157	158
	Total Establishment Cost (Rs.)		2,28,528	646
MAINTENANCE				
4 th year	Maintenance Cost - I Year i/c Material (Rs.)	Nursery Maintenance, Cost of material, Planting & other maintenance works	38,815	117
5 th year	Maintenance Cost - II Year (Rs.)	Nursery maintenance, Cost of material, Planting & other maintenance works	20,711	61
6 th year	Maintenance Cost - III Year (Rs.)	Nursery maintenance, Cost of material, Planting & other maintenance works	16,107	44
7 th year	Maintenance Cost - IV Year (Rs.)	Maintenance cost of fencing	582	2
	Total Maintenance Cost (Rs.)		76,215	224
		Total cost of plantation	3,02,743	870

Table: 1.27 – Cost Norms for Model CN/HP/NL/07

Plantation Cost – Model CN/HP/NL/07 Pasture and Grazing Land Development				
Year	Item	Details of works	Amount Rs/ha	Man days
Number of Plants (No.)		Grasses-2000 no. patches		
1 st Year	Advance Work Material (Rs.)	Cost of Seeds, Farm Yard Manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	66,400	0
1 st 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 of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing for poles, Stretching & fixing of Barbed wire	54,910	205
2 nd year	Creation (Rs.)	Carriage of plants, Layout of pits and patches, Pitting & planting of plants, Patches & planting of herbs, Preparation of strips including (i/c) sowing in strips, Weeding and mulching	40,850	143
	Total Establishment Cost (Rs.)		1,62,160	348
MAINTENANCE				
3 rd year	Maintenance Cost - I Year i/c Material (Rs.)	Material cost, Planting cost & other maintenance work	27,994	67
4 th year	Maintenance Cost - II Year (Rs.)	Material cost, Planting cost & other maintenance works	20,711	61
5 th year	Maintenance Cost - III Year (Rs.)	Material cost, Planting cost & other maintenance works	16,107	44
6 th year	Maintenance Cost - IV Year (Rs.)	Maintenance cost of fencing	582	2
	Total Maintenance Cost (Rs.)		76,215	224
		Total cost of plantation	238375	572

Table: 1.28 – Cost Norms for Model CN/HP/NL/08

Plantation Cost – Model CN/HP/NL/08 Protection Model for Natural Regeneration				
Year	Item	Detail of works	Amount/ ha (Rs)	Man days
Number of Plants (No.)		Seeds Broadcasting - (2 kg for conifer and 15 kg for Broad leave)		
1 st Year	Advance Work Material (Rs.)	Cost of Seeds, Farm Yard Manure (FYM), Barbed wire and Reinforced Cement Concrete (RCC) poles	50,400	0
1 st Year	Advance Work Labour Cost (Rs.)	Site Preparation- site preparation i/c survey & demarcation, Debris collection and burning, Preparation of inspection path, Carriage of RCC poles, Digging of holes and fixing of poles, Stretching & fixing of Barbed wire	55,207	221
2 nd year	Creation (Rs.)	Cleaning and un-saleable thinning (non- commercial) in regeneration areas, Climber cutting in the forests/ plantation areas, Broadcasting sowing in Plantation/ Regeneration areas, Preparation of fire lines 2.5 m wide, Pruning of established saplings in Plantation/regeneration 1/3 portion, Burning/Maintenance of lines 2.5 m around the fencing	22,694	85
	Total Establishment Cost (Rs.)		1,28,301	306
MAINTENANCE				
3 rd year	Maintenance Cost - I Year i/c Material (Rs.)	Cleaning and un-saleable thinning (non- commercial) in regeneration areas, Climber cutting in the forests/ plantation areas (50%), Broadcasting sowing in Plantation/Regeneration areas (50%), Pruning of established saplings in Plantation/ regeneration 1/12 portion, Burning/ Maintenance of lines 2.5 m around the fencing (2 times)	15,389	50
4 th year	Maintenance Cost - II Year (Rs.)	Cleaning and un-saleable thinning (non- commercial) in regeneration areas, Climber cutting in the forests/ plantation areas (30%), Broadcasting sowing in Plantation/Regeneration areas (30%), Pruning of established saplings in Plantation/ regeneration 1/15 portion, Burning/Maintenance of lines 2.5 m around the fencing (2 times)	14,216	44
5 th year	Maintenance Cost -	Cleaning and un-saleable thinning (non-	13,174	39

	III Year (Rs.)	commercial) in regeneration areas, Climber cutting in the forests/ plantation areas (20%), Broadcasting sowing in Plantation/Regeneration areas (20%), Pruning of established saplings in Plantation/ regeneration 1/18 portion, Burning/Maintenance of lines 2.5 m around the fencing (2 times)		
6 th year	Maintenance Cost - IV Year (Rs.)	Cleaning and un-saleable thinning (non-commercial) in regeneration areas, Climber cutting in the forests/ plantation areas (15%), Broadcasting sowing in Plantation/Regeneration areas (15%), Burning/Maintenance of lines 2.5 m around the fencing (2 times)	8,146	23
	Total Maintenance Cost (Rs.)		50,925	156
		Total Cost of plantation	1,79,226	462

1.6.2 Agriculture Landscapes

The Agriculture Landscapes are largely in the rural environment or matrix of the riverscape. Agricultural models will be implemented in private farmland and community/ Panchayat land. Availability of land will be ascertained by local officials of State and UT Forest Departments based upon proposals from local farmers and communities. Plants will be supplied to farmers and local communities who will carry out planting. Maintenance cost will be given to the land owners based upon plant survival at the end of first, second, third and fourth years.

Two models for Agriculture Landscapes have been prescribed below in Table 1.29.

Table: 1.29- Models Proposed for Agriculture Landscapes of Chenab River in Himachal Pradesh

Model Number	Name of Model	Brief Description
CN /HP/AL/01	Boundary Plantation Model	This model will be implemented in Agricultural Landscape in temperate to cold desert zones in Himachal Pradesh. The plants will be raised by Forest Department and distributed to farmers for plantation. Plantation of 150 plants in farmer fields would considered virtual one hectare area for budgetary provisions.
CN /HP/AL/02	Block Plantation Model	This model will be implemented in

		Agricultural and Horticultural Landscapes in temperate to cold desert zones in Himachal Pradesh. Block plantation per farmer would be taken as virtual one hectare area for budgetary provisions and number of plants/ha can vary from 500 to > 1500 as per the requirements of species specific high density plantations.
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Table: 1.30 - List of Suggested Species for Plantations in Agriculture Landscapes

Model Number	Suggested Species
CN/HP/AL/01	Tree: <i>Prunus</i> spp., <i>Diospyros</i> spp., <i>Malus pumilus</i>, <i>Hippophae salicifolia</i>, <i>Juglans regia</i>, <i>Corylus jacquemontii</i>, <i>Populus</i> spp., <i>Salix</i> spp., etc. Shrubs: <i>Hippophae rhamnoides</i> ssp. <i>turkestanica</i>, <i>Berberis jaeschkeana</i>, <i>Rosa macrophylla</i>, <i>Rosa webbiana</i>, <i>Rosa sericea</i>, etc.
CN/HP/AL/02	Tree: <i>Prunus</i> spp., <i>Diospyros</i> spp., <i>Juglans regia</i>, <i>Malus pumilus</i>, <i>Corylus jacquemontii</i>, <i>Populus</i> spp., <i>Salix</i> spp., etc.

Cost Sharing: The Govt. will share cost material i.e., plant cost Rs. @ 70/- , 35/-, 35/-, 35/- for Ist to IVth years and maximum of 150 trees per ha.

Table: 1.31- Cost Norms and Pattern of Assistance for Peripheral and Boundary Plantations (PBPs)

S. 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	3
5	Critical inputs viz., FYM, Fertilizer., seed treatment, Arbuscular Mycorrhizae (AM), etc.	20
6	Planting cost	5
7	Fencing	20
	Maintenance (weeding+ watering, etc.)	40
	Total	150
Note: (i) The activity wise cost indicated above are 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 – CN/HP/AL/01 Boundary Plantation Model

Year	Amount (Rs)/ha	Man days
I st year Establishment	9,000	36
Maintenance I st Year	4,815	18
Maintenance II nd Year	5,152	18
Maintenance III rd Year	5,513	18
Total	24,480	90

Table: 1.32 - Cost Norms and Pattern of Assistance for High Density Block Plantation (HDBP)

S. No.	Magnitude of block Plantations (No. of plants/block of 1 ha)	Total cost (Rs) for the block			
		1 st Year	2 nd year	3 rd Year	4 th Year
1	500 to 1,000 (Spacing 3.5mX3.5m)	28,000	14,000	14,000	14,000
2	>1,000 to 1,200 (Spacing 3mX3m)	33,600	16,800	16,800	16,800
3	>1,200 to 1,500 (Spacing 2.5mX2.5m)	48,000	24,000	24,000	24,000
4	>1,500(Spacing less than 2.5mX2.5m))	52,000	26,000	26,000	26,000

S. 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
		1 st Year	2 nd year	3 rd Year	4 th Year	
1	1,200	48,000	25,680	27,478	29,401	1,30,559
	Man days	192	96	96	96	480

1.6.3 Urban Landscapes

Types of sites would require varied interventions as per the context. The Urban Landscapes provide highly complex site conditions and a variety of peculiar problems. It is extremely important to select species, varieties and design that show adaptability to such complex site conditions.

Two models viz., River Front Development and Institutional Plantation have been proposed for Chenab Riverscape in the Himachal Pradesh.

Descriptions of the models are given below in Table 1.33.

Table: 1.33- Models Proposed for Urban Landscapes of Chenab River in Himachal Pradesh

Model Number	Name of Model	Brief Description
CN /HP/UL/01	Riverfront Development	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 developed area 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 the requirements, following components need to be created for Riverfront development. 1. Vegetation Part: Grove consisting of shade trees, ornamental trees & bamboos, small herbal garden, climbers, hedges, grasses for lawns, etc. 2. Non-vegetation part: Stairs, pathways, walking trails, stone pitching, benches, rain shelters, e-public utilities, parking area, information centre, refreshment area, etc. as per the site specific requirements. 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 this, HFRI has identified major areas in the riverscape in consultation with stakeholders. The application of model and finalization of area will be decided as per the actual availability of land in Riverfront areas.
CN /HP/UL/02	Institutional Plantation	Under this model, mainly ornamental, shade and fruit plants will be encouraged for planting in the premises of educational institutes, hospitals, government and private sector

		offices, religious places, historical places, hotels, guest houses, etc. are located in the Chenab Riverscape. 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.
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Table: 1.34 - List of Suggested Species for Plantations in Urban Landscapes

Model Number	Suggested Species
CN/HP/UL/01	Trees: <i>Cedrus deodara</i>, <i>Ligustrum nepalense</i>, <i>Cinnamomum tamala</i>, <i>Mangifera Indica</i>, <i>Michelia champaca</i>, <i>Taxus wallichiana</i>, <i>Bauhinia variegata</i>, <i>Juniperus polycarpus</i>, <i>Salix</i> spp., <i>Populus</i> spp., <i>Platanus orientalis</i>, <i>Corylus jacquemontii</i>, <i>Magnolia grandiflora</i>, <i>Alnus</i> spp., <i>Pinus wallichiana</i>, <i>Prunus</i> spp., <i>Ulmus</i> spp., etc. Shrubs: <i>Rosa</i> spp., <i>Spiraea canescens</i>, <i>Murraya paniculata</i>, <i>Murraya koenigii</i>, <i>Cycas</i> spp., <i>Palm</i> spp., <i>Indigofera</i> spp., <i>Berberis</i> spp., <i>Hippophae</i> spp., <i>Lonicera</i> spp., etc.
CN/HP/UL/02	Trees: <i>Cedrus deodara</i>, <i>Juniperus polycarpus</i>, <i>Salix</i> spp., <i>Populus</i> spp., <i>Platanus orientalis</i>, <i>Magnolia grandiflora</i>, <i>Juglans regia</i>, <i>Corylus jacquemontii</i>, <i>Alnus</i> spp., <i>Pinus wallichiana</i>, <i>Pinus gerardiana</i>, <i>Prunus</i> spp., <i>Ulmus wallichiana</i>, <i>U. villosa</i>, etc.

Table: 1.35 - Treatment Models for Urban Landscapes in Himachal Pradesh

S.No	Model No.	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days
		Establishment		1 st year Maintenance		2 nd year Maintenance		3 rd year Maintenance.	
1	CN/HP/UL/01 Riverfront Development	2,50,00,000	30,000	75,00,000	9,000	50,00,000	6,000	37,50,000	4,500
2	CN/HP/UL/02 Institution Plantation	2,60,000	312	78,000	94	52,000	62	39,000	47

Conservation Interventions

Three types of conservation interventions viz., **(a)** Soil and water conservation, **(b)** Riverine and riparian management, and **(c)** Wetland management are being proposed for

implementation by the Implementing Agencies (IAs) of Himachal Pradesh. Details of these conservation interventions are given in Volume 1 of the DPR.

Supporting Activities

A number of supporting activities, viz., policy level interventions, concurrent research, capacity building, awareness, monitoring, and evaluation are considered vital for successful and effective execution of the proposed forestry interventions. The strategies and specific interventions for these important supporting activities are given in Volume 1 of the DPR. A multi-tiered mechanism has been suggested for monitoring of the project. The structure of mechanism has been given in Fig. 1.17

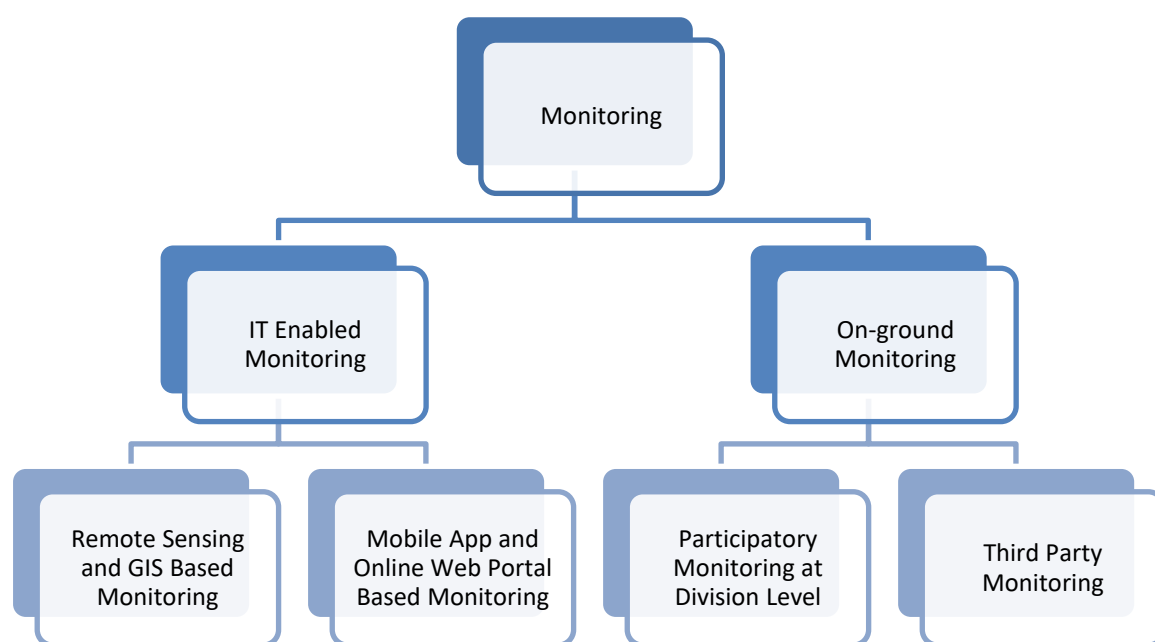


Fig. 1.17 - The structure of Mechanism and Monitoring of the project

Physical and Financial Targets

The physical and financial projections of all the five interventions to be undertaken for cost duration as well as various Divisions are given in Tables, 1.36 to 1.61.

Table: 1.36 – Component/ Activity Wise Budget Allocation for Himachal Pradesh

Sr. No.	Component and/ or Activity	Amount (Rs. in Lakh)	Allocation %
A.	Implementation of Forestry Interventions in Himachal Pradesh	3,211.47	77.24
A.1	Plantations and Treatment Models in Three Categories of Landscapes	1,806.19	43.44
A.1.1	Natural Landscapes	1,336.74	
A.1.2	Agriculture Landscapes	31.50	
A.1.3	Urban and Peri-Urban Landscapes	437.95	

A.2	Conservation Interventions	1,405.28	33.80
A.2.1	Soil and Moisture Conservation Measures	824.28	
A.2.2	Riverine and Riparian Wildlife Management	500.00	
A.2.3	Wetland Management	81.00	
A.3	Supporting Activities	536.34	12.90
A.3.1	Policy Level Intervention	5.18	
A.3.2	Research	65.56	
A.3.3	Capacity Development	143.62	
A.3.4	Awareness	22.10	
A.3.5	Participatory Monitoring	24.30	
A.3.6	Project Management Unit in Himachal Pradesh	258.86	
A.3.7	Evaluation	15.43	
A.3.8	Contingency and Miscellaneous Activities	1.29	
B.	DPR – Phase II (Maintenance phase) Including Scaling Up and Replication of Successful Models of Forestry Interventions	249.35	6.00
B.1	Maintenance Cost of A.1 and A.2 (Cost of Phase II)	3.64	
B.2	Maintenance Cost of A.3	245.71	
B.3	Scaling Up and Replication of Successful Models of Forestry Interventions (5% of A.1 & A.2)	160.57	3.86
Grand Total		4,157.73	100.00

Table: 1.37 - Year-Wise Breakup of Extent Coverage of Proposed Forestry Interventions in Himachal Pradesh

Year	Period	Plantation and Treatment Models			Conservation Intervention		
		Natural Landscape (ha)	Agriculture Landscape (ha)	Urban Landscape (ha)	Soil and Moisture Conservation Measures (m³)	Riverine and Riparian Wildlife Management (ha)	Wetland Conservation (ha)
A. Phase I (Implementation Phase)							
I	Establishment	10	31	5.50	12,950	50	
II	Establishment	20	25	6.00	23,950		10
	Maintenance	10	31	5.50		50	
III	Establishment	209	18	6.00	38,070		
	Maintenance	30	56	11.50		50	10
IV	Establishment	95			12,780		
	Maintenance	239	74	17.50		50	10
V	Establishment	142			9,510		
	Maintenance	334	43	12.00		50	10
Total Phase I	Establishment	476	74	17.50	97,260	50	10
	Maintenance	334	74	17.50		50	10
B. Phase II (Maintenance Phase)							
VI	Establishment						
	Maintenance	466	18	6.00			10
VII	Establishment						
	Maintenance	383					
VIII	Establishment						
	Maintenance	222					

Year	Period	Plantation and Treatment Models			Conservation Intervention		
		Natural Landscape (ha)	Agriculture Landscape (ha)	Urban Landscape (ha)	Soil and Moisture Conservation Measures (m ³)	Riverine and Riparian Wildlife Management (ha)	Wetland Conservation (ha)
IX	Establishment						
	Maintenance	122					
X	Establishment						
	Maintenance						
Total Phase II	Establishment						
	Maintenance	466	18	6.00			10
Grand Total Phase I and Phase II	Establishment	476	74	17.50	97,260	50	10
	Maintenance	476	74	17.50		50	10

Note: The consent for the availability of the land for proposed Forestry Interventions have been obtained from the PCCF & HoFF, Himachal Pradesh (Annexure-09)

Table: 1.38 - Year-Wise Breakup of Cost for Proposed Forestry Interventions in Himachal Pradesh

Year	Period	Plantation and Treatment Models			Conservation Intervention		
		Natural Landscape (Rs. in Lakhs)	Agriculture Landscape (Rs. in Lakhs)	Urban Landscape (Rs. in Lakhs)	Soil and Moisture Conservation Measures (Rs. in Lakhs)	Riverine and Riparian Wildlife Management (Rs. in Lakhs)	Wetland Conservation (Rs. in Lakhs)
B. Phase I (Implementation Phase)							
I	Establishment	55.89	5.52	235.40	181.78	160	-
II	Establishment	351.89	4.20	15.60	276.78		28
	Maintenance	1.54	2.96	70.62		140	
III	Establishment	340.73	2.40	15.60	237.71		
	Maintenance	4.50	5.40	51.76		95	25
IV	Establishment	319.75			68.46		
	Maintenance	66.11	7.09	43.11		60	16
V	Establishment	120.76			59.54		
	Maintenance	75.58	3.93	5.46		45	12
Total Phase I	Establishment	1,189.02	12.12	266.60	824.28	160	28
	Maintenance	147.73	19.38	170.95		340	53
B. Phase II (Maintenance Phase)							
VI	Establishment						
	Maintenance	98.61	1.46	2.34			9
VII	Establishment						
	Maintenance	87.74					
VIII	Establishment						
	Maintenance	83.39					
IX	Establishment						

Year	Period	Plantation and Treatment Models			Conservation Intervention		
		Natural Landscape (Rs. in Lakhs)	Agriculture Landscape (Rs. in Lakhs)	Urban Landscape (Rs. in Lakhs)	Soil and Moisture Conservation Measures (Rs. in Lakhs)	Riverine and Riparian Wildlife Management (Rs. in Lakhs)	Wetland Conservation (Rs. in Lakhs)
	Maintenance	81.02					
X	Establishment						
	Maintenance						
Total Phase II	Establishment						
	Maintenance	350.76	1.46	2.34			9
Grand Total Phase I and Phase II	Establishment	1,189.02	12.12	266.6	824.28	160	28
	Maintenance	498.49	20.84	173.29		340	62

Table: 1.39 - Division Wise Proposed Extent of Plantations in Natural Landscapes in Himachal Pradesh (Part-I)

Sr. No.	Division	Phase I : Year-wise Extent/Area (ha)							Phase I: Total Extent (ha)	
		I	II	III	IV		V		Establishment	Maintenance
		Establishment (Nursery raising for 3 rd year creation)*	Establishment (Nursery raising for 4 th year Creation*	Establishment (i/c creation for 1 st year plantation)	Establishment (i/c creation for 2 nd year plantation)	Maintenance (Maintenance of plantation 3 rd year maintenance)	Establishment (i/c creation for 3 rd year plantation)	Maintenance (Maintenance of plantation 3 rd year and 4 th year maintenance)		
1	Lahaul	60	95	60	95	60	102	155	257	155
2	Pangi	139	00	139	00	139	40	139	179	139
Total		199	95	199	95	199	142	294	436	294

*Area is virtual; considered for budgetary provisions for Ist and IInd years

Table: 1.40 - Division Wise Proposed Extent of Plantations in Natural Landscapes in Himachal Pradesh (Part-II)

Sr. No.	Divisions	Phase II : Year-wise Extent/Area (ha)				Phase II: Total Extent (ha)	Total Estb. Phase I & II (ha)
		VI	VII	VIII	IX		
1	Lahaul	257	252	182	102	257	257
2	Pangi	179	121	40	20	179	179
Total		436	373	222	122	436	436

Table: 1.41 - Division Wise Projected Cost of Plantations in Natural Landscapes of Chenab Riverscape, Himachal Pradesh (Part-I)

Sr. No.	Division	Phase I: Year-wise Cost (Rs. in Lakhs)							Phase I: Total (Rs. in Lakhs)	
		I	II	III	IV		V		Establishment	Maintenance
		Establishment (Nursery raising for 3 rd year creation)	Establishment (Nursery raising for 4 th year Creation)	Establishment (i/c creation for 1 st year plantation)	Establishment (i/c creation for 2 nd year plantation)	Maintenance (Maint of 1 st year plantation in 3 rd year)	Establishment (i/c creation for 3 rd year plantation)	Maintenance (Maint of plantation (1 st &2 nd) 3 rd year and 4 th year maintenance)		
1	Lahaul	21.38	126.01	251.26	261.88	22.52	101.29	47.75	761.82	70.27
2	Pangi	21.68	200.21	76.63	57.87	37.89	19.47	22.96	375.87	60.85
Total		43.06	326.22	327.89	319.75	60.41	120.76	70.71	1,137.69	131.12

Table: 1.42 - Division Wise Projected Cost of Plantations in Natural Landscapes of Chenab Riverscape, Himachal Pradesh (Part-II)

Sr. No.	Division	Phase II: Year-wise Cost (Rs. in Lakhs)				Total of phase II (Rs. in Lakhs)	Total Establishment (Rs. in Lakhs)	Total Maintenance Phase I & Phase II (Rs. in Lakhs)	Grand Total of Phase I & Phase II (Rs. in Lakhs)
		VI	VII	VIII	IX				
1	Lahaul	70.23	72.00	79.59	80.90	302.72	761.82	70.27	1,134.81
2	Pangi	25.43	14.42	3.80	0.12	43.77	375.87	60.85	480.49
Total		95.66	86.42	83.39	81.02	346.5	1,137.69	131.12	1,615.30

Table: 1.43 - Division Wise Projected Extent/area of Fire Protection and Natural Regeneration in Chenab Riverscape, Himachal Pradesh

Sr. No.	Divisi on	Phase I: Year Wise Area (ha)							Phase I:Total Area (ha)		Phase II: Year Wise Area (ha)		Total Area Phase II (ha)	Grand Total (ha)
		I	II		III		IV	V			VI	VII		
		Establis hment	Establis hment	Mainte nance	Establis hment	Mainte nance	Mainte nance	Mainte nance	Establis hment	Mainte nance	Mainte nance	Mainte nance	Mainte nance	Establis hment
1	Lahau l	10	10	10	00	20	20	20	20	20	10	00	10	20
2	Pangi	00	10	00	10	10	20	20	20	20	20	10	20	20
Total		10	20	10	10	30	40	40	40	40	30	10	30	40

Table: 1.44 - Division Wise Projected Cost of Fire Protection and Natural Regeneration in Chenab Riverscape, Himachal Pradesh

Sr. No.	Division	Phase I: Year Wise Cost (Rs.in Lakhs)							Total Phase I (Rs. in Lakhs)		Phase II: Year Wise (Rs. in Lakhs)		Total Phase II (Rs. in Lakhs)	Total of Phase I & Phase II (Rs. in Lakhs)		Grand Total (Rs. in Lakhs)
		I	II		III		IV	V			VI	VII				
		Establishment	Establishment	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Maintenance	Establishment	Maintenance	
1	Lahaul	12.83	12.83	1.54	00	2.96	2.74	2.13	25.66	9.37	0.81	00	0.81	25.66	10.18	35.84
2	Pangi	00	12.83	00	12.83	1.54	2.96	2.74	25.66	7.24	2.13	1.32	3.45	25.66	10.69	36.35
Total		12.83	25.66	1.54	12.83	4.50	5.7	4.87	51.32	16.61	2.94	1.32	4.26	51.32	20.87	72.19

Table: 1.45 – Division Wise Proposed Extent of Plantations in Agriculture Landscapes in Himachal Pradesh

Sr. No.	Division	Phase I: Year Wise Area (ha)							Phase I Total Area (ha)		Phase II: Area (ha)	Total Area Phase II (ha)	Grand Total Area (ha)
		I	II		III		IV	V			VI		
		Establishment	Establishment	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Establishment
1	Lahaul	16	13	16	9	29	38	38	38	38	9	9	38
2	Pangi	15	12	15	9	27	36	36	36	36	9	9	36
Total		31	25	31	18	56	74	74	74	74	18	18	74

Table: 1.46 – Division Wise Projected Cost of Plantations in Agriculture Landscapes in Himachal Pradesh

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 Year				
		Establishment	Establishment	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Establishment	Maintenance	
1	Lahaul	3.00	2.34	1.61	1.20	2.97	3.83	2.11	6.54	10.52	0.73	0.73	6.54	11.25	17.79
2	Pangi	2.52	1.86	1.35	1.20	2.43	3.26	1.82	5.58	8.86	0.73	0.73	5.58	9.29	15.17
Total		5.52	4.20	2.96	2.40	5.40	7.09	3.93	12.12	19.38	1.46	1.46	12.12	20.84	32.96

Table: 1.47– Division Wise Proposed Extent of Plantations in Urban Landscapes in Himachal Pradesh

Sr. No.	Division	Phase I: Year Wise Area (ha)							Phase I Total Area (ha)		Phase II: Area (ha)	Total Area Phase II (ha)	Grand Total Area (ha)
		I	II		III		IV	V			VI		
		Establishment	Establishment	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Establishment
1	Lahaul	3.0	3.0	3.0	3.0	6.0	9.0	6.0	9.0	9.0	3.0	3.0	9.0
2	Pangi	2.5	3.0	2.5	3.0	5.5	8.5	6.0	8.5	8.5	3.0	3.0	8.5
Total		5.5	6.0	5.5	6.0	11.5	17.5	12.0	17.5	17.5	6.0	6.0	17.5

Table: 1.48 – Division Wise Projected Cost of Plantations in Urban Landscapes in Himachal Pradesh

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 Year				
		Establishment	Establishment	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Establishment	Maintenance	Maintenance	Maintenance	Establishment	Maintenance	
1	Lahaul	155.20	7.80	46.56	7.80	33.38	27.18	2.73	170.80	109.85	1.17	1.17	170.80	111.02	281.82
2	Pangi	80.20	7.80	24.06	7.80	18.38	15.93	2.73	95.80	61.10	1.17	1.17	95.80	62.27	158.07
Total		235.40	15.60	70.62	15.60	51.76	43.11	5.46	266.60	170.95	2.34	2.34	266.6	173.29	439.89

Table: 1.49 – Division Wise Proposed Extent for Soil and Moisture Conservation (Area in m³) in Himachal Pradesh

Sr. No	Division	Phase I: Year Wise Extent (m ³)					Grand Total Extent (m ³)
		I	II	III	IV	V	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment
1	Lahaul	7,070	12,790	17,410	6,770	4,660	48,700
2	Pangi	5,880	11,160	20,660	6,010	4,850	48,560
T otal		12,950	23,950	38,070	12,780	9,510	97,260

Table: 1.50 – Division Wise Projected Cost for Soil and Moisture Conservation (in Lakhs) in Himachal Pradesh

Sr. No	Division	Phase I: Year Wise Cost (Rs. in Lakhs)					Phase I Total Cost (Rs. in Lakhs)
		I	II	III	IV	V	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment
1	Lahaul	102.65	135.39	116.83	34.85	26.12	415.83
2	Pangi	79.13	141.40	120.89	33.62	33.43	408.46
Total		181.78	276.79	237.72	68.47	59.55	824.29

Table: 1.51 – Division Wise Proposed Extent (in ha) for Riverine and Riparian Wetland Management and Wildlife Conservation in Himachal Pradesh

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			VII	Total		
		Establis hment	Establis hment	Mainte nance	Establis hment	Mainte nance	Establis hment	Mainte nance	Establis hment	Mainte nance	Establis hment	Mainte nance	Mainte nance	Mainte nance	Total	Phase I & Phase II	
1	Chamba Wildlife Division	30	0	30	0	30	0	30	0	30	30	30	0	0	0	30	
2	Spiti Wildlife Division	20	10	20	0	30	0	30	0	30	30	30	10	0	10	30	
Total		50	10	50	0	60	0	60	0	60	60	60	10	0	10	60	

Table: 1.52 – Division Wise Projected Cost (Rs. in Lakhs) for Riverine and Riparian Wetland Management and Wildlife Conservation in Himachal Pradesh

Sr. No.	Division	Phase I: Year Wise Cost (Rs. in Lakhs)											Phase II: Year Wise Cost (Rs. in Lakhs)			Total Cost Phase I & II (Rs in Lakh)
		I	II		III		IV		V		Total		VI	VII	Total (Rs in Lakh)	
		Establis hment	Establis hment	Mainte nance	Establis hment	Mainte nance	Establis hment	Mainte nance	Establis hment	Mainte nance	Establis hment	Mainte nance	Mainte nance	Mainte nance		
1	Chamba Wildlife Division	96	0	84	0	57	0	36	0	27	96	204	0	0	0	300
2	Spiti Wildlife Division	64	28	56	0	63	0	40	0	30	92	189	9	0	9	290
	Total	160	28	140	0	120	0	76	0	57	188	393	9	0	9	590

Table: 1.53 - Model/ Activity Wise Area and Cost for Forestry Intervention in Himachal Pradesh

State	Landscape	Model/Activity	Area (ha)	Area (m ³)	Cost (Rs. in Lakhs)
Himachal Pradesh	Natural	CN/HP/NL/01 Cold Desert Greening	232	-	1,081.34
		CN/HP/NL/02 Cold Desert Conservation	10	-	41.14
		CN/HP/NL/04 Sub Alpine Enrichment	98	-	214.16
		CN/HP/NL/06 Temperate Mixed Forest	78	-	237.70
		CN/HP/NL/07 Pasture and Grazing Land Development	18	-	40.96
		CN/HP/NL/08 Protection Model for Natural Regeneration	40	-	72.19
	Agriculture	CN/HP/AL/01 Plants distribution to Stakeholders	60	-	14.70
		CN/HP/AL/02 Block plantation by Stakeholders	14	-	18.26
	Urban	CN/HP/UL/01 - Riverfront Development	1.50	-	371.25
		CN/HP/UL/02 - Institutional and Industrial Estate Plantation	16	-	68.64
	Conservation Intervention	CN/HP/CI/01 - Brushwood Interventions	-	12,460	37.38
		CN/HP/CI/02 - Dry Stone Activities	-	28,860	519.48
		CN/HP/CI/03 - Crate Wire Activities	-	950	42.75
		CN/HP/CI/04 - Water Ponds	-	54,420	190.47
		CN/HP/CI/05 - Silt Detention Dam Type Activities	-	570	34.20
		CN/HP/CI/06 - Riverine and Riparian Wildlife Management	50	-	500.00
		CN/HP/CI/07 - Wetland Management	10	-	90.00
Total			627.50	97,260	3,574.62

Table: 1.54– Year-Wise Breakup of Projected Cost on Supporting Activities in Himachal Pradesh

Sr. No.	Activity	Year (Rs. in lakh)										Grand Total (Rs. in lakh)
		Phase I					Phase II					
		I	II	III	IV	V	I	II	III	IV	V	
1	Policy Level Interventions	1.19	0.93	0.97	1.02	1.07	0.56	0.00	0.00	0.00	0.00	5.74
2	Research Activities	11.87	12.46	13.08	13.74	14.42	7.57	7.95	8.35	8.77	9.20	107.41
3	Capacity Development	27.00	25.20	34.46	27.78	29.17	0.00	0.00	0.00	0.00	0.00	143.61
4	Awareness	4.00	4.20	4.41	4.63	4.86	0.00	0.00	0.00	0.00	0.00	22.10
5	Participatory Monitoring	5.93	5.34	4.81	4.33	3.89	3.50	3.15	2.84	2.55	2.30	38.64
6	Cost of PMUs of Two State Level Implementing Agencies	59.33	46.35	48.63	51.02	53.53	27.78	26.23	24.75	23.36	22.04	383.02
7	Evaluation	0.00	0.00	15.43	0.00	0.00	25.89	0.00	0.00	0.00	38.30	79.62
8	Contingency and Miscellaneous Activities	0.30	0.23	0.24	0.26	0.27	0.14	0.13	0.12	0.12	0.11	1.92
Grand Total		109.62	94.71	122.03	102.78	107.21	65.44	37.46	36.06	34.80	71.95	782.06

Table: 1.55 – Year-Wise Projected Cost for Supporting Activities

Sr. No.	Activities	Year (Cost Rs. in lakh)										Grand Total (Cost Rs. in lakh)
		Phase I					Phase II					
		I	II	III	IV	V	VI	VII	VIII	IX	X	
1	Policy Level Interventions	1.19	0.93	0.97	1.02	1.19	0.56	0.00	0.00	0.00	0.00	5.74
2	Research	11.87	12.46	13.08	13.74	11.87	7.57	7.95	8.35	8.77	9.20	107.41
3	Capacity Development	27.00	25.20	34.46	27.78	27.00	0.00	0.00	0.00	0.00	0.00	143.61
4	Awareness	4.00	4.20	4.41	4.63	4.00	0.00	0.00	0.00	0.00	0.00	22.10
5	Participatory Monitoring	5.93	5.34	4.81	4.33	5.93	3.50	3.15	2.84	2.55	2.30	38.64
6	Project Management Unit	59.33	46.35	48.63	51.02	59.33	27.78	26.23	24.75	23.36	22.04	383.02
7	Evaluation			15.43			25.89				38.30	79.62
8	Contingency and Miscellaneous Expenses	0.30	0.23	0.24	0.26	0.30	0.14	0.13	0.12	0.12	0.11	1.92
Grand Total		109.62	94.71	122.03	102.78	107.21	65.44	37.46	36.06	34.80	71.95	782.06

Table: 1.56 – Year-Wise Projected Cost of State Project Management Unit in Himachal Pradesh

Sr. No.	Activities	Year (Cost Rs. in lakh)										Grand Total (Cost Rs. in lakh)
		Phase I					Phase II					
		I	II	III	IV	V	VI	VII	VIII	IX	X	
1	Project Staff - Salary and Wages	37.08	38.93	40.88	42.92	45.07	23.66	22.36	21.13	19.97	18.87	310.87
2	Office Expenses	3.71	0.39	0.41	0.43	0.45	0.24	0.22	0.21	0.20	0.19	6.45
3	POL	3.71	0.39	0.41	0.43	0.45	0.24	0.20	0.15	0.10	0.06	6.14
4	Travel Expenses	3.71	3.89	4.09	4.29	4.51	2.37	2.24	2.11	2.00	1.89	31.10
5	Equipment – Office and Field	1.85	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	2.03
6	Purchase of Equipment - Computer, RS and GIS and IT	3.71	0.74	0.74	0.74	0.74	0.04	0.04	0.04	0.04	0.04	6.87
7	Furniture and Fixtures	3.71	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	4.07
8	Contingency and Miscellaneous	1.85	1.95	2.04	2.15	2.25	1.18	1.12	1.06	1.00	0.94	15.54
Grand Total		59.33	46.35	48.63	51.02	53.53	27.79	26.24	24.76	23.37	22.05	383.07

Table: 1.57 – Projected Cost of Awareness Programme

Sr. No.	Activity	Phase I Year(Cost Rs. in lakh)					Grand Total (Cost Rs. in lakh)
		I	II	III	IV	V	
1	Awareness Campaigns	1	1.05	1.10	1.16	1.22	5.53
2	Awareness Activities for General Public	1	1.05	1.10	1.16	1.22	5.53
3	Awareness Material – Pamphlets, Brochures, Booklets, Signages, Boards and Hoardings	1	1.05	1.10	1.16	1.22	5.53
4	Publicity Through Mass Media	1	1.05	1.10	1.16	1.22	5.53
Grand Total		4	4.20	4.40	4.64	4.88	22.12

Table: 1.58 – Projected Cost of Capacity Development at State and Division Levels

Sr. No.	Activity	Norms	Phase I Year(Cost Rs. in lakh)					Grand Total (Cost Rs. in lakh)
			I	II	III	IV	V	
1	Local Level Training for Communities (Trainings; 2-3 days) 25	1	2.00	2.10	2.21	2.32	2.43	11.05
2	Division Level Trainings for SFD Personnel, Line Departments and Other Partner Agencies (1 Training/ Division/ 2-3 days) 25	1	2.00	2.10	2.21	2.32	2.43	11.05
3	State Level Inception Workshop (2-3 days) 1	3	3.00	0	0	0	0	3.00
4	State Level Seminar – Mid Term (2-3 days) 1	8	0	0	8.00	0	0	8
5	Exposure Trip Within State (30 participants; 2 per year)	5	10.00	10.50	11.03	11.58	12.16	55.26
6	Exposure Trip Outside State (15 participants; 1 per year)	10	10.00	10.50	11.03	11.58	12.16	55.26
Grand Total			27.00	25.20	34.46	27.78	29.17	143.62

Table: 1.59 - Division Wise Details of Area/Extent and Cost for Three Different Landscapes and SMC Activities in Chenab Riverscape, Himachal Pradesh (Part-I)

Sr · N o.	Divisi on	Natural Landscape*				Agriculture Landscape				Urban Landscape			
		Tot al Are a (ha) *	Cost (Rs. in Lakhs)		Total Cost (Rs. in Lakhs)	Tot al Are a (ha)	Cost (Rs. in Lakhs)		Total Cost (Rs. in Lakhs)	Total Area (ha)	Cost (Rs. in Lakhs)		Total Cost (Rs. in Lakhs)
			Establish ment	Mainten ance			Establish ment	Maintena nce			Establishm ent	Mainte nance	
1	Lahaul	277	787.48	383.17	1,170.65	38	6.54	11.25	17.79	9.0	170.80	111.02	281.82
2	Pangi	199	401.53	115.31	516.84	36	5.58	9.29	15.17	8.5	95.80	62.27	158.07
Total		476	1,189.01	498.48	1,687.49	74	12.12	20.84	32.96	17.5	266.60	173.29	439.89

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

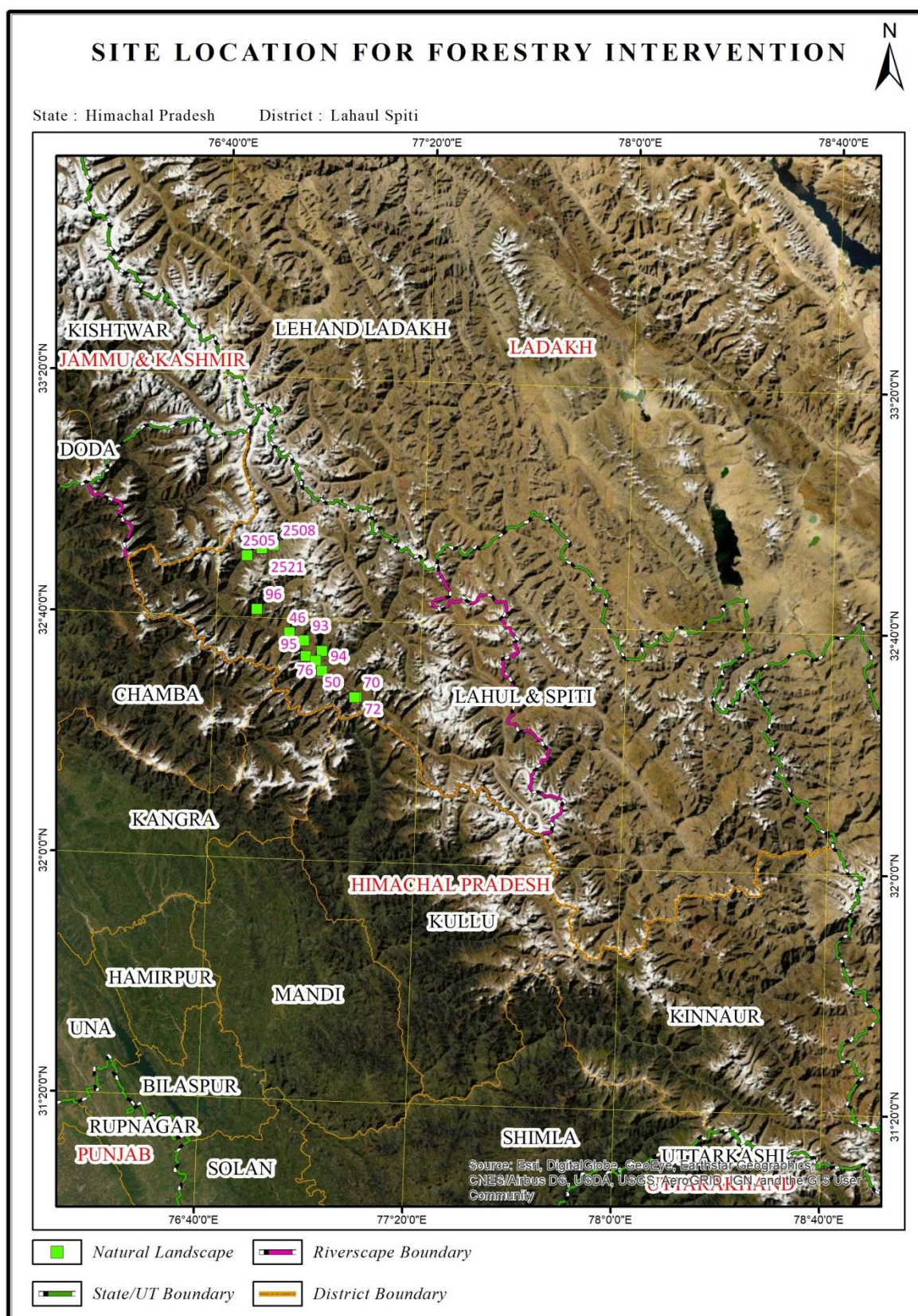
Table: 1.60 - Division Wise Details of Area/Extent and Cost for Three Different Landscapes and SMC Activities in Chenab Riverscape, Himachal Pradesh (Part-II)

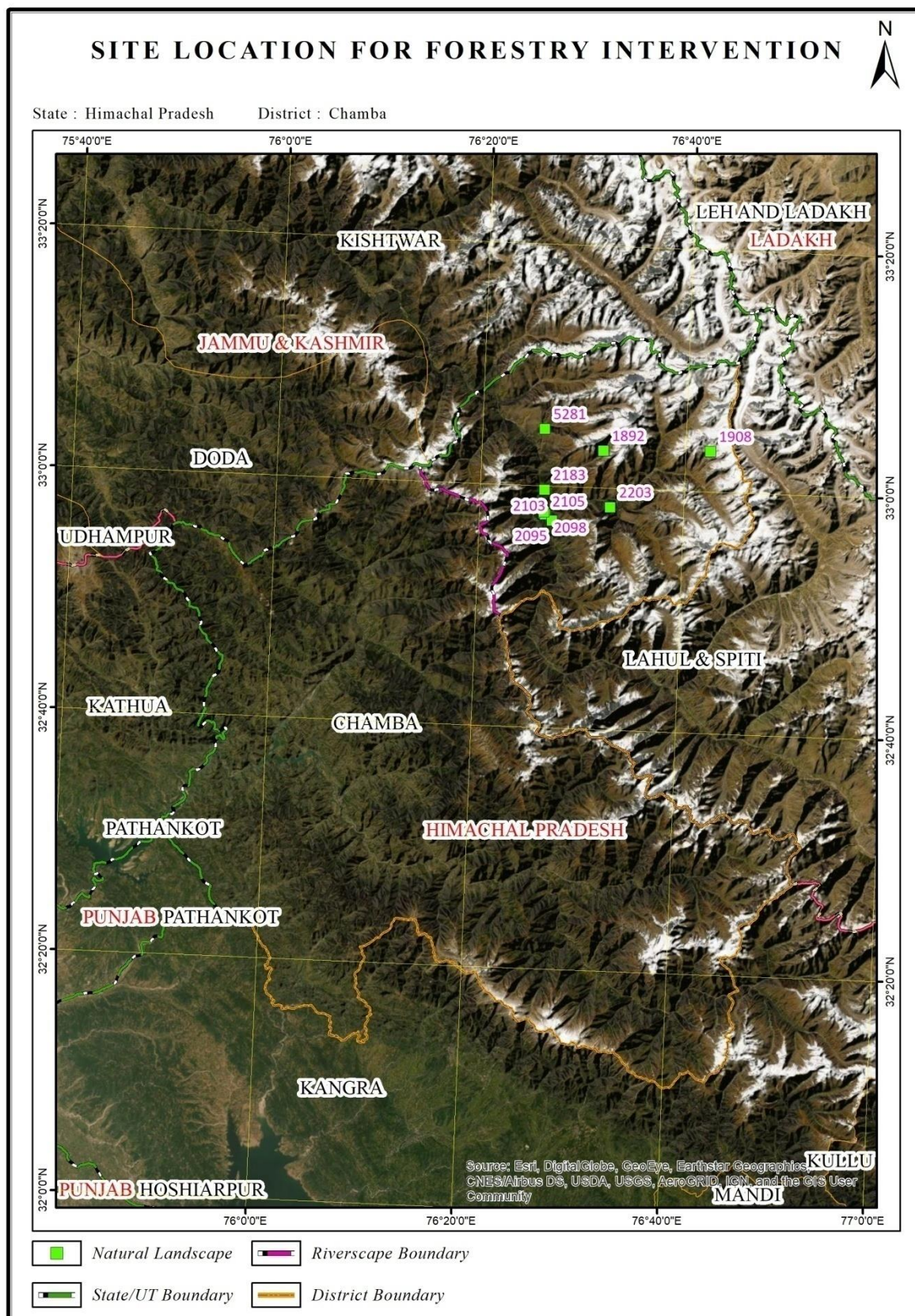
Sr. No.	Division	Grand Total Area of Three Landscapes (ha)	Total Cost of Three Landscapes (Rs. in Lakhs)	SMC Measures		Grand Total Cost of Three Landscapes and SMC (Rs. in Lakhs)
				Total Extent (m ³)	Total Cost (Rs. in Lakhs)	
1	Lahaul	324.00	1,470.26	48,700	415.83	1,886.09
2	Pangi	243.50	690.08	48,560	408.46	1,098.54
Total		567.50	2,160.34	97,260	824.29	2,984.63

Table: 1.61 - Division Wise Details of Area and Cost for Riverine and Riparian Wildlife Management and Wetland Management in Chenab Riverscape, Himachal Pradesh

Sr. No.	Divisions	Total Area (ha)*	Cost (Rs. in Lakhs)		Grand Total Cost (Rs. in Lakhs)
			Establishment	Maintenance	
1	Chamba Wildlife Division	30	96	204	300
2	Spiti Wildlife Division	30	92	198	290
Total		60	188	393	590

Note: **Area of Riverine and Riparian Wildlife Management and Wetland Management is virtual, considered for budgetary provisions.





2.1 Introduction

In view of the emerging scenario and to fulfill the urgent requirements of national agenda and global commitments, the Government of India has launched several new initiatives relevant to river restoration and conservation. GoI has created the Ministry of Jal Shakti to address the challenge of water crisis. The restoration of Ganga River is one of the prominent national agenda of the union government and accordingly, a comprehensive approach towards the Ganga River restoration adopting a comprehensive, multi-pronged, multi-sectoral, multi-dimensional and multi-stakeholder strategy including ‘forestry interventions’ as an important and vital component under the ambitious programme – *Namami Gange* was initiated by the then Ministry of Water Resources, River Development & Ganga Rejuvenation-MoWR, RD&GR, (now part of Jal Shakti) as part of National Mission for Clean Ganga (NMCG).

Taking into consideration the current situation of all the major Indian Rivers, NITI Aayog of Government of India, prepared a programme for suitable action on the feasibility of implementation of recommendations on ground made by Rally for Rivers (RfR). The programme for action was prepared by the Department of Rural Development and it was decided to launch a major mission on revitalization of rivers utilizing the existing schemes and programmes of the Government with community lead efforts. Accordingly, NITI Aayog directed concerned central ministries i.e., MoRD, MoEF&CC, MoA, MoDWS, MoH&UA, MoPR and Chief Secretaries/Administrators of all the States and UTs to initiate pilot projects for revitalization of rivers by appropriate convergence of schemes and active involvement of various stakeholders. In response to this, and following the pursuit of forestry interventions on Ganga River by NMCG, the MoEF&CC assigned a major task on the preparation of DPR(s) on forestry interventions for rejuvenation of 13 major Indian Rivers i.e., Jhelum, Chenab, Ravi, Beas and Sutlej; Yamuna, Luni, Narmada, Godavari, Mahanadi, Krishna, Cauvery and Brahmaputra belonging to nine river systems to the Indian Council of Forestry Research and Education (ICFRE), Dehradun- an autonomous body under its control. The five Himalayan Rivers viz., Jhelum, Chenab, Ravi, Beas and Sutlej are tributaries of Indus. The Himalayan Forestry Research Institute (HFRI), Shimla, one of the institutes of ICFRE had been entrusted the task to prepare DPR(s) of five tributaries of the Indus River Basin. The present DPR specifically deals with the Jhelum River, a major tributary of the Indus River, and ICFRE had given a time frame of 12 months to HFRI for preparing the draft DPR envisaging that proposed forestry interventions will immensely facilitate the major goals of accomplishing *Aviral Dhara* (uninterrupted flow), *Nirmal Dhara* (clean flow) and ecological regeneration of aquatic and terrestrial life/ biota.

Jammu and Kashmir Union Territory: The Union Territory of Jammu and Kashmir was constituted through Jammu and Kashmir Reorganization Act, 2019, which was passed by both houses of the Parliament of India in August, 2019. The Act re-constituted the erstwhile

State of Jammu and Kashmir into two Union Territories *i.e.*, Jammu & Kashmir and Ladakh, with effect from 31st October, 2019. Union Territory of Jammu and Kashmir is located at the northern most tip of the Indian Peninsula in the proximity of the Karakoram and Western Mountain ranges. The territory is separated by the line of control from Pakistan Occupied Kashmir (POK) and Gilgit-Baltistan in the west and north, respectively. To its south it borders with Himachal Pradesh and Punjab and to the west by Ladakh Union Territory. It shows conspicuous relief variation, snow-capped mountains, presumptive drainage, complex geological structure and also rich in temperate flora and fauna. Jammu and Kashmir UT is home to several valleys such as Kashmir Valley, Tawi Valley, Chenab Valley, Poonch Valley, Sind Valley and Lidder Valley. The Union Territory of Jammu and Kashmir has 22 districts for administrative purpose (**Fig. 2.1**). Jammu and Kashmir is named after two divisions/regions *i.e.*, The Jammu region and Kashmir Valley. The Himalaya divide Kashmir Valley from the Tibetan plateau, while Pir Panjal Range which encloses the valley from the west and the south, separate it from Great Plains of northern India. Along the north eastern flank of the valley runs the main range of Himalaya.

The drainage systems of Jammu and Kashmir UT are the Indus, Jhelum, Chenab, Ravi and Tawi Rivers. These rivers are perennial and are fed by glaciers/snow melts and rainfall. It has many hill stations like Verinag, Kokranag, Srinagar, Gulmarg, Sonmarg, *etc.* The valley is famous for various springs of which Verinag (source of Jhelum), Martand (Anantnag), Achhabal (Anantnag), Kokernag (Anantnag), Chashma Shahi (Famous for fresh water situated near Srinagar), Tullamulla or Khirbhawani (Sacred spring), Vicharanag, Sukhnag, Vishnosar and Harmukat Ganga in Srinagar area and Chirnag and Vasaknag in Anantnag are also famous. Besides scenic beauty, Jammu and Kashmir UT is also known as a famous pilgrimage center *i.e.*, Shri Mata Vaishno Devi in Jammu province and Amarnath in Srinagar province. It attracts a large number of tourists round the year. The region is also famous for floriculture and agriculture, fruit, vegetables, saffron, herbs and also for its handicrafts like woolen carpets, shawls and embroidery cloths.

2.2 Profile of Jammu and Kashmir Union Territory

2.2.1 Geographical Extent of Jammu and Kashmir UT

The Union Territory of J&K covers a geographical area of 53,258 km² (ISFR, 2019) and extends between 33°21'54" to 34°54'59" N Latitudes and 73°46'31" to 75°35'50" E Longitudes. It is surrounded by number of countries *i.e.*, Pakistan in the west, Afghanistan in the northwest and China in the northeast. The Jammu region falls in Pir Panjal Range, which is situated 2,000 m amsl. Kashmir region lies totally within the Himalaya surrounded by high hills of Pir Panjal Range and Karakoram Range. The J&K UT with its summer and winter capitals at Srinagar and Jammu, respectively consists of 22 districts *i.e.*, 12 in Kashmir Valley and 10 in Jammu region. It has three geographical zones namely (i) sub-mountain and semi-mountain plains known as Kandi or dry belt; (ii) the Shivalik Ranges and (iii) the high mountain zone constitute the Kashmir Valley, Pir Panjal Range and its off-shoots including Doda, Poonch and Rajouri districts and parts of Kathua and Udhampur districts. The

important rivers are Jhelum, Chenab, Tawi, Ravi and Sheok. Besides these major rivers, there are a few small rivers and streams running through the J&K UT. These rivers facilitate irrigation to large part of the J&K UT. The location map of Jhelum Riverscape within Jammu and Kashmir is depicted in **Fig. 2.2**.



Fig. 2.1 - Administrative Map of Jammu and Kashmir Union Territory

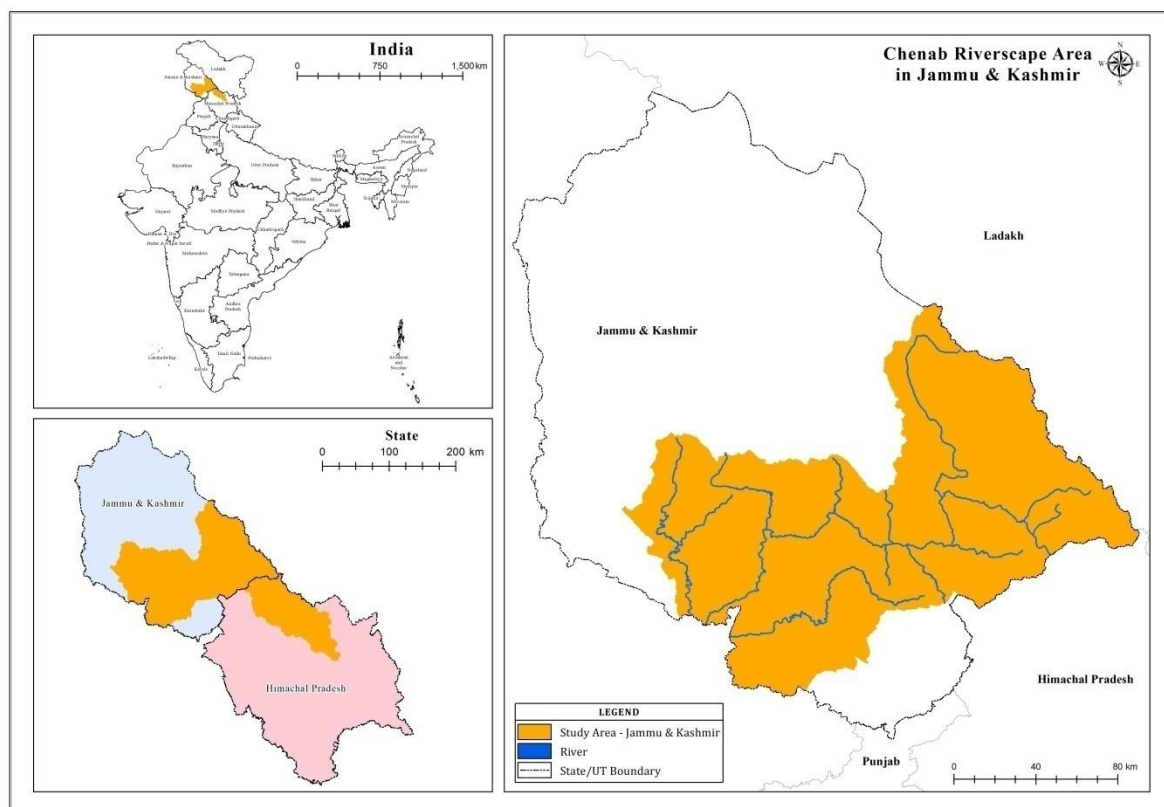


Fig. 2.2 - Chenab Riverscape Area in Jammu and Kashmir UT

2.2.2 Geology, Topography and Soil

The Jammu and Kashmir, UT contains one of the finest developments of the stratigraphic succession right from the Archean to recent, holding a complete sequence of marine Paleozoics, Mesozoics and Cenozoics. Kashmir Valley comprises of sedimentary, metamorphic and igneous rocks ranging in age from Precambrian to recent Geological Formations. The lacustrine sediments are spread in the central portion of the valley. A regional unconformity encompassing the period from the top of Silurian's to Middle Carboniferous is noteworthy in the north western part of Kashmir Valley. However, in the south eastern parts, a continuous Paleozoic record is found. Of the Mesozoic's, the Triassic's are best developed in the south eastern parts of Kashmir. Jammu region comprises Shivalik, Murrees and slates types of Geological Formations. The underlying rocks in this area are loose boulders. The valley has protuberance of lacustrine *Karewas*, and is pierced by ravines. The important Karewas are found in Kulgam, Shopian, Budgam, Qazigund, Tangmarg, Gulmarg, Baramulla, Laithpora, Chandhara, Pampore, Bijbehara, Awantipora, Islamabad (Anantnag), Mattan, Tral and Ganderbal. The Karewa soils are composed of fine, silty clays with sand boulder gravel, the coarse detritus being as a rule, restricted to the peripheral parts of the valley, while the finer variety prevails towards the central parts (Farooq, 2015).

(i) Topography

The Jammu and Kashmir Union Territory is bestowed with lofty snow mountains, fascinating valleys, sparkling streams, rushing rivers and emerald forests. In the south lies the Jammu region/division, the lower portion of which is essentially hot in summer and cold in winters, bearing broad leaved forests at lower altitudes in plains and Shivaliks. The middle part of Jammu region support mostly Chirpine (*Pinus roxburghii*) forests whereas higher reaches are temperate and support luxuriant coniferous forests, the northwest region between Pir Panjal and Zojila is the Kashmir Valley considered the 'Paradise on Earth'. This fascinating valley enticing the visitors is a museum of nature and scenic beauty. The UT is blessed with diverse natural ecosystems. Topographically, the whole region is almost mountainous with two main ranges of Himalaya i.e., Karakoram and Pir Panjal. Karakoram and Kyunlun Ranges lie to the north and northeast of the UT and separate it from Russian, Turkistan and Tibet. Karakoram Range where K₂ Peak (8,611 m), the second highest peak of the world is situated. Two lofty peaks of Gashorbram (8,570 m) and Masharbram (7,827 m) also lie in this range. There are many mountain peaks in Karakoram Range which are having height above 5,000 m. Zaskar Range separates the Indus Valley from Kashmir Valley. It is part of the Tethys Himalaya and is approximately 100 km wide. The Pir Panjal Range lies to the south of the main Himalaya which has peak height about 4,100 m. It follows from Gulmarg in the northwest to southern rim of the Kashmir valley and Banihal Pass. Mountains have a geographical importance to climatic conditions of the J&KUT. The valley is gifted with rich flora and the most magnificent tree found in the valley is Chinar (*Platanus orientalis*). In addition Walnut (*Juglans regia*), Willow (*Salix* spp.), Almond (*Prunus dulcis*) and Cedars (*Cedrus deodara*) also add some richness to the flora of valley. Kashmir is also famous for its Apples (*Malus pumila*), Pears (*Pyrus* spp.), Peach (*Prunus persica*), Walnuts (*Juglans regia*), Almonds (*Prunus dulcis*) and Cherries (*Prunus* spp.). In addition, valley is also famous for production of high quality Saffron (*Crocus sativus*).

(a) Soils

The soils of Jammu and Kashmir have been broadly classified into eight groups i.e., (i) **Brown earth/Brown forest soils:** These soils have been spotted in parts of Kathua, Udhampur, Doda, Poonch, Rajouri, Anantnag and Baramulla Districts; (ii) **Degraded or Grey brown podzolic soils:** These soils occur in parts of Baderwah, Ramnagar, Poonch, Gulmarg and Pahalgam; (iii) **Red and Yellow podzolic soils:** These soils occur in parts of Udhampur, Kathua, Rajouri and Poonch; (iv) **Hill or mountain forest soils:** These are sandy loam to loamy, fine to weakly granular moderately alkaline (pH 7.4 – 8.4) and calcareous (4% to 10% calcium carbonate) soils; (v) **Mountain meadow soils:** Sandy loam to clay loam fine to coarse granular mountain meadow soils occur in Gulmarg, Pahalgam, Sonmarg, Lolab, Gurez, and Changthang; (vi) **Lithosols:** Gravelly loam to gravelly silty loam, coarse to weak granular slightly alkaline (pH 7.1- 7.8). Lithosols occur on steep slopes in the forest hills of 400 - 600 m amsl at Jammu, Udhampur, Kathua, Rajouri, and Poonch Districts; (vii) **Saline alkali soils:** These soils occur in alluvial belt of Jammu (RS Pura/Bishna) and Kathua (Ramkol/Challain) having EC more than 4 mmhos/cm at 25°C, but their ESP is less than 15; and (viii) **Alluvial soils:** These soils cover plains of Kathua,

Jammu, Rajouri, Poonch and Udhampur in Jammu and Vales in Kashmir. They are situated in the floodplains of Ravi, Chenab, and Jhelum Rivers and their tributaries (Farooq, 2015).

2.2.3 Climate

The climate of Jammu and Kashmir UT varies greatly owing to its rugged topography. It varies considerably with the altitude, and is mild in the lower elevations, but very cold in higher elevations. Jammu region of the Union Territory experiences two climatic zones depending primarily on altitude. Lower hills and plains bear sub-tropical climate with hot dry summer lasting from April to July. Monsoon starts around middle of July and fading away in early September and this follows dry spell from September to November. Winter is mild and temperature seldom reaches freezing point. High areas of Chenab Valley have moist temperate climate, winters are severe and varied quantity of snow is received whereas, Kashmir Valley with Pir Panjal Mountains on its south and Karakoram on its north receives precipitation in the form of snow due to western disturbances. The winter in the valley is severely cold and temperature often goes below 0°C. Spring is pleasantly cold. Summers are warm and dry and autumn is again cool and sometimes wet. The Sub-Mediterranean climate of valley receives an average rainfall of about 65 cm. Warmer weather starts in April and lasts till November with maximum temperature of 36 °C and minimum of 14 °C.

2.2.4 River System, Hydro-electric Projects and Hydrology

(A) River System

Nature has endowed the Union Territory of Jammu and Kashmir with rich resources of lakes and rivers. The most important rivers include the Indus, Jhelum, Tawi, Chenab, Ravi and Kishenganga, which have their headwaters in the Himalayan Mountain Ranges and flow across the length of the territory (**Fig. 2.3**). All the rivers originating from Himalaya receive almost 30-50% of annual flow from snow and glaciers melt run off. The unending water supply from these rivers forms the backbone in shaping the economy of the region. Main sectors of the UT which are directly dependent on water resources include agriculture, irrigation, horticulture, hydro-electricity and tourism. Moreover, the water resources of the UT are governed by special commandments laid down under the Indus Water Treaty (IWT, 1960). However, the rugged mountainous terrain, climate, and the human activities have made the UT of Jammu and Kashmir vulnerable to the vagaries of nature (Shukla and Ali, 2018). Three important main tributaries of Indus River Basin flowing through J&K UT are Chenab, Ravi and Jhelum. Jhelum River joins Chenab River little above Trimmu. Nearly 65 km below Trimmu, the Ravi River joins Chenab River. At Punjnad; Chenab River makes junction with Sutlej River. About 65 km below Punjnad, it meets with Indus River at Mithankot.

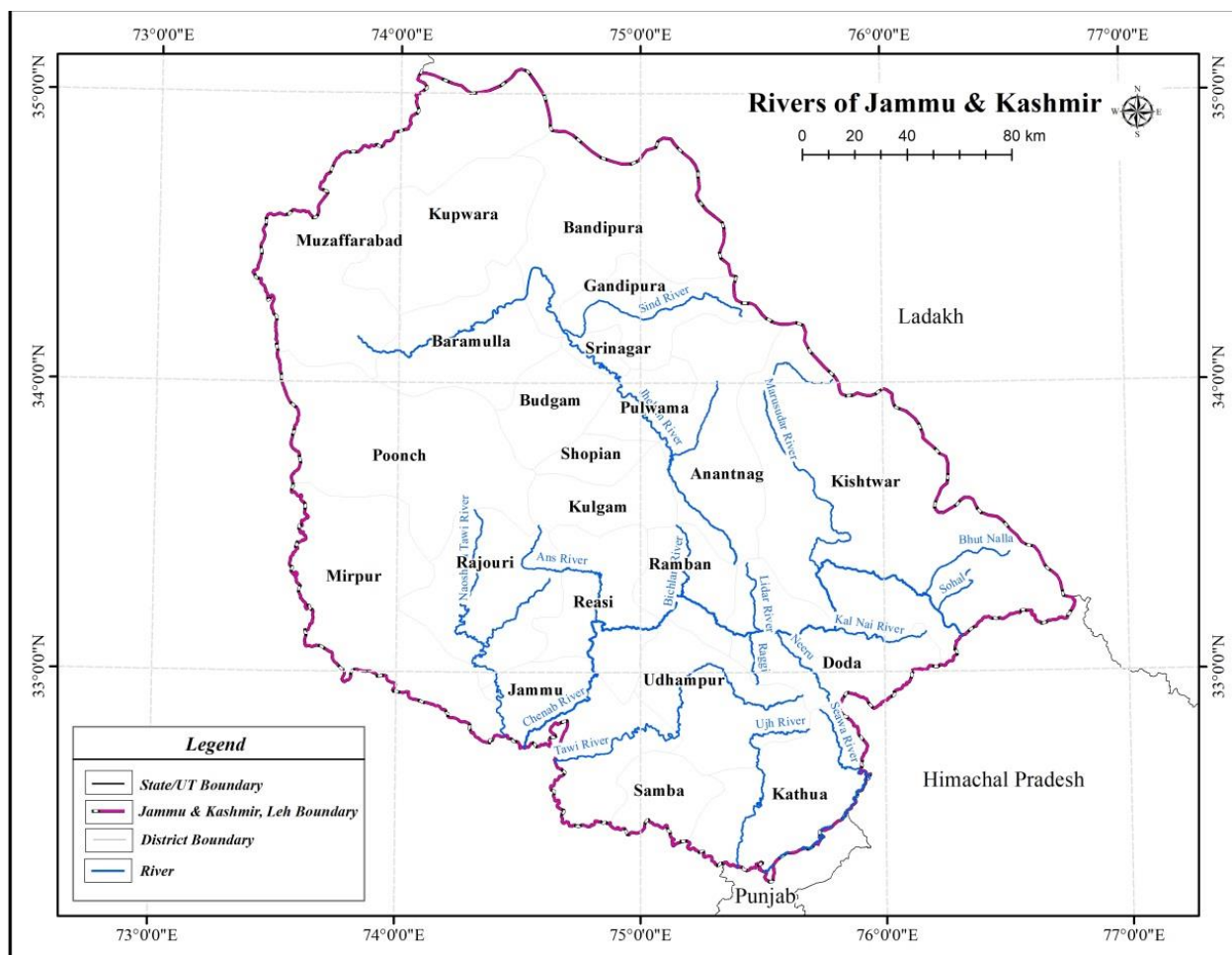


Fig. 2.3 - Rivers Flowing Through Jammu and Kashmir UT

(i) Chenab River

The Chenab River is one of the largest tributary of the Indus River Basin. The altitude of the Chenab River Basin ranges from 320 - 4,991 mamsl. The river is formed by the confluence of two rivers, Chandra and Bhaga, at Tandi, 8 km southwest of Keylong, in the Lahaul and Spiti district, Himachal Pradesh. The Bhaga River originates from Suraj Taal Lake, which is situated a few kilometers west of the Bara-lacha La Pass in Himachal Pradesh. The Chandra River originates from glaciers east of the same pass. This pass also acts as a water-divide between these two rivers. The Chandra River transverses 115 km before the confluence. The Bhaga river transverses through narrow gorges a distance of 60 km before the confluence at Tandi and with confluence of these two tributaries, the river is known as Chenab. It flows through Lahaul & Spiti district and Pangri region of Chamba, Himachal Pradesh; Jammu region of Jammu and Kashmir UT and alluvial plains of the Punjab in Indian Territory before entering into Pakistan. From Tandi onwards, the Chenab River initially flows towards north-west direction in Udaipur Valley of Lahaul and then enters Pangri Valley in Chamba district near Bhujind. After covering a distance of 125 km, leaves Himachal Pradesh near Sansari Nallah and river enters Padder valley of Kishtwar district in Jammu & Kashmir UT and flows through Doda, Ramban, Reasi and Jammu districts, and finally enters Pakistan near Akhnoor area of Jammu & Kashmir. The total length of the river is > 500 km. Its elongated catchment

area is about 26,900 km². Out of this catchment, 7,850 km² occurs in Himachal Pradesh and rest lies in Jammu and Kashmir UT. The drainage area of the river covers 49 water catchments. Along this tract, the river Chenab passes through myriad deep gorges, steep slopes, sharp bends, very high cliffs and meandering valleys. It is fed by a network of many small streams and tributaries from right and left banks at many places. Miyar *Nallah*, Thiroth and Bhut *Nallah* are the main tributaries in the Lahaul and Pangi regions and Marusudar is the biggest tributary joining the river at Bhandalkot in Kishtwar. The important tributaries of Chenab River in Jammu and Kashmir UT are described below:

Important Tributaries in Jammu and Kashmir Union Territory

Tawi River: The Tawi River is a main left bank tributary of the Chenab River. It originates from the lap of Kali Kundi Glacier in Kailash Range, at an altitude of 4,420 m. In its Upper course, it drains Doda Valley that penetrates deep into the east for about 64 km from Chenani. It flows to north westerly direction towards Chenani for about 45 km. In upper part, it collects the water of some small streams. From Chenani, it turns to south-west for a distance of 24 km through a deep valley. Near Udampur, the river pursues southerly direction. On the right bank, the river receives the water of Burmin, Sulah *Nallah* and Dudar and Ramna Garwali *Nallah* on the left side and flows through westerly direction. After flowing towards west, the river reaches the town of Jammu and finally joins Chenab River. From source to confluence with Chenab River, the Tawi River has a total length of about 113 km and its catchment area is about 2,168 km² falls in the districts of Doda, Udampur and Jammu.

Marusudar: It is the biggest tributary of the Chenab River and meets the Chenab River at Bhandalkot. Further downstream, the river flows in a southerly for a distance of 34 km up to Thathri and then takes a westward course. In this reach, about 17 km downstream of Thathri, Niru *Nallah* joins the Chenab River on its left bank.

Bhut *Nallah*: The Bhut *Nallah* is formed by two major streams near Matsel one flowing from north-west and the other from south-east. From Matsel, it flows in the direction of south-west. After traversing a distance of about 25 km, it joins the Chenab River on its right bank downstream of Gulabgarh. The total course of the river is through high mountains on either side.

Ans *Nallah*: The River is formed by two major streams, one flowing from west to east and the other from south to west. The Ans after flowing for a distance of about 20 km in almost southerly direction joins the Chenab River on its right bank, upstream of Salal hydro-electric project.

Niru *Nallah*: The Niru *Nallah* originates near Bhadarwah. It flows in north-west direction and after traversing a distance of about 30 km, it joins the Chenab River on its left bank near Doda. In this reach, the Niru *Nallah* takes a few sharp bends and also joined by two-three small *Nallahs*.

(ii) Jhelum River

The Jhelum River originates from the Verinag Spring situated at the foot of the Pir Panjal Range in the south Kashmir and moves parallel to the Indus River at an average elevation of 1,676 mamsl. It flows through Anantnag, Bijbehara, Awantipura, Pampore, Srinagar, Sopore and Baramulla before entering Pakistan through Uri gorge. In ancient times, it was known as *Vitasta* and today many Kashmiris call it *Vyeth*. It was also known to Greeks who named it Hydaspes. Alexander the Great and his army crossed the Jhelum River in BC 326 and defeated the local king, Porus. The river also finds mention in the *Rig Veda*.

The Jhelum River lies between 33°25' to 34°40' N Latitudes and 73°55' to 75°35' E Longitudes. It has 24 tributaries and some of them drain from the slope of the Pir Panjal Range and joins the river on the left bank and some others flowing from Himalayan Range and joins the river on the right bank. The total catchment area of River is about 18,404.93 km². It has main channel length of 165 km up to Indo-Pakistan border. The River moves toward north-west direction and after flowing through Srinagar, it flows into Wular Lake and then passing through Baramulla and Uri, it enters into Pakistan. It ends in a confluence with the Chenab River just before the Trimmu Head Works near Jhang City, Pakistan.

Northern bank drainage basin includes tributaries of Jhelum *i.e.*, Sandran, Bring, Arapat Kol, Liddar, Arapal, Harwan, Sind, Erin, Madhumati, Pohru, and Viji-Dakil, while the southern bank drainage basin include Vishav, Rembiara-Sasara, Romushi, Dudhganga Shaliganga, Sukhnag-Firozepura and Ningal.

The brief description of the important tributaries of Jhelum River is as follows.

Sandran: Its source lies in the Pir Panjal below the Kakut Peak in the neighborhood of Nandmarg Pass. It flows through Shahabad and joins the Jhelum River at Munwar. As it reaches the plains, the River sheds its load and gets divided into various channels before uniting again to form the main stream. Its total catchment area is only 291 km² with total length of 51 km.

Bring: It originates from the Pir Panjal Range at the south-east extremity of the Kashmir, close to the course of Sandran. The stream then follows a north-west course, flowing for 25 km up to south of Anantnag, where it merges with Sandran.

Arapat Kol: Before merging with the Sandran, the Bring receives the waters of the mountain torrent known as Arapat Kol. It has a small catchment. The combined waters of Bring, Sandran and Arapat Kol merge with Jhelum River near Khanabal, Anantanag.

Lidder: It is a major northern bank tributary of Jhelum River arising at the base of Kolahoi and Sheshnag snow fields forming two main upstreams (the east and the west Lidder) which unite at Pahalgam. It has a steep gradient and exhibits the choking of its channels where it has a braided pattern. It finally merges with the Jhelum River near Khanabal.

Arapal: It is a tiny stream, which gets its water supply from the Arapal Nag. It drains through Wusrtarwan village before it joins the Jhelum, ahead of Awantipora.

Harwan: Its feeders originate from the glacial tract, west of Tarsar, escaping into Dal Lake, along with drainage from the slopes of Burzakut, Mahadeo and Sarbal.

Sind: It is the most well developed side valleys of Jhelum River with a length of about 100 km and its basin area exceeding 1,556 km². It has its feeders below the lofty peaks of Zojila in the inner Himalaya and from the Amarnath, Kolahoi and Panjtarni snowfields. Its channel flows through narrow and deeply incised valley. Further, towards JhelumRiver, the riverbed deepens to assume the character of a gorge below its steep banks above Ganderbal before entering into the wide floodplain. After shedding its load, its own channel gets choked with debris, bifurcating the main stream into a number of channels over an extensive deltaic morphology. It finally merges with JhelumRiver near Shadipur. It has a gentle gradient from Kangan to Shadipur, being 6 m in 1 km.

Erin: This stream rises from western flanks of Harmukh and after traversing a course of about 24 km through a steep cascaded valley, it falls into Wular, south of Bandipur. This stream serves as a medium of transport for timber. It exhibits a steep gradient of 88 m in 1 km.

Madhumati: The Madhumati or Bod Kol drains the northern slope of Harmukh Mountain with feeder streams spreading over vast area between Nagmarg in the west and Sarbalnag in the east. The valley opens laterally above Banakut village forming an alluvial triangle. It also enters Wular Lake near Bandipur after travelling a distance of about 39 km. Like Erin, it also falls steeply with an average fall of 103 m in 1 km.

Pohru: The Pohru River and all its tributaries originate at the crest of North Kashmir Range which divides the waters of Pohru from Kishenganga Basin. Pohru and its tributaries have a dendritic drainage pattern. It flows for 56 km before its merger into JhelumRiver, below Achhibal. It is a highly tortuous stream all through, though meandering is marked between the confluence of Talar and Mawar. It also falls over with a steep gradient of the 23 m in 54 km and later with 4 m in 30 km.

Viji-Dakil: It is a tiny stream flowing from the northern slopes of the ridges culminating in Viji Peak and it merges with JhelumRiver just below Dobgah, close to confluence of Pohru. Dakil joins JhelumRiver at Ludur. Both the Viji and Dakil together drain an area of about 140 km².

Vishav: It is fed by the Kaunsarnag Lake (4000 m) which is located in the Pir Panjal Mountains. The lake remains frozen during summer. Timber logs, cut in the forests in its upper course, are floated down through it to be transported to the valley. Near Budli Pass, there is water falls of Ahrabal, where Vishav has carved a deep channel and then it reaches the plains of Kashmir. The Vishav joins the Rambiara at the village Nyaiyun and the united waters find their way into the JhelumRiver through the Sadarinaji stream. Initially, Vishav falls from 3,975 - 1,568 m amsl with a gradient of 41 m in 1 km. However, it has a gradient of 1m in 77 kmin the lower reaches.

Rambiara-Sarasa: It rises in the Rupri ridge of Pir Panjal Mountains, with feeders originating from Rupri Peak and Bhag Sar Lake on one hand and Pir Panjal and Naba Pir Passes on the other. The river divides itself into a number of channels above Shupiyan, two of them being well marked, called Rambiara and Sarasa. Rambiara merges with JhelumRiver at Nyaiyun while Sarasa joins the marshy land west of Awantipora before finally merging with

Jhelum River. Together, they flow for about 100 km. Rambhara falls steeply with a gradient of 41 m in 1 km.

Romushi: It originates from Kharmarg, near Naba Pir Pass in Pir Panjal. It joins the Jhelum River near Wudipur, below Awantipora. It traverses Karewa beds and hence brings down large amounts of sandy load through its course and drains about 51 km. It has an average gradient of 16 m in 1 km.

Dudhganga-Shaliganga: It flows from Ludurmarg after rising in the central Pir Panjal and finally merges in the marshy land to the west of Srinagar. Shaliganga joins it near Bagh Sahib Ram and the united stream loses itself in the Nambal. The Dudhganga traverses a course of about 50 km.

Sukhnag- Firozepura: It flows from small lakes arising in the east side of Pir Panjal between Nurpur and Chinamarg Passes unifying themselves into Sukhnag and Firozepura. Sukhnag traverses through Karewas merging into marshes of Rakh Aral, west of Hokarsar while Firozepur merges with Haigam Jhil and Sultanpurich Rakh. Both the marshes are connected by a spill channel constructed to drain out the flood water. The total length of Sukhnag is 51 km with a fall of 56 m in 1 km.

Ningal: It is also a major stream of Kashmir Valley, which joins the Jhelum River on its southern bank. Its feeders lie below Khan Pathri (3,809 m) and Apharwat Peak (4,141 m) of Pir Panjal above Khilanmarg. It flows for about 38 km in northeasterly direction and drains itself in the outfall channel of Jhelum River, just downstream of Wular Lake.

(iii) Ravi River

The Ravi River is a trans-boundary river flowing through northwestern India and northeastern Pakistan. The Ravi River is one of the five tributaries of the Indus River in the Indian Territory. It is an integral part of the Indus River Basin and forms the headwater of the Indus River Basin. In Indian Territory, the River Basin lies within the States of Himachal Pradesh (HP), Jammu and Kashmir UT and Punjab State and the River originates from Pir Panjal Mountain Ranges in Bara Bhangal area of Kangra district. From Bara-Bhangal of Kangra district Himachal Pradesh, it flows through Bara Bansu, Tretha, Chanota and Ulhansa. The river drains a total catchment area of about 11,706.41 km² in India after flowing for a total length of 720 km, of which 320 km lie in India. It flows into the south-west near Dalhousie and then cuts a gorge in the Dhauladhar Range in Himachal Pradesh. The river enters Punjab near Shahpur town of Pathankot and forms international boundary while passing through Gurdaspur and Amritsar districts of Punjab. The River has connection with the ancient sages. According to ancient history traced to Vedas, the Ravi River was known as Iravati. The major multipurpose project built on this river is Ranjit Sagar Dam at Thein village. The left bank of Ravi River is in Punjab and the right bank is in J&KUT. The major tributaries of Ravi River in J&K UT are as follows.

Ujh River: The Ujh River is a tributary of the Ravi River that flows through the Kathua district of Union Territory of J&K. It originates from the Bhadarwah hills at an altitude of 4,300 m amsl in Jammu region. Ujh sub-basin terrain is hilly and rugged with altitude varying from 510 - 4,300 mamsl. After flowing for 100 km stretch, it joins Ravi at Nainkot in

Pakistan. It flows along the Indo-Pak border for about 80 km, before entering Pakistan and joining the Chenab River.

Sewa River: The tributary of Ravi originates from Sartha Hill Range and traverses through a short course of 53 km down to its confluence with Ravi River. The Sewa River in Basohli rises from the Domal Structure of Kali Kundi in the lap of Himalayan Ranges. The length of the river in the district is 125 km and the average width is about 250 m. The famous Sewa Hydel Project is being constructed on this river at village Sewa. The water of Sewa River is utilized for drinking and other purposes. The Sewa River feeds a number of small canals and *Kuhals* and its water is utilized for irrigation of agricultural lands of the district.

Basantar River: The Basantar River is fed by melting of snow in its upper reaches and in lower catchment, it is predominantly rainfed. The upper mountainous part of Basantar River is narrow and elongated and broadened down along lower part, which has low hills and aggregational plains. The geology of the area consists of Shivalik system and is mainly composed of sandstone, silt, stone, red and purple transported quartzite. The lower reaches including the foothill plains consist of alluvial deposits brought down by seasonal rivulets.

Devak River: The Devak River, one of the tributaries of Ujh River, originates from Baral at an altitude of 850 mamsl.

(B) Hydro-electric Projects on Jhelum, Chenab and Ravi River

As per Jammu and Kashmir State Power Development Corporation Limited, the combined estimated hydropower potential of Jammu and Kashmir and Ladakh Union Territories is 20,000 Megawatts (MW), of which about 16,475 MW have been identified. This comprises 11,283 MW in Chenab River Basin, 3,084 MW in Jhelum River Basin MW in Ravi River Basin and 1,608 MW in Indus River Basin. Out of the identified potential, only 3263.46 MW i.e., approximately 19.80 % has been exploited so far, consisting of 1,211.96 MW in State Sector from 21 power projects, 2,009 MW in the Central Sector from 7 projects and 42.5 MW in Private Sector from 4 projects. There are 08 commissioned and about 25 proposed Hydro-electric Projects (HEPs) on Jhelum River in J&K. Uri-1 HEP (480 MW) is an important project on Jhelum River. Other commissioned HEPs include Lower Jhelum (105MW), Upper Sindh –II (105 MW), Upper Sindh- I (22.6 MW) and Ganderbal (15 MW) and remaining commissioned HEPs on Jhelum River are of <10 MW. Seven HEPs have been commissioned on Chenab River in J&K, important among these are Salal (690 MW), Baglihar (450 MW), Dulhasti (390 MW) and Chenani-I (23.30 MW). About 18 HEPs have been proposed on Chenab River in J&K. Ravi River flows through small stretch of J&K, 02 commissioned HEPs on river include Sewa-II (120 MW) and Sewa-III (9 MW), whereas, Ujh multipurpose project (280MW) is under construction (<http://www.jkspdc.nic.in/>).

(C) Hydrology

The most of the region of Jammu and Kashmir UT is mountainous tract. The precipitation in the lower region takes place in the form of rains while in the upper region it is in the form of snow. The hydro-geological regime of the Jammu and Kashmir UT is complicated due to varied geological settings and ground water conditions. Two regions/divisions of Jammu and Kashmir, UT have different ground water regimes. Based on geology and aquifer

characteristics, the area of the UT can be divided into two broad hydrogeological unit viz., porous and fissured formations. In Outer Plains of Jammu region, extending between Ravi River in the east to Munawar Tawi in the west, the ground water occurs in piedmont deposits belonging to upper Pleistocene to Recent age. In isolated valleys of middle Himalaya, ground water occurs in valley fill deposits comprising of lacustrine to fluvio-glacial sediments. Ground water in the Karewas of Kashmir valley occurs under both confined as well as unconfined conditions. Fissured formations of Shivalik terrain tap groundwater either from the weathered mantle or from the joints or cracks of these rocks. Friable Shivalik sandstones do possess primary porosity, but are not very potential aquifers (Pir, 2018). There have been significant changes in the land system particularly built-up in the floodplains of the Jhelum River. The large-scale urbanization of the Jhelum floodplains since the last 4-5 decades has adversely affected the hydrological functionality of the floodplains and increased the vulnerability of the people and infrastructure to floods.

(D) Water Resources Issues

In order to foster India's economic and social prosperity, it is of paramount importance that enough freshwater is available to meet the requirements of agriculture, industries, and the domestic sector in the coming years. Widespread pollution of surface and groundwater is degrading the quality of freshwater resources. The situation of plentiful water resources in the past is rapidly becoming one of water scarcity. The problems of pollution from municipal sewage, industrial effluents, agro-chemicals and pesticides have further threatened the availability of good quality water. In short, the country's fragile resources are stressed and depleting fast in both quality and quantity. Flood causes heavy loss to agriculture, livestock and property. Deforestation, overgrazing, mining, industrialization, global warming, etc. have contributed largely in the incidence of floods. India is facing frequent floods and droughts often at the same time in different parts because of variable nature and uneven distribution of rains. Besides these, due to large scale deforestation in the past and soil erosion, the rivers have been silted up causing floods. For sustained and increased agricultural production, industrial development and economic emancipation of the country, the most vital resources are soil and water, which need to be conserved, developed and managed efficiently.

2.2.5 Forests and Vegetation

The total geographical area of Jammu and Kashmir UT is 53,258km² and total forest cover is 21,122 km², which is 39.66% of the total geographical area of the UT. The Jammu and Kashmir UT forests are divided into three categories namely, very dense forest, moderately dense forest and open forest. In terms of forest canopy density classes, the UT has 4,202.66 km² under very dense forest, 7,952.47 km² under Moderately Dense Forest and 8,967.27 km² under Open Forest. The scrub covered 249.56 km² area. Forest cover of Jammu and Kashmir UT has been depicted in Fig. 2.4 and Table 2.1.

Table: 2.1 - Forests in Jammu and Kashmir Union Territory

Union Territory	Geographical Area (km ²)	2019 Assessment (Area in km ²)				Percent of Geographical area (km ²)	Change in Forest cover w.r.t. 2017 (km ²)	Scrub (km ²)
		VDF	MDF	OF	Total Forest			
Jammu - Kashmir UT	53,258	4,202.86	7,952.47	8967.27	21,122.59	39.66	347.59	249.56

Source: ISFR, 2019

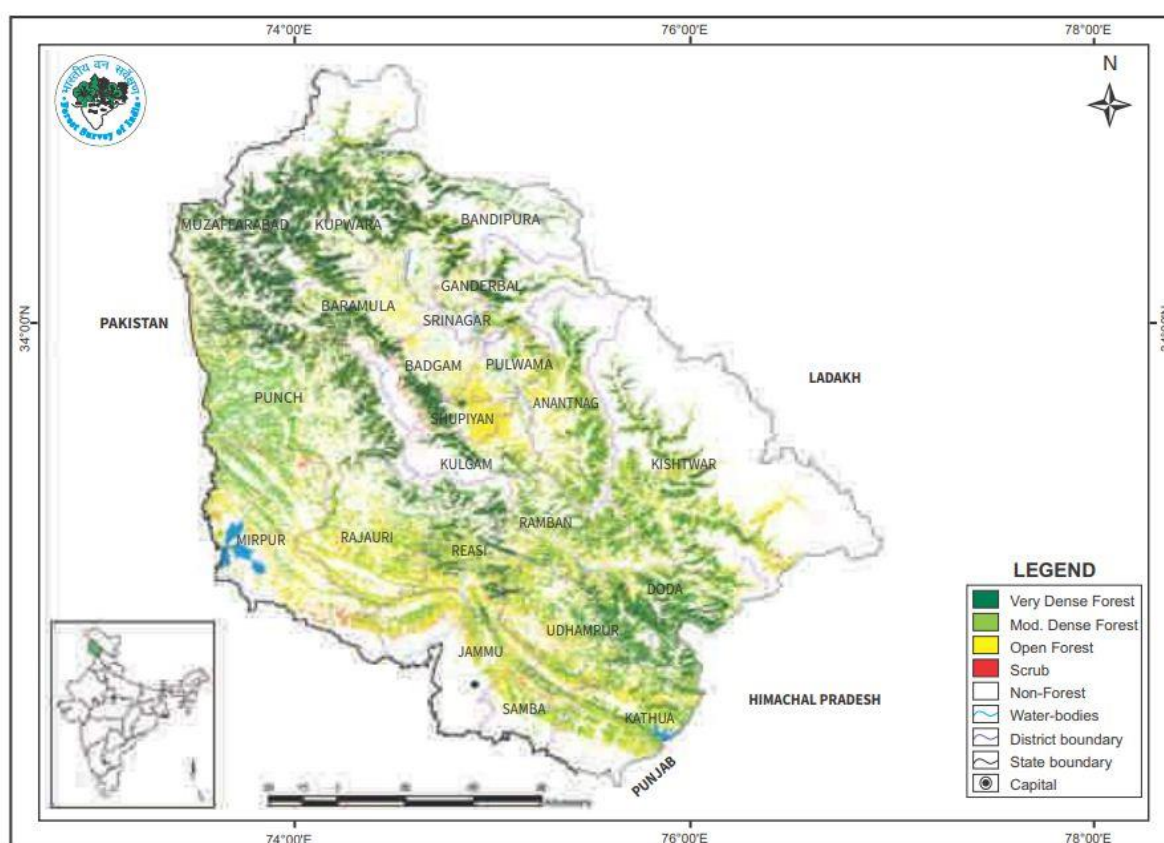


Fig. 2.4 - Forest Cover of Jammu and Kashmir UT

Forest Types - Forests of Jammu and Kashmir UT belong to eight groups viz., Tropical Dry Deciduous, Sub-tropical Pine, Sub-tropical Dry Evergreen, Himalayan Moist Temperate, Himalayan Dry Temperate, Sub-Alpine Forest, Moist Alpine Scrub and Dry Alpine Scrub.

The vegetation of the J&K UT is broadly clubbed under following groups and forest types are based largely on the altitude ranges and species composition (**Table 2.2**).

Table: 2.2 - Forest Types of Jammu and Kashmir UT

Sr. No	Group	Forest Types	Altitude (m)	Dominant Genera/Species
1	Tropical Dry Deciduous Forests (Group-5)	1. Northern Dry Mixed Deciduous Forest	< 750 m	<i>Anogeissus latifolia</i> & <i>Acacia catechu</i>
		2. Dry Deciduous Scrub	< 750 m	<i>Acacia catechu</i> , <i>Butea monosperma</i> , <i>Lannea coromandelica</i> , <i>Nyctanthes arbor-tristis</i> , <i>Dodonaea viscosa</i> & <i>Woodfordia fruticosa</i>
		3. <i>Euphorbia</i> Scrub	< 750 m	<i>Euphorbia royleana</i> , <i>Acacia catechu</i> & <i>A. nilotica</i>
		4. Khair-Sissu Forest	< 750 m	<i>Dalbergia sissoo</i> & <i>Acacia catechu</i>
		5. Dry Bamboo Brake	< 750 m	<i>Dendrocalamus strictus</i>
2	Subtropical Pine Forests (Group-9)	1. Lower or Shivalik Chir Pine Forest	800-1,700 m	<i>Pinus roxburghii</i>
		2. Upper or Himalayan Chir Pine Forest	1,200-1,700 m	<i>Pinus roxburghii</i> , <i>Quercus oblongata</i> & <i>Rhododendron arboreum</i>
		3. Himalayan Subtropical Scrub	< 1,000 m	<i>Carissa</i> spp., <i>Dodonaea viscosa</i> & <i>Rhus parviflora</i>
3	Sub-tropical Dry Evergreen Forests (Group 10)	1. <i>Olea ferruginea</i> Scrub Forests	< 1,000 m	<i>Olea ferruginea</i> , <i>Punica granatum</i> , <i>Pistacia integerrima</i> , <i>Myrsine africana</i> , <i>Daphne oleiodes</i> & <i>Plectranthus</i> spp.
4	Himalayan Moist Temperate Forests (Group 12)	1. Ban Oak Forest	1,600-2,300 m	<i>Quercus oblongata</i> & <i>Rhododendron arboreum</i>
		2. Moru Oak Forest	1,200-2,250 m	<i>Quercus floribunda</i> , <i>Quercus oblongata</i> , <i>Cedrus deodara</i> & <i>Rhododendron arboreum</i>
		3. Moist Deodar Forest	1,700-3,500 m	<i>Cedrus deodara</i> , <i>Pinus wallichiana</i> , <i>Quercus floribunda</i> & <i>Quercus oblongata</i>
		4. Western Mixed Coniferous Forest	2,100-3,000 m	<i>Abies pindrow</i> , <i>Cedrus deodara</i> , <i>Picea smithiana</i> ,

Sr. No	Group	Forest Types	Altitude (m)	Dominant Genera/Species
				<i>Pinus wallichiana</i> , <i>Quercus floribunda</i> & <i>Quercus oblongata</i>
		5. Moist Temperate Deciduous Forest	1,800-2,750 m	<i>Acer caesium</i> , <i>A. pictum</i> , <i>Betula alnoides</i> , <i>Ulmus wallichiana</i> & <i>Abies pindrow</i>
		6. Low-Level Blue Pine Forest	1,800-2,750 m	<i>Pinus wallichiana</i>
		7. Oak Scrub	1,200-2,750 m	<i>Pyrus pashia</i> , <i>Quercus floribunda</i> , <i>Quercus oblongata</i> , <i>Berberis</i> spp. & <i>Prinsepia</i> spp.
		8. Himalayan Temperate Secondary Scrub	1,200-2,750 m	<i>Plectranthus rugosus</i> , <i>Berberis asiatica</i> & <i>Berberis lycium</i>
		9. Kharsu Oak Forest	2,700-3,500 m	<i>Quercus semecarpifolia</i> , <i>Picea smithiana</i> , <i>Pinus wallichiana</i> , <i>Rhododendron arboreum</i> & <i>Ilex dipyrena</i>
		10. West Himalayan Upper Oak/Fir Forest	2,600-3,000 m	<i>Abies pindrow</i> , <i>Pinus wallichiana</i> , <i>Quercus floribunda</i> , <i>Quercus oblongata</i> , <i>Taxus wallichiana</i> , <i>Betula alnoides</i> & <i>Acer</i> spp.
		11. Alder Forest	> 2,400 m	<i>Alnus nitida</i> , <i>Populus ciliata</i> & <i>Celtis australis</i>
		12. Riverine Blue Pine Forests	1,800-2,800 m	<i>Pinus wallichiana</i> , <i>Alnus</i> spp., <i>Populus</i> spp., <i>Cedrus deodara</i> & <i>Picea smithiana</i>
		13. Low Level Blue Pine Forests	1,000-3,000 m	<i>Pinus wallichiana</i> , <i>Quercus floribunda</i> & <i>Picea smithiana</i>
5	Himalayan Dry Temperate Forests (Group 13)	1. Dry Broadleaves and Coniferous Forest	2,000-2,400 m	<i>Cedrus deodara</i> & <i>Quercus ilex</i>
		2. Dry Deodar Forest	2,100-3,250 m	<i>Cedrus deodara</i> , <i>Pinus wallichiana</i> & <i>Picea smithiana</i>
		3. Pohu Scrub	1,000-1,800m	<i>Parrotia jacquemontiana</i>

Sr. No	Group	Forest Types	Altitude (m)	Dominant Genera/Species
		4. Dry Temperate Scrub		<i>Plectranthus rugosus</i> , <i>Berberis</i> spp., <i>Desmodium elegans</i> & <i>Rosa</i> spp.
		5. West Himalayan Dry Temperate Deciduous Forest	2,900-3,600 m	<i>Acer caesium</i> , <i>A. pictum</i> , <i>Betula alnoides</i> & <i>Ulmus wallichiana</i>
		6. West Himalayan High-Level Dry Blue Pine Forest	3,000-3,600 m	<i>Pinus wallichiana</i> , <i>Pinus gerardiana</i> & <i>Abies spectabilis</i>
		7. <i>Populus/Salix</i> Forest	3,000-4,000 m	<i>Populus euphratica</i> & <i>Salix</i> spp.
6	Sub-alpine Forest (Group 14)	1. West Himalayan Sub-Alpine Fir Forest	2,900-3,050 m	<i>Abies spectabilis</i> , <i>Pinus wallichiana</i> & <i>Picea smithiana</i>
		2. West Himalayan Sub-Alpine Birch/Fir Forest	2,900-3,050 m	<i>Abies spectabilis</i> , <i>Betula utilis</i> , <i>Rhododendron</i> spp. & <i>Quercus semecarpifolia</i>
		3. Sub Alpine Blue Pine Forests	2,900-3300 m	<i>Pinus wallichiana</i>
7	Moist Alpine Scrub (Group 15)	1. Birch/ <i>Rhododendron</i> Scrub Forest	> 3,500 m	<i>Betula utilis</i> , <i>Rhododendron campanulatum</i> & <i>R. anthopogon</i>
		2. Deciduous Alpine Scrub	> 3,350 m	<i>Betula utilis</i> , <i>Syringa emodi</i> , <i>Salix</i> spp., <i>Lonicera</i> spp. & <i>Berberis</i> spp.
		3. Dwarf <i>Rhododendron</i> Scrub	3,350-4,600 m	<i>Rhododendron campanulatum</i> & <i>R. anthopogon</i>
		4. Dwarf Juniper Scrub	> 2,900 m	<i>Juniperus wallichiana</i> , <i>Juniperus communis</i>
8	Dry Alpine Scrub (Group 15)	1. Dry Alpine Scrub Forest	2,800-4,300 m	<i>Juniperus wallichiana</i> & <i>Juniperus communis</i>
		2. Dwarf Juniper Scrub	2,900-4,200 m	<i>Juniperus wallichiana</i> & <i>Juniperus communis</i>

(Source: FSI, 2011)

2.2.6 Agro-ecosystem

Agriculture and its allied activities are the predominant sector of the economy of Jammu and Kashmir Union Territory. Around 70% of the combined population of the two UTs resides in the rural areas, and are directly or indirectly dependent upon the agriculture sector for their

livelihood. The contribution of Agriculture sector towards Gross State Domestic Product (GSDP) has remained constant which is indication of onset of declining trend of the sector. The combined production of three major crops paddy, maize and wheat in two UTs *i.e.*, J&K and Ladakh is > 90% of the total food grain production of all crops. The rest is shared by other cereals and pulses (Economic Survey, J&K, 2017). The Kashmir region is known for its horticulture industry. The industry plays a vital role in the state's economic development. In 2016-17, total production of fruits in the state stood at around 2.12 million metric tonnes. The combined land use pattern of two UTs *viz.*, J&K and Ladakh is given in **Table 2.3** and **Fig. 2.5**.

Table: 2.3 - Different Land Use Patterns in Jammu and Kashmir and Ladakh UTs

Sr. No.	Land Use	Area (000 ha)	Percentage
1.	Total geographical area	22,224	NA
2.	Reporting area for land utilization	4,058	100.00
3.	Forests	2,299	53.50
4.	Not available for cultivation	571	15.47
5.	Permanent pastures and other grazing lands	113	3.39
6.	Land under miscellaneous tree crops and groves	57	1.77
7.	Culturable wasteland	139	3.97
8.	Fallow lands other than current fallows	15	0.61
9.	Current fallows	106	1.72
10.	Net area sown	758	19.55

Source: India State of Forest Report, 2019

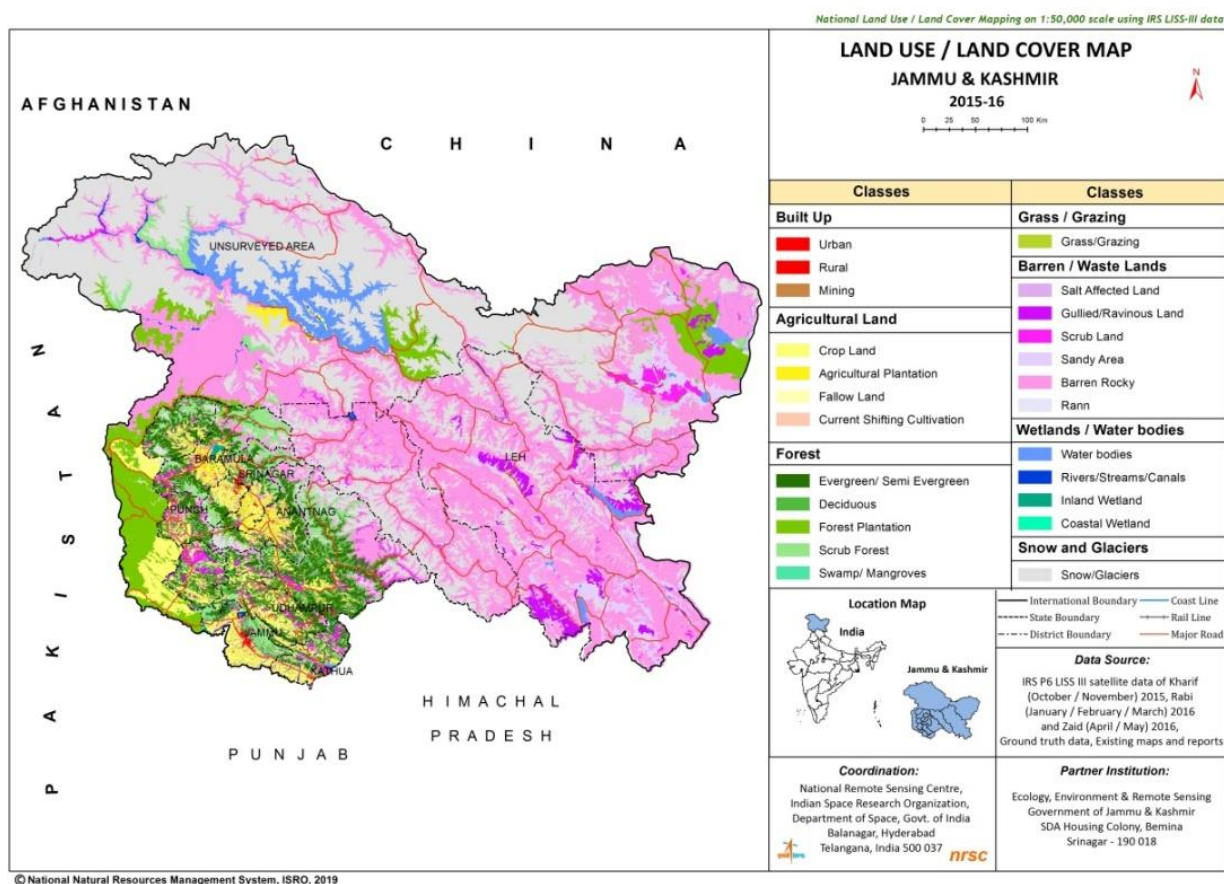


Fig. 2.5 - Land Use/Land Cover of Jammu and Kashmir UT including Ladakh

(Source: Bhuvan)

2.2.7 Biodiversity

The data is combined for the both Union Territories i.e., J&K and Ladakh as separate data is not available for newly constituted UTs after bifurcation of erstwhile J&K State. The UTs are rich in diversity of flora and fauna in the forest areas, and domesticated species outside the forests. Plant diversity is the life support of almost all terrestrial ecosystems, with both humans and animals being entirely dependent on plants directly or indirectly. The UTs has a fairly rich diversity of plant life, and on this the people depend for their daily needs of food, medicine, fuel, fiber, etc. Plants are also an integral part of the social fabric of the UTs. The environmental, social and economic values of plants are very well known.

Biogeographically, Union Territories of J & K and Ladakh comprise three distinct provinces: the subtropical (Jammu), the temperate (Kashmir) and the cold-arid (Ladakh). Owing to variety of habitats, these regions possess the great floristic diversity. There are about 4,626 species of plants in two UTs, of which 4,439 are angiosperm, 19 gymnosperm, 168 pteridophyte species. About 58% species are endemic to the regions. Ninety three plant species of the regions are in threatened. In Kashmir Himalaya, a total of 2,312 species belonging to the land plants viz., bryophytes, pteridophytes, gymnosperms and angiosperms. About 17% of the flora in Kashmir Himalaya has known or potential medicinal value. Most

of the medicinal and aromatic plant species belong to the dicotyledons (Dar and Khuroo, 2013).

The faunal component of the bio-diversity of the UTs is rich, with interesting and unique forms both in the forest zones and above the tree line. The variety of animal forms ranges from higher groups like vertebrates, including mammals, birds, reptiles, amphibians, and lower groups like invertebrates including insects and even unicellular micro-organisms. About 16% of Indian mammals are present in both UTs including birds, reptiles, amphibians and butterflies. Total faunal species of the region are 784, of which 75 are mammals, 358 birds, 14 amphibians, 44 fishes, 225 insects, and 68 reptile species. Seventy five species of mammals belonging to 54 genera, 21 families and 8 orders are found in UTs. Carnivores represent 32% of the total mammalian fauna of the UTs. A total of 19 species of ungulates is reported from the region, 13 have been listed as globally threatened. The avian diversity of state varies seasonally and available data suggest the existence of as many as 358 species of birds belonging to 179 genera and 51 families under 16 orders. The UTs are the home of 14 species of amphibians belonging to 6 genera, 5 families and 1 order. Sixty eight species of reptiles belonging to 43 genera, 12 families and 2 orders are also found in the regions. Forty four species of fishes belonging to 14 genera under 5 families occur in UTs. About 225 species of insects, besides several sub-species, belonging to 136 genera, 35 families and 4 orders occur in the region (jkenvis.org). The rare mammals of the J&K and Ladakh UTs include Kashmir Stag or Hangul (*Cervus elephas hanglu*), Musk Deer (*Moschus moschiferus*), Tibetan Antelope or Chiru (*Panthelops hodgsoni*), Tibetan Gazelle (*Procapra picticaudata*), Serow (*Capricornis sumatraensis*), Markhor (*Capra falconeri*), Wild Yak (*Bosgrunniens*), Tibetan Wild Ass (*Equus kiang*), Snow Leopard (*Panthera uncia*), Brown Bear (*Ursus arctos*) and Ibex (*Capra siberica*). Some of the rare and threatened birds found in the area include exotic species like Himalayan Golden Eagle (*Acquila chrysatos*), Bearded Vulture (*Gypaetus barbatus*), Monal Pheasant (*Lophophorus impejanus*), Koklas (*Pucrasia macrolopha*), Western Tragopan (*Trogon malanocephalus*), Black necked Crane (*Grus nigricollis*), the Himalayan Snow Cock (*Tetrogallus himalayensis*.) and Bar-Headed Goose (*Anser indicus*).

2.2.8 Demography

Total combined population of Union Territories of Jammu and Kashmir and Ladakh as per 2011 Census is 12,541,302, of which, male and female are 6,640,662 and 5,900,640, respectively. In 2001, total population was 10,143,700 in which males were 5,360,926 while females were 4,782,774. The total population growth in this decade was 23.64 % while in previous decade it was 29.04 %. Jammu and Kashmir UT has a Muslim majority population. As per Census 2011, Muslims constitutes 68.31% of Jammu and Kashmir population. In all Muslim form majority religion in 17 out of 22 districts of Jammu & Kashmir and Ladakh UTs. Hindus are in minority in Jammu and Kashmir forming 28.44% of total population. Hinduism is followed with majority in 4 out of 22 districts (Census, 2011). Apart from the religious population, Jammu and Kashmir UT has a number of tourist destinations and places

of pilgrimage e.g., Srinagar, Gulmarg, Pahalgam, Sonmarg, Yusmarg, Verinag, Kokernag, Dodhpathar, Lolab Valley, Gurez Valley, Jammu City, Katra, Mansar, Kishtwar, Sanasar, Patnitop, Bhadarwah, Vaishno Devi Temple, Peer Budhan Ali Shah or Peer Baba and Amarnath Temple, etc.

2.3 Riverscape Analysis

2.3.1 Methodology

The riverscape of UT includes areas of all micro-watersheds in Chenab River Basin Jammu and Kashmir UT. Image processing and GIS tools used in the present assessment were ERDAS Imagine 2018, Geomedia Professional 2018, ArcGIS, etc. These GIS software in fact provides the tools needed to store, analyze and display the required geographic information. Landsat TM, Landsat 8 and Landsat ETM datasets specific to the riverscape were downloaded from www.earthexplorer.usgs.gov. The time frame was selected keeping in view the pre- and post-monsoon seasons, maximum differentiation in various land-cover features, and the historical dates of maximum flooded area. A list of data downloaded and used is given in Table 2.4.

Table: 2.4 - List of Data Downloaded and Used for Preparation of DPR of Chenab Riverscape, J&K, UT

UT	Path	Row	Date of Pass	Satellite
Jammu & Kashmir	147	037	10-11-2018	Landsat-8
	148	036	03-12-2018	
	148	037	03-12-2018	
	149	037	24-11-2018	
	148	038	17-11-2018	

2.3.2 Riverscape Analysis and Riverscape Profile

(A) Spatial Extent

The Union Territory of Jammu and Kashmir including Ladakh have a geographical area of 2,22,236 km² thereby representing 6.76% geographical area of the country. Out of its total area, spatial extent included in the Chenab River-scape of the State is 21,571.03km² which contributes 9.71% area of the delineated Riverscape (Table-2.1). The select area of the Riverscape falls in 14 administrative Forest Divisions of Jammu & Kashmir UT and has 12 tributaries originate in different parts of Jammu and Kashmir UT from Pir Panjal, Great Himalayan Range and Zaskar Ranges.

Since, entire basin has been delineated as riverscape, therefore, all tributaries and sub-tributaries are covered in the present DPR (Fig. 2.6) and spatial extents are presented in Table 2.5.

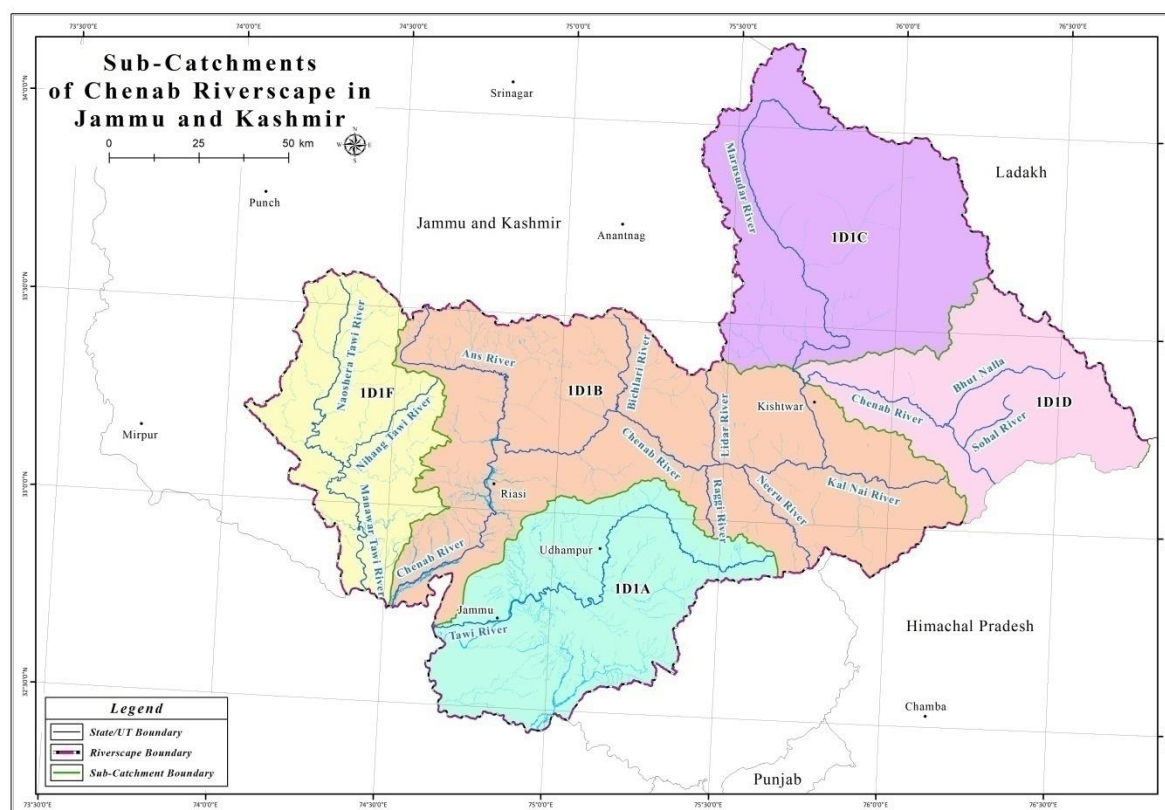


Fig. 2.6 - Chenab Riverscape with its Tributaries and Sub – Catchments

Table: 2.5- Details of the Spatial Extent of Chenab Riverscape in J&K UT Considered for the Preparation of Detailed Project Report

Union Territory	Geographical Area (km ²)	Geographical Coordinates		Riverscape Area (km ²)	% Area of UT
		N Lat.	E Long.		
Jammu and Kashmir	53,258	32° 24' 08.143" N to 34° 15' 04.169" N	74° 06' 21.099" E to 76° 44' 08.721" E	21,571.03	40.50

(B) Land Use and Land Cover

The geospatial analysis of Chenab Riverscape identified altogether 14 land use and land cover categories. Onscreen visual interpretation technique was used for delineating major land use/ land cover types, i.e., Agriculture, Alpine pastures, Barren, Canal, Dense forest, Industrial Area, Moderately dense forest, Open forest, River (Dry)/River Sand, River (Perennial), Scrub, Settlement, Snow/Glaciers and Waterbody in the riverscape. The

maximum area of the riverscape was covered by snow/glaciers, representing 27.6 % extent of the total area (Table 2.6). Agriculture land shared 20.5 % area of the riverscape. The distribution of land use and land cover categories in Chenab Riverscape is depicted in Fig. 2.7.

Table: 2.6- Distribution of Area under Different Land Use and Land Cover Categories in Chenab Riverscape, J&K, UT

Sr. No.	Land Use and Land Cover	Area (km²)	Percentage of Total Area (%)
1.	Agriculture	4,413.06	20.5
2.	Alpine Pastures	35.42	0.2
3.	Barren	424.90	2.0
4.	Canal	5.60	0.0
5.	Dense Forest	2,129.55	9.9
6.	Industrial Area	0.80	0.0
7.	Moderately Dense Forest	2,460.85	11.4
8.	Open Forest	2,972.35	13.8
9.	River (Dry)/ River Sand	227.77	1.1
10.	River (Perennial)	91.20	0.4
11.	Scrub	2,629.64	12.2
12.	Settlement	226.09	1.0
13.	Snow/Glaciers	5,952.67	27.6
14.	Water-body	1.13	0.0
	Total	21,571.03	100

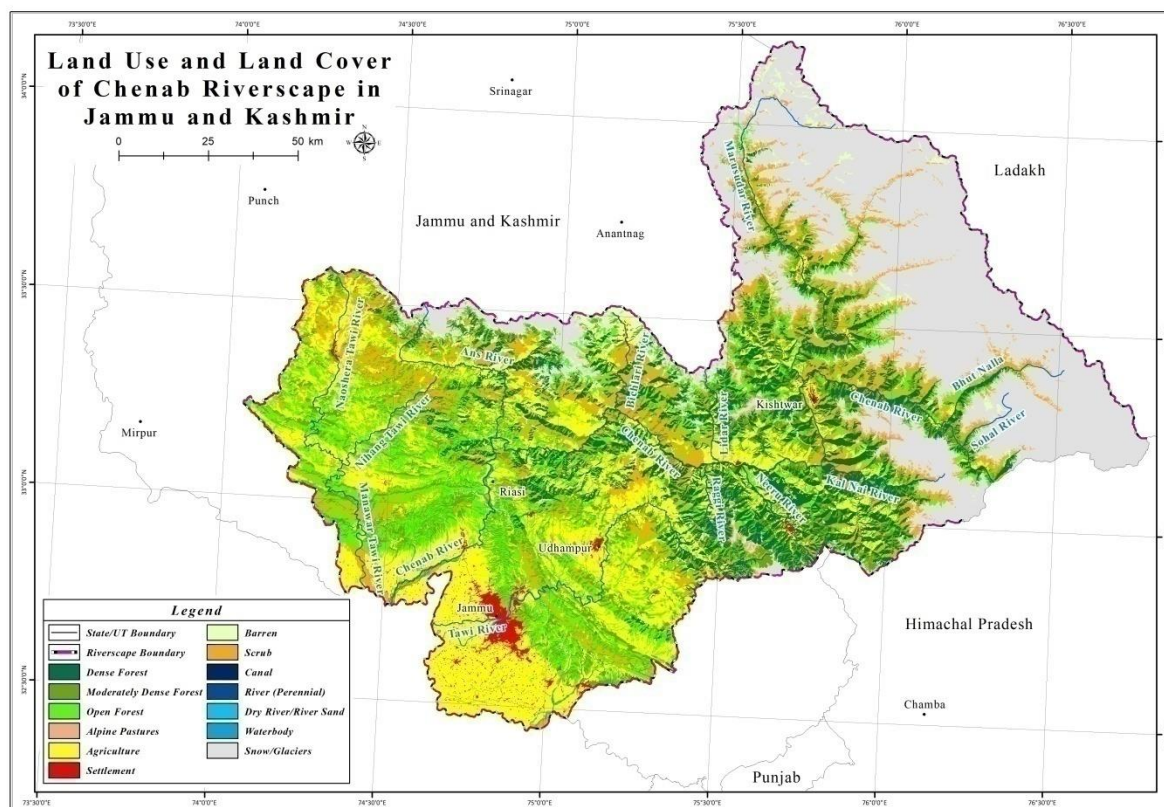


Fig. 2.7- Land Use and Land Cover Categories of Chenab Riverscape, Jammu and Kashmir UT

(C) Altitude

The Chenab riverscape from North-East to South-West direction depicts large altitudinal variation from 250 m – 5,000m amsl. The different elevation classes were regrouped and a total of 12 elevation classes have been derived. The distribution of areas under different elevation classes within the riverscape given in Table 2.7 revealed that the maximum extent of 3451.14 km² (16%) area of the riverscape, lies in between the elevation class of 3,000-4,000 m amsl.

Table: 2.7- Distribution of Area under Different Elevation Categories in Chenab Riverscape, J&K, UT

Sr. No.	Elevation Classes	Area (km ²)	Representation of the Class (%)
1.	< 250 m	1,043.20	4.84
2.	250 - < 500 m	1,936.23	8.98
3.	500 - < 750 m	1,809.89	8.39
4.	750 - <1000 m	1,171.76	5.43
5.	1000 - <1250 m	1,015.38	4.71
6.	1250 - <1500 m	1,024.93	4.75

Sr. No.	Elevation Classes	Area (km ²)	Representation of the Class (%)
7.	1500 - <2000 m	2,142.90	9.93
8.	2000 - <2500 m	2,072.61	9.61
9.	2500 - <3000 m	1,832.16	8.49
10.	3000 - <4000 m	3,451.14	16.00
11.	4000 - <5000m	3,257.94	15.10
12.	≥5000 m	812.89	3.77
Total		21,571.03	100

Areas which are degraded and devoid of vegetation can be utilized for forestry interventions. Areas above 3,000 m amsl representing nearly 34.87 %area of the riverscape have little opportunities for forestry interventions except in lower parts of this elevation class that is >3,000 - 3,500 m amsl due to steep slopes with poor soil conditions, snow-covered and avalanche prone areas exhibiting cold desert like conditions. The altitudinal variation of Chenab Riverscape is depicted in Fig. 2.8.

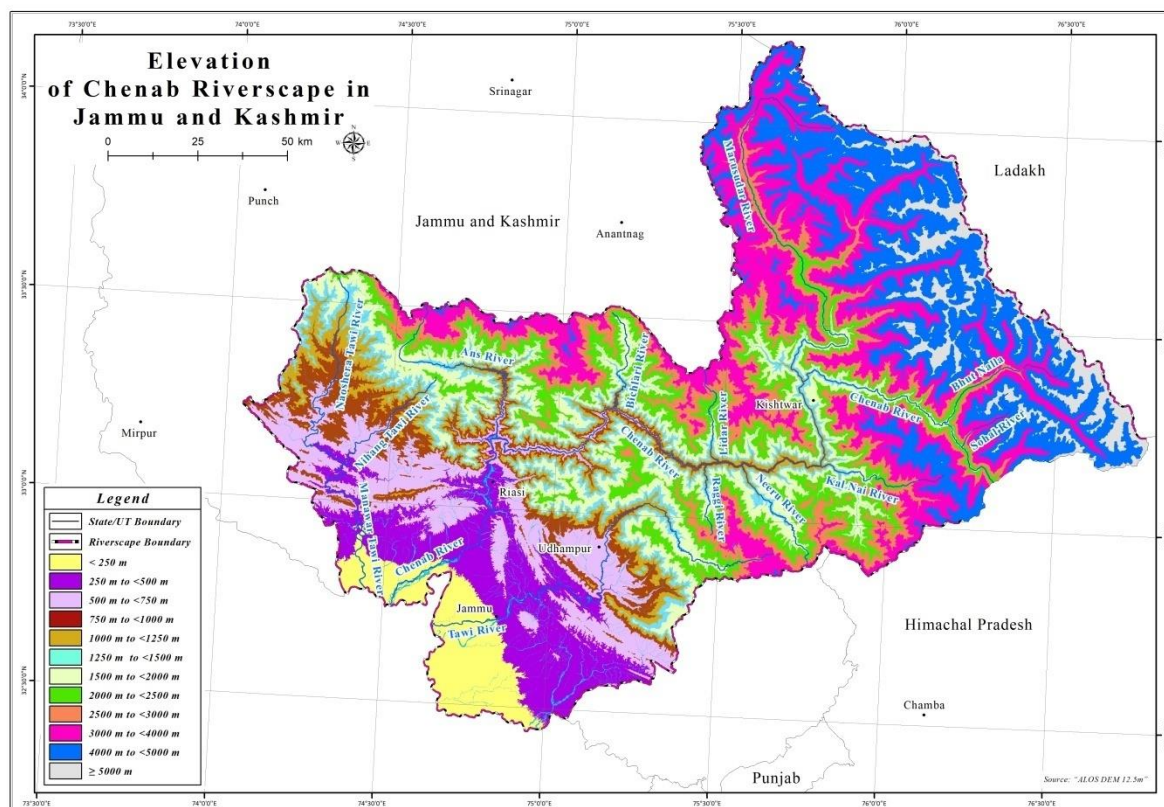


Fig. 2.8- Altitudinal Variation in Chenab Riverscape, Jammu and Kashmir UT

(D) Slope

Slope plays an important role in suggesting suitability of areas for forestry interventions, particularly plantations and soil moisture conservation works in Himalayan region. A total of 10 classes of slope were derived in the riverscape and appropriately named. The higher degree of slopes ($>30^\circ$) usually results in 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 (fuel-wood, fodder, small timber, etc.). These types of forest resources are in heavy demand in higher reaches by increasing pressure of pilgrimage, presence of paramilitary forces, transhumance pastorals and widespread human settlements. The distribution of areas under different slope classes is given in Table 2.8 and Fig. 2.9.

Table: 2.8- Distribution of Area under Different Slope Categories in Chenab Riverscape, J&K, UT

Sr. No.	Slope	Slope Category	Area (km ²)	Percentage of Total Area (%)
1	$< 2.5^\circ$	Nearly Level	1,615.62	7.49

Sr. No.	Slope	Slope Category	Area (km ²)	Percentage of Total Area (%)
2	2.5° to <5°	Gently Undulating	1,080.40	5.01
3	5° to <10°	Gently Rolling	1,596.74	7.40
4	10° to <15°	Moderately Rolling	1,747.65	8.10
5	15° to <20°	Strong Rolling	2,199.13	10.19
6	20° to <25°	Moderately Steep	2,414.65	11.19
7	25° to <30°	Steep	2,872.01	13.31
8	30° to <35°	Very Steep	2,819.56	13.07
9	35° to <40°	Extremely Steep	2,310.10	10.71
10	≥40°	Escarpment	2,915.17	13.51
Total			21,571.03	100

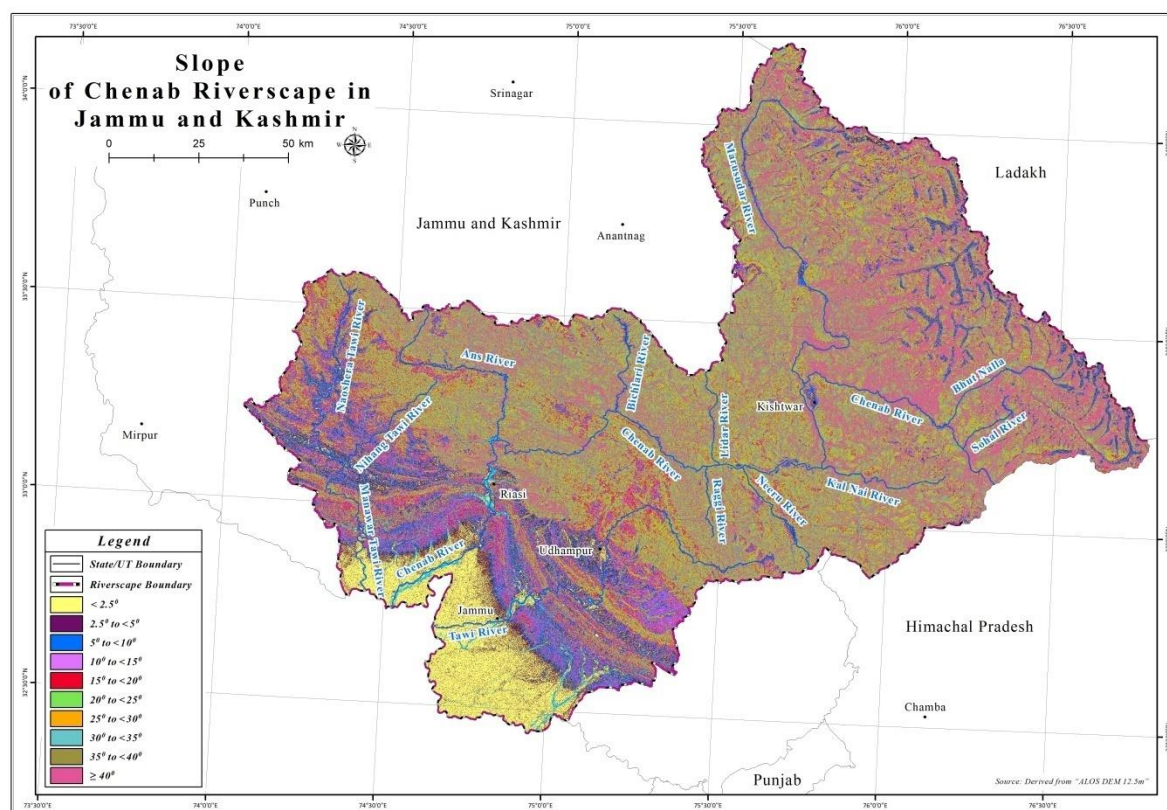


Fig. 2.9- Distribution of Area under Different Slope Categories in Chenab Riverscape, Jammu and Kashmir UT

(E) Soil Erosion

Based on information obtained from the Indian Institute of Soil and Water Conservation, Dehradun an insight on the status of soil erosion has been developed. A total five categories of erosion classes have been mapped in the riverscape, viz., < 5 tons-ha⁻¹year⁻¹; 5 to < 10 tons-ha⁻¹year⁻¹; 10 to < 20 tons-ha⁻¹year⁻¹; 20 to < 40 tons ha⁻¹year⁻¹; and >40 tons-ha⁻¹year⁻¹. An area of 4401.50 km² falls under non-soil category. These areas may not be suitable for Forest plantations. The distribution of areas under different erosion classes and their area is presented in Table 2.9 and Fig. 2.10.

Table: 2.9- Distribution of Area under Different Soil Erosion Categories of Chenab Riverscape, J&K, UT

Sr. No.	Soil Erosion(tons/hectare/year)	Area (km ²)	Percentage of Total Area (%)
1.	<5	5,223.11	24.21
2.	>5-<10	532.08	2.47
3.	<10-<20	1,341.42	6.22
4.	>20-<40	1,514.32	7.02
5.	≥40	8,558.60	39.68
6.	Non Soil	4,401.50	20.40
Total		21,571.03	100

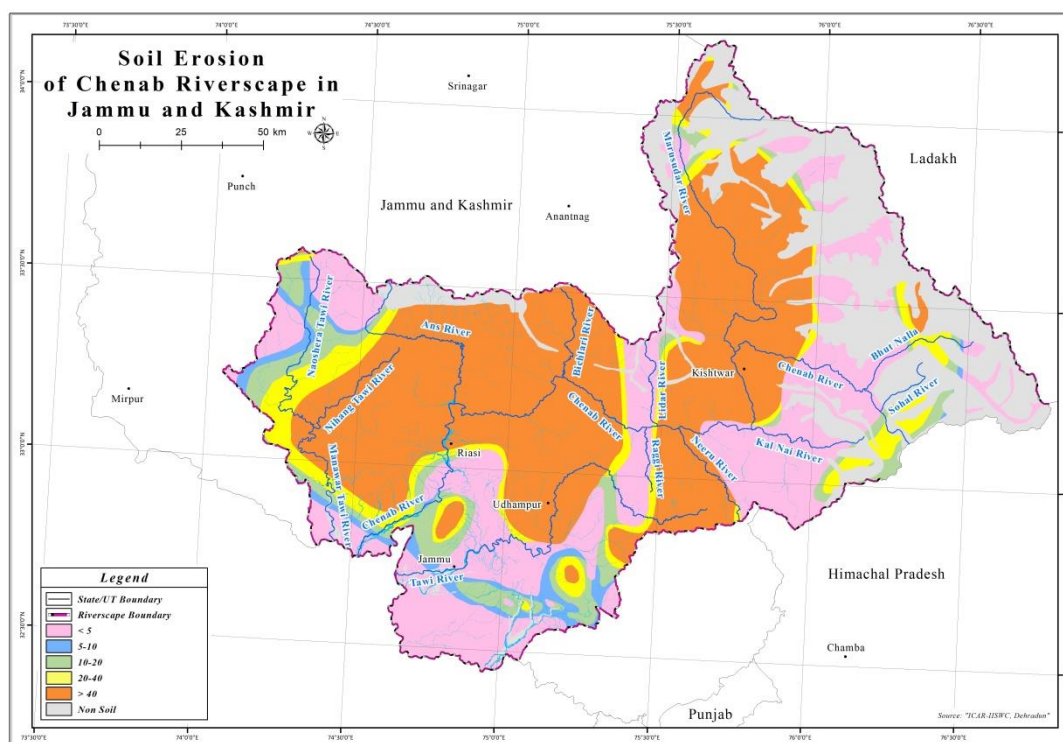


Fig. 2.10- Extent of Soil Erosion in Chenab Riverscape, Jammu and Kashmir UT

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 is another important variable for suggesting suitability of tree species for a plantation model. The depth is important for the penetration of the roots of plant or tree species. Four depth classes viz., Deep, Moderately Deep, Shallow and Very Shallow have been mapped (Fig. 2.11). These areas could be suggested as suitable for plantations based on other ground parameters. The distribution of area under different soil depth classes is given in Table 2.10.

Table: 2.10- Distribution of Area under Different Soil Depth Categories of Chenab Riverscape, J&K, UT

Sr. No.	Soil depth	Area (km ²)	Percentage of Total Area (%)
1.	Deep	6,312.06	29.26
2.	Moderately Deep	7,366.86	34.15
3.	Non Soil	4,484.51	20.79
4.	Shallow	3,114.25	14.44
5.	Very Shallow	293.35	1.36
Total		21,571.03	100

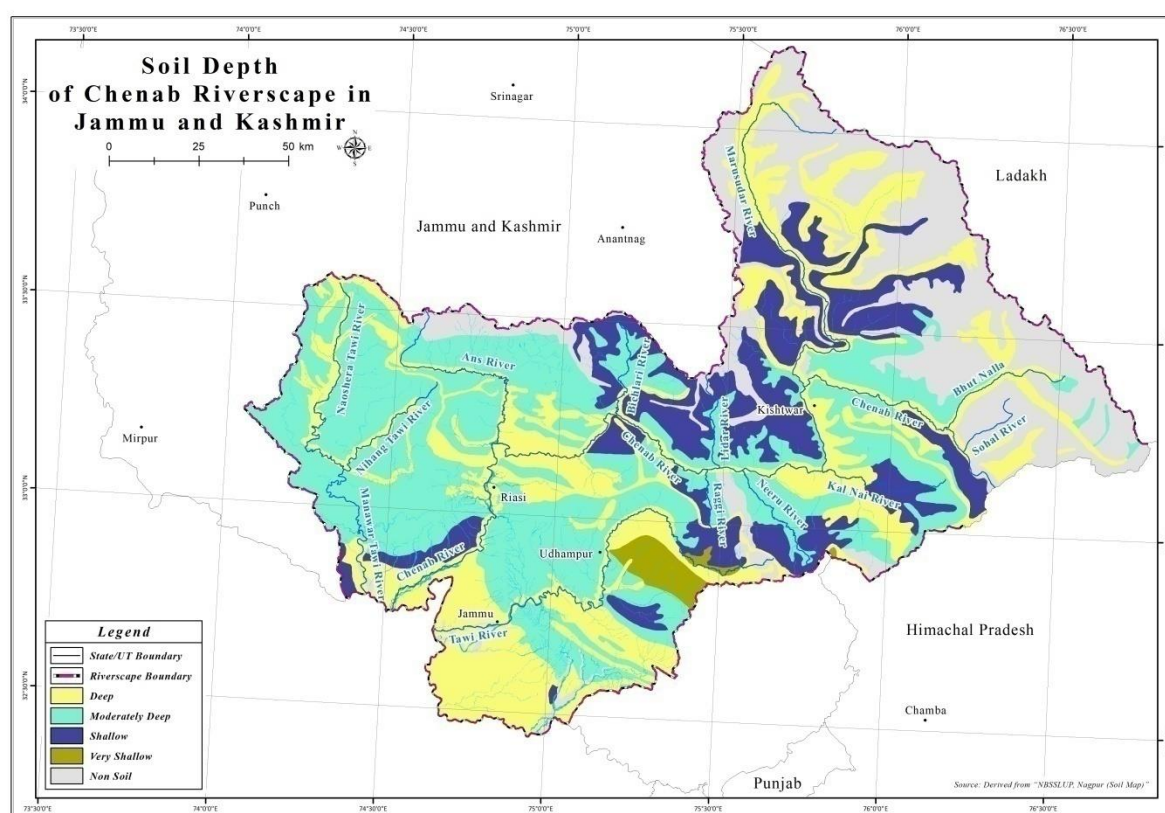


Fig. 2.11- The Variation in Soil Depth in Chenab Riverscape, Jammu and Kashmir UT

(G) Aspect

Aspect, particularly in the Himalaya, influences the diversity and distribution of vegetation and microclimate. In the Himalaya, this effect can be seen to an extreme degree. North and south facing opposing slopes 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. The aspect map has been derived from the ALOS DEM. A total of nine categories viz., North, North-East, East, South-East, South, South-West, West, North-West and the Flat land have been analyzed in the study area. The distribution of areas under different aspect classes is given in Table 2.11 and Fig. 2.12.

Table: 2.11- Distribution of Area in Different Aspect Categories of Chenab Riverscape, J&K, UT

Sr. No.	Aspect	Area (km ²)	Percentage of Total Area (%)
1.	Flat (-1)	585.02	2.71
2.	North (0-<22.5) & (>337.5-360)	2,376.39	11.02
3.	Northeast (22.5-<67.5)	2,331.21	10.81
4.	East (67.5-<112.5)	2,272.33	10.53
5.	Southeast (112.5-<157.5)	2,683.69	12.44
6.	South (157.5-<202.5)	2,931.28	13.59
7.	Southwest (202.5-<247.5)	3,211.45	14.89
8.	West (247.5-<292.5)	2,659.65	12.33
9.	Northwest (292.5-<337.5)	2,520.01	11.68
	Total	21,571.03	100

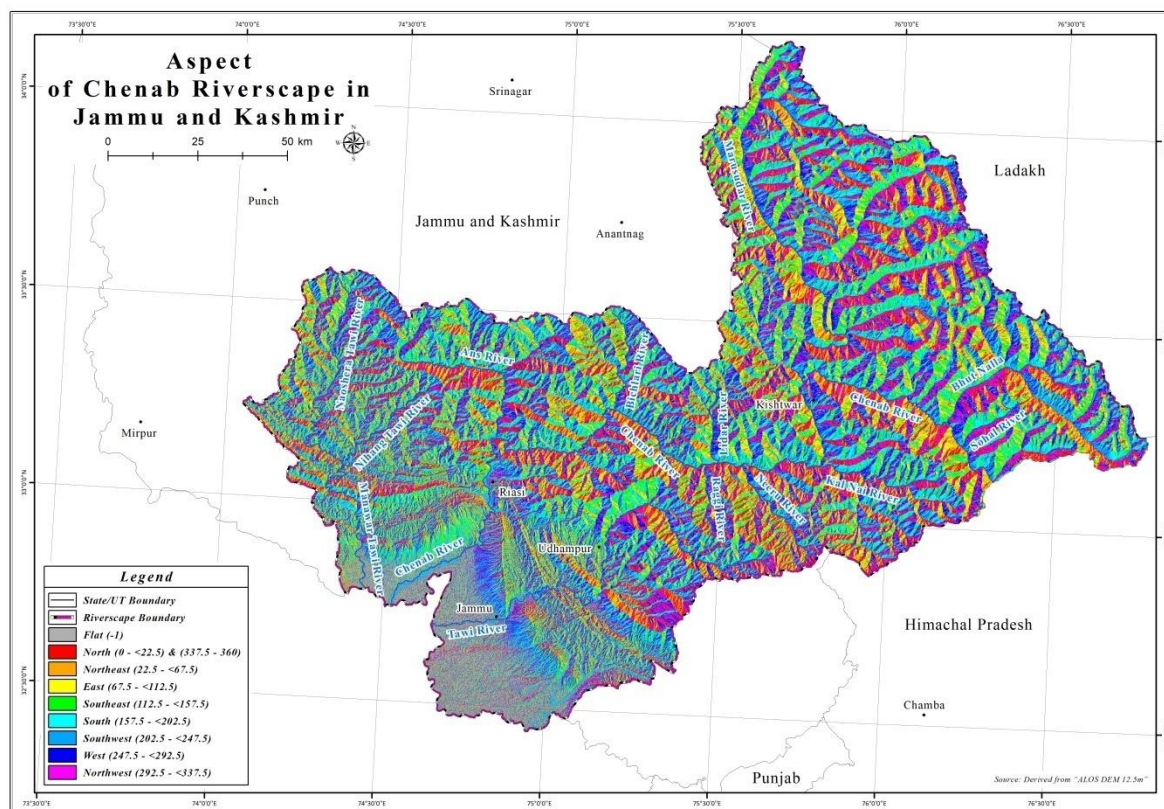


Fig. 2.12- The Distribution of Area under Different Types of Aspects in Chenab Riverscape, Jammu and Kashmir UT

2.4 Need for Forestry Interventions Chenab River Basin

The Jammu and Kashmir Union Territory stands apart in terms of its water wealth when considering the total runoff, overall area of the water bodies and the length of the drainage pattern. In other words, its water features are the principle component that adds to its scenic beauty. However, the distribution of the water resources is extremely uneven due to its geomorphic features. Water is mostly plentiful in the low-lying areas and is mainly categorized by a number of freshwater streams, springs, lakes and wetlands. Water being the elixir of life has been the driving force behind flourishing and development of new civilizations. Therefore, for availability, quantity and quality of water is still the fundamental cause of socioeconomic prosperity and well-being of any region. Main sectors of the state, which are directly dependent on water resources include agriculture, irrigation, horticulture, hydroelectricity, and tourism. Water resources of Jammu and Kashmir UT are governed by special commandments laid down under the Indus Water Treaty (IWT, 1960).

The availability and quality of clean water in many regions of the world is increasingly threatened by overuse, misuse and pollution. The intricate relationship between forests and water has been of interest for long to natural resource professionals and policy makers. It is a common knowledge that forests not only influence the hydrological cycle, but they also have an effect on water resources both quantitatively and qualitatively (FAO, 2013). Forests make

2.5 Prioritization of Sites for Forestry Interventions

Priority Treatment Area of Chenab Riverscape in Jammu and Kashmir

0 25 50 km

Punch

Jammu and Kashmir

Anantnag

Ladakh

Mirpur

Kashmir

Chenab River

Jhelum River

Ravi River

Beas River

Sutlej River

Ghaggar River

Kalnai River

Chamba

Punjab

Himachal Pradesh

Jammu

Udhampur

Raist

Lawi River

Legend

- State/UT Boundary
- Riverscape Boundary
- Low
- Moderate
- High

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2.5.1 Priority Classes

Statistical analysis of the area estimates show that 9,232.95 ha area is in high priority region, 5,702.36 ha area moderate priority region and 6,635.72 ha area in low priority region for Jammu & Kashmir UT (Table 2.12).

Table: 2.12- Priority Treatment Areas in Jammu region of J&K UT

Priority Class	Area (km²)	Percentage of Total Area (%)
Low	6,635.72	30.76
Moderate	5,702.36	26.44
High	9,232.95	42.80
Total	21,571.03	100.00

2.6 Proposed Forestry Interventions

Various forestry interventions have been proposed for the rejuvenation of Chenab River. The following three lower order landscapes have been delineated in the riverscape for the purpose of forestry interventions.

(I) Natural landscapes

(II) Agricultural landscapes

(III) Urban landscapes

In the Union Territory of Jammu and Kashmir, interventions will be executed in the entire catchment of Chenab River and its tributaries from the origin of Chenab River entered the Kishtwar district to Akhnoor along the river.

In general, following guidelines would be applicable to all proposed Plantation Models meant for three different Landscapes viz. Natural, Agriculture and Urban Landscape and Three types of Conservation Interventions viz. Soil & Water Conservation, Riverine and Riparian Management, and Wetland Management within the riverscape:

1. All the Models/ Interventions are prescribed which come under Forestry Interventions in proposed DPR of Rivers.
2. Native species of trees, shrubs, herbs and grasses would be selected for proposed treatment models/ plantations in consultation with stakeholders of the respective States/UT. Traditional and prominent horticultural and ornamental species those under cultivation in the region for quite some time, are proposed in the Agriculture and Urban Landscapes. Mixed plantations are proposed as far as possible instead of monoculture for enhancing plant diversity and greater ecosystem services. The species are proposed according to their occurrence in the altitudinal zones however, Implementing Agencies may plant site specific species also (Annexure-3).

3. Suitable native species suggested for different plantation models are finalized after due consultation with Forest Department and other stakeholders of concerned States/UTs. Native species proposed for plantation under each treatment models are provided in the following section. In addition, landscape-wise model description has been further supplemented with the species-wise attributes and model-wise listing in Annexure 5.
4. The necessary preparations for planting works including digging of pits would be completed two-three months before the onset of monsoon or planting season. However, the period between pit digging and scheduled planting time would not be more than four months so that run-off of soil by wind and water could be minimized.
5. Appropriate quantity of farmyard or organic manure or AM would be applied to boost plant growth in nurseries and plantation sites. Eco-friendly measures (i.e. physical or mechanical methods, use of natural products, etc.) for weed and pest control would be adopted without resorting to the use of synthetic chemicals
6. Plantation sites would be protected against all types of biotic disturbances and abiotic stresses so as to effectively safeguard planted material for three years through fence, watch and ward, as well as local public awareness programmes and their active involvement.
7. The Implementing Agency should either develop modern and centralized nurseries or identify various certified Research Institutes, Universities, NGOs, Institutions and progressive farmers for supply of best quality planting material.
8. The Schedule of Rates (SoR) is adopted from prevailing SoR of respective States/UTs. For Himachal Pradesh, SoR of Shimla Forest Circle for the year 2012-13 @ wage rate of Rs.150/- with increase of 66.66% i.e., Rs. 250/-, for J&K UT SoR of 2017 @ Rs. 225/- has been applied. Also an increase of 7% has been added each year i.e., 2nd year onwards to compensate inflation.
9. The budget will be provided after submission of Annual Plan Operations (APO) for each year. So the prevailing wage rate will be applicable whenever DPR is implemented. Also site can be changed as per the availability at the time of implementation wherever required.
10. In Himachal Pradesh, further 25% hike in wage rates would be applied for Tribal Areas
11. The fencing cost has been calculated on average basis of enclosure of area to the extent of 5 hectare and average carriage lead is taken as 1 km (up & down)
12. The nursery time for plants in multitier model is taken on average basis i.e., 1.5 – 4.5 year so average is 3 years, for calculating the norm. Also the plant cost is taken from the norm prescribed by the Forest Department of respective States.
13. These cost Norms indicate the upper limits. The expenditure will be booked under various items shown in the detailed models as per actual work done in the field as per Schedule of Labour rates of the respective States/UTs and will not exceed these Departmental Norms.
14. The suggestive cost models are to create multistoried forest cover for improving the bio-diversity of the area which in turn conserves the water and soil in-situ.

15. In *Lantana* eradication models or wherever *Lantana* removal is involved, the Cut Root Stock (CRS) method should be adopted.
16. The fencing work includes the 4-strands of barbed wire with interlacing of thorny bushes.
17. In Fire Protection Model, as area is virtually targeted, hence Implementing Agency should rotate fire protection operations in areas of the Division so that each selected area takes operations after 3 years.
18. In Agriculture models the guidelines of Sub-Mission on Agroforestry (SMAF) of Central Government should be considered as being adopted in States and UT.
19. Under Urban Landscape, the Seechewal Model (Punjab) for bio-remediation and bio-filtration may be taken into consideration.
20. Also in Urban Landscape, Eco-Park Development, Institutional Plantation and Riverfront Development models can be converged with Nagar Van Yojna as launched by GoI.
21. In Soil and water conservation models, the watershed approach and techniques should be adopted for desired results. For this intervention the Annual Plan Operation (APO) should be submitted each year with the proposal of micro plan of specific sites with detailed estimates.
22. In Riverine and Riparian Management and Wetland Management models, areas shown in budgetary provisions are virtual and concerned Implementing Agency (IA) should clearly mention the proposed activities in Annual Plan operation (APO) to be taken up in particular area with detailed microplan and estimates.
23. Plantation models are for the general areas as proposed by the Territorial Divisions but for the protected areas, two models under Conservation Intervention viz. Riverine and Riparian Management and Wetland Management.

2.6.1 Natural Landscapes

Chenab Riverscape is represented by diverse forests, alpine pastures, scrub, snow cover/ glaciers, rivers, wetlands, etc. Thus, the maximum number of treatment models has been proposed in the mountainous/ hill portion of the riverscape in Jammu region of J&K UT. Interventions are proposed to be implemented in the entire upper basin of the Chenab River and its tributaries. Primarily, these models would be applied on forest lands under the control of SFD (J&K UT). The proposed treatment sites would mainly include areas under open forests, scrubs, grasslands, alpine pastures or along the river and its tributaries. 13 treatment models prescribed in the natural landscapes are presented below in Table 2.13.

Table: 2.13- Model Proposed in Natural Landscapes Jammu region of J&K UT

Model Number	Name of Model	Brief Description
CN/JK/NL/01	Sub-Alpine Conservation	This model 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. The conservation

		practices as prescribed in the Working Plan of respective Territorial Forest Division and Wildlife Management Plan of protected areas will be applicable. The collection of medicinal and aromatic plants species would be regulated as per the State's policy on the medicinal plants and accordingly the benefit will be shared with local communities. Under this model, medicinal plant will be planted at the rate of 2,400 plants/ha in the blank areas in 600/ha patches. Root slips/ seeds of native grasses will be put in continuous contour strips immediately after melting of snow in 600/ha patches.
CN/JK/NL/02	Sub-Alpine Enrichment	This model is proposed to conserve and augment vegetation in sub-alpine zone by adopting specific interventions to enrich such areas. The major focus will be on conservation and enrichment of native species besides generation of sustainable livelihoods for local communities. 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 would be regulated as per the State's policy on medicinal plants and accordingly the accrued benefit will be shared with local communities. 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.
CN/JK/NL/03	Dry Temperate Conifer Forest Enrichment	This model is recommended for the altitudinal zone of 1700 - 3250 m amsl. The suggested plantation model for this site is Dry Temperate Conifer Forest Enrichment model. Planting of 400 plants/ha of native conifer species and 400 patches of medicinal herbs will be planted. The trees will be planted at spacing of 5 m x 5 m in the blank patches. <i>Pinus gerardiana</i> is specially recommended for planting in Kishatwar district to provide ultimate benefits to local communities. Between two rows of trees of the treatment site will be planted with medicinal plants in patches (30 x 30 cm). The collection of medicinal and aromatic plants 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 for ultimately generating additional income to those tribal communities
CN/JK/NL/04	Temperate Conifer Forest	The moist temperate area lies between 1,700 m to 3,500 m amsl. This zone is characterized by dense forests, mainly of conifer species. However, blank patches too occur at several places which will be taken up for proposed treatment. In some areas, especially in fir and spruce forests, soil is covered with a thick layer of humus as the decomposition rate is very slow in these areas. The suggested treatment model for these areas is being referred as the Temperate Conifer Forest Model. 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 1600 plants/ha will also be planted out in the treatment site. 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 plants 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.
CN/JK/NL/05	Temperate Mixed Forest	The moist temperate forest area occurs between 1,700-3,500 m amsl. 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 plants will be planted in general and conifer plants can be planted on the ridges and shallow soil depth area. The native shrubs @400 plants/ha will be carried out in between the planted trees. The medicinal plants will also be planted in patches @ 4 plants/ patch and that means planting of total of 1,600 medicinal plants/ ha. The major focus of the proposed treatment model will be on the conservation and propagation of native species alongside improved livelihoods for local communities.
CN/JK/NL/06	Pasture and Grazing Land	These areas located between 600-3,200 m amsl, particularly on southern slope and around habitations

	Development	are characterized by pasture and grazing lands. Under this model, pasture and grazing land development are proposed by protection, development and enrichment of areas within this zone. Suitable grass species will be planted/ sowing of seeds after carrying out necessary land development works like trenching/ terracing/ moisture conservation measures, etc. besides removal of weeds and unpalatable grasses. The proposed treatment model mainly includes plantation of 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.
CN/JK/NL/07	Himalayan Chir Pine Forest	In Jammu region (J&K UT) particularly on southern aspect Chir pine is the dominant species. The altitude range of this zone is between 800-1,800 m amsl and annual rainfall varies from 900-1,200 mm. For such areas in this zone, the Himalayan Chir Pine Forest Model is proposed. Grass species such as <i>Heteropogon contortus</i>, <i>Chrysopogon fulvus</i>, etc. are proposed to be sown in the treatment site, particularly towards the river or <i>nallah</i> side. The area will be planted with <i>Pinus roxburghii</i> mainly in drier sites with shallow soil depth whereas broadleaved species like <i>Quercus oblongata</i>, <i>Lyonia ovalifolia</i>, Bamboo spp., etc. on moist sites are proposed to be planted at 5 m x 5 m spacing. A total of 300 plants of tree/ha, 100 bamboo species /ha along with 300 plants of shrubs/ha and 800 patches of grasses will be planted 2m apart in staggered fashion. Chir pine and associated broadleaved species require around 2 years nursery period and planting will be done in the 3rd year
CN/JK/NL/08	Himalayan Mixed Forest	The altitudinal variation in this zone is between 800-1,800 m amsl and the zone receives annual rainfall ranging from 1,000-1,200 mm. The Himalayan Mixed Forest Model is recommended for this zone. Grass species such as <i>Heteropogon contortus</i>, <i>Chrysopogon fulvus</i>, etc. will be sown or planted in the part of treatment site, particularly on the ridges. The treatment area will be planted with broadleaved species like <i>Quercus oblongata</i>, <i>Lyonia ovalifolia</i>, <i>Toona ciliata</i>, <i>Syzygium cumini</i>, <i>Grewia</i>

		<i>optiva</i>, <i>Pyrus pashia</i>, <i>Albizia</i> spp., <i>Phyllanthus emblica</i>, <i>Holoptelea integrifolia</i>, <i>Ficus</i> spp., <i>Punica granatum</i>, <i>Bauhinia variegata</i>, etc. Plants will be planted at 5 m x 5 m spacing. A total of 300 plants of tree/ha., 300 plants of shrubs/ha and 200 patches of 2x2 m apart grasses on the ridges/degraded sites will be planted.
CN/JK/NL/09	Sub-Tropical Dry Deciduous Forest	This zone occurs in foot hills of Jammu region (J&K UT) and dominated by broadleaved deciduous species. The altitudinal range in this zone is between 300-900 m amsl and the zone experiences annual rainfall around 1,000 mm. The Sub-Tropical Dry Deciduous Forest Model is recommended in this zone. Under this model, it is proposed to plant 300 trees of broadleaved species or bamboos. 300 shrubs at 5 m x 5 m will be planted in between the tree rows. Strong soil binding grasses like <i>Arundinella nepalensis</i>, <i>Apluda mutica</i>, <i>Chyrsopogon fulvus</i> and sedges like <i>Carex cruciata</i> will be planted on the river or <i>nallah</i> facing side of the treatment site. In case of trees, a mixture of timber species like <i>Dalbergia sissoo</i>, <i>Acacia catechu</i>, <i>Adina cordifolia</i>, etc. along with medicinal trees like <i>Terminalia</i> spp., <i>Phyllanthus emblica</i>, <i>Oroxylum indicum</i>, <i>Sapindus mukorossi</i>, etc. will be planted at 5 m x 5 m spacing.
CN/JK/NL/10	Eradication of lantana (>50%)	Invasive alien species are plants which hamper natural regeneration and growth of native species, thereby replacement of native plant species coupled with loss of biodiversity, forage, habitat, aesthetics and productivity of native species in sub-tropical and lower temperate areas. Owing to considerable area of this zone under the influence of <i>Lantana camara</i>, tangible and intangible benefits from sub-tropical to lower temperate forests within the Chenab Riverscape have been adversely affected. The area for the proposed model referred as 'Eradication of <i>Lantana</i> (>50%)' covers forest sites between around 300-1,200 m amsl wherein the topography is with gentle slopes. Such areas have sub-tropical to lower-temperate climate with around 1,000-1,200 mm annual rainfall. Soils are generally fertile and moderately deep. The propose treatment area for this model usually has open or moderately dense forests or

		scrub vegetation. Luxuriant growth of <i>Lantana camara</i> forms dense undergrowth in the forest suppressing the native vegetation of that area. It is proposed to cut and manually uproot above stated 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 <i>Lantana</i> eradication will be planted in the third year of project implementation. Plants will be planted at 4 m x 4 m spacing. A total of 600 plants of tree and bamboos /ha along with 600 patches of 4x4 m apart grasses on sites will be planted. Alternate rows of bamboo and Broadleaved species will be planted throughout the treatment area.
CN/JK/NL/11	Control/ Removal of Invasive Species or <50%Lantana	The area for the proposed model referred as ‘Control/ Removal of Invasive Species’ covers forest sites between around 300-1,200 m amsl wherein the topography is with gentle slopes. Luxuriant growth of weed including <i>Lantana camara</i> (<50%) forms considerably dense undergrowth in the forest suppressing the native vegetation of that area. <i>Ageratum conyzoides</i> and <i>Parthenium hysterophorus</i> also cause considerable hazard especially near agriculture fields and settlements. In case of <i>Lantana</i> infested areas, CRS (Cut Root Stock) method will be used for complete eradication/ control of this obnoxious weed. These areas after <i>Lantana</i> eradication will be planted in the third year of project implementation. Grass species such as <i>Heteropogon contortus</i>, <i>Chrysopogon fulvus</i>, etc. will be sown in the part of treatment site. Plants will be planted at 5 m x 5 m spacing. A total of 400 plants of trees and bamboo/ha- a mixture of broad leaved species and bamboos will be planted. In additions, 400 patches of grasses 5x5 m apart will be planted on the proposed sites. The rows of trees and grasses will be planted alternatively.
CN/JK/NL/12	Protection Model for Natural Regeneration	The disturbances by human and livestock in areas, establishment of natural regeneration is generally poor and need immediate attention. Often, a thick layer of humus is typically present and the soil is generally

		moist and conducive for natural regeneration. Under this treatment 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 cutting, obnoxious weeds, unwanted species, pruning of plants, removing dead and dying trees. The broadcasting of desired seed to be done in the closed area to supplement the natural regeneration.
CN/JK/NL/13	Fire Protection Model	This zone occurs in sub-tropical area i.e., from foot hills to mid hill of Jammu region (J&K UT). It is dominated by Chir pine in southern aspects and mixed vegetation in other aspects. The altitude ranges between 800-1,800 mamsl and annual rainfall is 1,000-1,200 mm and mostly during monsoon and some portion in winter months. This zone experiences 7-8 dry months every year making these forests highly vulnerable to fires. 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. Engagement of fire watchers in fire sensitive beats, procurement of fire fighting equipments and use of elide fire extinguishing balls. Construction of water harvesting and storage structure i.e., Ponds, Kuhals etc. with locally available materials will be done. Besides these, awareness campaign among rural masses particularly about overall damage by forest fires to nature flora and fauna, soil and other ecosystem services of the forest such as hydrological functions, moderation of local climate, etc. influencing horticulture/agriculture productivity of farmlands. Role of local communities in bringing down the forest fire incidences in Chir-pine zone is very important, and needs to be highlighted at various levels.

Table: 2.14- List of Suggestive Species for Plantation in Natural Landsapes

Model Number	Suggestive Species
CN/JK/NL/01	Herbs/Medicinal Plants: <i>Aconitum heterophyllum</i>, <i>A. violaceum</i>, <i>Eremurus himalaicus</i>, <i>Ainsliaea aptera</i>, <i>Arnebia benthamii</i>, <i>Dactylorhiza hatagirea</i>, <i>Heracleum candicans</i>, <i>Polygonatum verticillatum</i>, <i>P. multiflorum</i>, <i>Fritillaria roylei</i>, <i>Picrorhiza kurroa</i>, <i>Selinum tenuifolium</i>, <i>Allium humile</i>, <i>Geranium wallichianum</i>, <i>Rheum australe</i>, <i>R. moorcroftianum</i>, <i>Sinopodophyllum hexandrum</i>, <i>Saussurea costus</i>, etc. Grasses and Forbs: <i>Festuca pratensis</i>, <i>F. valesiaca</i>, <i>Trifolium pratense</i>, <i>T. repens</i>, <i>Poa pratensis</i>, <i>Poa annua</i>, <i>Dactylis glomerata</i>, <i>Erianthus rufipilus</i>, <i>Agrostis gigantea</i>, <i>A. pilosula</i>, <i>A. munroana</i>, <i>Agropyron</i> sp., <i>Calamagrostismontana</i>, <i>Brachypodium sylvaticum</i>, <i>Bromus himalaicus</i>, <i>B. ramosus</i>, <i>Danthonia cumminsii</i>, <i>Danthonia cachemyriana</i>, <i>Stipa roylei</i>, etc.
CN/JK/NL/02	Trees: <i>Betula utilis</i>, <i>Pinus wallichiana</i>, <i>Acer caesium</i>, <i>A. acuminatum</i>, <i>Corylus jacquemontii</i>, <i>Corylus jacquemontii</i>, <i>Prunus cornuta</i>, <i>Quercus semecarpifolia</i>, <i>Abies pindrow</i>, etc. Herbs/Medicinal Plants: <i>Eremurus himalaicus</i>, <i>Aconitum heterophyllum</i>, <i>Arnebia benthamii</i>, <i>Dactylorhiza hatagirea</i>, <i>Heracleum candicans</i>, <i>Polygonatum verticillatum</i>, <i>P. cirrhifolium</i>, <i>P. multiflorum</i>, <i>Selinum tenuifolium</i>, <i>Allium humile</i>, <i>Geranium wallichianum</i>, <i>Bergenia stracheyi</i>, <i>Phytolacca acinosa</i>, <i>Hyoscyamus niger</i>, <i>Angelica glauca</i>, <i>Picrorhiza kurroa</i>, <i>Fritillaria roylei</i>, <i>Sinopodophyllum hexandrum</i>, <i>Trillium govanianum</i>, etc.
CN/JK/NL/03	Trees: <i>Pinus gerardiana</i>, <i>Pinus wallichiana</i>, <i>Cedrus deodara</i>, <i>Fraxinus xanthoxyloides</i>, <i>Alnus nitida</i>, <i>Celtis australis</i>, <i>Quercus baloot</i>, <i>Olea ferruginea</i>, <i>Picea smithiana</i>, <i>Abies pindrow</i> etc. Herbs: <i>Aconitum heterophyllum</i>, <i>Picrorhiza kurroa</i>, <i>Heracleum candicans</i>, <i>Angelica glauca</i>, <i>Geranium wallichianum</i>, <i>Viola canescens</i>, <i>Valeriana jatamansii</i>, <i>Heracleum candicans</i>, <i>Sinopodophyllum hexandrum</i>, <i>Polygonatum verticillatum</i>, <i>Allium stracheyi</i>, <i>Trillium govanianum</i>, <i>Selinum tenuifolium</i>, <i>Selinum vaginatum</i>, etc.
CN/JK/NL/04	Trees: <i>Cedrus deodara</i>, <i>Pinus wallichiana</i>, <i>Picea smithiana</i>, <i>Taxus wallichiana</i>, <i>Cupressus torulosa</i>, etc. Shrubs: <i>Daphne papyracea</i>, <i>Prinsepia utilis</i>, <i>Rosa macrophylla</i>, <i>R. sericea</i>, <i>Debregeasia longifolia</i>, <i>Cotoneaster bacillaris</i>, <i>Viburnum cotinifolium</i>, <i>Cornus oblonga</i>, <i>Syringa emodi</i>, <i>Indigofera heterantha</i>,

	<i>Desmodium elegans</i>, <i>Hypericum oblongifolium</i>, <i>Inula cuspidata</i>, etc. Herbs: <i>Aconitum heterophyllum</i>, <i>Picrorhiza kurroa</i>, <i>Heracleum candicans</i>, <i>Angelica glauca</i>, <i>Geranium wallichianum</i>, <i>Polygonatum verticillatum</i>, <i>Bergenia ciliata</i>, <i>Viola canescens</i>, <i>Trillium govanianum</i>, <i>Phytolacca acinosa</i>, <i>Valeriana jatamansi</i>, <i>Hedychium spicatum</i>, etc.
CN/JK/NL/05	Trees: <i>Cedrus deodara</i>, <i>Pinus wallichiana</i>, <i>Picea smithiana</i>, <i>Taxus wallichiana</i>, <i>Aesculus indica</i>, <i>Prunus cerasoides</i>, <i>Juglans regia</i>, <i>Fraxinus micrantha</i>, <i>Acer</i> spp., <i>Betula alnoides</i>, <i>Myrica esculenta</i>, <i>Cornus macrophylla</i>, <i>Alnus nitida</i>, <i>Ulmus wallichiana</i>, <i>Q. oblongata</i>, <i>Q. floribunda</i>, <i>Q. semecarpifolia</i>, <i>Olea ferruginea</i>, <i>Neolitsea pallens</i>, <i>Lyonia ovalifolia</i>, etc. Shrubs: <i>Daphne papyracea</i>, <i>Prinsepia utilis</i>, <i>Rosa macrophylla</i>, <i>R. sericea</i>, <i>Parrotiopsis jacquemontiana</i>, <i>Viburnum nervosum</i>, <i>Debregeasia longifolia</i>, <i>Cotoneaster bacillaris</i>, <i>C. acuminatus</i>, <i>Plectranthus rugosus</i>, <i>Dodonea viscosa</i>, <i>Hypericum oblongifolium</i>, <i>Rubus foliolosus</i>, <i>R. niveus</i>, <i>Zanthoxylum armatum</i>, <i>Deutzia staminea</i>, <i>Spiraea canescens</i>, <i>Berberis</i> spp., etc. Herbs: <i>Aconitum heterophyllum</i>, <i>Eremurus himalaicus</i>, <i>Heracleum candicans</i>, <i>Angelica glauca</i>, <i>Geranium wallichianum</i>, <i>Polygonatum verticillatum</i>, <i>P. cirrhifolium</i>, <i>Sinopodophyllum hexandrum</i>, <i>Bergenia ciliata</i>, <i>Viola canescens</i>, <i>Valeriana jatamansi</i>, <i>Hedychium spicatum</i>, <i>Trillium govanianum</i>, <i>Ajuga bracteosa</i>, etc.
CN/JK/NL/06	Grasses and Forbs: <i>Festuca pratensis</i>, <i>Trifolium pratense</i>, <i>T. refens</i>, <i>Poa pratensis</i>, <i>P. annua</i>, <i>Dactylis glomerata</i>, <i>Erianthus rufipilus</i>, <i>Agrostis</i> sp., <i>Agropyron</i> spp., <i>Calamagrostis</i> spp., <i>Koeleria</i> spp., <i>Saccharum spontaneum</i>, <i>Chrysopogon gryllus</i>, <i>Arundinella nepalensis</i>, <i>A. pumila</i>, <i>Themeda anathera</i>, <i>Cymbopogon distans</i>, <i>Setaria glauca</i>, <i>Alopecurus aequalis</i>, <i>Bothriochloa pertusa</i>, <i>B. intermedia</i>, etc. Shrubs: <i>Drepanostachyum falcatum</i>
CN/JK/NL/07	Trees: <i>Pinus roxburghii</i>, <i>Quercus oblongata</i>, <i>Lyonia ovalifolia</i>, <i>Dendrocalamus strictus</i>, <i>Dendrocalamus hamiltonii</i>, <i>Bambusa</i> spp., <i>Holoptelea integrifolia</i>, <i>Ficus benghalensis</i>, <i>F. racemosa</i>, <i>F. rumphii</i>, <i>Albizia</i> spp, <i>Alstonia scholaris</i>, <i>Phyllanthus emblica</i>, <i>Diospyros montana</i>, <i>Bauhinia variegata</i>, <i>Olea cuspidata</i>, <i>Grewia optiva</i>, <i>Pyrus pashia</i>, <i>Azadirachta indica</i>, <i>Cinnamomum tamala</i>, <i>Mallotus philippensis</i>, <i>Aegle marmelos</i>, <i>Ulmus wallichiana</i>, <i>Punica granatum</i>, etc. Shrubs: <i>Justicia adathoda</i>, <i>Myrsine africana</i>, <i>Murraya koenigii</i>, <i>M. paniculata</i>, <i>Ricinus communis</i>, <i>Tinospora cordifolia</i>, <i>Woodfordia fruticosa</i>, <i>Maesa indica</i>, <i>Nyctanthes arbor-tristis</i>, <i>Vitex negundo</i>, <i>Carissa</i>

	<i>carandas</i>, <i>Berberis lycium</i>, <i>B. aristata</i>, <i>Ziziphus jujuba</i>, <i>Desmodium elegans</i>, <i>Tephrosia hamiltonii</i> etc. Grasses and Forbs: <i>Heteropogon contortus</i>, <i>Chrysopogon serrulatus</i>, <i>C. serrulatus</i>, <i>Boerhavia diffusa</i>, <i>Festuca pratensis</i>, <i>Festuca arundinacea</i>, <i>Poa pratensis</i>, <i>Erianthus filifolius</i>, <i>E. rufipilus</i>, <i>Agrostis gigantea</i>, <i>Setaria glauca</i>, <i>Dicanthium annulatum</i>, <i>Digitaria cruciata</i>, <i>Phleum pratense</i>, <i>Themeda anathera</i>, <i>Arundo donax</i>, <i>Cymbopogon martini</i>, <i>Phragmites karka</i>, <i>Bothriochloa pertusa</i>, <i>B. intermedia</i>, <i>Eulaliopsis binata</i>, <i>Calamagrostis emodensis</i>, <i>Thysanolaena maxima</i>, etc.
CN/JK/NL/08	Trees: <i>Quercus oblongata</i>, <i>Lyonia ovalifolia</i>, <i>Holoptelea integrifolia</i>, <i>Ficus benghalensis</i>, <i>Ficus racemosa</i>, <i>Ficus rumphii</i>, <i>Albizia lebbek</i>, <i>Alstonia scholaris</i>, <i>Phyllanthus emblica</i>, <i>Bauhinia variegata</i>, <i>B. retusa</i>, <i>Grewia optiva</i>, <i>Olea ferruginea</i>, <i>Pyrus pashia</i>, <i>Toona ciliata</i>, <i>T. sinensis</i>, <i>T. chebula</i>, <i>Syzygium cumini</i>, <i>Punica granatum</i>, <i>Pistacia integerrima</i>, <i>Terminalia bellirica</i>, <i>Cinnamomum tamala</i>, etc. Shrubs: <i>Rosa moschata</i>, <i>Debregeasia hypoleuca</i>, <i>Elaeagnus conferta</i>, <i>Zanthoxylum armatum</i>, <i>Deutzia staminea</i>, <i>D. corymbosa</i>, <i>Berberis aristata</i>, <i>B. lycium</i>, <i>Ziziphus</i> spp., <i>Carissa carandas</i>, <i>Murraya koenigii</i>, <i>Desmodium gangeticum</i>, <i>D. elegans</i>, <i>Indigofera heterantha</i>, <i>Tephrosia hamiltonii</i>, <i>Justicia adathoda</i>, <i>Ricinus communis</i>, <i>Withania somnifera</i>, <i>Tinospora cordifolia</i>, <i>Woodfordia fruticosa</i>, <i>Maesa indica</i>, <i>Nyctanthes arbor-tristis</i>, <i>Vitex negundo</i>, etc. Grasses and Forbs: <i>Heteropogon contortus</i>, <i>Chrysopogon fulvus</i>, <i>C. serrulatus</i>, <i>Boerhavia diffusa</i>, <i>Festuca pratensis</i>, <i>Festuca arundinacea</i>, <i>Poa pratensis</i>, <i>Erianthus filifolius</i>, <i>Erianthus rufipilus</i>, <i>Agrostis gigantea</i>, <i>Agropyron</i> spp., <i>Phleum pratense</i>, <i>Themeda anathera</i>, <i>Arundo donax</i>, <i>Cymbopogon martini</i>, <i>C. jwarancusa</i>, <i>Phragmites karka</i>, <i>Bothriochloa pertusa</i>, <i>B. intermedia</i>, <i>Eulaliopsis binata</i>, <i>Calamagrostis</i> spp., <i>Setaria glauca</i>, <i>Neyraudia arundinacea</i>, <i>Thysanolaena maxima</i>, etc.
CN/JK/NL/09	Trees: <i>Dalbergia sissoo</i>, <i>Acacia catechu</i>, <i>Haldinia cordifolia</i>, <i>Aegle marmelos</i>, <i>Terminalia bellirica</i>, <i>T. chebula</i>, <i>T. arjuna</i>, <i>Mallotus philippensis</i>, <i>Syzygium cumini</i>, <i>Oroxylum indicum</i>, <i>Sapindus mukorossi</i>, <i>Dendrocalamus strictus</i>, <i>D. hamiltonii</i>, <i>Bambusa</i> spp., <i>Holoptelea integrifolia</i>, <i>Ficus benghalensis</i>, <i>F. racemosa</i>, <i>F. rumphii</i>, <i>Albizia lebbek</i>, <i>A. procera</i>, <i>Celtis australis</i>, <i>Boehmeria rugulosa</i>, <i>Launea coromandelica</i>, <i>Cinnamomum tamala</i>, <i>Pyrus pashia</i>, <i>Alstonia scholaris</i>, <i>Phyllanthus emblica</i>, <i>Diospyros montana</i>, <i>Bauhinia variegata</i>, <i>Hymenodictyon suaveolens</i>, <i>Grewia optiva</i>, <i>Azadirachta indica</i>, <i>Morus alba</i>, etc. Shrubs: <i>Rosa moschata</i>, <i>Debregeasia hypoleuca</i>, <i>Zanthoxylum armatum</i>, <i>Berberis lycium</i>, <i>Ziziphus nummularia</i>, <i>Z. jujuba</i>, <i>Carissa carandas</i>,

	<i>Desmodium gangeticum</i>, <i>Tephrosia hamiltonii</i>, <i>Justicia adathoda</i>, <i>Murraya koenigii</i>, <i>M. paniculata</i>, <i>Ricinus communis</i>, <i>Tinospora cordifolia</i>, <i>Woodfordia fruticosa</i>, <i>Maesa indica</i>, <i>Nyctanthes arbor-tristis</i>, <i>Vitex negundo</i>, etc. Grasses/Forbs: <i>Heteropogon contortus</i>, <i>Chrysopogon fulvus</i>, <i>C. serrulatus</i>, <i>Boerhavia diffusa</i>, <i>Festuca pratensis</i>, <i>F. arundinacea</i>, <i>Poa pratensis</i>, <i>Erianthus filifolius</i>, <i>E. rufipilus</i>, <i>Agrostis gigantea</i>, <i>Saccharum munja</i>, <i>Neyraudia arundinacea</i>, <i>Phleum pratense</i>, <i>Themeda anathera</i>, <i>Arundo donax</i>, <i>Cymbopogon martini</i>, <i>Phragmites karka</i>, <i>Bothriochloa pertusa</i>, <i>B. intermedia</i>, <i>Eulaliopsis binata</i>, <i>Calamagrostis</i> spp., <i>Thysanolaena maxima</i>, etc.
CN/JK/NL/10	Trees: <i>Dalbergia sissoo</i>, <i>Acacia catechu</i>, <i>Toona ciliata</i>, <i>Haldinia cordifolia</i>, <i>Aegle marmelos</i>, <i>Terminalia bellirica</i>, <i>T. chebula</i>, <i>T. arjuna</i>, <i>Mallotus philippensis</i>, <i>Syzygium cumini</i>, <i>Oroxylum indicum</i>, <i>Sapindus mukorossi</i>, <i>Dendrocalamus strictus</i>, <i>D. hamiltonii</i>, <i>Bambusa arundinacea</i>, <i>Holoptelea integrifolia</i>, <i>Ficus benghalensis</i>, <i>F. racemosa</i>, <i>F. rumphii</i>, <i>Albizia</i> spp., <i>Celtis australis</i>, <i>Litsea chinensis</i>, <i>Myrica esculenta</i>, <i>Pyrus pashia</i>, <i>Alstonia scholaris</i>, <i>Phyllanthus emblica</i>, <i>Diospyros montana</i>, <i>Bauhinia variegata</i>, <i>Grewia optiva</i>, etc. Grasses/Forbs: <i>Arundinella nepalensis</i>, <i>Apluda mutica</i>, <i>Chrysopogon serrulatus</i>, <i>Boerhavia diffusa</i>, <i>Heteropogon contortus</i>, <i>Trifolium repens</i>, <i>Eragrostis nigra</i>, <i>Deschamsia</i> spp., <i>Panicum maximum</i>, <i>Phleum pratense</i>, <i>Cymbopogon citratus</i>, <i>Arundo donax</i>, <i>Phragmites karka</i>, <i>Themeda arundinacea</i>, <i>Eulaliopsis binata</i>, <i>Dichanthium annulatum</i>, <i>Sporobolus diandrus</i>, <i>Thysanolaena maxima</i>, <i>Hierochloa laxa</i>, etc.
CN/JK/NL/11	Trees: <i>Toona ciliata</i>, <i>Dalbergia sissoo</i>, <i>Acacia catechu</i>, <i>Haldinia cordifolia</i>, <i>Casia fistula</i>, <i>Aegle marmelos</i>, <i>Terminalia bellirica</i>, <i>T. chebula</i>, <i>T. arjuna</i>, <i>Mallotus philippensis</i>, <i>Syzygium cumini</i>, <i>Sapindus mukorossi</i>, <i>Dendrocalamus</i> spp., <i>Bambusa</i> sp., <i>Holoptelea integrifolia</i>, <i>Albizia</i> spp., <i>Celtis australis</i>, <i>Pyrus pashia</i>, <i>Alstonia scholaris</i>, <i>Phyllanthus emblica</i>, <i>Diospyros montana</i>, <i>Bauhinia variegata</i>, <i>Morus alba</i>, <i>Grewia optiva</i>, etc. Grasses/Forbs: <i>Arundinella nepalensis</i>, <i>Apluda mutica</i>, <i>Chrysopogon serrulatus</i>, <i>Boerhavia diffusa</i>, <i>Heteropogon contortus</i>, <i>Trifolium repens</i>, <i>Eragrostis nigra</i>, <i>Deschamsia</i> spp., <i>Panicum maximum</i>, <i>Phleum pratense</i>, <i>Cymbopogon citratus</i>, <i>Arundo donax</i>, <i>Phragmites karka</i>, <i>Themeda arundinacea</i>, <i>Eulaliopsis binata</i>, <i>Dichanthium annulatum</i>, <i>Sporobolus diandrus</i>, <i>Thysanolaena maxima</i>, <i>Hierochloa laxa</i>, etc.
CN/JK/NL/12	No plantation proposed. This treatment model is proposed to protect and conserve the vegetation and promote natural regeneration.

CN/JK/NL/13	No plantation proposed. This treatment model is proposed to protect the forests from fire incidence by cleaning of fire lines, control burning, engagement of fire watchers, procurement of fire fighting equipments/ elide fire extinguishing balls, constructions of ponds/ water harvesting structures, awareness campaign etc.
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Fig. 2.14- Plantation Design Model CN/JK/NL/01- Sub-Alpine Conservation

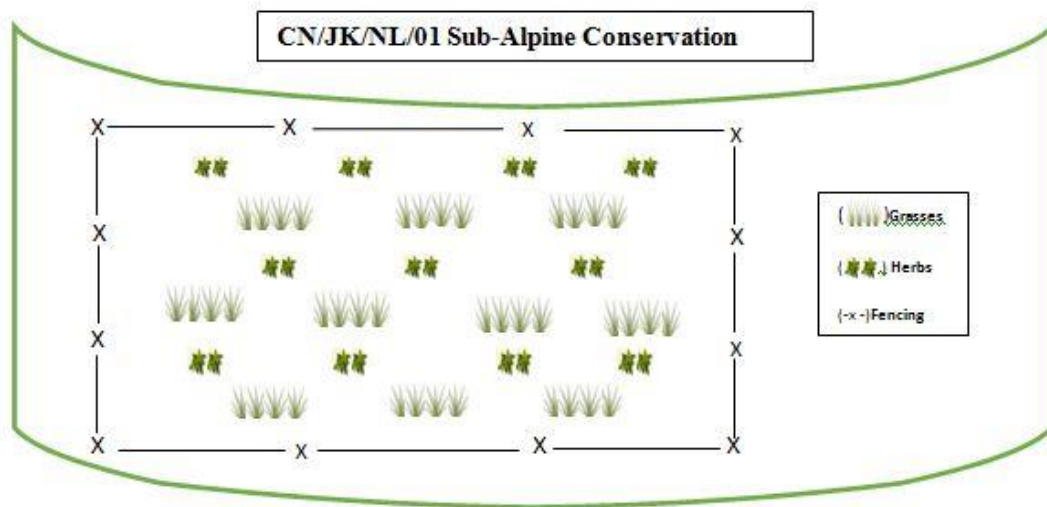


Fig. 2.15- Plantation Design Model CN/JK/NL/02- Sub-Alpine Enrichment

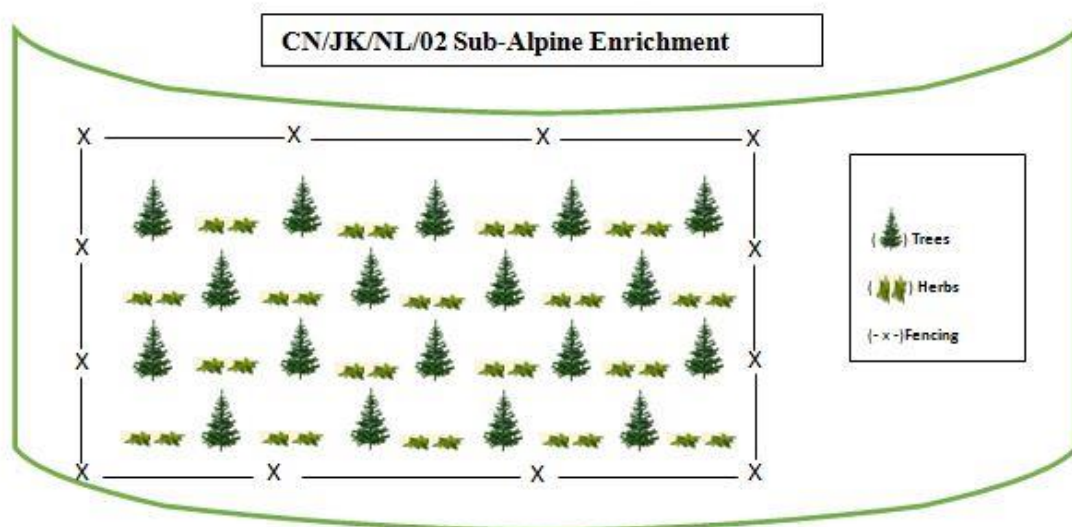


Fig. 2.16 - Plantation Design Model CN/JK/NL/03- Dry Temperate Conifer Forest Enrichment

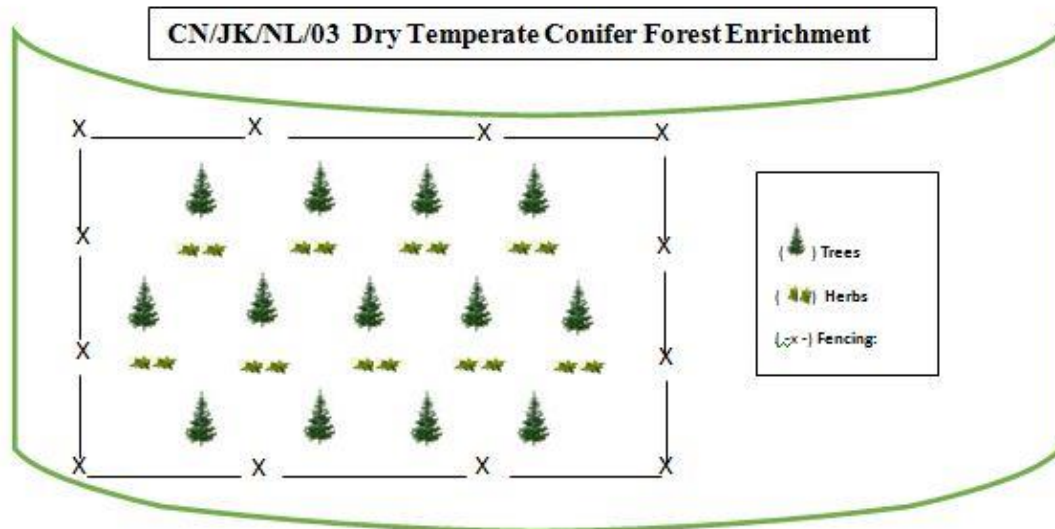


Fig. 2.17- Plantation Design Model CN/JK/NL/04- Temperate Conifer Forest

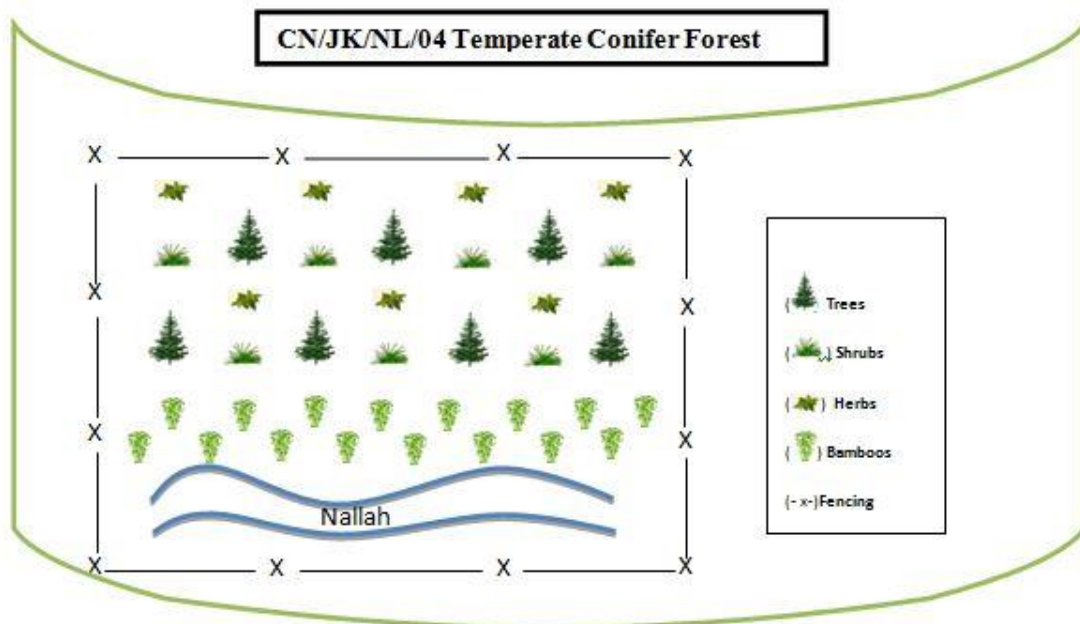


Fig. 2.18- Plantation Design Model CN/JK/NL/05- Temperate Mixed Forest

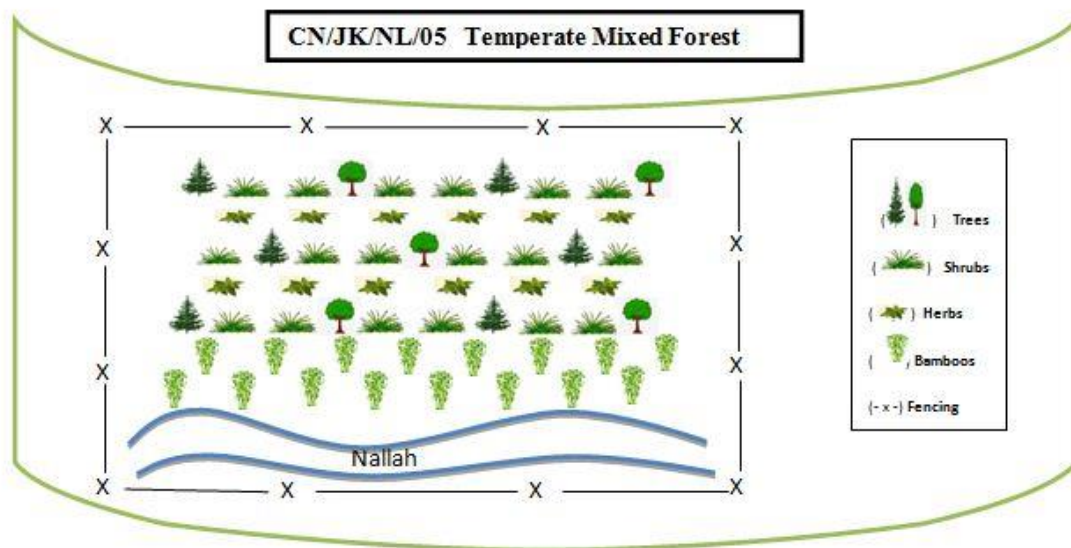


Fig. 2.19- Plantation Design Model CN/JK/NL/06 - Pasture and Grazing Land Development

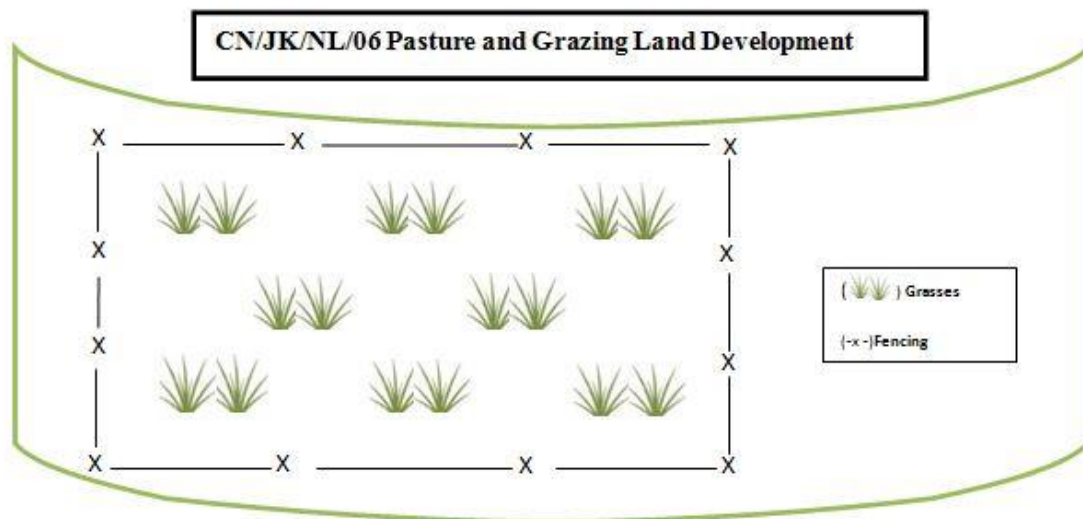


Fig. 2.20- Plantation Design Model CN/JK/NL/07 - Himalayan Chir Pine Forest

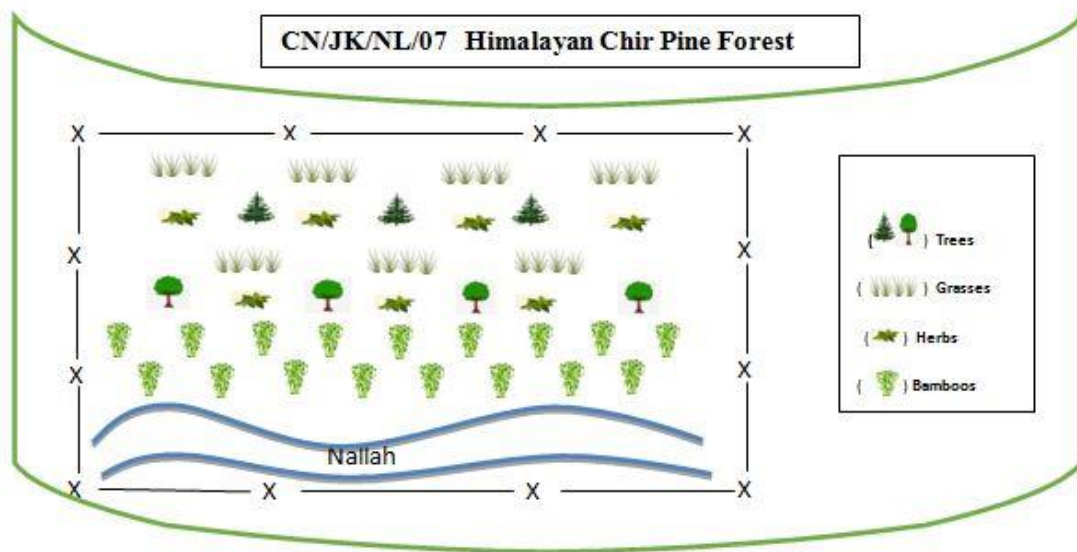


Fig. 2.21 - Plantation Design Model CN/JK/NL/08- Lower Himalayan Mixed Forest

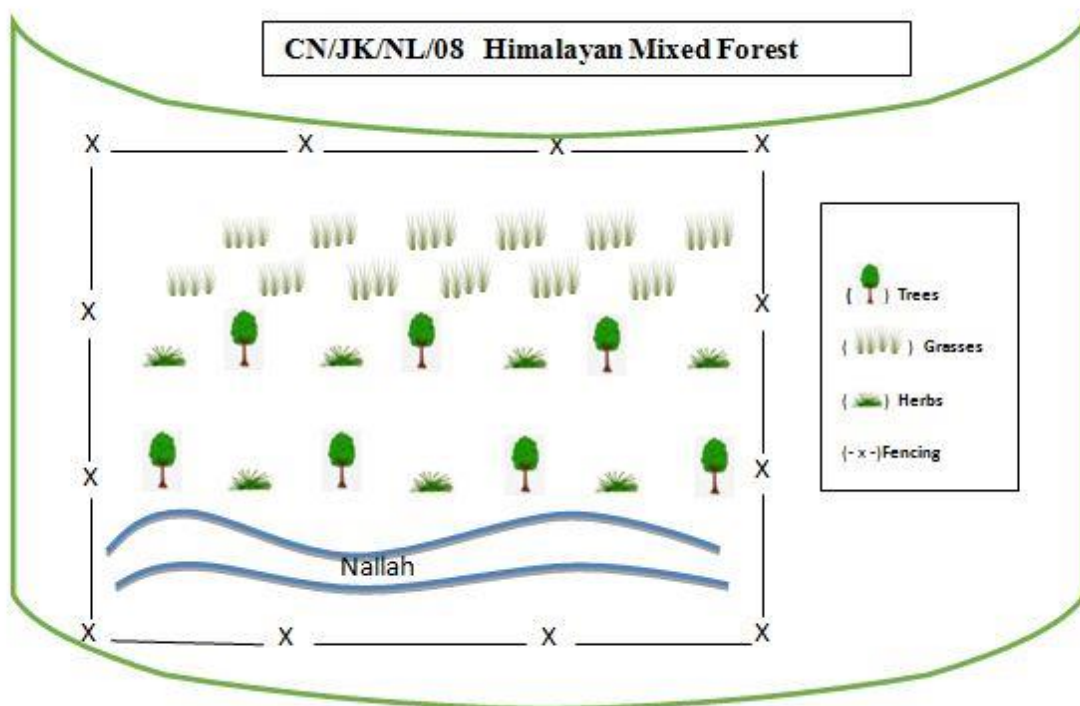


Fig. 2.22- Plantation Design Model CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest

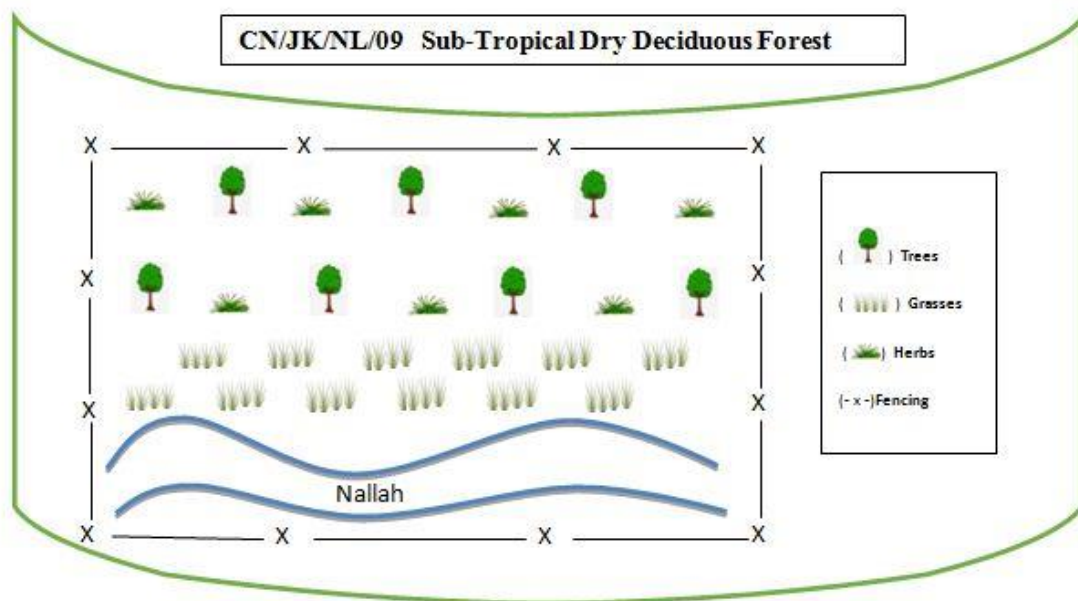


Fig. 2.23 - Plantation Design Model CN/JK/NL/10 – Eradication of *Lantana* (> 50%)

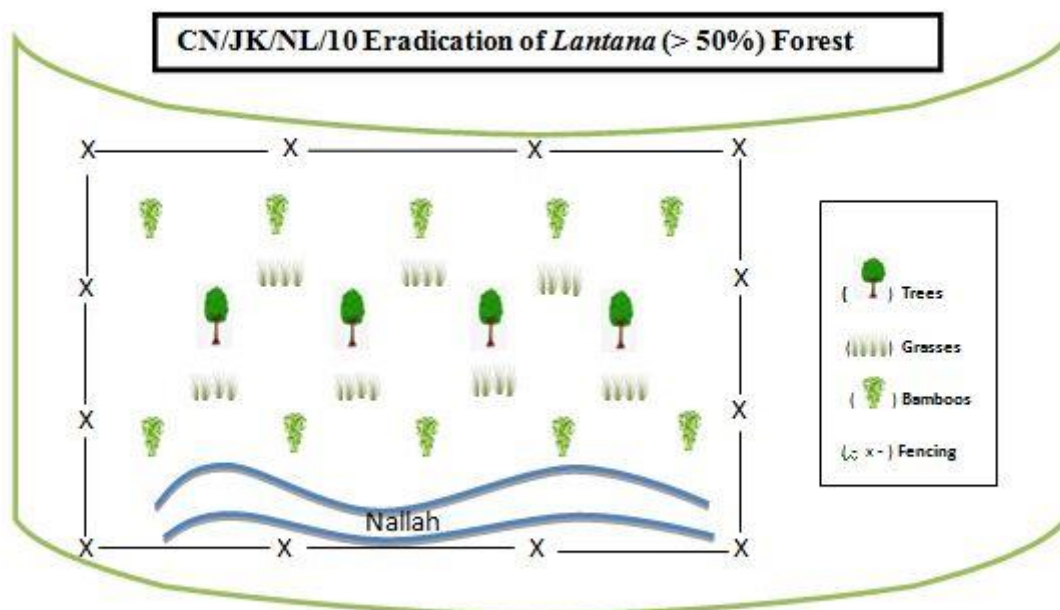


Fig. 2.24 - Plantation Design Model CN/JK/NL/11 – Control/ Removal of Invasive Species or <50% *Lantana*

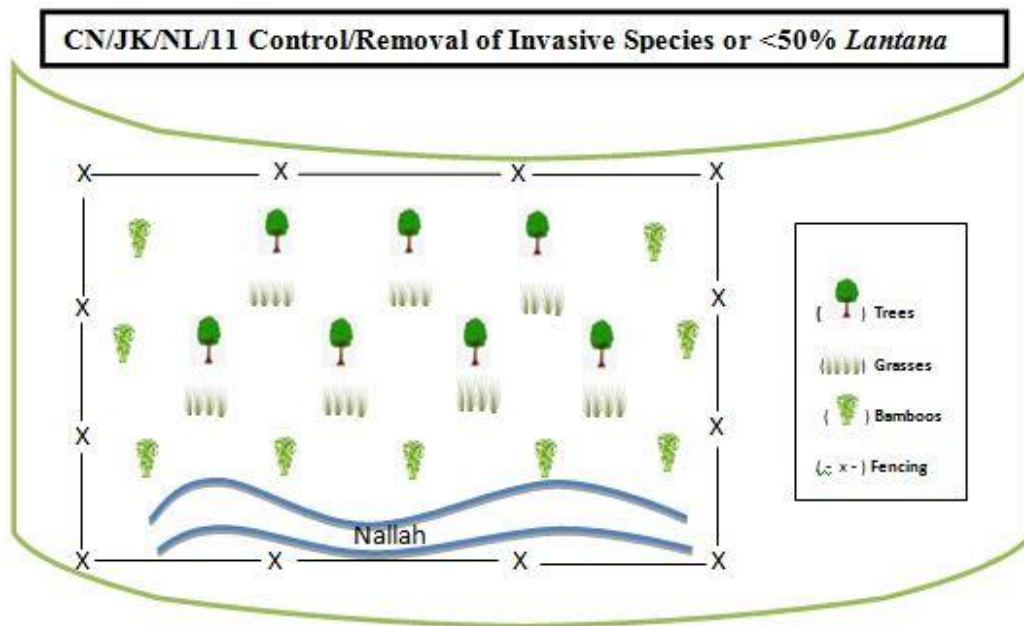


Table: 2.15 - Cost Norms for Model CN/JK/NL/01

Plantation Cost Model- CN/JK/NL/01 Sub-Alpine Conservation				
Year	Item	Details of work	Amount (Rs)	Man days
No. of Plants (No.)		600 herbs and 1200 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including maintenance in 1 st year	12,000	53
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of 1 st year plants and raising of plants for 1 st year maintenance (30%)	8,089	34
2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation, Cutting grubbing and removal of bushes, Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands Barbed wire and Reinforced Cement Concreate (RCC) poles	124589	518
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of Ist year plants, Plants for Ist year maintenance (30%) and raising of plants for 2 nd year maintenance (25%)	11,403	44
3 rd year	Creation	Carriage of plants, Layout of patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	9,617	37
	Creation	Carriage of plants, Layout pits, Planting of plants and shrubs	0	0
	Total Establishment Cost (Rs.)		1,65,698	686
Maintenance				
4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for Ist year maintenance (30%), 2 nd year maintenance (25%) and raising of plants for 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	9,261	34

5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance (15%) Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	5,741	19
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	2,777	9
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing	12,156	36
	Total Maintenance Cost (Rs.)		29,936	98
		Grand Total	1,95,634	784

Table: 2.16 – Cost Norms for Model CN/JK/NL/02

Plantation Cost Model-CN/JK/NL/02 Sub-Alpine Enrichment				
Year	Item	Details of work	Amount (Rs)	Man days
No. of Plants (No.)		200 Plants, 800 herbs and 200 Grass Patches		
1 st year	Advance Work Labour Cost	Raising of Nursery including Maintenance in I st year	6,400	28
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of I st year plants and raising of plants for I st year maintenance (30%)	4,920	20
2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation, Cutting grubbing and removal of bushes, Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands Barbed wire and Reinforced Cement Concrete (RCC) poles	124589	554
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of I st year plants, plants for I st year maintenance (30%) and raising of plants for 2 nd year maintenance (25%)	5,610	22
3 rd year	Creation	Carriage of plants, Layout of patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	1,603	6
	Creation	Carriage of plants, Layout of pit, digging & refilling of pit, Planting of plants and shrubs in pits	6,718	26

	Total Establishment Cost (Rs.)		1,49,840	656
Maintenance				
4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for 1st year maintenance (30%), 2 nd year maintenance (25%) and raising of plants for 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	15,571	56
5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance, (25%) and 3 rd year maintenance, (15%) Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	14,375	49
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	13,395	42
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing	12155.9158	36
	Total Maintenance Cost (Rs.)		55,497	184
		Grand Total	2,05,337	840

Table: 2.17 – Cost Norms for Model CN/JK/NL/03

Plantation Cost Model-CN/JK/NL/03 Dry Temperate Conifer Forest Enrichment				
Year	Item	Details of work	Amount (Rs)	Man days
No. of Plants (No.)		400 Plants, 1600 herbs and 400 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including Maintenance in 1 st year	12,800	57
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of 1 st year plants and raising of plants for 1 st year maintenance (30%)	9,840	40
2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation, Cutting grubbing and removal of bushes, Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and Fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands Barbed wire and Reinforced Cement Concreate (RCC) poles	124589	554
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of 1 st year plants, plants for 1 st year maintenance (30%) and raising of plants for 2 nd year maintenance (25%)	11,220	44
3 rd year	Creation	Carriage of plants, Layout of patches, Patches & planting of herbs, and Preparation of strips including (i/c) sowing of grasses in strips	3,206	12
	Creation	Carriage of plants, Layout of pit, digging & refilling of pit, Planting of plants and shrubs in pits	13,437	52
	Total Establishment Cost (Rs.)		1,75,091	760
Maintenance				

4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for 1 st year maintenance (30%), 2 nd year maintenance. (25%) and raising of plants for 3 rd year Maintenance. (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	21,219	77
5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & Planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	18,134	61
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	15,429	49
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing	12155.91 58	36
	Total Maintenance Cost (Rs.)		66,937	223
		Grand Total	2,42,028	983

Table: 2.18 – Cost Norms for Model CN/JK/NL/04

Plantation Cost Model-CN/JK/NL/04 – Temperate Conifer Forest				
Year	Item	Details of work	Amount (Rs.)	Man days
No. of Plants (No.)		900 Plants, 1600 herbs and 400 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including maintenance in 1 st year	18,800	84
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of 1 st year plants and raising	14,060	58

		of plants for I st year maintenance (30%)		
2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation , Cutting grubbing and removal of bushes, Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and Fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands Barbed wire and Reinforced Cement Concreate (RCC) poles	124589	518
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of Ist year plants, plants for I st year maintenance (30%) and raising of plants for 2 nd year maintenance (25%)	15,742	61
3 rd year	Creation	Carriage of plants, Layout of patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	3,206	12
	Creation	Carriage of plants, Layout of pit, Digging & refilling of pit, Planting of plants and shrubs in pits	30,232	117
	Total Establishment Cost (Rs.)		2,06,629	850
Maintenance				
4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for I st year maintenance (30%), 2 nd year maintenance (25%) and raising of plants for 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	28,907	105
5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward	23,891	81

		i/c repair of fencing, Weeding and mulching		
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	18,936	60
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing	12156	36
	Total Maintenance Cost (Rs.)		83,890	282
		Grand Total	2,90,519	1,132

Table: 2.19 – Cost Norms for Model CN/JK/NL/05

Plantation Cost Model- CN/JK/NL/05 – Temperate Mixed Forest				
Year	Item	Details of work	Amount (Rs.)	Man days
No. of Plants (No.)		900 Plants, 1600 herbs and 400 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including Maintenance in I st year	21,500	96
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of I st year plants and raising of plants for I st year maintenance (30%)	15,890	66
2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation, Cutting grubbing and removal of bushes, and weeds Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and Fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands, Barbed wire and Reinforced Cement Concreate (RCC) poles	124589	518
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of I st year plants, Plants for I st year maintenance (30%) and raising of	16,824	65

		plants for 2 nd year maintenance (25%)		
3 rd year	Creation	Carriage of plants, Layout of patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	3,206	12
	Creation	Carriage of plants, Layout of pits, Digging & refilling of pit, and Planting of plants and shrubs in pits	30,232	117
	Total Establishment Cost (Rs.)		214,641	874
Maintenance				
4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for 1 st year maintenance (30%), 2 nd year maintenance. (25%) and rising of plants for 3 rd year maintenance. (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	29,679	108
5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance, (15%) Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	24,068	82
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	18,936	60
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing	12156	36
	Total Maintenance Cost (Rs.)		84,839	285

		Grand Total	2,99,479	1,159
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Table: 2.20 – Cost Norms for Model CN/JK/NL/06

Plantation Cost Model- CN/JK/NL/06 - Pasture and Grazing Land Development				
Year	Item	Details of work	Amount (Rs)	Man days
No. of Plants (No.)		2000 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including Maintenance in I st year	0	0
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of I st year plants and raising of plants for I st year maintenance (30%)	0	0
2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation, Cutting grubbing and removal of bushes, Preparation of inspection path, Carriage of fence post (RCC poles), Digging of holes and Fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands, Barbed wire and Reinforced Cement Concreate (RCC) poles	124589	554
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of I st year plants, plants for Ist year maintenance (30%) and raising of plants for 2 nd year maintenance (25%)	0	0
3 rd year	Creation	Carriage of plants, Layout patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	16,029	62
	Creation	Carriage of plants, Layout of pits, Digging & refilling of pit, Planting of grasses in pits	0	0
	Total Establishment Cost (Rs.)		1,40,617	616
Maintenance				
4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for I st year maintenance (30%), 2 nd year maintenance (25%) and raising of plants for 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	15,068	55

5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance, (15%) Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	15,205	52
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	14,306	45
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing	12,156	36
	Total Maintenance Cost (Rs.)		56,735	188
		Grand Total	1,97,353	804

Table: 2.21 – Cost Norms for Model CN/JK/NL/07

Plantation Cost Model-CN/JK/NL/07 Himalayan Chir Pine Forest				
Year	Item	Details of work	Amount (RS)	Man days
No. of Plants (No.)		800 Plants and 200 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including maintenance in 1 st year	12,000	53
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of 1 st year plants and raising of plants for 1 st year maintenance (30%)	6,800	
2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation, Cutting grubbing and removal of <i>Lantana</i> or other weeds and bushes, Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and Fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands, Barbed wire and Reinforced Cement Concrete (RCC) poles	1,24,589	554

3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of 1 st year plants, plants for 1 st year maintenance (30%) and raising of plants for 2 nd year maintenance (25%)	8,197	32
3 rd year	Creation	Carriage of plants, Layout patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	6,411	25
	Creation	Carriage of plants, Layout of pits, Digging & refilling of pit, Planting of plants and shrubs in pits	26,873	104
	Total Establishment Cost (Rs.)		1,84,871	768
Maintenance				
4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for 1 st year maintenance (30%), 2 nd year maintenance (25%) and raising of plants for 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	24,968	91
5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance, (15%) Carriage of Plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	21,822	74
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	18,150	58
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing	12156	36
	Total Maintenance Cost (Rs.)		77,097	258

		Grand Total	2,61,967	1,026
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Table: 2.22 – Cost Norms for Model CN/JK/NL/08

Plantation Cost Model-CN/JK/NL/08 Himalayan Mixed Forest				
Year	Item	Details of work	Amount (Rs.)	Man days
No. of Plants (No.)		800 Plants and 200 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including maintenance in 1 st year	12,000	53
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of 1 st year plants and raising of plants for 1 st year maintenance (30%)	6,800	
2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation, Cutting grubbing and removal of <i>Lantana</i> or other bushes, Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands, Barbed wire and Reinforced Cement Concreate (RCC) poles	1,24,589	554
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of 1 st year plants, plants for 1 st year maintenance (30%) and raising of plants for 2 nd year maintenance (25%)	8,197	32
3 rd year	Creation	Carriage of plants, Layout of patches, patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	1,603	6
	Creation	Carriage of plants, Layout of pit, Digging & refilling of pit, Planting of plants and shrubs in pits	26,873	104
	Total Establishment Cost (Rs.)		1,80,062	749
Maintenance				

4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for 1 st year maintenance (30%), 2 nd year maintenance (25%) and raising of plants for 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	23,425	85
5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance, (15%) Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	20,446	69
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including Maintenance of 3 rd year, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	17,267	55
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing	12,156	36
	Total Maintenance Cost (Rs.)		73,293	245
		Grand Total	2,53,355	994

Table: 2.23 – Cost Norms for Model CN/JK/NL/09

Plantation Cost Model-CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest				
Year	Item	Details of work	Amount (Rs.)	Man days
No. of Plants (No.)		800 Plants and 200 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including maintenance in 1 st year	12,000	53
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of 1 st year plants and raising of plants for 1 st year maintenance (30%)	6,800	

2 nd year	Advance Work Labour Cost	Site preparation - Site preparation i/c survey & demarcation, Cutting grubbing and removal of <i>Lantana</i> or other weeds and bushes, Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands, Barbed wire and Reinforced Cement Concreate (RCC) poles	1,24,589	518
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of 1 st year plants, plants for 1 st year maintenance (30%) and raising of plants for 2 nd year maintenance (25%)	8,197	32
3 rd year	Creation	Carriage of plants, Layout patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	1,603	6
	Creation	Carriage of plants, Layout of pit, Digging & refilling of pits, Planting of plants and shrubs in pits.	26,873	104
	Total Establishment Cost (Rs.)		1,80,062	713
Maintenance				
4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for 1 st year maintenance (30%), 2 nd year maintenance (25%) and raising of plants for 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses , Watch and ward i/c repair of fencing, Weeding and mulching	23,425	85
5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance, (15%) Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching	20,446	69
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	17,267	55
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing	12,156	36
	Total Maintenance Cost (Rs.)		73,293	245
		Grand Total	2,53,355	958

Table: 2.24 – Cost Norms for Model CN/JK/NL/10

Plantation Cost Model-CN/JK/NL/10 – Eradication of <i>Lantana</i> (> 50%)				
Year	Item	Details of work	Amount (Rs)	Man days
No. of Plants (No.)		600 Plants and 600 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including Maintenance in 1 st year	9,000	40
1 st Year	Advance work	Site Preparation includes <i>Lantana</i> by Cut Root Stock method and Cleaning of <i>Lantana</i> (sprouts) and seedlings, one times in 1 st year	26,340	109
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of 1 st year plants and raising of plants for 1 st year maintenance (30%)	5,457	23
2 nd year	Advance Work Labour Cost	Cleaning of <i>Lantana</i> (sprouts) and seedlings, 3 times a year @ 15% of unit cost (Estd), Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands, Barbed wire and Reinforced Cement Concreate (RCC) poles	1,11,110	462
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including maintenance of 1 st year plants, plants for Ist year maintenance (30%) and raising of plants for 2 nd year maintenance (25%)	6,148	24
3 rd year	<i>Lantana</i> Cutting	Cleaning of <i>Lantana</i> (sprouts) and seedlings, 3 times a year @ 15% of unit cost (establishment)	11,800	46
3 rd year	Creation	Carriage of plants, Layout of patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strip	4,809	19
	Creation	Carriage of plants, Layout of pits, Digging & refilling of pits, Planting of plants and shrubs in pits	17,604	78

	Total Establishment Cost (Rs.)		1,95,867	800
Maintenance				
4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for I st year maintenance (30%), 2 nd year maintenance (25%) and raising of plants for 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching, Cleaning of <i>Lantana</i> (sprouts) and seedlings, 3 times a year	21,207	77
5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance, (15%) Carriage of plants, Pitting & planting of plants & herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching, Cleaning of <i>Lantana</i> (sprouts) and seedlings, 2 times a year	19,021	64
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	16,453	52
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing, Cleaning of <i>Lantana</i> (sprouts) and seedlings, 2 times a year	12,156	36
	Total Maintenance Cost (Rs.)		68,837	230
		Grand Total	2,64,704	1,030

Table: 2.25 – Cost Norms for Model CN/JK/NL/11

Plantation Cost Model- CN/JK/NL/11 – Control/ Removal of Invasive Species or <50% <i>Lantana</i>				
Year	Item	Details of work	Amount (Rs)	Man days
No. of Plants (No.)		400 Plants and 400 Grass Patches		
1 st Year	Advance Work Labour Cost	Raising of Nursery including Maintenance in I st year	6,000	27
1 st Year	Advance work	Site Preparation includes <i>Lantana</i> by Cut Root Stock method and Cleaning of <i>Lantana</i> (sprouts) and seedlings, one times in I st year	26,340	109
2 nd year	Advance Work Labour Cost	Maintenance of Nursery including maintenance of I st year plants and raising of plants for I st year maintenance (30%)	3,638	15
2 nd year	Advance Work Labour Cost	Cleaning of <i>Lantana</i> (sprouts) and seedlings, 3 times a year @ 15% of unit cost (establishment), Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands Barbed wire and Reinforced Cement Concrete (RCC) poles	1,11,110	462
3 rd year	Advance Work Labour Cost (Rs.)	Maintenance of Nursery including Maintenance of I st year plants, Plants for I st year Maintenance (30%) and raising of plants for 2 nd year Maintenance (25%)	4,099	16
3 rd year	<i>Lantana</i> Cutting	Cleaning of <i>Lantana</i> (sprouts) and seedlings, 3 times a year @ 15% of unit cost (establishment)	11,800	46
3 rd year	Creation	Carriage of plants, Layout patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	3,206	12
	Creation	Carriage of plants, Layout of pit, Digging & refilling of pits, Planting of plants and shrubs in pits	13,437	52

	Total Establishment Cost (Rs.)		1,82,029	739
Maintenance				
4 th year	Maintenance Cost - I Year	Maintenance of Nursery including maintenance of plants for I st year maintenance (30%), 2 nd year maintenance (25%) and raising of plants for 3 rd year maintenance (15%), Carriage of plants, Pitting & planting of plants & planting of herbs, Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching, Cleaning of <i>Lantana</i> (sprouts) and seedlings, 3 times a year	17,446	63
5 th year	Maintenance Cost - II Year (Rs.)	Maintenance of Nursery including 2 nd year maintenance (25%) and 3 rd year maintenance, (15%) Carriage of plants, Pitting & planting of plants & herbs, sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching, Cleaning of lantana(sprouts) and seedlings, 2 times a year	16,220	55
6 th year	Maintenance Cost - III Year (Rs.)	Maintenance of Nursery including maintenance of 3 rd year maintenance, Carriage of plants, Pitting & planting of plants & planting of herbs, Watch and ward i/c repair of fencing, Weeding and mulching	14,755	47
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing, Cleaning of <i>Lantana</i> (sprouts) and seedlings, 2 times a year	12,156	36
	Total Maintenance Cost (Rs.)		60,577	201
		Grand Total	2,42,605	940

Table: 2.26 – Cost Norms for Model CN/JK/NL/12

Plantation Cost Model- CN/JK/NL/12 Protection Model for Natural Regeneration				
Year	Item	Details of work	Amount (Rs.)	Man days
No. of Plants (No.)		400 Grass Patches		
1 st Year	Advance Work Labour Cost	Pruning and training of existing root stocks (tending operations), Cleaning and un-saleable thinning (non-commercial) in regeneration areas, Climber cutting in the forests/ plantation area, Debris collection and burning	1,905	8
2 nd year	Advance Work Labour Cost	Pruning and training of existing root stocks (tending operations) 300 no., Preparation of inspection path, Carriage of fence post and RCC poles, Digging of holes and fixing of poles, Stretching & fixing of Barbed wire at spacing 20cm and 4 strands, Barbed wire and Reinforced Cement Concreate (RCC) poles	1,02,120	424
3 rd year	<i>Lantana</i> Cutting	Pruning and training of existing root stocks (tending operations) (150 plants), Cleaning and un-saleable thinning (non-commercial) in regeneration areas, Climber cutting in the forests/ plantation area, Debris collection and burning (15% area)	1,091	4
3 rd year	Creation	Carriage of plants, Layout of patches, Patches & planting of herbs, Preparation of strips including (i/c) sowing of grasses in strips	3,206	12
	Total Establishment Cost (Rs.)		1,10,721	449
Maintenance				
4 th year	Maintenance Cost - I Year	Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching, Cleaning of climbers, 3 times a year	10,952	40

5 th year	Maintenance Cost - II Year (Rs.)	Sowing of grasses, Watch and ward i/c repair of fencing, Weeding and mulching, Pruning and training of existing root stocks (tending operations), 2 times a year	11,535	39
6 th year	Maintenance Cost - III Year (Rs.)	Watch and ward i/c repair of fencing, Weeding and mulching	11,950	38
7 th year	Maintenance Cost - IV Year (Rs.)	Watch and ward i/c repair of fencing, Pruning and training of existing root stocks (tending operations)	12,156	36
		Total	46,593	153
		Grand Total	1,57,314	602

Table: 2.27 – Cost Norms for Model CN/JK/NL/13

Plantation Cost Model- CN/JK/NL/13 Fire Protection Model									
S. No.	Particular of work to be done.	Unit	Total Quantity	Unit Cost (Rs.)	1 st year	2 nd year	3 rd year	4 th year	5 th year
					Amount (Rs.)	Maintenance	Maintenance	Maintenance	Maintenance
	Year-I								
1	Cleaning of Fire lines (10 mt width) including the burning of slash debris, dry leafs, fallen branches and other inflammable material and labour charges	km	0.2	1,4625	2,925	2,925	2,925	2,925	2,925
3	Engagement of fire watchers per 1000 ha (3 months)	ha	1	25	25	25	25	25	25
4	Constructions of Ponds/ water harvesting structures and Maintenance	ha	1	10,000	10,000	1,000	1,000	1,000	1,000

6	Procurement of fire fighting equipment's/ Elide fire extinguishing balls and Maintenance	ha	1	10,000	10,000	4,000	3,000	2,000	1,000
7	Awareness campaign, Community awareness	ha	1	1,500	1,500	1,500	1,500	1,500	1,500
					24,450	9,450	8,450	7,450	6,450
					24,450	10,112	9,674	9,127	8,455
					109	42	38	33	29

2.6.2 Agriculture Landscapes

The agriculture landscapes are largely in the rural environment or matrix of the riverscape. Agriclultural models will be implemented in private farmland and community/ Panchayat land. Availability of land will be ascertained by local officials of State Forest Department based upon proposals from local farmers and communities. Plants will be supplied to farmers and local communities who will carry out planting. Maintenance cost will be given to the land owners based upon plant survival at the end of first, second, third and fourth year.

Two models for agriculture landscape has been prescribed which is given below in Table 2.28.

Table: - 2.28 Models Proposed in Agriculture Landscapes Jammu region of J&K UT

Model Number	Name of Model	Brief Description
CN/JK/AL/01	Boundary Plantation Model	This model will be implemented in Agricultural Landscape of Jammu and Kashmir UT. The plants will be raised by Forest Department and distributed to farmers for plantation. Plantation of 150 plants in farmer fields would be considered virtual one hectare area for budgetary provisions.
CN/JK/AL/02	Block Plantation Model	This model will be implemented in Agricultural and Horticultural Landscapes in temperate to cold desert zones in Jammu and Kashmir. Block plantation per farmer would be taken as virtual one hectare area for budgetary provisions and number of plants/ha can vary from 500 to > 1500 as per the requirements of species specific high density plantations.

Table: 2.29- List of Suggestive Species for Plantation in Agriculture Landsapes

Model Number	Suggestive Species
CN/JK/AL/01	Trees/Bamboo: <i>Populus</i> spp., <i>Salix</i> spp., <i>Melia azedarach</i> , <i>Phyllanthus emblica</i> , <i>Aegle marmelos</i> , <i>Albizia</i> spp., <i>Juglans regia</i> , <i>Terminalia</i> spp., <i>Quercus</i> spp., <i>Morus</i> spp., <i>Pistacia integerrima</i> , <i>Grewia optiva</i> , <i>Bauhinia variegata</i> , <i>Dendrocalamus</i> spp., <i>Bambusa</i> spp., <i>Acacia catechu</i> , <i>Dalbergia sissoo</i> , etc.
CN/JK/AL/02	Trees/Bamboo: <i>Populus</i> spp., <i>Salix</i> spp., <i>Melia azadirachta</i> , <i>Phyllanthus emblica</i> , <i>Aegle marmelos</i> , <i>Cassia fistula</i> , <i>Albizia</i> spp., <i>Juglans regia</i> , <i>Terminalia</i> spp., <i>Quercus</i> spp., <i>Morus</i> spp., <i>Pistacia integerrima</i> , <i>Grewia optiva</i> , <i>Bauhinia</i> spp., <i>Dendrocalamus</i> spp., <i>Bambusa</i> spp., <i>Acacia catechu</i> , <i>Lannea coromandelica</i> , <i>Mallotus philippensis</i> , <i>Dalbergia sissoo</i> , etc.

Cost Sharing: The Government will share cost material i.e., plant cost Rs.@ 70/- , 35/-, 35/-, 35/- for I to IV year.

Table: 2.30 - Cost Norms and Pattern of Assistance for Peripheral and Boundary Plantations (PBPs)

S.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	3
5	Critical inputs viz., FYM, Fertilizer, seed treatment, Vesicular Arbuscular Mycorrhizae (VAM), etc.	20
6	Planting cost	5
7	Fencing	20
	Maintenance (weeding+ watering, etc.)	40
	Total	150
Note: (i) The activity wise costs are 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 – CN/JK/AL/01 Boundary Plantation Model

Year	Amount (Rs)/ha	Man days
1 st year Establishment	9,000	40
Maintenance 1 st Year	4,815	20
Maintenance 2 nd Year	5,513	20
Maintenance 3 rd Year	5,899	20
	25,226	100

Table: 2.31 - Cost Norms and Pattern of Assistance for High Density Block Plantations (HDBPs)

S.No.	Magnitude of Block Plantations (No. of plants/block of 1 ha)	Total cost (Rs) for the Block			
		1 st Year	2 nd year	3 rd Year	4 th Year
1	500 to 1000 (spacing 3.5m x 3.5m)	28,000	14,000	14,000	14,000
2	>1000 to 1200 (spacing 3m x 3m)	33,600	16,800	16,800	16,800
3	>1200 to 1500(spacing 2.5m x 2.5m)	48,000	24,000	24,000	24,000
4	>1500(spacing less than 2.5m x 2.5m)	52,000	26,000	26,000	26,000

S. 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
		1 st Year	2 nd year	3 rd Year	4 th Year	
1	1200	48,000	25,680	27,478	29,401	1,30,559
	Mandays	213	107	107	107	533

2.6.3 Urban Landscape

Types of sites would require varied interventions as per the context. The urban area provides highly complex site conditions and a variety of peculiar problems. It is extremely important to select species, varieties and design that show adaptability to such complex site conditions.

Four models viz., Bio-remediation and Bio-filtration, River Front Development, Eco-park Development and Institutional Plantation has been included in the State DPR of J&K UT (Table: 2.32).

Table: 2.32- Models Proposed in Urban Landscapes Jammu region of J&K UT

Model Number	Name of Model	Brief Description
CN/JK/UL/01	Bio-remediation and Bio-filtration	The Pollution Control Board has already released the list of Urban/ Semi Urban areas which are polluting the Rivers or their tributaries, so the areas are identified in the riverscape accordingly, and one site can be termed as 1 hectare (virtually) and where possible Seechewal model of Punjab or its modification can also be adopted The State Forest Department, Municipal 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. 1. Waste water treatment through mechanical measures as per the site requirement. 2. Drainage line treatment by planting grasses, herbaceous vegetation and shrubs. 3. Bio-filters: Bio-filters may be of different types: Free floating macrophyte bio-filters, emergent macrophyte bio-filters, sub-merged macrophyte bio-filters, and multispecies algal bio-filter.
CN/JK/UL/02	River Front Development	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 developed area 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 the requirements, following components need to be created for Riverfront development. 1. Vegetation Part: Grove consisting of shade trees, ornamental trees and bamboos, small herbal garden, climbers, hedges, grasses for lawns, etc. 2. Non-vegetation part: Stairs, pathways, walking trails, stone pitching, benches, rain shelters, e-public utilities, parking area, information centre, refreshment area, etc. as per the site specific

		requirements. 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 this, HFRI has identified major areas in the riverscape in consultation with stakeholders. The application of model and finalization of area will be decided as per the actual availability of land in those places.
CN/JK/UL/03	Institutional Plantation	Under this model, mainly ornamental, shade and fruit plants will be encouraged for planting in the premises of educational institutes, hospitals, government and private sector offices, religious places, historical places, hotels, guest houses, etc. are located in the Chenab riverscape. 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.
CN/JK/UL/04	Eco-park Development	An eco-park will be better equipped than riverfront to facilitate visitors. An eco-park 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. According to requirement, list of components to be created under this model; 1. Vegetation part: Miscellaneous ornamental plant species e.g., trees, shrubs, herbs, creepers, hanging plants etc. 2. 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. The availability of land should be taken after consultation with respective stakeholders that can be anything from 0.5-2 hect.

Table: 2.33- List of Suggestive Species for Plantation in Urban Landsacpes

Model Number	Suggestive Species
CN/JK/UL/01	<i>Tecoma stans</i> , <i>Cyperus rotundus</i> , <i>Potamogeton</i> sp., <i>Nymphaea</i> sp., <i>Nelumbo</i> sp., <i>Typha angustata</i> , <i>Scirpus grossus</i> , <i>Eichhornia crassipes</i> (water hyacinth), <i>Spirodela polyrrhiza</i> etc.
CN/JK/UL/02	Trees: <i>Jacaranda mimosifolia</i>, <i>Cassia fistula</i>, <i>Magnolia grandiflora</i>, <i>Michelia champaca</i>, <i>Ginkgo biloba</i>, <i>Alstonia scholaris</i>, <i>Syzygium venosum</i>, <i>Grevillea robusta</i>, <i>Pongamia pinnata</i>, <i>Albizia lebbek</i>, <i>Butea monosperma</i>, <i>Kigelia pinnata</i>, <i>Dalbergia sissoo</i>, <i>Delonix regia</i>, <i>Salix</i> spp., <i>Sesbania sesban</i>, <i>Thujaorientalis</i>, <i>Saraca asoca</i>, <i>Polyalthia longifolia</i>, <i>Callistemon citrinus</i>, Palm and Bamboo species, etc. Shrubs: <i>Bougainvillea</i> spp., <i>Rosa</i> spp., <i>Murraya paniculata</i>, <i>Bignonia</i> sp., <i>Euphorbia pulcherrima</i>, <i>Cycas</i> spp., <i>Nerium indicum</i>, <i>Nyctanthes arbor-tristis</i>, <i>Spiraea</i> spp., etc.
CN/JK/UL/03	Trees: <i>Jacaranda mimosifolia</i>, <i>Magnolia grandiflora</i>, <i>Thujaorientalis</i>, <i>Michelia champaca</i>, <i>Alstonia scholaris</i>, <i>Sesbania sesban</i>, <i>Cryptomeria japonica</i>, <i>Araucaria araucana</i>, <i>Albizia</i> spp., <i>Delonix regia</i>, <i>Butea monosperma</i>, <i>Kigelia pinnata</i>, <i>Dalbergia sissoo</i>, <i>Pongamia pinnata</i>, <i>Salix</i> spp., <i>Saraca asoca</i>, <i>Polyalthia longifolia</i>, <i>Callistemon citrinus</i>, etc. Shrubs: <i>Bougainvillea</i> spp., <i>Rosa</i> spp., <i>Nerium indicum</i>, <i>Nyctanthes arbor-tristis</i>, <i>Spiraea</i> spp., <i>Euonymus</i> sp., <i>Bignonia</i> sp., Palms, etc.
CN/JK/UL/04	Trees: <i>Syzygium venosum</i>, <i>Anthocephalus kadamba</i>, <i>Cassia fistula</i>, <i>Alstonia scholaris</i>, <i>Melia indica</i>, <i>Pongamia pinnata</i>, <i>Thujasp.</i>, <i>Ficus benghalensis</i>, <i>Sesbania sesban</i>, <i>Cryptomeria japonica</i>, <i>Araucaria araucana</i>, <i>Jacaranda mimosifolia</i>, <i>Albizia</i> spp., <i>Delonix regia</i>, <i>Salix</i> spp., <i>Saraca asoca</i>, <i>Polyalthia longifolia</i>, <i>Callistemon citrinus</i>, <i>Kigelia pinnata</i>, <i>Platanus orientalis</i>, <i>Ginkgo biloba</i>, etc.

Table: 2.34 - Treatment Models for Urban Landscapes in Jammu region of Jammu and Kashmir UT

S. No	Model No.	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days	Amount Rs/Ha	Man days
		Estt.		1 st year Maintenance		2 nd year Maintenance		3 rd year Maintenance.	
1	CN/JK/UL/01 Bioremediation and Bio filtration	15,00,000	2,000	4,50,000	561	3,00,000	349	2,25,000	245
2	CN/ JK/UL/02 Riverfront Development	2,50,00,000	33,333	75,00,000	9,346	50,00,000	5,823	37,50,000	4,081
3	CN/ JK/UL/03 Institution Plantation	2,60,000	347	78,000	97	52,000	61	39,000	42
4	CN/JK/UL /04 Eco-Park Development	1,50,00,000	20,000	45,00,000	5,607	30,00,000	3,494	22,50,000	2,449

Conservation Interventions

Three type of conservation interventions viz., **(a)** Soil and water conservation, **(b)** Riverine and riparian management, and **(c)** Wetland management are being proposed for implementation by the Implementing Agencies (IAs) of Union Territory of Jammu & Kashmir. Details of these conservation interventions are given in Volume 1 of the DPR.

Supporting Activities

A number of supporting activities, viz., policy level interventions, concurrent research, capacity building, awareness, monitoring, and evaluation are considered vital for successful and effective execution of the proposed forestry interventions.

The strategies and specific interventions for these important supporting activities are given in Volume 1 of the DPR.

A multi-tiered mechanism has been suggested for monitoring of the project. The structure of mechanism has been given in Fig. 2.25.

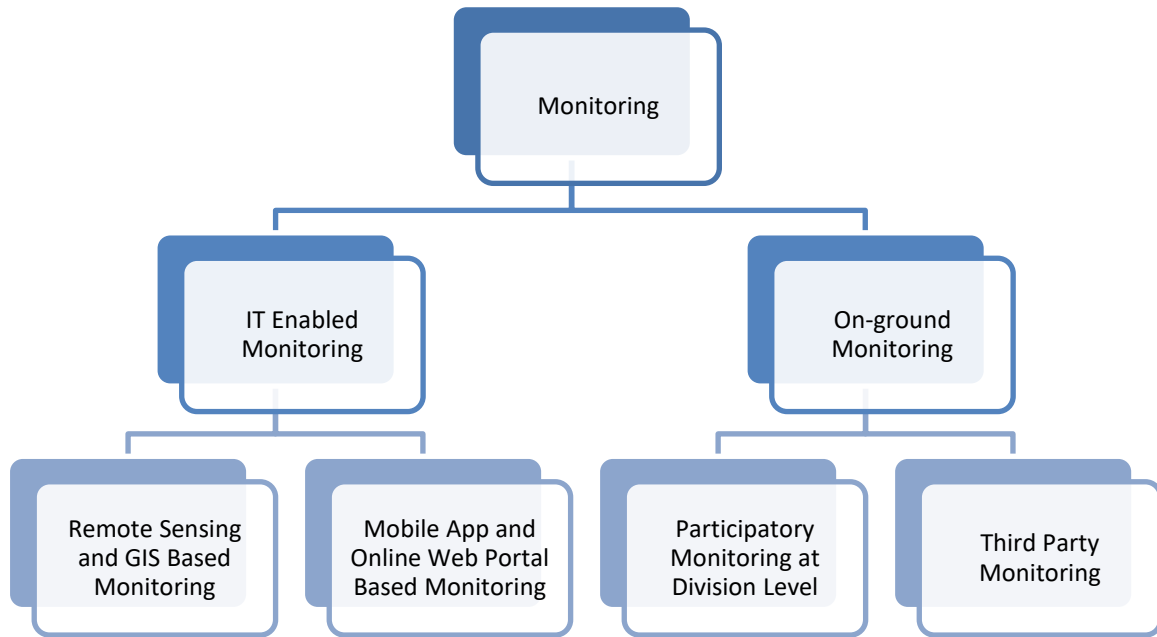


Fig. 2.25- The structure of mechanism and Monitoring of the project

Physical and Financial Targets

The physical and financial projections of all the five interventions to be undertaken for cost duration as well as various Divisions are given in Tables, **2.35 to 2.61**.

Table: 2.35 – Component/ Activity Wise Budget Allocation for Jammu and Kashmir, UT

Sr. No.	Component and/ or Activity	Amount (Rs. in Lakh)	Allocation %
A. Implementation of Forestry Interventions in Jammu and Kashmir, UT		24,051.06	83.49
A.1	Plantations and Treatment Models in Three Categories of Landscape	18,084.83	62.78
A.1.1	Natural Landscapes	13,075.02	
A.1.2	Agriculture Landscapes	239.12	
A.1.3	Urban and Peri-Urban Landscapes	4,770.69	
A.2	Conservation Interventions	5,966.22	20.71
A.2.1	Soil and Moisture Conservation Measures	4,363.23	
A.2.2	Riverine and Riparian Wildlife Management	1,472.50	
A.2.3	Wetland Management	130.50	
A.3	Supporting Activities	1,155.84	4.01
A.3.1	Policy Level Intervention	11.30	
A.3.2	Research	49.38	
A.3.3	Capacity Development	361.07	
A.3.4	Awareness	154.72	
A.3.5	Participatory Monitoring	49.38	
A.3.6	Project Management Unit in J&K UT	497.50	
A.3.7	Evaluation	29.99	
A.3.8	Contingency and Miscellaneous Activities	2.49	
B.	DPR – Phase II (Maintenance phase) Including Scaling Up and Replication of Successful Models of Forestry Interventions	2,396.68	8.32
B.1	Maintenance Cost of A.1 and A.2 (Cost of Phase II)	2,090.95	
B.2	Maintenance Cost of A.3	305.73	
B.3	Scaling Up and Replication of Successful Models of Forestry Interventions (5% of A.1 & A.2)	1,202.55	4.17
Grand Total		28,806.13	100.00

Table: 2.36– Year-Wise Breakup of Extent Coverage of Proposed Forestry Interventions in Jammu and Kashmir, UT

Year	Period	Plantation and Treatment Models			Conservation Intervention		
		Natural Landscape (ha)	Agriculture Landscape (ha)	Urban Landscape (ha)	Soil and Moisture Conservation Measures (m³)	Riverine and Riparian Wildlife Management (ha)	Wetland Conservation (ha)
C. Phase I (Implementation Phase)							
I	Establishment	1,680	245	50.06	95,300	65	10
II	Establishment	950	167	48.40	87,540	60	5
	Maintenance	2,130	245	50.60		65	10
III	Establishment	2,690	146	42.70	2,10,030	35	0
	Maintenance	3,330	412	99		125	15
IV	Establishment	950	0		84,090		0
	Maintenance	6,020	558	141.70		160	15
V	Establishment	635	0		46,640		0
	Maintenance	6,970	313	91.10		160	15
Total Phase I	Establishment	7,605	558	141.70	5,23,600	160	15
	Maintenance	6,970	558	141.70		160	15
B. Phase II (Maintenance Phase)							
VI	Establishment	0					
	Maintenance	5,475	146	42.70		95	9
VII	Establishment	0					
	Maintenance	4,275				35	
VIII	Establishment	0					
	Maintenance	1,585					
IX	Establishment	0					
	Maintenance	635					
X	Establishment	0					
	Maintenance	0					9
Total Phase II	Establishment	0					
	Maintenance	5,475	146	42.70		95	9
Grand Total Phase I and Phase II	Establishment	7,605	558	141.70	5,23,600	160	15
	Maintenance	7,605	558	141.70		160	15

The consent for the availability of the land for proposed Forestry Interventions have been obtained from the PCCF & HoFF, Jammu and Kashmir UT (Annexure-10).

Table: 2.37– Year-Wise Breakup of Cost for Proposed Forestry Interventions in Jammu and Kashmir, UT

Year	Period	Plantation and Treatment Models			Conservation Intervention		
		Natural Landscape (Rs. in Lakhs)	Agriculture Landscape (Rs. in Lakhs)	Urban Landscape (Rs. in Lakhs)	Soil and Moisture Conservation Measures (Rs. in Lakhs)	Riverine and Riparian Wildlife Management (Rs. in Lakhs)	Wetland Conservation (Rs. in Lakhs)
D. Phase I (Implementation Phase)							
I	Establishment	1,997.46	41.16	1,707.80	770.61	208	28
II	Establishment	3,712.17	29.46	774.40	897.85	192	14
	Maintenance	227.07	22.07	512.34		182	25
III	Establishment	3,236.99	20.94	450.04	1,361.03	112	
	Maintenance	363.4	39.94	573.88		291.5	28.50
IV	Establishment	1,242.64			854.22		
	Maintenance	923.67	54.60	546.06		290	20
V	Establishment	266.02			479.5		
	Maintenance	1105.6	30.95	206.17		197	15
Total Phase I	Establishment	10,455.28	91.56	2,932.24	4,363.22	512	42
	Maintenance	2,619.74	147.56	1,838.45		960.5	88.5
B. Phase II (Maintenance Phase)							
VI	Establishment	0					
	Maintenance	938.66	13.26	67.51		96	4.50
VII	Establishment	0					
	Maintenance	633.29				31.5	
VIII	Establishment	0					
	Maintenance	229.04					
IX	Establishment	0					
	Maintenance	77.19					
X	Establishment	0					
	Maintenance	0					

Year	Period	Plantation and Treatment Models			Conservation Intervention		
		Natural Landscape (Rs. in Lakhs)	Agriculture Landscape (Rs. in Lakhs)	Urban Landscape (Rs. in Lakhs)	Soil and Moisture Conservation Measures (Rs. in Lakhs)	Riverine and Riparian Wildlife Management (Rs. in Lakhs)	Wetland Conservation (Rs. in Lakhs)
Total Phase II	Establishment	0	0				
	Maintenance	1,878.18	13.26	67.51		127.5	4.50
Grand Total Phase I and Phase II	Establishment	10,455.28	91.56	2,932.24	4,363.22	512	42
	Maintenance	4,497.92	160.82	1,905.96		1,088	93

Table: 2.38– Division Wise Proposed Extent of Plantations in Natural Landscapes in Jammu and Kashmir, UT (Part-I)

Sr. No.	Division	Phase I : Year-wise Extent/Area (ha)							Phase I: Total Extent (ha)	
		I	II	III	IV		V		Establishment	Maintenance
		Establishment (Nursery raising for 3rd year creation)*	Establishment (Nursery raising for 4th year Creation*	Establishment(i/c creation for 1st year plantation)	Establishment(i/c creation for 2nd year plantation)	Maintenance of plantation 3rd year maintenance	Establishment(i/c creation for 3rd year plantation)	Maintenance of plantation 3rd year and 4th year maint		
1	Batote	163	140	163	140	163	90	303	393	303
2	Bhaderwah	193	50	193	50	193	30	243	273	243
3	Doda	304	0	304	0	304	0	304	304	304
4	Jammu	153	0	153	0	153	20	153	173	153
5	Kishtwar	75	5	75	5	75	0	80	80	80
6	Mahore	60	345	60	345	60	110	405	515	405
7	Marwah	40	0	40	0	40	20	40	60	40
8	Nowshera	106	0	106	0	106	20	106	126	106
9	Rajouri	70	105	70	105	70	25	175	200	175
10	Ramban	175	105	175	105	175	80	280	360	280
11	Ramnagar	150	90	150	90	150	60	240	300	240
12	Reasi	138	105	138	105	138	140	243	383	243
13	Udhampur	35	5	35	5	35	40	40	80	40

14	Urban Forestry	18	0	18	0	18	0	18	18	18
Total		1,680	950	1,680	950	1,680	635	2,630	3,265	2,630

**Area is virtual; considered for budgetary provisions for Ist and IInd years*

Table: 2.39- Division Wise Proposed Extent of Plantations in Natural Landscapes in J&K, UT (Part-II)

Sr. No.	Divisions	Phase II : Year-wise Extent/Area (ha)				Phase II: Total Extent (ha)	Total Estb. Phase I & II (ha)
		VI	VII	VIII	IX		
1	Batote	393	393	230	90	393	393
2	Bhaderwah	273	273	80	30	273	273
3	Doda	304	304	0	0	304	304
4	Jammu	173	173	20	20	173	173
5	Kishtwar	80	80	5	0	80	80
6	Mahore	515	515	455	110	515	515
7	Marwah	60	60	20	20	60	60
8	Nowshera	126	126	20	20	126	126
9	Rajouri	200	200	130	25	200	200
10	Ramban	360	360	185	80	360	360
11	Ramnagar	300	300	150	60	300	300
12	Reasi	383	383	245	140	383	383
13	Udhampur	80	80	45	40	80	80
14	Urban Forestry	18	18	0	0	18	18
Total		3,265	3,265	1,585	635	3,265	3,265

Table: 2.40- Division Wise Projected Cost of Plantations in Natural Landscapes of Chenab Riverscape, J&K, UT(Part-I)

Sr. No.	Division	Phase I: Year-wise Cost (Rs.in Lakhs)							Phase I: Total (Rs.in Lakhs)	
		I	II	III	IV		V		Establishemnt	Establishemnt
		Establishemnt (Nursery raising for 3 rd year creation)	Establishemnt (Nursery raising for 4 th year Creation)	Establishemnt (i/c creation for 1 st year plantation)	Establishemnt (i/c creation for 2 nd year plantation)	Maintenance (Maint of 1 st year plantation in 3 rd year)	Establishemnt (i/c creation for 3 rd year plantation)	Maintenance (Maint of plantation (1 st &2 nd) 3 rd year and 4 th year maint)		
1	Batote	33.62	251.07	281.72	182.47	47.67	34.93	77.15	783.8	124.82
2	Bhaderwah	35.49	262.51	154.77	60.48	49.4	15.08	53.69	528.33	103.08
3	Doda	62.16	424.36	150.04	0	88.76	0	72.49	636.56	161.25
4	Jammu	18.36	201.03	59.18	26.28	36.06	7.33	31.48	312.18	67.53
5	Kishtwar	13.28	103.23	40.19	2.07	20.38	0	18.21	158.77	38.6
6	Mahore	7.2	134.48	513.57	306.11	14.98	52.57	105.37	1,013.92	120.35
7	Marwah	8.6	56.19	24.4	28.1	11.87	10.05	9.63	127.34	21.5
8	Nowshera	12.72	139.27	41.51	26.28	24.91	8.3	21.74	228.08	46.65
9	Rajouri	8.97	105.12	167.44	76.16	16.77	10.13	40.67	367.82	57.44
10	Ramban	29.78	258.79	236.74	157.45	47.47	36.70	68.99	719.45	116.46
11	Ramnagar	25.6	210.36	194.71	98.59	40.14	22.21	51.31	551.46	91.45
12	Reasi	16.56	193.92	205.75	222.45	32.45	51.34	52.92	690.02	85.37
13	Udhampur	5.37	45.85	27.25	56.21	8.40	17.39	8.53	152.06	16.93
14	Urban Forestry	2.16	23.65	6.60	0.00	4.22	0.00	3.68	32.41	7.90
Total		279.86	2,409.81	2,103.89	1,242.64	443.47	266.02	615.86	6,302.22	1,059.32

Table: 2.41- Division Wise Projected Cost of Plantations in Natural Landscapes of Chenab Riverscape, J&K, UT (Part-II)

Sr. No.	Division	Phase II: Year-wise Cost (Rs.in Lakhs)				Total of phase II (Rs.in Lakhs)	Total Estb. * (Rs.in Lakhs)	Total Maint. ** Phase I & Phase II (Rs.in Lakhs)	Grand Total of Phase I & Phase II (Rs.in Lakhs)
		VI	VII	VIII	IX				
1	Batote	84.57	64.73	32.91	10.94	193.15	783.8	317.97	1,101.77
2	Bhaderwah	53.6	39.31	11.76	3.65	108.32	528.33	211.4	739.73
3	Doda	57.32	36.95	0	0	94.27	636.56	255.52	892.09
4	Jammu	31.23	22.69	3.45	2.43	59.8	312.18	127.33	439.51
5	Kishtwar	14.79	10.02	0.61	0	25.42	158.77	64.02	222.79
6	Mahore	120.12	96.31	62.43	13.37	292.23	1,013.92	412.58	1,426.51
7	Marwah	13.51	9.68	3.79	2.43	29.40	127.34	50.90	178.25
8	Nowshera	23.34	17.25	3.63	2.43	46.65	228.08	93.30	321.38
9	Rajouri	41.20	32.91	17.26	3.04	94.40	367.82	151.84	519.67
10	Ramban	78.10	59.01	27.60	9.72	174.44	719.45	290.9	1,010.35
11	Ramnagar	56.26	44	20.81	7.29	128.37	551.46	219.82	771.28
12	Reasi	78.16	63.53	36.94	17.02	195.65	690.02	281.02	971.04
13	Udhampur	17.82	14.02	7.85	4.86	44.55	152.06	61.48	213.54
14	Urban Forestry	3.11	2.19	0	0	5.30	32.41	13.20	45.60
	Total	673.14	512.61	229.04	77.19	1,491.97	6,302.22	2,551.28	8,853.51

*Estb: Establishemnt

**Maint: Maintenance

Table: 2.42- Division Wise Projected Extent/area of Fire Protection and Natural Regeneration in Chenab Riverscape, J&K, UT

Sr. No.	Division	Phase I: Year Wise Area (ha)							Phase I: Total Area (ha)		Phase II: Year Wise Area (ha)		Total Area a Phase II (ha)	Grand Total (ha)
		I	II		III		IV	V			VI	VII		
		Est b*	Est b	Maint **	Est b	Maint	Maint	Maint	Est b	Maint	Maint	Maint	Maint	Estb.
1	Batote	140	70	140	50	210	260	260	260	260	120	50	120	260
2	Bhaderwah	135	110	135	110	245	355	355	355	355	220	110	220	355
3	Doda	190	110	190	100	300	400	400	400	400	210	100	210	400
4	Jammu	150	70	150	80	220	300	300	300	300	150	80	150	300
5	Kishtwar	180	130	180	100	310	410	410	410	410	230	100	230	410
6	Mahore	105	80	105	70	185	255	255	255	255	150	70	150	255
7	Marwah	130	90	130	80	220	300	300	300	300	170	80	170	300
8	Nowsheera	180	70	180	50	250	300	300	300	300	120	50	120	300
9	Rajouri	160	90	160	80	250	330	330	330	330	170	80	170	330
10	Ramban	150	80	150	70	230	300	300	300	300	150	70	150	300
11	Ramnagar	250	90	250	60	340	400	400	400	400	150	60	150	400
12	Reasi	170	110	170	100	280	380	380	380	380	210	100	210	380
13	Udhampur	190	100	190	80	290	370	370	370	370	180	80	180	370
Total		2,130	1,200	2,130	1,030	3,330	4,360	4,360	4,360	4,360	2,230	1,030	2,230	4,360

*Estb: Establishemnt

**Maint: Maintenance

Table: 2.43- Division Wise Projected Cost of Fire Protection and Natural Regeneration in Chenab Riverscape, J&K UT

Sr. No.	Division	Phase I: Year Wise Cost (Rs.in Lakhs)							Total Phase I (Rs.in Lakhs)		Phase II: Year Wise (Rs.in Lakhs)		Total Phase II (Rs.in Lakhs)	Total of Phase I & Phase II (Rs.in Lakhs)		Grand Total (Rs.in Lakhs)
		I	II		III		IV	V			VI	VII				
		Estb*	Estb	Maint	Estb	Maint	Maint	Maint*	Estb	Maint	Maint	Maint	Maint	Estb.	Maint	
1	Batote	111.88	77.5	14.92	55.36	22.89	28.87	29.31	244.74	95.99	14.49	5.98	20.47	244.74	116.46	361.2
2	Bhaderwah	119.28	121.79	14.49	121.79	26.98	39.88	40.96	362.86	122.31	26.52	13.15	39.67	362.86	161.98	524.84
3	Doda	149.99	121.79	20.22	110.72	32.66	44.37	45.2	382.5	142.45	25.32	11.95	37.27	382.5	179.72	562.22
4	Jammu	105.7	77.5	15.84	88.58	23.67	32.78	33.24	271.78	105.53	18.07	9.56	27.63	271.78	133.16	404.94
5	Kishtwar	164.79	143.94	19.37	110.72	34.26	46.33	47.48	419.45	147.44	27.75	11.95	39.7	419.45	187.14	606.59
6	Mahore	77.43	88.58	11.12	77.5	20.03	28.18	28.72	243.51	88.05	18.09	8.37	26.46	243.51	114.51	358.02
7	Marwah	118.06	99.65	13.98	88.58	24.3	33.83	34.69	306.29	106.8	20.5	9.56	30.06	306.29	136.86	443.15
8	Nowshera	130.28	77.5	19.04	55.36	26.95	32.8	33.06	263.14	111.85	14.49	5.98	20.47	263.14	132.32	395.46
9	Rajouri	125.39	99.65	17.02	88.58	27.2	36.57	37.22	313.62	118.01	20.5	9.56	30.06	313.62	148.07	461.69
10	Ramban	122.95	88.58	16.01	77.5	25.14	33.41	34.02	289.03	108.58	18.09	8.37	26.46	289.03	135.04	424.07
11	Ramnagar	190.54	99.65	26.55	66.44	36.84	44.01	44.37	356.63	151.77	18.12	7.18	25.3	356.63	177.07	533.7
12	Reasi	145.1	121.79	18.2	110.72	30.73	42.54	43.51	377.61	134.98	25.32	11.95	37.27	377.61	172.25	549.86
13	Udhampur	158.61	110.72	20.31	88.58	31.75	41.32	42.05	357.91	135.43	21.72	9.56	31.28	357.91	166.71	524.62
Total		1,720	1,328.64	227.07	1,140.43	363.4	484.89	493.83	4,189.07	1,569.19	268.98	123.12	392.1	4,189.07	1,961.29	6,150.36

*Estb: Establishemnt

**Maint: Maintenance

Table: 2.44– Division Wise Proposed Extent of Plantations in Agriculture Landscapes in J&K UT

Sr. No.	Division	Phase I: Year Wise Area (ha)							Phase I Total Area (ha)		Phase II: Area (ha)	Total Area Phase II (ha)	Grand Total Area (ha)
		I	II		III		IV	V			VI	Maint	Estb.
		Estb*	Estb	Maint**	Estb	Maint	Maint	Maint	Estb	Maint	Maint		
1	Batote	16	12	16.00	9	28	37	21	37	37	9	9	37
2	Bhaderwah	15	12	15.00	9	27	36	21	36	36	9	9	36
3	Doda	22	14	22.00	11	36	47	25	47	47	11	11	47
4	Jammu	15	12	15.00	9	27	36	21	36	36	9	9	36
5	Kishtwar	16	12	16.00	9	28	37	21	37	37	9	9	37
6	Mahore	15	11	15.00	10	26	36	21	36	36	10	10	36
7	Marwah	15	12	15.00	9	27	36	21	36	36	9	9	36
8	Nowshera	26	2	26.00	9	28	37	11	37	37	9	9	37
9	Rajouri	15	12	15.00	9	27	36	21	36	36	9	9	36
10	Ramban	22	14	22.00	11	36	47	25	47	47	11	11	47
11	Ramnagar	31	28	31.00	31	59	90	59	90	90	31	31	90
12	Reasi	16	12	16.00	9	28	37	21	37	37	9	9	37
13	Udhampur	21	14	21.00	11	35	46	25	46	46	11	11	46
Total		245	167	245	146	412	558	313	558	558	146	146	558

*Estb: Establishment

**Maint: Maintenance

Table: 2.45- Division Wise Proposed Cost of Plantations in Agriculture Landscapes of Chenab Riverscape, J&K UT

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 Year				
		Estb*	Estb	Maint**	Estb	Maint	Maint	Maint	Estb	Maint	Maint	Maint	Estb.	Maint	
1	Batote	3	1.86	1.61	1.2	2.75	3.64	1.89	6.06	9.89	0.76	0.76	6.06	10.65	16.71
2	Bhaderwah	2.52	1.86	1.35	1.2	2.47	3.34	1.89	5.58	9.05	0.76	0.76	5.58	9.81	15.39
3	Doda	3.54	2.04	1.9	1.38	3.18	4.19	2.12	6.96	11.39	0.88	0.88	6.96	12.27	19.23
4	Jammu	2.52	1.86	1.35	1.2	2.47	3.34	1.89	5.58	9.05	0.76	0.76	5.58	9.81	15.39
5	Kishtwar	3	1.86	1.61	1.2	2.75	3.64	1.89	6.06	9.89	0.76	0.76	6.06	10.65	16.71
6	Mahore	2.52	1.38	1.35	1.68	2.22	3.31	1.87	5.58	8.75	1.06	1.06	5.58	9.81	15.39
7	Marwah	2.52	1.86	1.35	1.2	2.47	3.34	1.89	5.58	9.05	0.76	0.76	5.58	9.81	15.39
8	Nowshera	3.9	0.96	2.09	1.2	2.82	3.68	1.3	6.06	9.89	0.76	0.76	6.06	10.65	16.71
9	Rajouri	2.52	1.86	1.35	1.2	2.47	3.34	1.89	5.58	9.05	0.76	0.76	5.58	9.81	15.39
10	Ramban	3.54	2.04	1.9	1.38	3.18	4.19	2.12	6.96	11.39	0.88	0.88	6.96	12.27	19.23
11	Ramnagar	5.52	7.98	2.96	5.52	7.51	11.06	8.19	19.02	29.72	3.48	3.48	19.02	33.2	52.22
12	Reasi	3	1.86	1.61	1.2	2.75	3.64	1.89	6.06	9.89	0.76	0.76	6.06	10.65	16.71
13	Udhampur	3.06	2.04	1.64	1.38	2.9	3.89	2.12	6.48	10.55	0.88	0.88	6.48	11.43	17.91
Total		41.16	29.46	22.07	20.94	39.94	54.6	30.95	91.56	147.56	13.26	13.26	91.56	160.82	252.38

*Estb: Establishment

**Maint: Maintenance

Table: 2.46- Division Wise Proposed Extent of Area for Plantations in Urban Landscapes of Chenab Riverscape, J&K UT

Sr. No.	Division	Phase I: Year Wise Area (ha)							Phase I Total Area (ha)		Phase II Area (ha)	Phase II Total Area (ha)	Grand Total Area (ha)
		I	II		III		IV	V			VI Year		
		Estb*	Estb	Maint**	Estb	Maint	Maint	Maint	Estb	Maint	Maint	Maint	Estb.
1	Batote	3.2	3.2	3.2	3	6.4	9.4	6.2	9.4	9.4	3	3	9.4
2	Bhaderwah	3.8	3.6	3.8	3	7.4	10.4	6.6	10.4	10.4	3	3	10.4
3	Doda	3.2	3.1	3.2	3	6.3	9.3	6.1	9.3	9.3	3	3	9.3
4	Jammu	3.8	3.3	3.8	3	7.1	10.1	6.3	10.1	10.1	3	3	10.1
5	Kishtwar	3.7	3	3.7	3	6.7	9.7	6	9.7	9.7	3	3	9.7
6	Mahore	4.4	3.5	4.4	0	7.9	7.9	3.5	7.9	7.9	0	0	7.9
7	Marwah	3.6	3.2	3.6	3	6.8	9.8	6.2	9.8	9.8	3	3	9.8
8	Nowshera	1.5	2	1.5	3	3.5	6.5	5	6.5	6.5	3	3	6.5
9	Rajouri	3.8	3	3.8	3	6.8	9.8	6	9.8	9.8	3	3	9.8
10	Ramban	3.9	3.5	3.9	3	7.4	10.4	6.5	10.4	10.4	3	3	10.4
11	Ramnagar	4.4	6.9	4.4	6.7	11.3	18	13.6	18	18	6.7	6.7	18
12	Reasi	3	3	3	3	6	9	6	9	9	3	3	9
13	Udhampur	3.9	3.1	3.9	3	7	10	6.1	10	10	3	3	10
14	Urban Forestry	4.4	4	4.4	3	8.4	11.4	7	11.4	11.4	3	3	11.4
Total		50.6	48.4	50.6	42.7	99	141.7	91.1	141.7	141.7	42.7	42.7	141.7

*Estb: Establishment

**Maint: Maintenance

Table: 2.47- Division Wise Proposed Cost for Plantations in Urban Landscapes of Chenab Riverscape, J&K UT

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 of Phase I & Phase II (Rs.in Lakhs)		Grand Total (Rs.in Lakhs)
		I	II		III		IV	V			VI				
		Estb*	Estb	Maint**	Estb	Maint	Maint	Maint	Estb	Maint	Maint	Maint	Estb.	Maint	
1	Batote	50.2	37.8	15.06	7.8	21.38	17.43	7.23	95.8	61.1	1.17	1.17	95.8	62.27	158.07
2	Bhaderwah	140.2	97.8	42.06	7.8	57.38	42.93	16.23	245.8	158.6	1.17	1.17	245.8	159.77	405.57
3	Doda	50.2	22.8	15.06	7.8	16.88	14.43	4.98	80.8	51.35	1.17	1.17	80.8	52.52	133.32
4	Jammu	140.2	52.8	42.06	7.8	43.88	33.93	9.48	200.8	129.35	1.17	1.17	200.8	130.52	331.32
5	Kishtwar	125.2	7.8	37.56	7.8	27.38	22.68	2.73	140.8	90.35	1.17	1.17	140.8	91.52	232.32
6	Mahore	230.2	82.8	69.06	0	70.88	51.09	12.42	313	203.45	0	0	313	203.45	516.45
7	Marwah	110.2	37.8	33.06	7.8	33.38	26.43	7.23	155.8	100.1	1.17	1.17	155.8	101.27	257.07
8	Nowshera	90	5.2	27	7.8	19.56	16.88	2.34	103	65.78	1.17	1.17	103	66.95	169.95
9	Rajouri	140.2	7.8	42.06	7.8	30.38	24.93	2.73	155.8	100.1	1.17	1.17	155.8	101.27	257.07
10	Ramban	155.2	82.8	46.56	7.8	55.88	42.18	13.98	245.8	158.6	1.17	1.17	245.8	159.77	405.57
11	Ramnagar	70.4	150.6	21.12	356.44	59.26	147.61	93.88	577.44	321.87	53.47	53.47	577.44	375.34	952.78
12	Reasi	20.2	7.8	6.06	7.8	6.38	6.93	2.73	35.8	22.1	1.17	1.17	35.8	23.27	59.07
13	Udhampur	155.2	22.8	46.56	7.8	37.88	30.18	4.98	185.8	119.6	1.17	1.17	185.8	120.77	306.57
14	Urban Forestry	230.2	157.8	69.06	7.8	93.38	68.43	25.23	395.8	256.1	1.17	1.17	395.8	257.27	653.07
Total		1,707.8	774.4	512.34	450.04	573.88	546.06	206.17	2,932.24	1,838.45	67.51	67.51	2,932.24	1,905.96	4,838.2

*Estb: Establishment

**Maint: Maintenance

Table: 2.48- Division Wise Proposed Extent for Soil and Moisture Conservation Measure in Chenab Riverscape, J&K UT

Sr. No.	Division	Phase I: Year Wise Extent (m ³)					Grand Total Extent (m ³)
		I	II	III	IV	V	
		Estb*	Estb	Estb	Estb	Estb	
1	Batote	2,490	950	1,430	620	780	6,270
2	Bhaderwah	7,760	11,340	23,400	9,780	4,890	57,170
3	Doda	2,260	900	2,590	810	720	7,280
4	Jammu	4,250	3,240	5,130	3,130	1,740	17,490
5	Kishtwar	2,940	980	1,380	760	700	6,760
6	Mahore	2,470	800	1,160	650	570	5,650
7	Marwah	2,490	800	1,150	630	590	5,660
8	Nowshera	38,570	44,210	1,06,500	42,300	21,790	2,53,370
9	Rajouri	5,090	5,680	14,740	4,650	3,260	33,420
10	Ramban	5,260	2,420	9,040	2,530	1,740	20,990
11	Ramnagar	2,840	1,380	4,270	1,140	860	10,490
12	Reasi	10,170	12,280	32,100	14,980	7,130	76,660
13	Udhampur	2,440	830	1,140	600	550	5,560
14	Urban Forestry	6,270	1,730	6,000	1,510	1,320	16,830
Total		95,300	87,540	2,10,030	84,090	46,640	5,23,600

*Estb: Establishment

**Maint: Maintenance

Table: 2.49- Division Wise Proposed Cost for Soil and Moisture Conservation Measures in Chenab Riverscape, J&K UT

Sr. No.	Division	Phase I: Year Wise Cost (Rs. in Lakhs)					Phase I Total Cost (Rs. in Lakhs)
		I	II	III	IV	V	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment
1	Batote	7.47	17.1	64.35	37.2	14.04	140.16
2	Bhaderwah	74.69	108.95	139.7	92.55	48.72	464.61
3	Doda	10.08	13.5	46.83	35.64	10.71	116.76
4	Jammu	20.4	27.68	22.49	18.04	16.32	104.93
5	Kishtwar	8.82	17.64	62.1	45.6	12.6	146.76
6	Mahore	7.41	14.4	52.2	39	10.26	123.27
7	Marwah	7.47	14.4	51.75	37.8	10.62	122.04
8	Nowshera	414.41	403.73	513.89	289.89	191.52	1,813.44
9	Rajouri	40.83	54.18	67.02	33.1	33.78	228.91
10	Ramban	36.25	32.61	67.19	44.19	14.97	195.21
11	Ramnagar	11.52	24.84	53.96	36.42	11.13	137.87
12	Reasi	102.59	125.46	142.08	99.49	74.32	543.94
13	Udhampur	7.32	14.94	51.3	36	9.9	119.46
14	Urban Forestry	21.36	28.44	26.2	9.32	20.61	105.93
	Total	770.62	897.86	1,361	854.23	479.5	4,363.225

Table: 2.50- Division Wise Proposed Extent and Cost for Soil and Moisture Conservation Measures in Chenab Riverscape, J&K UT

Sr. No.	Division	Year Wise Extent (m³) and Cost (Rs in Lakhs)										Total Extent (m³)	Total Cost (Rs in Lakhs)
		I		II		III		IV		V			
		Extent	Cost	Extent	Cost	Extent	Cost	Extent	Cost	Extent	Cost		
1	Batote	2,490	7.47	950	17.1	1,430	64.35	620	37.2	780	14.04	6,270	140.16
2	Bhaderwah	7,760	74.69	11,340	108.95	23,400	139.7	9,780	92.55	4,890	48.72	57,170	464.61
3	Doda	2,260	10.08	900	13.5	2,590	46.83	810	35.64	720	10.71	7,280	116.76
4	Jammu	4,250	20.4	3,240	27.68	5,130	22.49	3,130	18.04	1,740	16.32	17,490	104.93
5	Kishtwar	2,940	8.82	980	17.64	1,380	62.1	760	45.6	700	12.6	6,760	146.76
6	Mahore	2,470	7.41	800	14.4	1,160	52.2	650	39	570	10.26	5,650	123.27
7	Marwah	2,490	7.47	800	14.4	1,150	51.75	630	37.8	590	10.62	5,660	122.04
8	Nowshera	38,570	414.41	44,210	403.73	1,06,500	513.89	42,300	289.89	21,790	191.52	2,53,370	1,813.44
9	Rajouri	5,090	40.83	5,680	54.18	14,740	67.02	4,650	33.1	3,260	33.78	33,420	228.91
10	Ramban	5,260	36.25	2,420	32.61	9,040	67.19	2,530	44.19	1,740	14.97	20,990	195.21
11	Ramnagar	2,840	11.52	1,380	24.84	4,270	53.96	1,140	36.42	860	11.13	10,490	137.87
12	Reasi	10,170	102.59	12,280	125.46	32,100	142.08	14,980	99.49	7,130	74.32	76,660	543.94
13	Udhampur	2,440	7.32	830	14.94	1,140	51.3	600	36	550	9.9	5,560	119.46
14	Urban Forestry	6,270	21.36	1,730	28.44	6,000	26.2	1,510	9.32	1320	20.61	16,830	105.93
Total		95,300	770.62	87,540	897.87	2,10,030	1361.06	84,090	854.24	46,640	479.5	5,23,600	4,363.29

Table: 2.51- Division Wise Proposed Area for Riverine and Riparian Wetland Management and Wildlife Conservation in J&K UT

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) Phase I & Phase II
		I	II		III		IV		V		VI			VII	Total		
		Estb*	Estb	Maint**	Estb	Maint	Estb	Maint	Estb	Maint	Estb	Maint	Maint	Maint	Total		
1	Chenab WD	30	20	30.00	10	50	0	60	0	60	60	30	30	30	10	30	60
2	Jammu WD	45	45	45.00	25	90	0	115	0	115	115	45	70	25	70	70	115
Total		75	65	75	35	140	0	175	0	175	175	75	100	35	100	100	175

Note: **Area of Riverine & Riparian Wildlife Management and Wetland Management is virtual, considered for budgetary provisions

*Estb: Establishment

**Maint: Maintenance

Table: 2.52- Division Wise Projected Cost (Rs. in Lakhs) for Riverine and Riparian Wetland Management and Wildlife Conservation in J&K UT

Sr. No.	Division	Phase I: Year Wise Cost (Rs. in Lakhs)											Phase II: Year Wise Cost (Rs. in Lakhs)			Total Cost Phase I & II (Rs in Lakh)
		I	II		III		IV		V		Total		VI	VII	Total (Rs in Lakh)	
		Estb*	Estb	Maint**	Estb	Maint	Estb	Maint	Estb	Maint	Estb	Maint	Maint	Maint		
1	Chenab WD	96	64	84	32	113	0	102	0	70	192	369	30	9	39	600
2	Jammu WD	140	142	123	80	207	0	208	0	142	362	680	70.5	22.5	93	1,135
	Total	236	206	207	112	320	0	310	0	212	554	1,049	100.5	31.5	132	1,735

*Estb: Establishment

**Maint: Maintenance

Table: 2.53- Model/ Activity Wise Area and Cost for Forestry Intervention in J&K UT

Union Territory	Landscape	Model/Activity	Area (ha)	Area (m ³)	Cost (Rs. in Lakhs)
Jammu and Kashmir	Natural	CN/JK/NL/01 - Moist Alpine Conservation	--	-	--
		CN/JK/NL/02 - Sub Alpine Enrichment	--	-	--
		CN/JK/NL/03 - Dry Temperate Conifer Forest Enrichment	--	-	--
		CN/JK/NL/04 - Temperate Conifer Forest	118	-	342.81
		CN/JK/NL/05 - Temperate Mixed Forest	1178	-	3,499.60
		CN/JK/NL/06 - Pasture and Grazing Land Development	50	-	98.68
		CN/JK/NL/07 - Himalayan Chir Pine Forest	642	-	1,681.82
		CN/JK/NL/08 - Himalayan Mixed Forest	198	-	501.64
		CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	999	-	2,531.03
		CN/JK/NL/10 - Eradication of <i>Lantana</i> (> 50%)	15	-	39.17
		CN/JK/NL/11 - Control/ Removal of Invasive Species or <50% <i>Lantana</i>	45	-	108.09
		CN/JK/NL/12 -Protection Model for Natural Regeneration	3,620	-	5,692.85
		CN/JK/NL/13 -Fire Protection Model	740	-	457.51
	Agriculture	CN/JK /AL/01 - Boundary Plantation Model	452	-	114.05

		CN/JK /AL/02 - High Density Block Plantation	106	-	138.33
	Urban	CN/JK /UL/01 - Bioremediation and Bio-filtration	13	-	321.75
		CN/JK /UL/02 – Riverfront Development	6.60	-	1,633.50
		CN/JK/UL/03 – Institutional Plantation	112.40	-	482.20
		CN/JK /UL/04 - Eco Park Development	9.70	-	2,400.75
	Conservation Intervention	CN/JK/CI/01 - Brushwood Interventions	-	1,02,280	306.84
		CN/JK /CI/02 - Dry Stone Activities	-	1,25,130	2,252.34
		CN/JK /CI/03 - Crate Wire Activities	-	10,690	481.05
		CN/JK /CI/04 - Water Ponds	-	2,79,770	979.19
		CN/JK /CI/05 - Silt Detention Dam Type Activities	-	5,730	343.80
		CN/JK /CI/06 - Riverine and Riparian Wildlife Management	160	-	1,600
		CN/JK /CI/07 - Wetland Management	15	-	135
	Total		8,479.70	5,23,600	26,142.00

Table: 2.54– Year-Wise Breakup of Projected Cost on Supporting Activities in J&K UT

Sr. No.	Activity	Year (Rs. in lakh)										Grand Total (Rs. in lakh)
		Phase I					Phase II					
		I	II	III	IV	V	I	II	III	IV	V	
1	Policy Level Interventions	6.03	3.01	1.51	0.75	0.00	0.00	0.00	0.00	0.00	0.00	11.30
2	Research Activities	12.06	10.85	9.77	8.79	7.91	7.12	6.41	5.77	5.19	4.67	78.54
3	Capacity Development	70.00	73.50	85.18	81.03	51.36	0.00	0.00	0.00	0.00	0.00	361.07
4	Awareness	28.00	29.40	30.87	32.41	34.03	0.00	0.00	0.00	0.00	0.00	154.72
5	Participatory Monitoring	12.06	10.85	9.77	8.79	7.91	7.12	6.41	5.77	5.19	4.67	78.54
6	Cost of PMUs of Two State Level Implementing Agencies	120.58	87.51	91.84	96.39	101.17	31.57	28.23	26.38	24.65	23.03	631.36
7	Evaluation	0.00	0.00	29.99	0.00	0.00	49.75	0.00	0.00	0.00	63.14	142.88
8	Contingency and Miscellaneous Activities	0.60	0.44	0.46	0.48	0.51	0.16	0.14	0.13	0.12	0.12	3.16
Grand Total		249.33	215.56	259.39	228.64	202.89	95.72	41.19	38.05	35.15	95.63	1,461.55

Table: 2.55- Year-Wise Projected Cost for Supporting Activities

Sr. No.	Activities	Year (Cost Rs. in lakh)										Grand Total (Cost Rs. in lakh)
		Phase I					Phase II					
		I	II	III	IV	V	VI	VII	VIII	IX	X	
1	Policy Level Interventions	6.03	3.01	1.51	0.75	0.00	0.00	0.00	0.00	0.00	0.00	11.30
2	Research	12.06	10.85	9.77	8.79	7.91	7.12	6.41	5.77	5.19	4.67	78.54
3	Capacity Development	70.00	73.50	85.18	81.03	51.36	0.00	0.00	0.00	0.00	0.00	361.07
4	Awareness	28.00	29.40	30.87	32.41	34.03	0.00	0.00	0.00	0.00	0.00	154.71
5	Participatory Monitoring	12.06	10.85	9.77	8.79	7.91	7.12	6.41	5.77	5.19	4.67	78.54
6	Project Management Unit	120.58	87.51	91.84	96.39	101.17	31.57	28.23	26.38	24.65	23.03	631.35
7	Evaluation	0.00	0.00	29.99	0.00	0.00	49.75	0.00	0.00	0.00	63.14	142.88
8	Contingency and Miscellaneous Expenses	0.60	0.44	0.46	0.48	0.51	0.16	0.14	0.13	0.12	0.12	3.16
Grand Total		249.33	215.56	259.39	228.64	202.89	95.72	41.19	38.05	35.15	95.63	1,461.55

Table: 2.56– Year-Wise Projected Cost of State Project Management Unit

Sr.N o.	Activities	Year (Cost Rs. in lakh)										Grand Total (Cost Rs. in lakh)
		Phase I					Phase II					
		I	II	III	IV	V	VI	VII	VIII	IX	X	
1	Project Staff - Salary and Wages	73.08	76.734	80.57	84.60	88.83	27.98	26.44	24.99	23.61	22.31	529.15
2	Office Expenses	7.31	0.77	0.81	0.85	0.89	0.28	0.26	0.25	0.24	0.22	11.87
3	POL	7.31	0.77	0.81	0.85	0.89	0.28	0.24	0.17	0.12	0.07	11.49
4	Travel Expenses	7.31	7.67	8.06	8.46	8.88	2.80	1.06	0.75	0.47	0.22	45.68
5	Equipment – Office and Field	3.65	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	3.82
6	Purchase of Equipment - Computer, RS and GIS and IT	7.31	0.74	0.74	0.74	0.74	0.04	0.04	0.04	0.04	0.04	10.46
7	Furniture and Fixtures	7.31	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	7.64
8	Contingency and Miscellaneous	7.31	0.77	0.81	0.85	0.89	0.14	0.13	0.12	0.12	0.11	11.24
Grand Total		120.58	87.51	91.84	96.39	101.17	31.57	28.23	26.38	24.65	23.03	631.36

Table: 2.57– Projected Cost of Awareness Programmes

Sr. No.	Activity	Phase I Year (Cost Rs. in lakh)					Grand Total (Cost Rs. in lakh)
		I	II	III	IV	V	
1	Awareness Campaigns	7	7.35	7.72	8.10	8.51	38.68
2	Awareness Activities for General Public	7	7.35	7.72	8.10	8.51	38.68
3	Awareness Material – Pamphlets, Brochures, Booklets, Signages, Boards and Hoardings	7	7.35	7.72	8.10	8.51	38.68
4	Publicity Through Mass Media	7	7.35	7.72	8.10	8.51	38.68
Grand Total		28.00	29.40	30.87	32.41	34.03	154.72

Table: 2.58– Projected Cost of Capacity Development at State and Division Levels

Sr. No.	Activity	Norm s	Phase I Year (Cost Rs. in lakh)					Grand Total (Cost Rs. in lakh)
			I	II	III	IV	V	
1	Local Level Training for Communities (Trainings; 2-3 days) 25	1	14	14.70	15.44	16.21	0.00	60.34
2	Division Level Trainings for SFD Personnel, Line Departments and Other Partner Agencies (1 Training/ Division/ 2-3 days) 25	1	14	14.70	15.44	16.21	0.00	60.34
3	State Level Inception Workshop (2-3 days) 1	7	7	7.35	7.72	8.10	0.00	30.17
4	State Level Seminar – Mid Term (2-3 days) 1 and Final year (1)	8	0	0.00	8.00		8.82	16.82
5	Exposure Trip Within State (30 participants; 2 per year)	10	20	21.00	22.05	23.15	24.31	110.51
6	Exposure Trip Outside State (15 participants; 1 per year)	15	15	15.75	16.54	17.36	18.23	82.88
Grand Total			70.00	73.50	85.18	81.03	51.36	361.07

Table: 2.59- Division Wise Details of Area/Extent and Cost for Three Different Landscapes and SMC Activities in Chenab Riverscape, J&K UT (Part-I)

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)
			Establis hemnt	Mainte nance			Establi shemnt	Mainte nance			Establis hemnt	Mainten ance	
1	Batote	653	900.26	434.43	1,334.69	37	6.06	10.65	16.71	9.4	95.8	62.27	158.07
2	Bhaderwah	628	690.31	373.38	1,063.69	36	5.58	9.81	15.39	10.4	245.8	159.77	405.57
3	Doda	704	816.28	435.24	1,251.52	47	6.96	12.27	19.23	9.3	80.8	52.52	133.32
4	Jammu	473	445.34	260.49	705.83	36	5.58	9.81	15.39	10.1	200.8	130.52	331.32
5	Kishtwar	490	345.91	251.16	597.07	37	6.06	10.65	16.71	9.7	140.8	91.52	232.32
6	Mahore	770	1,128.43	527.09	1,655.52	36	5.58	9.81	15.39	7.9	313	203.45	516.45
7	Marwah	360	264.2	187.76	451.96	36	5.58	9.81	15.39	9.8	155.8	101.27	257.07
8	Nowshera	426	360.4	225.62	586.02	37	6.06	10.65	16.71	6.5	103	66.95	169.95
9	Rajouri	530	515.89	299.91	815.8	36	5.58	9.81	15.39	9.8	155.8	101.27	257.07
10	Ramban	660	854.49	425.94	1,280.43	47	6.96	12.27	19.23	10.4	245.8	159.77	405.57
11	Ramnagar	700	728.53	396.89	1,125.42	90	19.02	33.2	52.22	18	577.44	375.34	952.78
12	Reasi	763	862.27	453.27	1,315.54	37	6.06	10.65	16.71	9	35.8	23.27	59.07
13	Udhampur	450	318.77	228.19	546.96	46	6.48	11.43	17.91	10	185.8	120.77	306.57
14	Urban Forestry	18	32.41	13.2	45.61	0	0	0	0	11.4	395.8	257.27	653.07
Total		7,625	8,263.49	4,512.57	12,776.06	588	91.56	160.82	252.38	141.7	2,932.24	1905.96	4,838.2

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

Table: 2.60- Division Wise Details of Area/Extent and Cost for Three Different Landscapes and SMC Activities in Chenab Riverscape, J&K UT (Part-II)

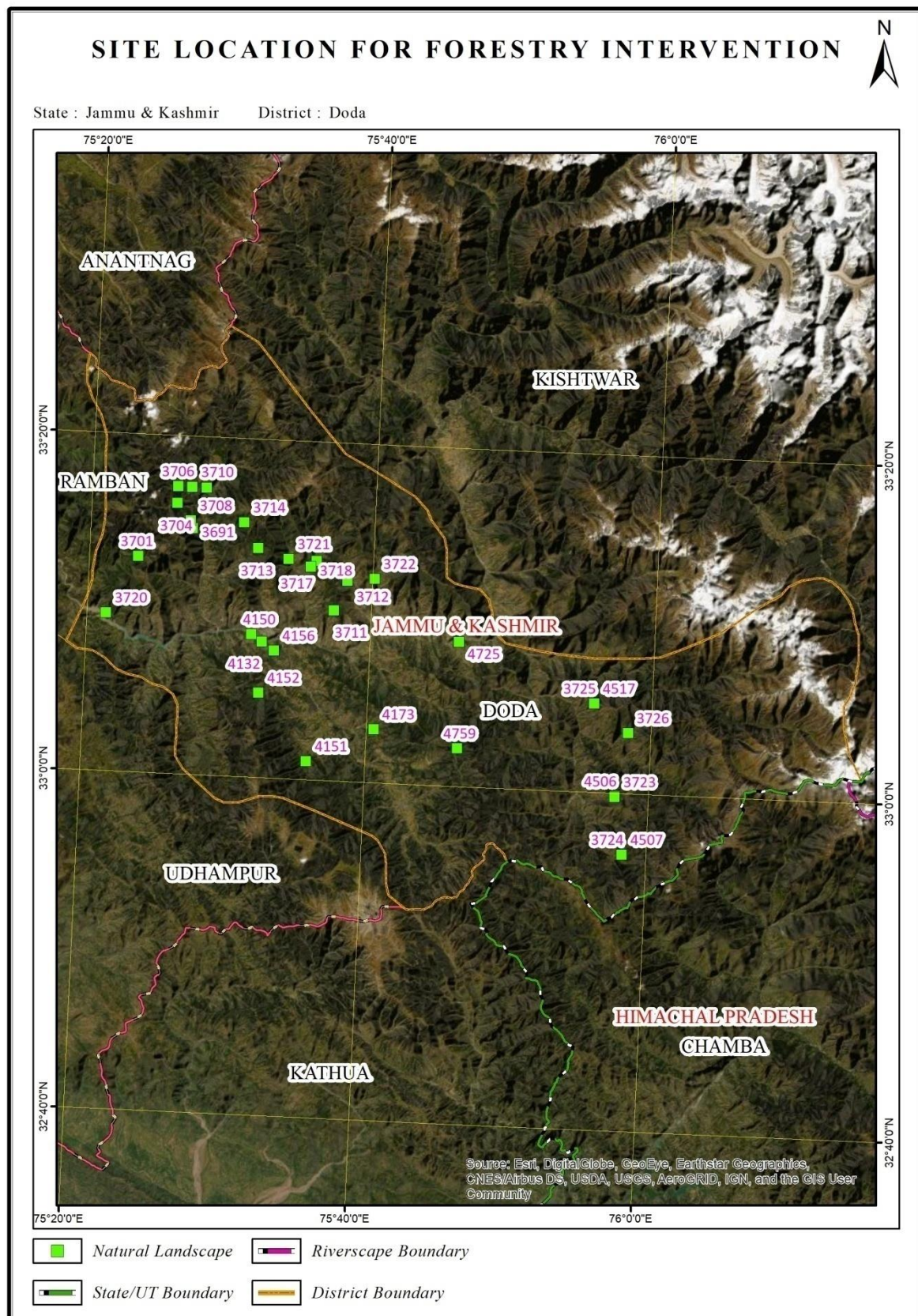
Sr. No.	Division	Grand Total Area of Three Landscapes (ha)	Total Cost of Three Landscapes (Rs. in Lakhs)	SMC* Measures		Grand Total Cost of Three Landscapes and SMC (Rs. in Lakhs)
				Total Extent (m ³)	Total Cost (Rs. in Lakhs)	
1	Batote	699.4	1,509.47	6,270	140.16	1,649.63
2	Bhaderwah	674.4	1,484.65	57,170	464.61	1,949.26
3	Doda	760.3	1,404.07	7,280	116.76	1,520.83
4	Jammu	519.1	1,052.54	17,490	104.93	1,157.47
5	Kishtwar	536.7	846.1	6,760	146.76	992.86
6	Mahore	813.9	2,187.36	5,650	123.27	2,310.63
7	Marwah	405.8	724.42	5,660	122.04	846.46
8	Nowshera	469.5	772.68	2,53,370	1,813.44	2,586.12
9	Rajouri	575.8	1,088.26	33,420	228.91	1,317.17
10	Ramban	717.4	1,705.23	20,990	195.21	1,900.44
11	Ramnagar	808	2,130.42	10,490	137.87	2,268.29
12	Reasi	809	1,391.32	76,660	543.94	1,935.26
13	Udhampur	506	871.44	5,560	119.46	990.9
14	Urban Forestry	29.4	698.68	16,830	105.93	804.61
Total		8,324.7	17,866.64	5,23,600	4,363.29	22,229.93

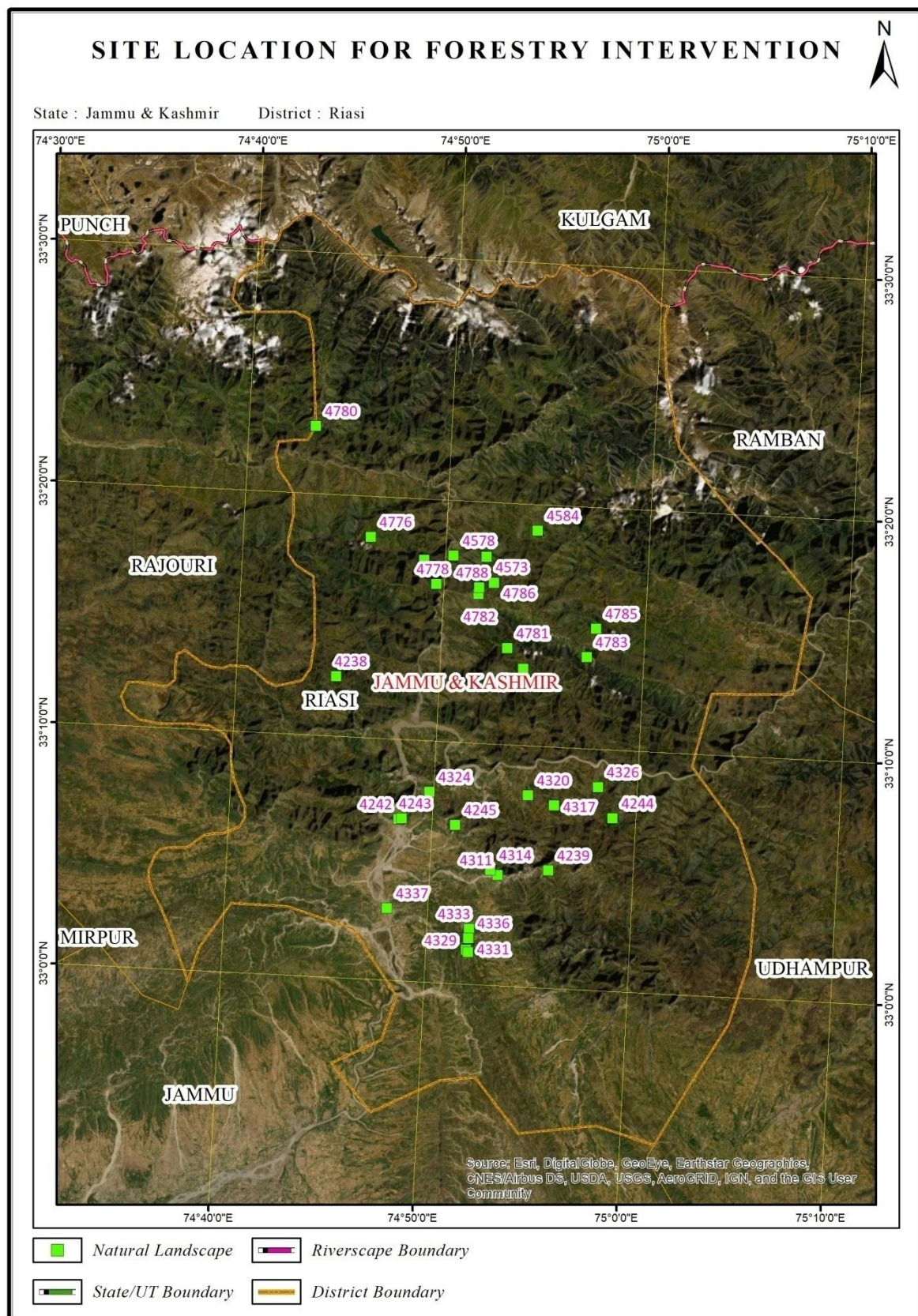
*SMC: Soil and Moisture Conservation

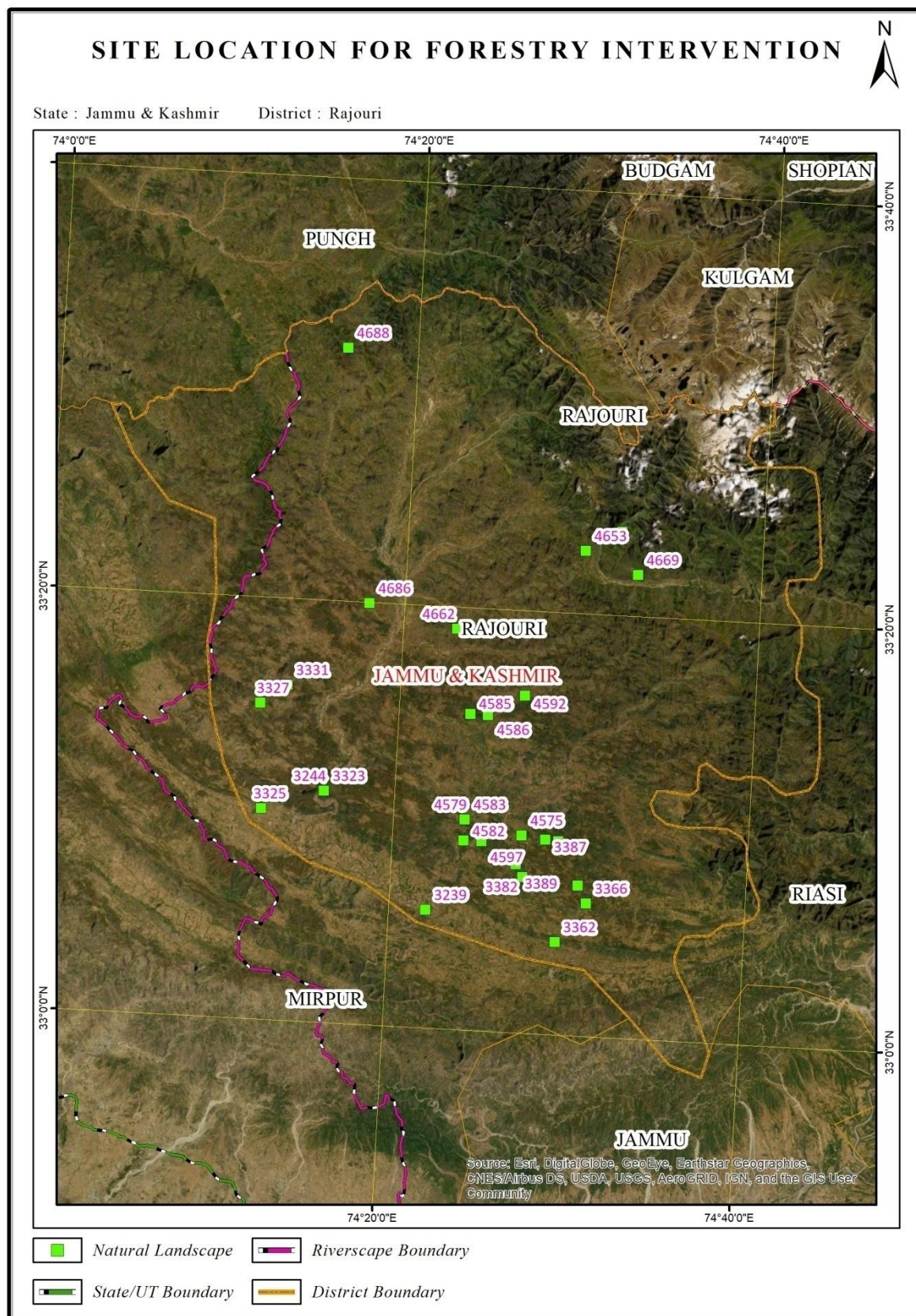
Table: 2.61- Division Wise Details of Area and Cost for Riverine and Riparian Wildlife Management and Wetland Management in Chenab Riverscape, J&K UT

Sr. No.	Divisions	Total Area (ha)*	Cost (Rs. in Lakhs		Grand Total Cost (Rs. in Lakhs
			Establishment	Maintenance	
1	Chenab WD	60	192	408	600
2	Jammu WD	115	362	773	1,135
Total		175	554	1,181	1,735

*Note: **Area of Riverine & Riparian Wildlife Management and Wetland Management is virtual, considered for budgetary provisions*







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Department Name	Website
J&K State Power Development Cooperation	www.jkspdc.nic.in
USGS Science for Changing world	www.earthexplorer.usgs.gov

Annexure - 1: Description of Soil Types within the Chenab Riverscape

Sr. No.	Soil Types	Characteristics
1.	Aquic Dystric Eutrochrepts	--
2.	Dystric Eutrochrepts	Soil on valley mild slope lands.
3.	Dystric Fluventic Eutrochrepts	--
4.	Fluventic Cryochrepts	--
5.	Fluventic Eutrochrepts	Coarse loamy, mixed, non-acidic, hyperthermic soils
6.	Fluventic Ustochrepts	--
7.	Fluventic Ustorhents	--
8.	Lithic Cryorthents	Poorly developed soils, semi-permanent snow, bank is simply a thin sandy A-horizon over a C-horizon.
9.	Lithic Udorthents	These soils have a lithic contact within 50 cm of the surface and some of them have high biological activity above the lithic contact.
10.	Mollic Udorthents	--
11.	Typic Cryochrepts	--
12.	Typic Cryorthents	--
13.	Typic Dystrichrepts	Sandy skeletal, mixed mineralogy soils, parent material is volcanic ash- influenced loess over residuum from granite.
14.	Typic Eutrochrepts	--
15.	Typic Udifluvents	--
16.	Typic Udorthents	Found on moderate to steep slopes, are slightly to moderately eroded and moderate to strong stony.
17.	Typic Ustifluvents	Very deep imperfectly drained fine soils occurring on level to nearly level active alluvial plain with loamy surface & moderate flooding.
18.	Udic Ustochrepts	Coarse- loamy soils derived from mixed alluvium or residuum weathered from sandstone and shale.
19.	Udic Ustorthents	--
20.	Non Soil	--

Annexure - 2: List of Recommended Plant Species with Uses for Planting in Natural, Agriculture and Urban Landscapes in Himachal Pradesh

Botanical Name	Common/ Local Name (s)	Habit	Uses
<i>Abies pindrow</i> (Royle ex D.Don) Royle	Tosh/ Chilla/ Fir/Badlu	Tree	Construction, medicine and fuel.
<i>Acer acuminatum</i> Wall. ex D.Don	Kainjali/Kainjal a	Tree	Wood used for agricultural implements and fodder.
<i>Achillea millifolium</i> (Wimm. & Grab.) Gremli	Gondana/Chabu / Shugumentog	Herb	The dark blue essential oil kills the larvae of the mosquitos.
<i>Aconitum heterophyllum</i> Wall. ex Royle	Atish	Herb	Migraines, headaches, vomiting, piles, burning sensation, etc.
<i>Aesculus indica</i> (Wall. ex Cambess.) Hook.	Pangar, Bankhor, Kandur/ Hunakdun	Tree	Used in traditional Indian medicine for the treatment of some skin diseases and rheumatism.
<i>Agropyron</i> sp.		Grass	Couch grass has been used as a diuretic in cases of bladder catarrh and bladder/kidney stones.
<i>Agrostis gigantea</i> Roth	Black bent/Redtop	Grass	Fodder and soil conservation.
<i>Agrostis munroana</i> Aitch. & Hemsl.		Grass	Fodder and soil conservation.
<i>Agrostis pilosula</i> Trin.		Grass	Fodder and soil conservation.
<i>Ainsliaea aptera</i> DC.	Karu buti	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.
<i>Allium carolinianum</i> DC.	Lo-adh	Herb	Flavouring agent and edible.
<i>Allium humile</i> Kunth	Pareeni	Herb	Wild onion has economic value. Used for spices.
<i>Alnus nepalensis</i> D.Don	Kunis, Puzala, Kosh	Tree	Bark for dye and tannin, wood for bedsteads and for hooked sticks in old bridges.
<i>Alnus nitida</i> (Spach) Endl.	Kosh	Tree	The bark is alterative, astringent, cathartic, febrifuge and tonic. Used for fuel-wood and soil conservation
<i>Alopecurus aequalis</i>		Grass	The whole plant is antiphlogistic,

Sobol.			depurative and diuretic. It is used in the treatment of oedema, chickenpox and snakebites; fodder.
<i>Angelica glauca</i> Edgew.	Chora/ Chaura/ Chonra	Herb	Used in the treatment of various skin diseases, bites of poisonous animals, fever, rhinitis, gastric and psychiatric disorders; Spices.
<i>Arnebia benthamii</i> Wall. ex G.Don	Ratanjot	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.
<i>Arnebia euchroma</i> (Royle) I.M.Johnst.	Dimok/ Ratanjot/ Dymong	Herb	Used in the treatment of measles, mild constipation, burns, frostbite, eczema, dermatitis, etc.
<i>Artemisia maritima</i> L.	Khamchu/ Phurang/ Kunja/ Shuomao/ Neerchuo/ Seski/ Nyurcha/ Garpeg/ Sensi	Herb	Used as anti-malarial, anti-diabetic, hepatoprotective, cytotoxic, anti-tumour and soil conservation.
<i>Arundinella nepalensis</i> Trin.		Grass	Soil stabilizer and fodder.
<i>Arundinella pumila</i> (Hochst.) Steud.		Grass	Soil stabilizer and fodder.
<i>Azadirachta indica</i> A.Juss.	Neem	Tree	Medicinal and fuel.
<i>Bauhinia variegata</i> L.	Kachnar	Tree	Food (edible), fodder, fuel, fibre, gum, tannin, medicinal (diarrhoea, astringent, skin disease), nitrogen fixer.
<i>Berberis jaeschkeana</i> C.K.Schneid.	Kaymali/ Jaeschke's Barberry	Shrub	Stem and root extracts used in medicine and fruits edible.
<i>Berberis pseudumbelata</i> R.Parker	Kirmali/ Pakkad	Shrub	Stem and root extracts used in medicine and fruits edible.
<i>Berberis</i> spp.	-	Shrub	Used as remedy for swollen and sore eyes, broken bones, wounds, gonorrhea, curative piles, unhealthy ulcers, acute conjunctive and in chronic ophthalmia.
<i>Bergenia ciliata</i> (Haw.) Sternb.		Herb	Root juice is used to treat coughs and colds, haemorrhoids, asthma

			and urinary problems.
<i>Bergenia stracheyi</i> (Hook.f. & Thomson) Engl.	Shamlot	Herb	Root is used as a tonic in the treatment of fevers, diarrhea and pulmonary affections.
<i>Betula utilis</i> D.Don	Bhojpatra/ Bhuj	Tree	Treatment of various ailments and diseases such as skin disinfectant.
<i>Bothriochloa parviflora</i> (R.Br.) Ohwi		Grass	Soil conservation and fodder.
<i>Bothriochloa pertusa</i> (L.) A.Camus		Grass	Soil conservation and fodder.
<i>Brachypodium sylvaticum</i> (Huds.) P.Beauv.		Grass	Used as a fodder and a graze for livestock.
<i>Bromus himalaicus</i> Stapf		Grass	Used as a fodder and a graze for livestock.
<i>Bromus ramosus</i> Huds		Grass	The plant is used in Bach flower remedies.
<i>Calamagrostis montana</i>		Grass	Fodder.
<i>Calamagrostis</i> spp.		Grass	Used as cough-medicine for women and children.
<i>Capparis spinosa</i> L		Shrub	Edible.
<i>Caragana brevifolia</i> Kom.		Shrub	Fuel.
<i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don	Devdar	Tree	Timber, cedar oil, medicinal, fuel and religious.
<i>Chrysopogon gryllus</i> (L.) Trin.		Grass	For control of soil erosion.
<i>Cicer microphyllum</i> Benth.	Jangli chana	Grass	Edible and fodder.
<i>Cinnamomum tamala</i> (Buch.-Ham.) T.Nees & Eberm.	Mitha patter/Taj pata/ Gurupatraj	Tree	Use as mouth freshener and bark is used for making decoction in treatment of internal heat of heart diseases.
<i>Colutea nepalensis</i> Sims		Shrub	Soil fertility.
<i>Cornus macrophylla</i> Wall.	Karchan	Tree	Edible, fuel and fodder.
<i>Corylus jacquemontii</i> Decne	Thangi	Tree	Nuts edible, fodder and fuel.
<i>Cotoneaster acuminatus</i> Wall. ex Lindl.	Ruins	Shrub	Fodder and fuel.
<i>Cotoneaster bacillaris</i> Wall. ex Lindl	Ruins	Shrub	Edible, fodder, fuel, agriculture tools, ornamental and their attractive habit.

<i>Crataegus songarica</i> C. Koch		Tree	Edible, fodder and fuel.
<i>Cycas</i> spp.		Shrub	Ornamental.
<i>Cymbopogon distans</i> (Nees ex Steud.) W. Watson		Grass	Medicinal herb, oil, perfume and soil erosion.
<i>Dactylis glomerata</i> L.		Grass	Soil erosion and fodder.
<i>Dactylorhiza hatagirea</i> (D. Don) Soó	Angbolakpa/ Sanchu/ Hathpanja/ Hathajadi/ Salmpanja/ Salam Panja	Herb	Folk remedy for tumors, kidney & bladder ailments.
<i>Danthonia cachemyriana</i> Jaub. & Spach		Grass	Fodder and soil erosion.
<i>Danthonia cumminsii</i> Hook. f.		Grass	Fodder and soil erosion.
<i>Daphne papyracea</i> Wall. ex G. Don		Shrub	Main source of raw material for the production of lokta paper, and a hand-made paper from Nepal.
<i>Debregeasia hypoleuca</i> (Hochst. ex A. Rich.) Wedd.	Tasara/ Siaru	Shrub	Fodder and edible fruit.
<i>Debregeasia longilfolia</i> (Burm. f.) Wedd.	Siaru/ Tasara	Shrub	Fodder, fibre, and edible fruit.
<i>Desmodium elegans</i> DC.	Kathu	Shrub	Fodder and fuel.
<i>Diospyros</i> spp		Tree	Edible.
<i>Drepanostachyum falcatum</i> (Nees) Keng f.		Shrub	Fodder, makes bamboo items, etc.
<i>Elaeagnus conferta</i> Roxb.		Shrub	Edible and fuel.
<i>Ephedra gerardiana</i> Wall. ex Stapf		Shrub	Medicinal.
<i>Eragrostis</i> spp.		Grass	Fodder.
<i>Eremurus himalaicus</i> Baker		Herb	Edible.
<i>Erianthus rufipilus</i> Griseb.		Grass	Fodder and soil erosion.
<i>Erianthus</i> spp.		Grass	Aggressive grass that has been sold in nurseries for use as an ornamental grass in gardens, and for stabilizing soil to prevent erosion.

<i>Festuca pratensis</i> Huds.		Grass	Used as an ornamental grass in gardens and is also an important forage crop.
<i>Festuca valesiaca</i> Schleich. ex Gaudin		Grass	Used as ornamental.
<i>Fraxinus xanthoxyloides</i> (G.Don) Wall. ex A.DC		Tree	Fuel, agriculture tools and fodder.
<i>Geranium wallichianum</i> D.Don ex Sweet	Porulue	Herb	Medicinal and fodder.
<i>Hedychium spicatum</i> Sm.	Spiked Ginger Lily	Herb	Stomach ailments, skin disease and throat disorder.
<i>Heracleum candicans</i> Wall. ex DC..	Pudadei/ Dundu/ Raswal	Herb	Spices, flavoring, aphrodisiac, tonic, colic, digestive, antipyretic, diaphoretic, itching, skin disorders, etc.
<i>Hippophae rhamnoides</i> ssp. <i>turkestanica</i> Rousi.	Sarla/ Chharma	Shrub	Edible, medicinal, fuel and agriculture tools.
<i>Hippophae salicifolia</i> D.Don	Chuk/ Tarwa	Tree	Firewood, fodder, medicinal, edible fruit agriculture tools, soil fertility, house building etc.
<i>Hyoscyamus niger</i> L.	Thangdum-langtang-tse/ Dhandhura	Herb	Henbane is used in Homeopathic medicine.
<i>Hypericum oblongifolium</i> Choisy		Shrub	Used as a treatment for numerous ailments, including hepatitis, gastric ulcers and bee stings.
<i>Hyssopus officinalis</i> L.		Herb	Medicinal.
<i>Inula cuspidata</i> (Wall. ex DC.) C.B.Clarke		Shrub	Medicinal.
<i>Indigofera heterantha</i> Brandis	Kathi/ Sakina	Shrub	Branches are used in basket making and in making twig bridges, fuel and fodder.
<i>Inula racemosa</i> Hook.f.		Herb	Medicinal.
<i>Juglans regia</i> L.	Akhrot/ Thanna/ Dun	Tree	Leaves are used to treat skin ailments and purify the blood, Kernel edible, die, timber, etc.
<i>Juniperus polycarpus</i> K.Koch		Tree	Senescence, fuel and timber.
<i>Koeleria</i> spp.		Grass	Whole plant has astringent properties. In folk medicine is applied externally to the skin in the form of poultice to heal the wound and fodder.

<i>Ligustrum nepalense</i> Wall.		Tree	Ornamental.
<i>Lonicera hypoleuca</i> Decne.	Karmeo/ Kharmu	Shrub	Fodder and fuel.
<i>Lonicera quinquelocularis</i> Hard.	Taknoi	Shrub	Fuel, fodder, walking stick and fruits edible.
<i>Lonicera</i> spp.		Shrub	Fuel, fodder and edible.
<i>Magnolia grandiflora</i> L.		Tree	Ornamental.
<i>Malus pumila</i> Mill.		Tree	Edible and fuel.
<i>Mangifera indica</i> L.	Mango	Tree	Fruit, fuel and medicinal.
<i>Melilotus</i> spp.		Grass	Fodder and soil fertility.
<i>Michelia champaca</i> L.		Tree	Ornamental.
<i>Murraya paniculata</i> (L.) Jack		Shrub	Edible and fuel.
<i>Myricaria elegans</i> Royle		Shrub	Fodder and fuel.
<i>Myricaria germanica</i> (L.) Desv.		Shrub	Fodder and fuel
<i>Neolitsea pallens</i> D. Don) Momiy. & H. Hara		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.
<i>Phytolacca acinosa</i> Roxb.		Herb	Root is antiasthmatic, antibacterial, antidote, antifungal, antitussive, diuretic, expectorant, laxative and vermifuge and edible.
<i>Picea smithiana</i> (Wall.) Boiss.	Rai	Tree	Timber and fuel
<i>Picrorhiza kurroa</i> Royle ex Benth.	Honglen/ Kutki/ Karu	Herb	Used to treat liver ailments, upper respiratory tract, reduce fevers, dyspepsia, chronic diarrhea, and scorpion sting.
<i>Pinus garardiana</i> Wall. ex D. Don	Chilgoza	Tree	Edible, fuel and timber.
<i>Pinus wallichiana</i> A.B. Jacks.	Kail/ Himalayan Blue Pine	Tree	Used in construction, crates, household purposes.
<i>Platanus orientalis</i> L.	Oriental plane tree	Tree	Fresh leaves are bruised and applied to the eyes in the treatment of ophthalmic. Ornamental.
<i>Poa annua</i> L.	Annual bluegrass	Grass	Used for making lawns and gardens and fodder.
<i>Poa pratensis</i> L.	Kentucky	Grass	Used in lawns and gardens.

	bluegrass/ Meadow-grass		Fodder.
<i>Polygonatum cirrhifolium</i> (Wall.) Royle	Salam Mishri	Herb	Used in the treatment of loss of vigour, pain in the kidneys and hips, swelling and fullness in the abdominal region and edible.
<i>Polygonatum verticillatum</i> (L.) All.	Salam Mishri	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 and edible.
<i>Populus alba</i> L.	Poplar/ Phrast	Tree	It is used internally in the treatment of rheumatism, arthritis, gout, lower back pains and timber.
<i>Populus ciliata</i> Wall. ex Royle	Poplar/ Phrast	Tree	Timber and fodder.
<i>Populus</i> spp.		Tree	Fodder and timber.
<i>Prinsepia utilis</i> Royle	Bhekhal	Shrub	As a treatment for rheumatism and muscular pain caused by hard work. Edible oil from kernels.
<i>Prunus cerasoides</i> Buch.-Ham. ex D.Don	Paja	Tree	Used to treat vomiting, nausea and gastritis, fruits edible and religious.
<i>Prunus cornuta</i> (Wall. ex Royle) Steud.	Jammu/ Cherry/Kurun	Tree	Edible fruits.
<i>Prunus</i> spp.		Tree	Edible.
<i>Rheum australe</i> D. Don	Chukeri ke todhi/Revandchi ni	Herb	The root is anti-cholesterolemic, antiseptic, antispasmodic, antitumor, aperient, astringent, cholagogue, demulcent, diuretic, laxative, purgative, stomachic and tonic.
<i>Rheum moorcroftianum</i> Royle	Pawan	Herb	It is commonly used for the management of renal function disorders, hyperlipidemia, cancer and improves the memory in senile patients.
<i>Rheum webbianum</i> Royle		Herb	Medicinal and edible.
<i>Ribes alpestre</i> Wall. ex Decne.		Shrub	Fruit edible.

<i>Ribes himalense</i> Royle ex Decne.		Shrub	Fruit edible.
<i>Ribes orientale</i> Desf.		Shrub	Fruit edible.
<i>Rosa macrophylla</i> Lindl.	Kantha	Shrub	Fruit edible.
<i>Rosa sericea</i> Wall. ex Lindl.		Shrub	Fruit edible.
<i>Rosa moschata</i> Herrm.		Shrub	Fruit edible.
<i>Rosa webbiana</i> Wall. ex Royle	Shyabala	Shrub	Fruit edible.
<i>Rubus biflorus</i> Buch.- Ham. ex Sm.		Shrub	Fruit edible.
<i>Rubus foliosus</i> Weihe		Shrub	Fruit edible.
<i>Rubus niveus</i> Thunb.		Shrub	Fruit edible.
<i>Saccharum spontaneum</i> L.		Grass	Fodder and soil conservation.
<i>Salix alba</i> L.		Tree	Bark is used for pain, including headache, muscle pain, menstrual cramps, timber and making cricket bats.
<i>Salix daphnoides</i> Vill.		Tree	Fodder and fuel.
<i>Salix denticulata</i> Andersson		Shrub	Fodder and fuel.
<i>Salix fragilis</i> L.	Beli	Tree	Fodder, fuel and timber.
<i>Salix tetrasperma</i> Roxb.		Tree	Used to treat ailments such as diabetes, fever, piles, epilepsy, rheumatism, swellings, stones in bladder, wound, ear pain, dysentery, cough and cold. Fodder and fuel.
<i>Saussurea costus</i> (Falc.) Lipsch.	Kuth	Herb	For the treatment of various ailments, like asthma, inflammatory diseases, ulcer and stomach problems.
<i>Selinum tenuifolium</i> Salisb.	Bhootkeshi	Herb	Used to treat rheumatism and kidney disease.
<i>Setaria glauca</i> (L.) P.Beauv.		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.

<i>Sinopodophyllum hexandrum</i> (Royle) T.S. Ying	Tandik/ Demobkusu/ Bankakri/ Omosheya	Herb	Used as a purgative and also for treatment of vaginal warts, treatment of cancers. Root paste is applied on ulcers, cuts and wounds. Fruits are edible.
<i>Skimmia laureola</i> Franch.		Shrub	Leaves used for the treatment of headache and smallpox as well as for freshness.
<i>Spiraea canescens</i> D.Don		Shrub	The leaves and flowering stems are alterative, anti-inflammatory, antiseptic, aromatic, astringent, diaphoretic, diuretic, stomachic and tonic, and ornamental.
<i>Stipa roylei</i> (Nees) Duthie		Grass	The bulb is antiasthmatic, antirheumatic, febrifuge, galactagogue, haemostatic, ophthalmic and oxytocic and fodder.
<i>Syringa emodi</i> Wall. ex Royle		Shrub	Used as folk medicine.
<i>Taxus wallichiana</i> Zucc.		Tree	Anti-cancerous, cold, cough, fever and pain. Ornamental.
<i>Thamnocalamus spathiflorus</i> (Trin.) Munro		Shrub	Fodder, makes bamboo items, etc.
<i>Trifolium pretense</i> L.		Grass	Fodder.
<i>Trifolium repens</i> L.		Grass	Fodder.
<i>Trillium govanianum</i> Wall. ex D.Don		Herb	Roots are used to stop postpartum bleeding.
<i>Ulmus villosa</i> Brandis ex Gamble		Tree	Fodder.
<i>Ulmus wallichiana</i> Planch.	Bren	Tree	Fodder, fuel and medicinal.
<i>Valeriana jatamansii</i> Wall.	Nihani/ Tagar/ Shivjadi/ Sugandhbala	Herb	It is used as a remedy for hysteria, hypochondriasis, nervous unrest and emotional stress.
<i>Viburnum grandiflorum</i> Wall. ex DC.		Shrub	Edible, fuel and medicinal
<i>Viola canescens</i> Wall.	Vanksha	Herb	Use to relieve cold and cough. Flowers are also added in tea preparation.

Annexure - 3: List of Recommended Plant Species with Uses for Planting in Natural, Agriculture and Urban Landscapes in Jammu and Kashmir UT

Botanical Name	Common/ Local Name (s)	Habit	Uses
<i>Abies pindrow</i> (Royle ex D.Don) Royle	Fir/ Budloo/ Raam	Tree	Construction.
<i>Acacia catechu</i> (L.f.) Willd.	Khair	Tree	Used for diarrhea, dysentery, bleeding, indigestion and cancer. People apply catechu directly to the skin for skin diseases.
<i>Acer acuminatum</i> Wall. ex D.Don		Tree	Wood used for agricultural implements and fodder.
<i>Acer caesium</i> Wall. ex Brandis	Kanjai	Tree	The juice of the bark is used externally to treat muscular swellings, boils and pimples.
<i>Acer pictum</i> Thunb.	Knzal/ Trikanna	Tree	Fodder and fuel.
<i>Aconitum heterophyllum</i> Wall. ex Royle	Patrishi/ Patress/ Atis	Herb	Migraines, headaches, vomiting, piles, burning sensation, etc.
<i>Aconitum violaceum</i> Jacquem. ex Stapf		Herb	The plant is used in traditional Tibetan medicine.
<i>Adina cordifolia</i> (Roxb.) Benth. & Hook.f. ex B.D.Jacks.		Tree	Medicinal and fuel.
<i>Aegle marmelos</i> (L.) Corrêa	Bill	Tree	Medicinal, edible and the fruit pulp is used to prepare delicacies like murabba, puddings and juice.
<i>Aesculus indica</i> (Wall. ex Cambess.) Hook.	House Chest Nut/ Benkhor	Tree	It is used in traditional Indian medicine for the treatment of some skin diseases and rheumatism.
<i>Agropyron</i> spp.		Grass	Couch grass has been used as a diuretic in cases of bladder catarrh and bladder/kidney stones.
<i>Agrostis gigantea</i> Roth		Grass	Fodder and soil conservation.
<i>Agrostis munroana</i> Aitch. & Hemsl.		Grass	Fodder and soil conservation.
<i>Agrostis pilosula</i> Trin.		Grass	Fodder and soil conservation.
<i>Ainsliaea aptera</i> DC.	Tito Butee	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.
<i>Ajuga bracteosa</i> Wall. ex Benth.	Joraon	Herb	The juice of the root is used in the treatment of diarrhea and dysentery.
<i>Albizia lebbek</i> (L.) Benth.	Kala Siris/ Sareen	Tree	Fodder, fuel and timber.
<i>Albizia procera</i> (Roxb.) Benth.	Safed siris	Tree	Fodder, fuel and timber.
<i>Alstonia scholaris</i> (L.) R. Br.		Tree	Ornamental.
<i>Allium humile</i> Kunth	Wild Onion	Herb	Wild onion has economic value. Used for spices.
<i>Allium stracheyi</i> Baker		Herb	Medicinal.
<i>Alnus nitida</i> (Spach) Endl.	Chaamp	Tree	Fuel and timber.
<i>Alopecurus aequalis</i> Sobol.	Orange foxtail	Grass	The whole plant is antiphlogistic, depurative and diuretic. It is used in the treatment of oedema, chickenpox and snakebites.
<i>Angelica glauca</i> Edgew.	Chora/ Choru	Herb	Used in the treatment of various skin diseases, bites of poisonous animals, fever, rhinitis, gastric and psychiatric disorders. Spices.
<i>Anthocephalus kadamba</i> (Roxb.) Miq.		Tree	Medicianl.
<i>Apluda mutica</i> L.		Grass	Fodder and soil conservation.
<i>Araucaria araucana</i> (Molina) K.Koch		Tree	Ornamental.
<i>Arnebia benthamii</i> (Wall. ex G.Don) I.M.Johnst.	Kahjuban/ Ratanjot	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.
<i>Arundinella nepalensis</i> Trin.		Grass	Soil conservation
<i>Arundinella pumila</i> (Hochst.) Steud.		Grass	Soil conservation.
<i>Arundo donax</i> L.	Nad/ Nal	Grass	Used for condylomata and indurations of the breast.
<i>Azadirachta indica</i> A.Juss.		Tree	Medicinal, fuel and timber.
<i>Bambusa arundinacea</i> Willd.		Bamboo	Fodder and bamboo items.

<i>Bauhinia retusa</i> Poir.		Tree	Fodder and fuel.
<i>Bauhinia variegata</i> L.	Kachnar	Tree	Edible and fodder.
<i>Berberis aristata</i> DC.	Kareel Kaimbul/ Kambel/ Daruharidra	Shrub	Medicinal, edible and fuel.
<i>Berberis lycium</i> Royle	Kaimal/ Kamblu/ Daruhaldi/ Khaaray/Simlu/ Resaunt/ Kavelli	Shrub	Medicinal, edible and fuel.
<i>Berberis</i> spp.	Darwhaldi/ Dandledar/ Kaodachh	Shrub	Used as remedy for swollen and sore eyes, broken bones, wounds, gonorrhea, curative piles, unhealthy ulcers, acute conjunctive and in chronic opthalmia.
<i>Bergenia ciliata</i> (Haw.) Sternb.	Sapdotri/ Zakham-a-hayat	Herb	The root juice is used to treat coughs and colds, haemorrhoids, asthma and urinary problems.
<i>Bergenia stracheyi</i> (Hook.f. & Thomson) Engl.	Dhad Kopdi	Herb	The root is used as a tonic in the treatment of fevers, diarrhea and pulmonary affections.
<i>Betula alnoides</i> Buch.- Ham. ex D.Don	Bhojpatra/ Burza	Tree	Inner bark is edible and is used for making cakes and bread.
<i>Betula utilis</i> D.Don	Bhurj/ Bhojpatra/ Birch	Tree	Treatment of various ailments and diseases such as skin disinfectant.
<i>Bignonia</i> spp.		Shrub	Ornamental.
<i>Boehmeria rugulosa</i> Wedd.		Tree	Fodder, edible.
<i>Boerhavia diffusa</i> L.	Punarnava	Grass	Popular in Ayurveda, this herb is known for its anti-inflammatory and analgesic properties.
<i>Bothriochloa intermedia</i> (R.Br.) A.Camus	Plains lovegrass	Grass	Protect degenerative diseases and maintain youthfulness, vigor and vitality.
<i>Bothriochloa pertusa</i> (L.) A.Camus		Grass	Fodder
<i>Bougainvillea</i> spp.		Shrub	Ornamental.
<i>Brachypodium</i> <i>sylvaticum</i> (Huds.) P.Beauv.	wood false brome	Grass	Widely used as a fodder and a graze for livestock.
<i>Bromus himalaicus</i> Stapf	Smooth Brome	Grass	Widely used as a fodder and a graze for livestock.
<i>Bromus ramosus</i> Huds.	Hairy Brome	Grass	The plant is used in Bach flower

			remedies.
<i>Butea monosperma</i> (Lam.) Taub.	Pulah/ Palash	Tree	Religious, fuel.
<i>Calamagrostis montana</i> (Gaudich.) DC.		Grass	Fodder.
<i>Calamagrostis emodensis</i> Griseb.		Grass	Fodder.
<i>Callistemon citrinus</i> (Curtis) Skeels		Tree	Ornamental.
<i>Carissa opaca</i> Stapf ex Haines		Shrub	Edible and fuel.
<i>Cassia fistula</i> L.	Krangal/ Amaltass	Tree	Medicinal and fuel.
<i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don	Deodar	Tree	Timber tree.
<i>Celtis australis</i> L.	Brimij/ Khirak	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.
<i>Chrysopogon fulvus</i> (Spreng.) Chiov.	Dholu/Goria	Grass	Used for erosion control, lawns, forage and medicines.
<i>Chrysopogon gryllus</i> (L.) Trin.	Dhapple ghans	Grass	For control of soil erosion.
<i>Chrysopogon serrulatus</i> Trin.	Bhadraksh	Grass	Used as for the treatment of hypertension, renal diseases and used as diuretic, anthelmintic, disinfectant, antispasmodic, carminative, deodorant.
<i>Cinnamomum tamala</i> (Buch.-Ham.) T.Nees & Eberm.		Tree	Medicinal, edible.
<i>Cornus macrophylla</i> Wall.	Arhew	Tree	Edible, fodder, fuel, etc.
<i>Cornus oblonga</i> Wall.	Oblong-Petal Dogwood	Shrub	Used principally to reduce heavy menstrual bleeding and unusually active secretions.
<i>Corylus jacquemontii</i> Decne.	Bhotiya Badam/ Virin	Tree	The nuts of all hazels are edible, fodder, etc.
<i>Cotoneaster acuminatus</i> Wall. ex Lindl.		Shrub	Fodder and fuel.
<i>Cotoneaster bacillaris</i> Wall. ex Lindl.	Dhalke phool/Leun	Shrub	Garden shrubs, grown for their attractive habit and decorative

			fruit.
<i>Cryptomeria japonica</i> (Thunb. ex L.f.) D.Don	Sugi	Tree	The wood is strongly rot resistant, easily worked for house building.
<i>Cupressus torulosa</i> D.Don	Himalayan Cypress	Tree	Traditionally used in cold and cough. Ornamental.
<i>Cycas</i> spp.		Shrub	Ornamental.
<i>Cymbopogon citratus</i> (DC.) Stapf		Grass	Medicinal, soil erosion, etc.
<i>Cymbopogon distans</i> (Nees ex Steud.) W.Watson	Malabar Grass/ Lemongrass	Grass	Used as a medical herb and in perfumes, soil erosion.
<i>Cymbopogon jwarancusa</i> (Jones) Schult.		Grass	Oil, soil erosion, etc.
<i>Cymbopogon martini</i> (Roxb.) W.Watson	Gandhabel	Grass	Used as traditional medicine its oils are used to treat rheumatism, hair loss, arthritis, lumbago and spasms. The essential oil is a strong fungicide.
<i>Cyperus rotundus</i> L.	Dheela	Grass	Medicinal, edible.
<i>Dactylis glomerata</i> L.	Cat Grass	Grass	It is a folk remedy for tumors, kidney and bladder ailments, fodder.
<i>Dactylorhiza hatagirea</i> (D.Don) Soó	Salam panja/ Hathpanja	Herb	It is used as a nervine tonic and aphrodisiac.
<i>Dalbergia sissoo</i> DC.	Shisham/ Tali	Tree	Timber.
<i>Danthonia cachemyriana</i> Jaub. & Spach		Grass	Fodder and soil erosion.
<i>Danthonia cumminsii</i> Hook.f.	Wallaby Grass	Grass	Ornamental and soil erosion.
<i>Daphne papyracea</i> Wall. ex G. Don	Indian Paper Plant	Shrub	Main source of raw material for the production of lokta paper, a hand-made paper from Nepal.
<i>Debregeasia longifolia</i> (Burm.f.) Wedd.		Shrub	Fruits edible, fodder, etc.
<i>Debregeasia hypoleuca</i> (Hochst. ex A.Rich.) Wedd.		Shrub	Fruits edible, fodder, etc.
<i>Delonix regia</i> (Hook.) Raf.		Tree	Ornamental.
<i>Dendrocalamus hamiltonii</i> Nees & Arn.		Tree	Making bamboo brakes.

ex Munro			
<i>Dendrocalamus strictus</i> (Roxb.) Nees	Bans or bamboo	Tree	Making bamboo brakes.
<i>Deschamsia</i> spp.		Grass	Fodder and soil erosion.
<i>Desmodium elegans</i> DC.	Shemar	Shrub	Fodder and fuel.
<i>Desmodium gangeticum</i> (L.) DC.		Shrub	Fodder, medicinal, etc.
<i>Deutzia corymbosa</i> R.Br. ex G.Don	Clustered Coelogyne	Shrub	The plant is known to clear heat and toxins, activate blood circulation, promote diuresis and relieve stranguria.
<i>Deutzia staminea</i> R.Br. ex Wall.	Clustered Coelogyne	Shrub	The plant is known to clear heat and toxins, activate blood circulation.
<i>Dichanthium annulatum</i> (Forssk.) Stapf	Palain	Grass	Fodder and soil erosion.
<i>Digitaria cruciata</i> (Nees) A.Camus		Grass	Fodder and soil erosion.
<i>Diospyros Montana</i> Roxb.		Tree	Edible fruits.
<i>Dodonaea viscosa</i> (L.) Jacq.	Saintha	Shrub	Soil conservation.
<i>Drepanostachyum falcatum</i> (Nees) Keng f.		Shrub	Fodder, makes bamboo items, etc.
<i>Eichhornia crassipes</i> (Mart.) Solms	Water Hyacinth,		Bio-remediation.
<i>Elaeagnus conferta</i> Roxb.		Shrub	Edible fruit, fuel, etc.
<i>Eragrostis nigra</i> Nees ex Steud.		Grass	Fodder.
<i>Eremurus himalaicus</i> Baker	Prezdar/ Kaahlu	Herb	Edible.
<i>Erianthus filifolius</i> Nees ex Steud.	Pink Feather Grass	Grass	Fodder, soil erosion, Aggressive grass that has been sold in nurseries for use as an ornamental grass in gardens, and for stabilizing soil to prevent erosion.
<i>Erianthus rufipilus</i> Griseb.	Sarkanda/Salam Ghas	Grass	Fodder, soil erosion.
<i>Eulaliopsis binata</i> (Retz.) C.E.Hubb.	Bubbeain	Grass	Making brooms, fodder and soil erosion.

<i>Euonymus</i> spp.	Dadul/ Dharua	Shrub	Wood is traditionally used for the making of spindles for spinning wool. Ornamental.
<i>Euphorbia pulcherrima</i> Willd. ex Klotzsch		Shrub	Ornamental.
<i>Festuca arundinacea</i> Schreb.	Tall fescue	Grass	Used as an ornamental grass in gardens.
<i>Festuca pratensis</i> Huds.	Foxtail chess	Grass	Used as an ornamental grass in gardens and is also an important forage crop.
<i>Festuca valesiaca</i> Schleich. ex Gaudin	Volga fescue	Grass	Used as ornamental.
<i>Ficus benghalensis</i> L.	Bohar/ Peepal	Tree	Fodder, edible, religious, etc.
<i>Ficus racemosa</i> L.	Rumble	Tree	Fodder, edible, etc.
<i>Ficus rumphii</i> Blume		Tree	Fodder, edible.
<i>Fraxinus micrantha</i> Lingelsh.		Tree	Timber, agriculture tools.
<i>Fraxinus xanthoxyloides</i> (G.Don) Wall. ex A.DC.		Tree	Agriculture tools.
<i>Fritillaria roylei</i> Hook.	Sheethkar	Herb	The bulb is antiasthmatic, antirheumatic, febrifuge, galactagogue, haemostatic, ophthalmic and oxytotic.
<i>Geranium wallichianum</i> D.Don ex Sweet	Gul-e-snohar/ Suchaphull	Herb	Garden worthy plant.
<i>Ginkgo biloba</i> L.	Bal Kumari	Tree	Used to treat altitude sickness (prevention), cerebral vascular insufficiency, cognitive disorders and dementia, ornamental
<i>Grevillea robusta</i> A.Cunn. ex R.Br.		Tree	Ornamental, fuel.
<i>Grewia optiva</i> J.R.Drumm. ex Burret	Dhaman/ Taman	Tree	Fuel, fodder, fiber, edible, etc.
<i>Haldina cordifolia</i> (Roxb.) Ridsdale		Tree	Fodder, timber.
<i>Hedychium spicatum</i> Sm.	Kapur Kachri	Herb	Stomach ailments, etc.
<i>Heracleum candicans</i> Wall. ex DC.	Cow Parsnip/ Churu/ Mirkul/ Krandel/ Hakhabuel	Herb	Spices, flavoring, aphrodisiac, tonic, colic, digestive, antipyretic, diaphoretic, itching, skin disorders, etc.

<i>Heteropogon contortus</i> (L.) P.Beauv. ex Roem. & Schult.	Lambagha/ Bunched Spear Grass	Grass	Planted for erosion control and re-vegetation of degraded habitats, fodder.
<i>Hierochloe laxa</i> Hook.f.		Grass	Fodder.
<i>Holoptelea integrifolia</i> Planch.		Tree	Ornamental, fuel.
<i>Hymenodictyon excelsum</i> (Roxb.) Wall.		Tree	Fuel.
<i>Hyoscyamus niger</i> L.	Black Henbit/ Henbane/ Bajerbhang/ Murg jawain	Herb	Henbane is used in Homeopathic medicine.
<i>Hypericum oblongifolium</i> Choisy	Hypericum	Shrub	Used as a treatment for numerous ailments, including hepatitis, gastric ulcers and bee stings.
<i>Indigofera heterantha</i> Brandis	Kathi/Himalaya n Indigo	Shrub	The branches are used in basket making and in making twig bridges.
<i>Inula cuspidata</i> (Wall. ex DC.) C.B.Clarke		Shrub	Medicinal.
<i>Jacaranda mimosifolia</i> D.Don		Tree	Ornamental.
<i>Juglans regia</i> L.	Walnut/ Akhrot	Tree	The leaves are used to treat skin ailments and purify the blood, edible, dye.
<i>Justicia adhatoda</i> L.		Shrub	Medicinal.
<i>Kigelia pinnata</i> (Jacq.) DC.		Tree	Ornamental.
<i>Koeleria</i> spp.	June Grass	Grass	The whole plant has astringent properties. In folk medicine is applied externally to the skin in the form of poultice to heal the wound, fodder.
<i>Lannea coromandelica</i> (Houtt.) Merr.	Kembal	Tree	Fuel.
<i>Litsea chinensis</i> Lam.		Tree	Oil, fuel.
<i>Lyonia ovalifolia</i> (Wall.) Drude	Angeri	Tree	The young leaves and buds are toxic, but they are used externally as an infusion to treat skin diseases and external parasites, fuel.
<i>Maesa indica</i> (Roxb.) A. DC.		Shrub	Fodder, fuel.

<i>Magnolia grandiflora</i> L.	Him champa/ Bull Bay	Tree	Ornamental.
<i>Mallotus philippensis</i> (Lam.) Müll.Arg.	Kamila/ Kembal	Tree	Fodder, fuel, miscellaneous etc.
<i>Michelia champaca</i> L.		Tree	Ornamental.
<i>Melia azedarach</i> L.	Drek/ Drenk	Tree	Fodder, timber.
<i>Morus alba</i> L.	Toot/ Tut	Tree	Used in traditional Chinese medicine to treat asthma, bronchitis, edema, and diabetes. Fodder and silkworm production. Used in traditional Chinese medicine to treat asthma, bronchitis, edema, and diabetes. Fodder and silkworm production, edible.
<i>Murraya paniculata</i> (L.) Jack		Shrub	Edible.
<i>Murraya koenigii</i> (L.) Spreng.	Drenkeri	Shrub	Edible.
<i>Myrica esculenta</i> Buch.- Ham. ex D. Don		Tree	Edible, medicinal, etc.
<i>Myrsinea africana</i> L.		Shrub	Making brooms.
<i>Nelumbo nucifera</i> Gaertn.	Kamal		Ornamental.
<i>Neolitsea pallens</i> D. Don) Momiy. & H. Hara	Chirchira	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, oil.
<i>Nerium indicum</i> Mill.	Gandila/ Lalkaner/ Kaner	Shrub	It is bitter, acrid, anthelmintic, adaptogenic, analgesic, aphrodisiac anticancer and anti-inflammatory, ornamental.
<i>Neyraudia arundinacea</i> (L.) Henrard		Grass	Fodder, soil erosion.
<i>Nyctanthes arbor-tristis</i> L.	Parijat/ Shefali	Shrub	Used in various ailments like fever, enlargement of the spleen, malaria, blood dysentery, cough and gastritis, ornamental.
<i>Nymphoides cristata</i> (Roxb.) Kuntze			Edible, ornamental.
<i>Olea spp.</i>	Kua/ Kahu	Tree	Fodder, fuel, medicinal, edible.

<i>Olea ferruginea</i> Wall. ex Aitch.	Kua/ Kahu	Tree	Medicinal, religious.
<i>Oroxylum indicum</i> (L.) Kurz		Tree	Medicinal, religious.
<i>Panicum maximum</i> Jacq.		Grass	Fodder and soil conservation.
<i>Parrotiopsis jacquemontiana</i> (Decne.) Rehder	Hatab/Parrotia/ Poa	Shrub	Used for skin infections and in wound healing.
<i>Phleum pretense</i> L.	Alpine Cat Tail	Grass	Used in small amounts as part of a new hay fever vaccine.
<i>Phragmites karka</i> (Retz.) Trin. ex Steud.	Doka-Ghas/ Kilak	Grass	Concoction of reed roots was believed to bring the fever away via increased urination and also help to restore body fluid, fodder, soil erosion.
<i>Phyllanthus emblica</i> L.		Tree	Medicinal, edible fluid.
<i>Phytolacca acinosa</i> Roxb.	Brand/ Saranugun/Himalayan Pokeberry	Herb	The root is antiasthmatic, antibacterial, antidote, antifungal, antitussive, diuretic, expectorant, laxative and vermifuge, edible.
<i>Picea smithiana</i> (Wall.) Boiss.	Spruce	Tree	Timber, fuel.
<i>Picrorhiza kurrooa</i> Royle	Kour/ Kaur/ Kuru/ Honglen/Kutki	Herb	Used to treat disorders of the liver and upper respiratory tract, chronic diarrhea, and scorpion sting.
<i>Pinus gerardiana</i> Wall. ex D.Don		Tree	Edible, medicinal, fuel, timber.
<i>Pinus roxburghii</i> Sarg.	Chir	Tree	Timber, resin, oleoresin, medicinal, fuel, etc.
<i>Pinus wallichiana</i> A.B.Jacks.	Kail/Himalayan Blue Pine	Tree	Used in construction, crates, household purposes, fuel.
<i>Pistacia integerrima</i> J. L. Stewart ex Brandis	Kakarsinghi	Tree	Medicinal, fodder.
<i>Platanus orientalis</i> L.	Oriental plane/Bouin	Tree	The fresh leaves are bruised and applied to the eyes in the treatment of ophthalmic. Ornamental.
<i>Plectranthus rugosus</i> Wall. ex Benth.	Salai	Shrub	Medicinal, bee flora.
<i>Poa annua</i> L.	Annual Bluegrass	Grass	Used for making lawns and gardens.
<i>Poa pratensis</i> L.	Smooth Brome	Grass	Used in lawns and gardens, Fodder.

<i>Polyalthia longifolia</i> (Sonn.) Thwaites		Tree	Ornamental.
<i>Polygonatum cirrhifolium</i> (Wall.) Royle	Coiling Leaf Polygonatum/ Mahmeda	Herb	Used in the treatment of loss of vigour, pain in the kidneys and hips, swelling and fullness in the abdominal region, edible.
<i>Polygonatum multiflorum</i> (L.) All.	Ra-mnye	Herb	Medicinal, edible.
<i>Polygonatum verticillatum</i> (L.) All.	Salam dana, mishri, Mitha- dodhu	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., edible.
<i>Pongamia pinnata</i> (L.) Pierre		Tree	Medicinal and timber.
<i>Populus</i> spp.		Tree	Fodder, timber.
<i>Potamogeton</i> spp.		Herb	Water purification.
<i>Prinsepia utilis</i> Royle	Bhekhal	Shrub	As a treatment for rheumatism and muscular pain caused by hard work. Edible oil from kernels.
<i>Prunus cerasoides</i> Buch.-Ham. ex D.Don	Padam/ pajja	Tree	Used to treat vomiting, nausea and gastritis, fodder, edible.
<i>Prunus cornuta</i> (Wall. ex Royle) Steud.	Zum/ Himalayan Bird Cherry	Tree	Edible fruits.
<i>Punica granatum</i> L.	Darhuni/ Anar/ Daru	Tree	Medicinal, edible.
<i>Pyrus pashia</i> Buch.- Ham. ex D.Don	Kainth/ Wild pear	Tree	It is used in gastrointestinal disorders, fever and headache, sweating of body. Edible fruits.
<i>Quercus baloot</i> Griff.		Tree	Fodder, fuel.
<i>Quercus floribunda</i> Lindl. ex A.Camus		Tree	Fodder, fuel, timber, etc.
<i>Quercus oblongata</i> D.Don	Oak/ Banj	Tree	Fodder, fuel, timber, etc.
<i>Quercus semecarpifolia</i> Sm.	Kharsu	Tree	Fodder, fuel, etc.
<i>Rheum australe</i> D. Don	Chukri/ Padshah/Pambc halan	Herb	The root is anti-cholesterolemic, antiseptic, antispasmodic, antitumor, aperient, astringent, cholagogue, demulcent, diuretic,

			laxative, purgative, stomachic and tonic.
<i>Rheum moorcroftianum</i> Royle	Rhubarb/ Pambechalan	Herb	It is commonly used for the management of renal function disorders, hyperlipidemia, cancer and improves the memory in senile patients.
<i>Ricinus communis</i> L.	Arnid	Shrub	Oil.
<i>Rosa macrophylla</i> Lindl.		Shrub	Edible.
<i>Rosa moschata</i> Herrm.	Karir/Ban Gulab	Shrub	Used for the treatment of abdominal spasm and diarrhea, edible.
<i>Rosa sericea</i> Wall. ex Lindl.		Shrub	Edible.
<i>Rosa</i> spp.		Shrub	Ornamental.
<i>Rubus foliolosus</i> Hal csy		Shrub	Edible.
<i>Rubus niveus</i> Thunb.	Chhanchh	Shrub	Edible.
<i>Saccharum munja</i> Roxb.	Khar	Grass	Fodder, soil erosion.
<i>Saccharum spontaneum</i> L.	Kai	Grass	Fodder, soil erosion.
<i>Salix</i> spp.	Bed	Tree	Fodder, fuel, timber, etc.
<i>Sapindus mukorossi</i> Gaertn.	Reetha	Tree	Medicinal etc.
<i>Saraca asoca</i> (Roxb.) Willd.		Tree	Medicinal, ornamental.
<i>Saussurea costus</i> (Falc.) Lipsch.	Kuth/ Kuste Himid/ Chobi-i-qut	Herb	For the treatment of various ailments, like asthma, inflammatory diseases, ulcer and stomach problems.
<i>Scirpus grossus</i> L.f.	Kaseru/ Club-rush		Bioremediation.
<i>Selinum tenuifolium</i> Salisb.	Leaf Milk Parsley	Herb	Used to treat rheumatism and kidney disease.
<i>Selinum vaginatum</i> C.B. Clarke	Bhoot kesi	Herb	Medicinal and soil conservation.
<i>Sesbania sesban</i> (L.) Merr.		Tree	Ornamental.
<i>Setaria glauca</i> (L.) P.Beauv.	Bandra/ Bankauni	Grasses	Fodder.
<i>Sinopodophyllum hexandrum</i> (Royle) T.S. Ying	Tandik/ Demobkusu/ Bankakri/ Omosheya	Herb	Used as a purgative and also for treatment of vaginal warts, treatment of cancers. Root paste is applied on ulcers, cuts and

			wounds. Fruits are edible.
<i>Spiraea canescens</i> D.Don	Dhakk	Shrub	The leaves and flowering stems are alterative, anti-inflammatory, antiseptic, aromatic, astringent, diaphoretic, diuretic, stomachic and tonic, ornamental.
<i>Spirodela polyrrhiza</i> (L.) Schleid.		Herb	Bio-remediation.
<i>Sporobolus diandrus</i> (Retz.) P.Bauv.		Grasses	Fodder.
<i>Stipa roylei</i> (Nees) Duthie	Stipa	Grasses	The bulb is antiasthmatic, antirheumatic, febrifuge, galactagogue, haemostatic, ophthalmic and oxytocic, fodder.
<i>Syringa emodi</i> Wall. ex Royle	Himalayan Lilac	Shrub	Medicine.
<i>Syzygium cumini</i> (L.) Skeels	Jamun	Tree	Medicinal, edible, fuel, beverage.
<i>Syzygium venosum</i> DC.		Tree	Medicinal, edible, fuel.
<i>Taxus wallichiana</i> Zucc.	Thuno/ Madhuparni	Tree	Anti-cancerous, cold, cough, fever and pain. Ornamental.
<i>Tecoma stans</i> (L.) Juss. ex Kunth		Shrub	Ornamental.
<i>Tephrosia hamiltonii</i> Gamble	Sarapunkha	Shrub	Plant is anthelmintic, alexiteric, restorative and antipyretic.
<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn.	Arjun	Tree	Medicinal.
<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Bahera/ Bheda	Tree	Medicinal, edible, fodder, miscellaneous.
<i>Terminalia chebula</i> Retz.	Harar	Tree	Medicinal, edible, fodder, miscellaneous.
<i>Themeda anathera</i> (Nees ex Steud.) Hack.	Loonder Grass	Grasses	Fodder and soil conservation.
<i>Themeda arundinacea</i> (Roxb.) A.Camus		Grasses	Fodder and soil conservation.
<i>Thuja orientalis</i> L.		Tree	Ornamental.
<i>Thysanolaena maxima</i> (Roxb.) Kuntze	Bamboo Grass	Grass	Fodder, soil erosion and soil conservation, broom making.
<i>Tinospora cordifolia</i> (Willd.) Miers	Giloe	Shrub	Medicinal.
<i>Toona ciliata</i> M.Roem.	Toon	Tree	Timber, miscellaneous.
<i>Toona sinensis</i> (Juss.)		Tree	Fodder, timber, miscellaneous.

M.Roem.			
<i>Trifolium pretense</i> L.	Red clover	Grasses	Fodder, soil fertility.
<i>Trifolium repens</i> L.	White clover/ Chopati	Grasses	Fodder, soil fertility.
<i>Trillium govanianum</i> Wall. ex D.Don	Himalayan Trillium/ Nagchhatri	Herb	Medicinal.
<i>Typha angustata</i> Bory & Chaub.	Petz	Herb	Bio-remediation.
<i>Ulmus wallichiana</i> Planch.	Brari/ Kain/ Himalayan Elm	Tree	Fodder, fuel, medicinal, timber
<i>Valeriana jatamansi</i> Jones	Mushkbala	Herb	Hysteria, hypochondriasis, nervous unrest and emotional stress, senescens.
<i>Viburnum cotinifolium</i> D. Don	Kulmosh	Shrub	Edible, fodder, fuel.
<i>Viburnum nervosum</i> D. Don	Molo/Kulmach	Shrub	Medicinal as a blood purifier.
<i>Viola canescens</i> Wall.	Bunafsha	Herb	Medicinal.
<i>Vitex negundo</i> L.	Bana/ Banha	Shrub	Medicinal, biofencing, etc.
<i>Withania somnifera</i> (L.) Dunal	Ashwagandha	Shrub	Medicinal
<i>Woodfordia fruticosa</i> (L.) Kurz	Dhain	Shrub	Medicinal, fuel, dye, etc.
<i>Zanthoxylum armatum</i> DC.	Timbru/ Tejphal	Shrub	Rheumatism and skin diseases; chilblains, cramp in the leg, varicose veins and varicose ulcers. Also used as spice.
<i>Ziziphus jujuba</i> Mill.	Ber	Shrub	Edible.
<i>Ziziphus nummularia</i> Lam.		Tree	Edible.

Annexure - 4: Model-Wise List of Recommended Plant Species for Planting in Natural, Agriculture and Urban Landscapes in Himachal Pradesh

Botanical Name	Natural Landscape							Agriculture Landscape		Urban Landscape	
	Himachal Pradesh							Himachal Pradesh		Himachal Pradesh	
	1	2	3	4	5	6	7	1	2	1	2
<i>Abies pindrow</i> (Royle ex D.Don) Royle	✓			✓	✓						
<i>Acer acuminatum</i> Wall. ex D.Don						✓					
<i>Achillea millifolium</i> L.		✓	✓								
<i>Aconitum heterophyllum</i> Wall. ex Royle		✓	✓	✓	✓						
<i>Aesculus indica</i> Wall. ex Cambess.						✓					
<i>Agropyron</i> sp.			✓								
<i>Agrostis gigantean</i> Roth			✓								
<i>Agrostis munroana</i> Aitch. & Hemsl.			✓				✓				
<i>Agrostis pilosula</i> var. <i>alpestris</i> (Hook.f.) Veldkamp			✓								
<i>Ainsliaea aptera</i> DC.			✓								

<i>Allium carolinianum</i> DC.		✓									
<i>Allium humile</i> Kunth			✓	✓							
<i>Alnus nepalensis</i> D.Don						✓					
<i>Alnus nitida</i> (Spach) Endl.						✓					
<i>Alopecurus aequalis</i> Solol.							✓				
<i>Alopecurus nepalensis</i> Trin. ex Steud.							✓				
<i>Angelica glauca</i> Edgew			✓	✓	✓	✓					
<i>Arnebia benthamii</i> Wall. ex G.Don			✓	✓							
<i>Arnebia euchroma</i> (Royle) I.M.Johnst.		✓									
<i>Artemisia maritima</i> L.		✓		✓							
<i>Arundinella nepalensis</i> Trin.							✓				
<i>Arundinella pumila</i> (Hochst.) Steud.							✓				
<i>Bauhinia variegata</i> L.										✓	
<i>Berberis jaeschkeana</i> C.K.Schneid.					✓			✓			
<i>Berberis pseudumbellata</i> R.Parker					✓						
<i>Berberis</i> spp.										✓	
<i>Bergenia ciliate</i> (Haw.) Sternb.					✓	✓					
<i>Bergenia stracheyi</i> (Hook.f. & Thomson) Engl.				✓	✓						

<i>Betula utilis</i> D.Don	✓			✓							
<i>Bothriochloa intermedia</i> (R.Br.) A.Camus							✓				
<i>Bothriochloa pertusa</i> (L.) A.Camus							✓				
<i>Brachypodium sylvaticum</i> (Huds.) P.Beauv.			✓								
<i>Bromus himalaicus</i> Stapf			✓								
<i>Bromus ramosus</i> Huds			✓								
<i>Calamagrostis montana</i> (Gaudich.) DC.			✓								
<i>Calamagrostis</i> spp.							✓				
<i>Capparis spinosa</i> L.	✓	✓									
<i>Caragana brevifolia</i> Kom.	✓	✓									
<i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don					✓	✓				✓	✓
<i>Chrysopogon gryllus</i> (L.) Trin.							✓				
<i>Cicer songaricum</i> DC.		✓									
<i>Cinnamomum tamala</i> (Buch .-Ham.) T.Nees & Eberm.										✓	
<i>Colutea nepalensis</i> Sims	✓	✓									
<i>Cornus macrophylla</i> Wall.						✓					
<i>Corylus jacquemontii</i> Decne					✓			✓	✓	✓	✓
<i>Cotoneaster acuminatus</i> Wall. ex Lindl.					✓	✓					

<i>Cotoneaster bacillaris</i> Wall. ex Lindl					✓	✓					
<i>Crataegus songarica</i> C. Koch					✓						
<i>Cycas</i> spp.										✓	
<i>Cymbopogon distans</i> (Nees ex Steud.) W.Watson							✓				
<i>Dactylis glomerata</i> L.		✓	✓				✓				
<i>Dactylorhiza hatagirea</i> (D.Don) Soó		✓	✓	✓							
<i>Danthonia cachemyriana</i> Jaub. & Spach		✓	✓				✓				
<i>Danthonia</i> <i>cumminsii</i> Hook.f.			✓								
<i>Daphne papyracea</i> Wall. ex G. Don					✓	✓					
<i>Debregeasia hypoleuca</i> (Hochst. ex A.Rich.) Wedd.						✓					
<i>Debregeasia longilfolia</i> (Burm.f.) Wedd.						✓					
<i>Desmodium elegans</i> DC.					✓						
<i>Diospyros</i> spp.								✓	✓		
<i>Drepanostachyum falcatum</i> (Nees) Keng f.					✓	✓					
<i>Elaeagnus conferta</i> Roxb.						✓					
<i>Ephedra gerardiana</i> Wall. ex Stapf	✓	✓									

<i>Eragrostis</i> spp.		✓									
<i>Eremurus himalaicus</i> Baker		✓		✓							
<i>Erianthus rufipilus</i> Griseb.							✓				
<i>Erianthus</i> sp.			✓								
<i>Festuca pratensis</i> Huds.		✓	✓				✓				
<i>Festuca valesiaca</i> Schleich. ex Gaudin			✓								
<i>Fraxinus micrantha</i> Lingelsh.			✓								
<i>Fraxinus xanthoxyloides</i> (G.Don) Wall. ex A.DC.					✓						
<i>Geranium wallichianum</i> D.Don ex Sweet			✓	✓	✓						
<i>Hedychium spicatum</i> Sm.						✓					
<i>Heracleum candicans</i> Wall. ex DC.		✓	✓	✓	✓	✓					
<i>Hippophae rhamnoides</i> ssp. <i>Turkestanica</i> Rousi.	✓	✓			✓			✓			
<i>Hippophae salicifolia</i> D.Don	✓			✓				✓			
<i>Hippophae</i> spp.										✓	
<i>Hyoscyamus niger</i> L.		✓									
<i>Hypericum oblongifolium</i> Choisy					✓	✓					
<i>Hyssopus officinalis</i> L.		✓									
<i>Indigofera heterantha</i> Brandis					✓						

<i>Indogofera</i> spp.										✓	
<i>Inula cuspidata</i> (Wall. ex DC.) C.B.Clarke					✓	✓					
<i>Inula racemosa</i> Hook.f.		✓	✓								
<i>Juglans regia</i> L.					✓			✓	✓		✓
<i>Juniperus polycarpus</i> K.Koch	✓			✓						✓	✓
<i>Koeleria</i> spp.		✓	✓				✓				
<i>Ligustrum nepalense</i> Wall.										✓	
<i>Lonicera hypoleuca</i> Decne.	✓										
<i>Lonicera quinquelocularis</i> Hard.					✓	✓					
<i>Lonicera</i> spp.										✓	
<i>Magnolia grandiflora</i> L.										✓	✓
<i>Malus pumila</i> Mill.								✓	✓		
<i>Mangifera Indica</i> L.										✓	
<i>Melilotus</i> spp.		✓									
<i>Michelia champaca</i> L.										✓	
<i>Murraya paniculata</i> (L.) Jack										✓	
<i>Myricaria elegans</i> Royle	✓										
<i>Myricaria germanica</i> (L.) Desv.	✓										
<i>Neolitsea pallens</i> (D. Don) Momiy. & H. Hara						✓					
<i>Palm</i> spp.										✓	
<i>Phytolacca acinosa</i> Roxb.					✓						

<i>Picea smithiana</i> (Wall.) Boiss.				✓	✓	✓					
<i>Picrorhiza kurroa</i> Royle ex Benth.		✓		✓	✓						
<i>Pinus garardiana</i> Wall. ex D. Don											✓
<i>Pinus wallichiana</i> A.B. Jacks.	✓			✓	✓	✓				✓	✓
<i>Platanus orientalis</i> L.											✓
<i>Platanus</i> spp.										✓	
<i>Poa annua</i> L.		✓	✓				✓				
<i>Poa pratensis</i> L.		✓	✓				✓				
<i>Polygonatum cirrhifolium</i> (Wall.) Royle			✓	✓	✓	✓					
<i>Polygonatum verticillatum</i> (L.) All.			✓	✓	✓	✓					
<i>Populus alba</i> L.	✓										
<i>Populus ciliata</i> Wall. ex Royle	✓				✓						
<i>Populus</i> spp.								✓	✓	✓	✓
<i>Prinsepia utilis</i> Royle					✓	✓					
<i>Prunus cerasoides</i> Buch.-Ham. ex D. Don						✓					
<i>Prunus cornuta</i> (Wall. ex Royle) Steud.				✓		✓					
<i>Prunus</i> spp.								✓	✓	✓	✓
<i>Rheum australe</i> D. Don		✓	✓								

<i>Rheum moorcroftianum</i> Royle			✓								
<i>Rheum webbianum</i> Royle		✓						✓			
<i>Ribes alpestre</i> Wall. ex Decne.	✓	✓									
<i>Ribes himalense</i> Royle ex Decne.	✓	✓									
<i>Ribes orientale</i> Desf.	✓	✓									
<i>Rosa macrophylla</i> Lindl.					✓	✓		✓			
<i>Rosa sericea</i> Wall. ex Lindl.					✓	✓		✓			
<i>Rosa</i> spp.										✓	
<i>Rosa webbiana</i> Wall. ex Royle	✓	✓									
<i>Rubus biflorus</i> Buch.-Ham. ex Sm.						✓					
<i>Rubus foliosus</i> Weihe						✓					
<i>Rubus niveus</i> Thunb.						✓					
<i>Saccharum spontaneum</i> L.							✓				
<i>Salix alba</i> L.	✓										
<i>Salix daphnoides</i> Vill.	✓			✓							
<i>Salix denticulata</i> Andersson		✓			✓						
<i>Salix fragilis</i> L.	✓										
<i>Salix</i> spp.								✓	✓	✓	✓
<i>Salix tetrasperma</i> Roxb.	✓										
<i>Saussurea costus</i> (Falc.) Lipsch.			✓								

<i>Selinum tenuifolium</i> Salisb.			✓	✓							
<i>Setaria glauca</i> (L.) P.Beauv.							✓				
<i>Sinopodophyllum hexandrum</i> (Royle) T.S. Ying			✓		✓	✓					
<i>Skimmia laureola</i> Franch.					✓						
<i>Spiraea canescens</i> D.Don										✓	
<i>Stipa roylei</i> (Nees) Duthie			✓								
<i>Syringa emodi</i> Wall. ex Royle					✓						
<i>Taxus wallichiana</i> Zucc.					✓	✓				✓	
<i>Thamnocalamus spathiflorus</i> (Trin.) Munro					✓						
<i>Trifolium pretense</i> L.		✓	✓				✓				
<i>Trifolium repens</i> L.							✓				
<i>Trillium govanianum</i> Wall. ex D.Don					✓	✓					
<i>Ulmus villosa</i> Brandis ex Gamble											✓
<i>Ulmus wallichiana</i> Planch.						✓					✓
<i>Valeriana jatamansii</i> Wall.					✓	✓					
<i>Viburnum grandiflorum</i> Wall. ex DC.					✓	✓					
<i>Viola canescens</i> Wall.						✓					
<i>Viola serpens</i> Wall. ex Ging.					✓						

Annexure - 5: Model-Wise List of Recommended Plant Species for Planting in Natural, Agriculture and Urban Landscapes in Jammu and Kashmir UT

Botanical Name	Natural Landscape											Agriculture Landscape		Urban Landscape			
	Jammu and Kashmir UT											Jammu and Kashmir UT		Jammu and Kashmir UT			
	1	2	3	4	5	6	7	8	9	10	11	1	2	1	2	3	4
<i>Abies pindrow</i> (Royle ex D.Don) Royle		✓	✓														
<i>Acacia catechu</i> (L.f.) Willd.									✓	✓	✓	✓	✓				
<i>Acer acuminatum</i> Wall. ex D.Don		✓															
<i>Acer caesium</i> Wall. ex Brandis		✓															
<i>Acer pictum</i> Thunb.		✓															
<i>Acer</i> spp.					✓												
<i>Aconitum heterophyllum</i> Wall. ex Royle	✓	✓	✓	✓	✓												
<i>Aconitum violaceum</i> Jacquem. ex Stapf	✓																
<i>Adina cordifolia</i> (Roxb.) Benth. & Hook.f. ex B.D.Jacks.											✓						
<i>Aegle marmelos</i> (L.)							✓		✓	✓	✓	✓	✓				

Corrêa																	
<i>Aesculus indica</i> (Wall. ex Cambess.) Hook.					✓												
<i>Agropyron</i> spp.	✓					✓		✓									
<i>Agrostis gigantea</i> Roth	✓						✓	✓	✓								
<i>Agrostis munroana</i> Aitch. & Hemsl.	✓																
<i>Agrostis pilosula</i> Trin.	✓																
<i>Agrostis</i> spp.						✓						✓					
<i>Ainsliaea aptera</i> DC.	✓																
<i>Ajuga bracteosa</i> Wall. ex Benth.					✓												
<i>Albizia lebbek</i> sensu auct.								✓	✓						✓		
<i>Albizia procera</i> (Roxb.) Benth.									✓								
<i>Albizia</i> spp.							✓			✓	✓		✓			✓	✓
<i>Alstonia scholaris</i> (L.) R. Br.							✓	✓	✓	✓	✓				✓	✓	✓
<i>Allium humile</i> Kunth	✓	✓															
<i>Allium stracheyi</i> Baker			✓														
<i>Alnus nitida</i> (Spach) Endl.			✓		✓												
<i>Alopecurus aequalis</i> Sobol.						✓											
<i>Alopecurus nepalensis</i> Trin. ex Steud.						✓											

<i>Angelica glauca</i> Edgew.		✓	✓	✓	✓												
<i>Anthocephalus kadamba</i> (Roxb.) Miq.																✓	
<i>Apluda mutica</i> L.										✓	✓						
<i>Araucaria araucana</i> (Molina) K.Koch																✓	✓
<i>Arnebia benthamii</i> (Wall. ex G.Don) I.M.Johnst.	✓	✓															
<i>Arundinella nepalensis</i> Trin.					✓					✓	✓						
<i>Arundinella pumila</i> (Hochst.) Steud.					✓												
<i>Arundo donax</i> L.						✓	✓	✓	✓	✓							
<i>Azadirachta indica</i> A.Juss.						✓		✓								✓	
<i>Bambusa arundinacea</i> Willd.										✓							
<i>Bambusa</i> spp.						✓		✓		✓	✓	✓			✓		
<i>Bauhinia retusa</i> Poir.							✓										
<i>Bauhinia</i> spp.											✓	✓					
<i>Bauhinia variegata</i> L.						✓	✓	✓	✓	✓							
<i>Berberis aristata</i> DC.						✓	✓										
<i>Berberis lycium</i> Royle						✓	✓	✓									
<i>Berberis</i> spp.					✓												
<i>Bergenia ciliata</i> (Haw.) Sternb.				✓	✓												

<i>Bergenia stracheyi</i> (Hook.f. & Thomson) Engl.		✓															
<i>Betula alnoides</i> Buch.- Ham. ex D.Don					✓												
<i>Betula utilis</i> D.Don		✓															
<i>Bignonia</i> spp.															✓		✓
<i>Boehmeria rugulosa</i> Wedd.								✓									
<i>Boerhavia diffusa</i> L.						✓	✓	✓	✓	✓							
<i>Bothriochloa intermedia</i> (R.Br.) A.Camus						✓	✓	✓									
<i>Bothriochloa pertusa</i> (L.) A.Camus					✓	✓	✓	✓									
<i>Bothriochloa parviflora</i> (R.Br.) Ohwi					✓												
<i>Bougainvillea</i> spp.															✓		✓
<i>Brachypodium sylvaticu</i> <i>m</i> (Huds.) P.Beauv.	✓																
<i>Bromus himalaicus</i> Stapf	✓																
<i>Bromus ramosus</i> Huds.	✓																
<i>Butea monosperma</i> (Lam.) Taub.															✓		✓
<i>Calamagrostis montana</i> (Gaudich.) DC.	✓																
<i>Calamagrostis</i> spp.						✓		✓	✓								

<i>Calamagrostis emodensis</i> Griseb.							✓										
<i>Callistemon citrinus</i> (Curtis) Skeels																✓	✓
<i>Carissa opaca</i> Stapf ex Haines							✓	✓	✓								
<i>Cassia fistula</i> L.											✓		✓		✓	✓	
<i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don			✓	✓	✓												
<i>Celtis australis</i> L.			✓						✓	✓	✓						
<i>Chrysopogon fulvus</i> (Spreng.) Chiov.								✓	✓								
<i>Chrysopogon gryllus</i> (L.) Trin.						✓											
<i>Chrysopogon serrulatus</i> Trin.							✓	✓	✓	✓	✓						
<i>Cinnamomum tamala</i> (Buch.-Ham.) T.Nees & Eberm.							✓	✓	✓								
<i>Cornus macrophylla</i> Wall.					✓												
<i>Cornus oblonga</i> Wall.				✓													
<i>Corylus jacquemontii</i> Decne.		✓															
<i>Cotoneaster acuminatus</i> Wall. ex Lindl.					✓												
<i>Cotoneaster bacillaris</i>				✓	✓												

Wall. ex Lindl.																	
<i>Cryptomeria japonica</i> (Thunb. ex L.f.) D.Don																✓	✓
<i>Cupressus torulosa</i> D.Don				✓													
<i>Cycas</i> spp.																✓	
<i>Cymbopogon citratus</i> (DC.) Stapf										✓	✓						
<i>Cymbopogon distans</i> (Nees ex Steud.) W.Watson						✓											
<i>Cymbopogon jwarancusa</i> (Jones) Schult.								✓									
<i>Cymbopogon martini</i> (Roxb.) W.Watson							✓	✓	✓								
<i>Cyperus rotundus</i> L.														✓			
<i>Dactylis glomerata</i> L.	✓					✓											
<i>Dactylorhiza hatagirea</i> (D.Don) Soó	✓	✓															
<i>Dalbergia sissoo</i> DC.									✓	✓	✓	✓	✓		✓		✓
<i>Danthonia cachemyriana</i> Jaub. & Spach	✓																
<i>Danthonia cumminsii</i> Hook.f.	✓																
<i>Daphne papyracea</i>				✓	✓												

Wall. ex G. Don																	
<i>Debregeasia longifolia</i> (Burm.f.) Wedd.				✓	✓												
<i>Debregeasia hypoleuca</i> (Hochst. ex A.Rich.) Wedd.								✓	✓								
<i>Delonix regia</i> (Hook.) Raf.															✓	✓	✓
<i>Dendrocalamus</i> <i>hamiltonii</i> Nees & Arn. ex Munro							✓		✓	✓							
<i>Dendrocalamus</i> spp.											✓	✓	✓				
<i>Dendrocalamus strictus</i> (Roxb.) Nees							✓		✓	✓							
<i>Deschamsia</i> spp.										✓	✓						
<i>Desmodium elegans</i> DC.				✓			✓	✓									
<i>Desmodium gangeticum</i> (L.) DC.								✓	✓								
<i>Deutzia corymbosa</i> R.Br. ex G.Don								✓									
<i>Deutzia staminea</i> R.Br. ex Wall.					✓			✓									
<i>Dichanthium annulatum</i> (Forssk.) Stapf							✓			✓	✓						
<i>Digitaria cruciata</i> (Nees) A.Camus							✓										

<i>Diospyros Montana</i> Roxb.							✓		✓	✓	✓						
<i>Dodonaea viscosa</i> (L.) Jacq.					✓												
<i>Drepanostachyum falcatum</i> (Nees) Keng f.						✓											
<i>Eichhornia crassipes</i> (Mart.) Solms													✓				
<i>Elaeagnus conferta</i> Roxb.								✓									
<i>Eragrostis nigra</i> Nees ex Steud.										✓	✓						
<i>Eremurus himalaicus</i> Baker	✓	✓			✓												
<i>Erianthus filifolius</i> Nees ex Steud.							✓	✓	✓								
<i>Erianthus rufipilus</i> Griseb.	✓				✓		✓	✓	✓								
<i>Erianthus</i> spp.	✓																
<i>Eulaliopsis binata</i> (Retz.) C.E.Hubb.							✓	✓	✓	✓	✓						
<i>Euonymus</i> spp.																	✓
<i>Euphorbia pulcherrima</i> Willd. ex Klotzsch														✓			
<i>Festuca arundinacea</i> Schreb.							✓	✓	✓								
<i>Festuca pratensis</i>	✓					✓	✓	✓	✓								

Schreb.																	
<i>Festuca valesiaca</i> Schleich. ex Gaudin	✓																
<i>Ficus benghalensis</i> L.							✓	✓	✓	✓						✓	
<i>Ficus racemosa</i> L.							✓	✓	✓	✓							
<i>Ficus rumphii</i> Blume							✓	✓	✓	✓							
<i>Fraxinus micrantha</i> Lingelsh.					✓												
<i>Fraxinus xanthoxyloides</i> (G.Don) Wall. ex A.DC.			✓														
<i>Fritillaria roylei</i> Hook.	✓	✓															
<i>Geranium wallichianum</i> D.Don ex Sweet	✓	✓	✓	✓	✓												
<i>Ginkgo biloba</i> L.															✓	✓	
<i>Grevillea robusta</i> A.Cunn. ex R.Br.															✓		
<i>Grewia optiva</i> J.R.Drumm. ex Burret							✓	✓	✓	✓	✓	✓	✓				
<i>Haldina cordifolia</i> (Roxb.) Ridsdale									✓	✓							
<i>Hedychium spicatum</i> Lodd.				✓	✓												
<i>Heracleum candicans</i> Wall. ex DC.	✓	✓	✓	✓	✓												
<i>Heteropogon contortus</i> (L.) P.Beauv. ex Roem. & Schult.							✓	✓	✓	✓	✓						

<i>Hierochloe laxa</i> Hook.f.										✓	✓						
<i>Holoptelea integrifolia</i> Planch.							✓	✓	✓	✓	✓						
<i>Hymenodictyon excelsum</i> (Roxb.) Wall.									✓								
<i>Hyoscyamus niger</i> L.		✓															
<i>Hypericum oblongifolium</i> Choisy				✓	✓												
<i>Indigofera heterantha</i> Brandis				✓				✓									
<i>Inula cuspidata</i> (Wall. ex DC.) C.B.Clarke				✓													
<i>Jacaranda mimosifolia</i> D.Don															✓	✓	✓
<i>Juglans regia</i> L.					✓							✓	✓				
<i>Justicia adhatoda</i> L.							✓	✓	✓								
<i>Kigelia pinnata</i> (Jacq.) DC.															✓	✓	✓
<i>Koeleria</i> spp.						✓											
<i>Lannea coromandelica</i> (Houtt.) Merr.									✓				✓				
<i>Litsea chinensis</i> Lam.										✓							
<i>Lyonia ovalifolia</i> (Wall.) Drude					✓		✓	✓									
<i>Maesa indica</i> (Roxb.) A. DC.							✓	✓	✓								
<i>Magnolia grandiflora</i> L.															✓		✓

<i>Mallotus philippensis</i> (Lam.) Müll.Arg.							✓		✓	✓	✓		✓				
<i>Michelia champaca</i> L.															✓		✓
<i>Melia azedarach</i> L.												✓	✓				
<i>Morus alba</i> L.									✓		✓						
<i>Morus</i> spp.												✓	✓				
<i>Murraya paniculata</i> (L.) Jack							✓										
<i>Murraya koenigii</i> (L.) Spreng.							✓	✓	✓								
<i>Myrica esculenta</i> Buch.-Ham. ex D. Don					✓					✓							
<i>Myrsine Africana</i> L.							✓										
<i>Nelumbo nucifera</i> Gaertn.														✓			
<i>Neolitsea pallens</i> (D. Don) Momiy. & H. Hara					✓												
<i>Nerium indicum</i> Mill.															✓		✓
<i>Neyraudia arundinacea</i> (L.) Henrard								✓	✓								
<i>Nyctanthes arbor-tristis</i> L.							✓	✓	✓						✓		✓
<i>Nymphaea</i> spp.														✓			
<i>Olea ferruginea</i> Wall. ex Aitch.			✓		✓			✓									

<i>Oroxylum indicum</i> (L.) Kurz									✓	✓							
<i>Panicum maximum</i> Jacq.										✓	✓						
<i>Parrotiopsis jacquemontiana</i> (Decne.) Rehder				✓													
<i>Phleum pretense</i> L.						✓	✓	✓	✓	✓							
<i>Phragmites karka</i> (Retz.) Trin. ex Steud.						✓	✓	✓	✓	✓							
<i>Phyllanthus emblica</i> L.						✓	✓	✓	✓	✓	✓	✓	✓				
<i>Phytolacca acinosa</i> Roxb.		✓		✓													
<i>Picea smithiana</i> (Wall.) Boiss.			✓	✓	✓												
<i>Picrorhiza kurroa</i> Royle ex Benth.	✓	✓	✓	✓													
<i>Pinus gerardiana</i> Wall. ex D.Don			✓														
<i>Pinus roxburghii</i> Sarg.						✓											
<i>Pinus wallichiana</i> A.B.Jacks.		✓	✓	✓	✓												
<i>Pistacia integerrima</i> J. L. Stewart ex Brandis							✓					✓	✓				
<i>Platanus orientalis</i> L.																✓	
<i>Plectranthus rugosus</i> Wall. ex Benth.				✓													

<i>Poa annua</i> L.	✓					✓											
<i>Poa pratensis</i> L.	✓					✓	✓	✓	✓								
<i>Polyalthia longifolia</i> (Sonn.) Thwaites															✓	✓	✓
<i>Polygonatum cirrhifolium</i> (Wall.) Royle		✓			✓												
<i>Polygonatum multiflorum</i> (L.) All.	✓	✓															
<i>Polygonatum verticillatum</i> (L.) All.	✓	✓	✓	✓	✓												
<i>Pongamia pinnata</i> (L.) Pierre															✓	✓	✓
<i>Populus</i> spp.											✓	✓					
<i>Potamogeton</i> spp.													✓				
<i>Prinsepia utilis</i> Royle				✓	✓												
<i>Prunus cerasoides</i> Buch.-Ham. ex D.Don					✓												
<i>Prunus cornuta</i> (Wall. ex Royle) Steud.		✓															
<i>Punica granatum</i> L.							✓	✓									
<i>Pyrus pashia</i> Buch.- Ham. ex D.Don							✓	✓	✓	✓	✓						
<i>Quercus baloot</i> Griff.			✓														
<i>Quercus floribunda</i> Lindl. ex A.Camus					✓												
<i>Quercus oblongata</i>					✓		✓	✓									

D.Don																	
<i>Quercus semecarpifolia</i> Sm.		✓			✓												
<i>Rheum australe</i> D. Don	✓																
<i>Rheum moorcroftianum</i> Royle	✓																
<i>Ricinus communis</i> L.							✓	✓	✓								
<i>Rosa macrophylla</i> Lindl.				✓	✓												
<i>Rosa moschata</i> Herrm.								✓	✓								
<i>Rosa sericea</i> Wall. ex Lindl.				✓	✓												
<i>Rosa</i> spp.															✓		✓
<i>Rubus foliolosus</i> Hal csy					✓												
<i>Rubus niveus</i> Thunb.					✓												
<i>Saccharum munja</i> Roxb.									✓								
<i>Saccharum spontaneum</i> L.						✓											
<i>alix</i> spp.												✓	✓			✓	✓
<i>Sapindus mukorossi</i> Gaertn.									✓	✓	✓						
<i>Saraca asoca</i> (Roxb.) Willd.															✓	✓	✓
<i>Saussurea costus</i> (Falc.) Lipsch.	✓																

<i>Scirpus grossus</i> L.f.														✓			
<i>Selinum tenuifolium</i> Salisb.	✓	✓	✓														
<i>Selinum vaginatum</i> C.B. Clarke			✓														
<i>Sesbania sesban</i> (L.) Merr.															✓	✓	✓
<i>Setaria glauca</i> (L.) P.Beauv.						✓	✓	✓									
<i>Sinopodophyllum hexandrum</i> (Royle) T.S. Ying	✓	✓	✓		✓												
<i>Spiraea canescens</i> D.Don					✓												
<i>Spiraea</i> spp.															✓		✓
<i>Spirodela polyrrhiza</i> (L.) Schleid.													✓				
<i>Sporobolus diandrus</i> (Retz.) P.Bauv.										✓	✓						
<i>Stipa roylei</i> (Nees) Duthie	✓																
<i>Syringa emodi</i> Wall. ex Royle				✓													
<i>Syzygium venosum</i> DC.															✓		✓
<i>Syzygium cumini</i> (L.) Skeels								✓	✓	✓	✓						
<i>Taxus wallichiana</i> Zucc.				✓	✓												

<i>Tecoma stans</i> (L.) Juss. ex Kunth														✓			
<i>Tephrosia hamiltonii</i> Gamble						✓	✓	✓									
<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn.								✓	✓	✓							
<i>Terminalia bellirica</i> (Gaertn.) Roxb.							✓	✓	✓	✓							
<i>Terminalia chebula</i> Retz.								✓	✓	✓							
<i>Terminalia</i> spp.											✓	✓					
<i>Themeda anathera</i> (Nees ex Steud.) Hack.					✓	✓	✓	✓									
<i>Themeda arundinacea</i> (Roxb.) A.Camus									✓	✓							
<i>Thuja</i> sp.														✓	✓		
<i>Thuja orientalis</i> L.																	✓
<i>Thysanolaena maxima</i> (Roxb.) Kuntze						✓	✓	✓	✓	✓							
<i>Tinospora cordifolia</i> (Willd.) Miers						✓	✓	✓									
<i>Toona ciliata</i> M.Roem.							✓		✓	✓							
<i>Toona sinensis</i> (Juss.) M.Roem.							✓										
<i>Trifolium pretense</i> L.	✓					✓											
<i>Trifolium repens</i> L.	✓					✓				✓	✓						

<i>Trillium govanianum</i> Wall. ex D.Don		✓	✓	✓	✓												
<i>Typha angustata</i> Bory & Chaub.														✓			
<i>Ulmus wallichiana</i> Planch.					✓		✓										
<i>Valeriana jatamansi</i> Jones			✓	✓	✓												
<i>Viburnum cotinifolium</i>				✓													
<i>Viburnum nervosum</i> D. Don					✓												
<i>Viola canescens</i> Wall.			✓	✓	✓												
<i>Vitex negundo</i> L.							✓	✓	✓								
<i>Withania somnifera</i> (L.) Dunal								✓									
<i>Woodfordia fruticosa</i> (L.) Kurz							✓	✓	✓								
<i>Zanthoxylum armatum</i> DC.					✓			✓	✓								
<i>Ziziphus jujuba</i> Mill.							✓		✓								
<i>Ziziphus mauritiana</i> Lam.									✓								
<i>Ziziphus</i> spp.								✓									

Annexure - 6: Model-Wise/ Activity-Wise Lists of Forest Divisions for Forestry Interventions

Model	Divisions	Area (ha/ m ³)
A-Himachal Pradesh		
(a) Natural Landscape		
CN/HP/NL/01 - Cold Desert Greening	Lahaul	222
	Pangi	10
CN/HP/NL/02 - Cold Desert Conservation	Lahaul	10
CN/HP/NL/03 - Alpine Conservation	-	0
CN/HP/NL/04 - Sub-Alpine Enrichment	Lahaul	20
	Pangi	78
CN/HP/NL/05 - Temperate Conifer Forest	-	0
CN/HP/NL/06- Temperate Mixed Forest	Lahaul	5
	Pangi	73
CN/HP/NL/07 - Pasture and Grazing Land Development	Pangi	18
CN/HP/NL/08 -Protection Model for Natural Regeneration	Lahaul	20
	Pangi	20
(b) Agriculture Landscape		
CN /HP/AL/01 - Boundary Plantation Model	Lahaul	30
	Pangi	30
CN /HP/AL/02 -Block Plantation Model	Lahaul	8
	Pangi	6
(c) Urban Landscape		
CN/HP/ UL/01 - Riverfront Development	Lahaul	1
	Pangi	0.5
CN/HP/ UL/02 - Institution Plantation	Lahaul	8
	Pangi	8
(d) Soil and Moisture Interventions(m³)		
CN/HP/CI/01 - Brushwood Interventions	Lahaul	6170
	Pangi	6290
CN/HP/CI/02 - Dry Stone Interventions & Activities	Lahaul	14590
	Pangi	14270
CN/HP/CI/03- Crate Wire Interventions & Activities	Lahaul	440
	Pangi	510
CN/HP/CI/04 - Water Ponds	Lahaul	27170
	Pangi	27250
CN/HP/CI/05 - Silt Detention Dams	Lahaul	330
	Pangi	240
(d) Conservation Interventions		
CN/HP/CI/06 - Riverine and Riparian Management	Spiti Wildlife Division	20
	Chamba	30

	Wildlife Division	
CN/HP/CI/07 - Wetland Management	Spiti Wild Life Division	10
B- Jammu & Kashmir		
(a) Natural Landscape		
CN/JK/NL/01 - Sub Alpine Conservation	-	0
CN/JK/NL/02 - Sub-Alpine Enrichment	-	0
CN/JK/NL/03 - Dry Temperate Conifer Forest Enrichment	-	0
CN/JK/NL/04 - Temperate Conifer Forest	Doda	35
	Ramban	48
	Bhaderwah	35
CN/JK/NL/05 - Temperate Mixed Forest	Batote	218
	Bhaderwah	78
	Doda	236
	Kishtwar	45
	Mahore	240
	Marwah	60
	Rajouri	06
	Ramban	195
	Ramnagar	80
	Udhampur	20
CN/JK/NL/06 - Pasture and Grazing Land Development	Ramban	10
	Ramnagar	40
CN/JK/NL/07 - Himalayan Chir Pine Forest	Batote	125
	Bhaderwah	25
	Doda	10
	Jammu	14
	Kishtwar	05
	Mahore	195
	Nowshera	25
	Rajouri	120
	Ramban	65
	Ramnagar	30
	Reasi	08
	Udhampur	20
CN/JK/NL/08 - Himalayan Mixed Forest	Batote	50
	Bhaderwah	05
	Kishtwar	15
	Rajouri	08
	Ramban	20
	Ramnagar	70

	Udhampur	30
CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Bhaderwah	85
	Doda	10
	Jammu	159
	Kishtwar	15
	Mahore	80
	Nowshera	101
	Rajouri	66
	Ramban	35
	Ramnagar	50
	Reasi	375
	Udhampur	05
	Urban Forestry	18
CN/JK/NL/10 - Eradication of <i>Lantana</i> (> 50%)	Bhaderwah	10
	Udhampur	05
CN/JK/NL/11 - Control/ Removal of Invasive Species or <50% <i>Lantana</i>	Bhaderwah	15
	Ramnagar	30
CN/JK/NL/12 - Protection Model for Natural Regeneration	Batote	210
	Bhaderwah	320
	Doda	330
	Jammu	230
	Kishtwar	370
	Mahore	210
	Marwah	270
	Nowshera	220
	Rajouri	270
	Ramban	250
	Ramnagar	300
	Reasi	330
	Udhampur	310
CN/JK/NL/13 - Fire Protection Model	Batote	50
	Bhaderwah	35
	Doda	70
	Jammu	70
	Kishtwar	40
	Mahore	45
	Marwah	30
	Nowshera	80
	Rajouri	60
	Ramban	50
	Ramnagar	100

	Reasi	50
	Udhampur	60
(b) Agriculture Landscape		
CN /JK/AL/01 - Boundary Plantation Model	Batote	30
	Bhaderwah	30
	Doda	40
	Jammu	30
	Kishtwar	30
	Mahore	30
	Marwah	30
	Nowshera	30
	Rajouri	30
	Ramban	40
	Ramnagar	62
	Reasi	30
	Udhampur	40
CN /JK/AL/02 - Block Plantation Model	Batote	07
	Bhaderwah	06
	Doda	07
	Jammu	06
	Kishtwar	07
	Mahore	06
	Marwah	06
	Nowshera	07
	Rajouri	06
	Ramban	07
	Ramnagar	28
	Reasi	07
	Udhampur	06
(c) Urban Landscape		
CN/JK/UL/01 - Bio-remediation and Bio-filtration	Batote	1
	Bhaderwah	1
	Doda	1
	Jammu	1
	Kishtwar	1
	Mahore	1
	Marwah	1
	Nowshera	1
	Rajouri	1
	Ramban	1
	Ramnagar	1
	Reasi	1
	Udhampur	1

	Urban Forestry	1
CN/ JK /UL/02 - Riverfront Development	Batote	0.1
	Bhaderwah	0.4
	Doda	0.2
	Jammu	0.5
	Kishtwar	0.2
	Mahore	0.4
	Marwah	0.6
	Nowshera	0.1
	Rajouri	0.2
	Ramban	0.7
	Ramnagar	1.9
	Udhampur	0.3
	Urban Forestry	1
CN/JK/ UL/03 - Institution Plantation	Batote	8
	Bhaderwah	8
	Doda	8
	Jammu	8
	Kishtwar	8
	Mahore	5
	Marwah	8
	Nowshera	5
	Rajouri	8
	Ramban	8
	Ramnagar	14.4
	Reasi	8
	Udhampur	8
	Urban Forestry	8
CN/ JK/ UL/04 - Eco-park Development	Batote	0.3
	Bhaderwah	1
	Doda	0.1
	Jammu	0.6
	Kishtwar	0.5
	Mahore	1.5
	Marwah	0.2
	Nowshera	0.4
	Rajouri	0.6
	Ramban	0.7
	Ramnagar	1.7
	Udhampur	0.7

	Urban Forestry	1.4
(d) Soil and Moisture Interventions (m³)		
CN/JK/CI/01 - Brushwood Interventions	Batote	2490
	Bhaderwah	9700
	Doda	2450
	Jammu	7990
	Kishtwar	2940
	Mahore	2470
	Marwah	2490
	Nowshera	39060
	Rajouri	5240
	Ramban	4230
	Ramnagar	3270
	Reasi	11790
	Udhampur	2440
	Urban Forestry	5720
CN/ JK /CI /02 - Dry Stone Activities	Batote	1730
	Bhaderwah	13820
	Doda	1710
	Jammu	3290
	Kishtwar	1680
	Mahore	1370
	Marwah	1390
	Nowshera	61740
	Rajouri	7900
	Ramban	4980
	Ramnagar	2450
	Reasi	18250
	Udhampur	1380
	Urban Forestry	3440
CN/ JK /CI /03 - Crate Wire Activities	Batote	1430
	Bhaderwah	940
	Doda	910
	Kishtwar	1380
	Mahore	1160
	Marwah	1150
	Nowshera	710
	Ramban	700
	Ramnagar	940
	Reasi	230

	Udhampur	1140
CN/JK /CI/04 - Water Ponds	Bhaderwah	32180
	Doda	1680
	Jammu	6210
	Nowshera	151480
	Rajouri	20280
	Ramban	10680
	Ramnagar	3330
	Reasi	46260
	Urban Forestry	7670
CN/JK /CI /05 - Silt Detention Dam Type Activities	Batote	620
	Bhaderwah	530
	Doda	530
	Kishtwar	760
	Mahore	650
	Marwah	630
	Nowshera	380
	Ramban	400
	Ramnagar	500
	Reasi	130
	Udhampur	600
(d) Conservation Interventions		
CN/JK/CI /06 - Riverine and Riparian Management	Chenab Wildlife Division	60
	Jammu Wildlife Division	100
CN/JK/CI /07 - Wetland Management	Jammu Wildlife Division	15

Annexure - 7: List of Sites of Chenab Riverscape in Himachal Pradesh

S.N o.	Model	State/ UT	District	Division	Sitename	Range	Block	Beat	Area (ha)	Latitude	Longitude
A) Himachal Pradesh											
i) Natural Landscape											
1	CN/HP/NL/06 – Temperate Mixed Forest	Himachal Pradesh	Chamba	Pangi	Bindrabani	Killar	B/Bani	B/Bani	10	31.5892	78.2775
2	CN/HP/NL/04 - Sub-Alpine Enrichment	Himachal Pradesh	Chamba	Pangi	Chandani Dhar	Purthi	Purthi	Rei	25	32.90478	76.73222
3	CN/HP/NL/01 - Cold Desert Greening	Himachal Pradesh	Chamba	Pangi	Goshti Dhar (Bumbal R.F)	Purthi	Purthi	B/Bumbal	10	32.95883	76.4545
4	CN/HP/NL/04 - Sub-Alpine Enrichment	Himachal Pradesh	Chamba	Pangi	Karyani Beat	Killar	Bindrabani	Bindrabani	20	33.06325	76.42589
5	CN/HP/NL/06 – Temperate Mixed Forest	Himachal Pradesh	Chamba	Pangi	Kiryani	Killar	Killar	Karyani	20	33.06325	76.42589
6	CN/HP/NL/04 - Sub-Alpine Enrichment	Himachal Pradesh	Chamba	Pangi	Moujhi Moujhi	Sach	Sach	Kaban	10	32.975	76.5497
7	CN/HP/NL/04 - Sub-Alpine Enrichment	Himachal Pradesh	Chamba	Pangi	Sach-1	sach	sach	sach	5	32.995	76.4397
8	CN/HP/NL/06 – Temperate Mixed Forest	Himachal Pradesh	Chamba	Pangi	Shalla R.F	Purthi	Purthi	B/Bumbal	18	32.96238	76.43847
9	CN/HP/NL/07 - Pasture and Grazing Land Development	Himachal Pradesh	Chamba	Pangi	Shalla R.F.	Purthi	Purthi	B/Bumbal	18		
10	CN/HP/NL/04 - Sub-Alpine Enrichment	Himachal Pradesh	Chamba	Pangi	Shalla R.F.	Purthi	Purthi	B/Bumbal	18	32.96238	76.43847
11	CN/HP/NL/06 – Temperate Mixed Forest	Himachal Pradesh	Chamba	Pangi	Thandal R.F.	Purthi	Purthi	Purthi	25	33.09889	76.48278
12	CN/HP/NL/04 - Sub-	Himachal	Lahaul	Lahaul	Beeling	Keylong	Bhaga	Keylong	5	32.58044	77.01376

	Alpine Enrichment	Pradesh	Spiti		<i>Nallah</i>						
13	CN/HP/NL/04 - Sub-Alpine Enrichment	Himachal Pradesh	Lahaul Spiti	Lahaul	Chhaling DPF	Udaipur	Miyar	Urgose	15	32.85875	76.80867
14	CN/HP/NL/01 - Cold Desert Greening	Himachal Pradesh	Lahaul Spiti	Lahaul	chowkhang	Pattan	Lower Pattan	Chowkhang	30	32.68656	76.79467
15	CN/HP/NL/01 - Cold Desert Greening	Himachal Pradesh	Lahaul Spiti	Lahaul	Gawazang 1	Keylong	Chandra	Kardang	5	32.55278	76.995
16	CN/HP/NL/01 - Cold Desert Greening	Himachal Pradesh	Lahaul Spiti	Lahaul	Gurdhar (Puthang)	Udaipur	Miyar	Karpat	5	32.837	76.75964
17	CN/HP/NL/06 – Temperate Mixed Forest	Himachal Pradesh	Lahaul Spiti	Lahaul	Rogling	Pattan	Upper Pattan	Muling	5	32.571345	77.032324
18	CN/HP/NL/02 - Cold Desert Conservation	Himachal Pradesh	Lahaul Spiti	Lahaul	Shiti Nalla (Dutizang)	Keylong	Chandra	Sissu	10	32.45528	77.12639
19	CN/HP/NL/01 - Cold Desert Greening	Himachal Pradesh	Lahaul Spiti	Lahaul	Sitti <i>Nallah</i> RFQ Urgium	Keylong	Chandra	Koksar	20	32.45167	77.12053
20	CN/HP/NL/01 - Cold Desert Greening	Himachal Pradesh	Lahaul Spiti	Lahaul	Thani DPF	Udaipur	Miyar	Urgose	82	32.86742	76.84611
21	CN/HP/NL/01 - Cold Desert Greening	Himachal Pradesh	Lahaul Spiti	Lahaul	Thorang Nalla - I	Keylong	Chandra	Gondhla	5	32.52444	77.01417
22	CN/HP/NL/01 - Cold Desert Greening	Himachal Pradesh	Lahaul Spiti	Lahaul	UPF Shansha	Pattan	U/ Pattan	Shansha	50	32.62614	76.90381
23	CN/HP/NL/01 - Cold Desert Greening	Himachal Pradesh	Lahaul Spiti	Lahaul	UPF Warpa	Pattan	Upper Block	Tandi Beat	25	32.60783	76.95303
24	CN/HP/NL/08 - Protection Model for Natural Regeneration	Himachal Pradesh	Chamba	Pangi	Pangi				10	31.5892	78.2775
25	CN/HP/NL/08 - Protection Model for Natural Regeneration	Himachal Pradesh	Chamba	Pangi	Pangi 2				10	31.5892	78.2775
26	CN/HP/NL/08 - Protection Model for Natural	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul				10	32.6192	77.3784

	Regeneration										
27	CN/HP/NL/08 - Protection Model for Natural Regeneration	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul 2				10	32.6192	77.3784
ii) Agriculture Landscape											
28	CN/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Chamba	Pangi	Pangi				12	31.5892	78.2775
29	CN/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Chamba	Pangi	Pangi				3	31.5892	78.2775
30	CN/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Chamba	Pangi	Pangi(2)				10	31.5892	78.2775
31	CN/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Chamba	Pangi	Pangi(2)				2	31.5892	78.2775
32	CN/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Chamba	Pangi	Pangi(3)				8	31.5892	78.2775
33	CN/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Chamba	Pangi	Pangi(3)				1	31.5892	78.2775
34	CN/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul				12	32.6192	77.3784
35	CN/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul				4	32.6192	77.3784
36	CN/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul(2)				10	32.6192	77.3784
37	CN/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul(2)				3	32.6192	77.3784
38	CN/HP/AL/01 - Boundary Plantation Model	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul(3)				8	32.6192	77.3784
39	CN/HP/AL/02 - Block Plantation Model	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul(3)				1	32.6192	77.3784

iii) Urban Landscape											
40	CN/HP/UL/02 - Institution Plantation	Himachal Pradesh	Chamba	Pangi	Pangi				2	31.5892	78.2775
41	CN/HP/UL/02 - Institution Plantation	Himachal Pradesh	Chamba	Pangi	Pangi(2)	0			3	31.5892	78.2775
42	CN/HP/UL/02 - Institution Plantation	Himachal Pradesh	Chamba	Pangi	Pangi(3)	0			3	31.5892	78.2775
43	CN/HP/UL/01 - Riverfront Development	Himachal Pradesh	Chamba	Pangi	Sach				0.5	31.5892	78.2775
44	CN/HP/UL/01 - Riverfront Development	Himachal Pradesh	Lahaul Spiti	Lahaul	Koksar				0.5	32.6192	77.3784
45	CN/HP/UL/02 - Institution Plantation	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul				2	32.6192	77.3784
46	CN/HP/UL/02 - Institution Plantation	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul(2)	0			3	32.6192	77.3784
47	CN/HP/UL/02 - Institution Plantation	Himachal Pradesh	Lahaul Spiti	Lahaul	Lahaul(3)	0			3	32.6192	77.3784
48	CN/HP/UL/01 - Riverfront Development	Himachal Pradesh	Lahaul Spiti	Lahaul	Tandi	0			0.5	32.6192	77.3784
iv) Consevation Intervention (SMC)											
S.N o.	Model	State/ UT	District	Division	Sitename	Range	Block	Beat	Area (m ³)	Latitude	Longitude
49	CN/HP/CI/01,02,03,05	Himachal Pradesh	Chamba	Pangi	Aghoi Slide	Sach	Sach	Hillour	670	32.9861	76.5389
50	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Aghoi Slide-2	Sach	Sach	Hillour	970	32.9864	76.5436
51	CN/HP/CI/01,02,03,05	Himachal Pradesh	Chamba	Pangi	B/Bumbal R.F	Purthi	Purthi	B/Bumbal	950	32.92135	76.43915

52	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Bayalum Nalla near Chinan Adhwari Hudan Bhatori	Killar	Killar	Killar	1000	33.10203	76.48861
53	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Bindrabani	Killar	Bindrabani	Bindrabani	1010	33.085	76.39472
54	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Chalasari	Sach	Sach	Hillour	1040	32.9894	76.5772
55	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Changli Ghar, PUN to Village	Killar	Bindrabani	Punto	1040	33.06968	76.39849
56	CN/HP/CI/01,02,03,05	Himachal Pradesh	Chamba	Pangi	Dhanala Nallah	Sach	Sach	Kaban	730	32.9781	76.5125
57	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Dharwas (anch nalla)	Killar	Dharwas	Dharwas	1010	33.13857	76.40887
58	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Dharwas(Chaholi GHAR)	Killar	Dharwas	Dharwas	1030	33.12601	76.39344
59	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Dharwas(Chaloli Nalla)	Killar	Dharwas	Dharwas	1000	33.12964	76.39694
60	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Dharwas, Degrie II Forest (DP F)	Killar	Dharwas	Dharwas	1060	33.12521	76.3883
61	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Faram Nalla	Killar	Killar	Killar	1010	33.10663	76.49979
62	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Godhan Nalla at Parmar (F.L)	Killar	Killar	Phindru	1040	33.03	76.47389

63	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Gugu Gharat	Killar	Bindraba ni`	Pregran	1070	33.085	76.39444
64	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Hillu	Sach	Sach	Kuth	1080	33.02	76.6042
65	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Jumph Nalla (Banghi R.F)	Killar	Killar	Phindru	1030	33.022668	76.432447
66	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Khilmi DPF Along Kumar Nalla	Killar	Killar	Phindru	1030	33.02278	76.46667
67	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Khinan-1	Sach	Sach	Sach	1020	33.025	76.48
68	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Khinan-2	Sach	Sach	Sach	1010	33.0247	76.4792
69	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Kundla Nalla	Purthi	Aiog	Kulal	1060	32.95486	76.42106
70	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Lower and Upper side of Mahlu Nalla Pul	Killar	Killar	Killar	970	32.08361	76.4175
71	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Luj R.F	Killar	Dharwas	Luj	1030	33.138984	76.355042
72	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Manjwas, Punto Village	Killar	Bindra Bani	Punto	1010	33.06636	76.39359
73	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Marth Yalu	Killar	Bindraba ni	Pregran	1040	33.085	76.39472
74	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Mehort DPF	Pangi	Dharwas	Luj	1040	33.1325	76.34694
75	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Moujhi Nallah	Sach	Sach	Kaban	1010	32.9781	76.5358
76	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Neeldhar	Purthi	Ajog	Ajog	1010	32.91528	76.45806

		Pradesh			R.F						
77	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Pangu R.F	Purthi	Ajog	Pangu	980	32.88833	76.46639
78	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Phindpar Nallah	Sach	Sach	Mindhal	1050	32.985932	76.418704
79	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Purthi D.P.F.	Purthi	Purthi	Purthi	950	32.92333	76.46361
80	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Purthi Nalla (Purthi D.P.F)	Purthi	Purthi	Purthi	940	32.92342	76.49192
81	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Rei RF	Purthi	Purthi	Rei	960	32.96167	76.46608
82	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	RElam Nallah	Sach	Sach	Mindhal	990	32.9803	76.425
83	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Ritho Ghar	Purthi	Ajog	Kulal	1000	32.95833	76.42917
84	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Rohnu Dhank (Ajog R.F)	Purthi	Ajog	Ajog	970	32.93933	76.45373
85	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Sach-2	Sach	Sach	Sach	980	32.9922	76.4439
86	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Sach-3	Sach	Sach	Sach	1010	33.0028	76.4381
87	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Sahali Nallah	Sach	Sach	Hillour	1040	32.9856	76.5269
88	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Saichu	Sach	Sach	Kuth	1050	32.9853	76.5636
89	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Saichu (2)	Sach	Sach	Hillour	1040	32.9872	76.5633
90	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Shour R.F	Purthi	Purthi	Shour Beat	960	32.88177	76.47256

91	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Shouruni R.F (Uthru Nalla)	Purthi	Purthi	Shour	1010	32.90564	76.47035
92	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Sural (2)	Killar	Dharwas	Sural	980	33.14245	76.4656
93	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Sural (3)	Killar	Dharwas	Sural	920	33.14374	76.46125
94	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Sural (4)	Killar	Dharwas	Sural	980	33.14349	76.45697
95	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Sural (5)	Killar	Dharwas	Sural	900	33.14348	76.44734
96	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Thandai Dhar	Purthi	Purthi	Purthi	920	33.05917	76.73444
97	CN/HP/CI/01,02,04	Himachal Pradesh	Chamba	Pangi	Twan	Sach	Sach	Kuth	960	33.0219	76.6122
98	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Aghar (River Bank)	Tindi	Tindi	Tindi	920	32.75617	76.45933
99	CN/HP/CI/01,02,03,05	Himachal Pradesh	Lahaul Spiti	Lahaul	Beeling Nalla	Keylong	Bhaga	Keylong	660	32.5805	77.01362
100	CN/HP/CI/01,02,03,05	Himachal Pradesh	Lahaul Spiti	Lahaul	Bhara Nalla	Tindi	Tindi	Tindi	670	32.75614	76.45788
101	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Bhara Nalla	Tindi	Tindi	Bhujund	1020	32.75614	76.45788
102	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Bhujund Nalla (Merge Point of River)	Tindi	Tindi	Bhujund	960	32.77771	76.43653
103	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Bhujund Nalla (Merge Point of River)	Tindi	Tindi	Bhujund	990	32.77771	76.43653

104	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Bror Nalla	Tindi	Tindi	Tindi	1020	32.75773	76.44812
105	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Dhandal Nalla	Tindi	Salgran	Kurched	1050	32.76329	76.52949
106	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Goshal (Tandi Sangam)	Pattan	Upper Pattan	Muling	1040	32.55056	76.97556
107	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Gwazang (Bhaga River Side)	Keylong	Chandra	Kardang	1080	32.5625	77.00417
108	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Harsar Nalla (Right Bank)	Tindi	Salgran	Salgran	1060	32.70237	76.49964
109	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Harsar Nalla Left Bank	Tindi	Tindi	Tindi	1070	32.74043	76.48276
110	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Hootu Nalla	Tindi	Tindi	Bhujund	1000	32.7458	76.48051
111	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Jhootu Nalla	Tindi	Tindi	Bhujund	1040	32.7458	76.48051
112	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Kamring Nala left hand side from village	Pattan	Lower Pattan	Mooring	1030	32.65586	76.81408
113	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Lindoor	Pattan at Jahlma	Lower Pattan	Jahlma	1000	32.64809	76.87206
114	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Lohani Nalla	Tindi	Tindi	Bhujund	1040	32.7476	76.47055
115	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Lohani Nature Park	Tindi	Tindi	Bhujund	1030	32.74878	76.46802
116	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Lohani Nature Park (1)	Tindi	Tindi	Bhujund	1050	32.74878	76.46802

117	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Lohani Nursery (Stone Fencing)	Tindi	Tindi	Bhujund	1040	32.74977	76.46756
118	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Lote Nalla	Pattan	Upper Pattan	Tandi	1020	32.60444	76.94222
119	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Madgran Nalla	Udaipur	Udaipur	Madgran	1060	32.7464	76.6217
120	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Melling Nalla	Pattan	Upper Pattan	Tandi Beat	1010	32.61714	76.89867
121	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Nainghar	Pattan	Lower Pattan	Chowkh ang	1050	32.73072	76.86119
122	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Pagal Nallah	Keylong	Chandra	Koksar	1010	32.46472	77.1625
123	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Peukar Nalla	Keylong	Chandra	Kardang	1030	32.55778	77.07139
124	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Prashori Nalla	Tindi	Tindi	Bhujund	1040	32.73339	76.43458
125	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	R.F.9 Urgium	Keylong	Chandra	Koksar	1010	32.43611	77.16639
126	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Rashel DPF Jobrang	Pattan at Jahlma	L/Pattan	Jobrang	960	32.60889	76.89417
127	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Salgran Nalla	Tindi	Salgran	Salgran	1030	32.73969	76.54731
128	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Salkot	Udaipur	Udaipur	Salpat	1080	32.7567	76.6086
129	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Salpat Nalla	Udaipur	Udaipur	Salpat	1030	32.7311	76.6433
130	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Shakas Nalla	Keylong	Bhaga	Stingari	1050	32.57306	77.03694
131	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Shaksh Nalla	Keylong	Bhaga	Keylong	990	32.57081	77.03513

132	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Shansha Nalla, Braham Nalla	Pattan	Upper Pattan	Shansha	1000	32.62517	76.87986
133	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Sissu Nalla	Keylong	Chandra	Sissu	1020	32.48667	77.13444
134	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Sitli Nalla R.F - 9 uragium	Keylong	Chandra	Koksar	940	32.46	77.13861
135	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Surnali Nalla	Tindi	Tindi	Bhujund	990	32.76229	76.45336
136	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Swanchi Luenpa	Keylong	Bhaga	Keylong	1000	32.58384	77.0074
137	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Tandi Tolang Nalla	Pattan	Upper Block	Tandi Beat	960	32.57064	76.97042
138	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Tedhe Padhar (Lohani)	Tindi	Tindi	Bhujund	930	32.74748	76.46952
139	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Thorang Nalla - II	Keylong	Chandra	Gondhla	910	32.52389	77.01639
140	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Tong Tong	Keylong	Bhaga	Keylong	890	32.57206	77.01548
141	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Tozing	Pattan	Upper Block	Tandi Beat	1040	32.57425	76.96831
142	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Tundru Nalla	Tindi	Tindi	Bhujund	1000	32.76086	76.44324
143	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Tundru Nalla	Tindi	Tindi	Bhujund	960	32.76086	76.44324
144	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	UPF Nainghar	Pattan	Lower Pattan	Chowkh ang	950	32.72544	76.85467

145	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Yang Thang UPF	Pattan	L/Pattan	Jhalman	1030	32.65796	76.85293
146	CN/HP/CI/01,02,04	Himachal Pradesh	Lahaul Spiti	Lahaul	Yarkital Lumpa	Keylong	Bhaga	Keylong	940	32.58852	77.00912
V) Other Intervention											
S.N o.	Model	State/ UT	District	Division	Sitename	Range	Block	Beat	Area (ha)	Latitude	Longitude
148	CN/HP/CI/06	Himachal Pradesh	Chamba	Chamba Wildlife Division	Sechu Tuan Nallah Wildlife Sanctuary				30	31.5892	78.2775
149	CN/HP/CI/07	Himachal Pradesh	Lahaul Spiti	Spiti Wildlife Division	Chander Tal (Ramsar Site)(2)				10	32.4824	77.6157
150	CN/HP/CI/06	Himachal Pradesh	Lahaul Spiti	Spiti Wildlife Division	Chandratal Wildlife Sanctuary				20	32.4824	77.6157

Annexure - 8: List of Sites of Chenab Riverscape in Jammu and Kashmir UT

S.No.	Model	State/ UT	District	Division	Sitename	Range	Block	Beat	Area (Ha)	Latitude	Longitude
A) Jammu and Kashmir UT											
Natural Landscape											
1)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Doda	Bhaderwah	62/Bh Kahal Jugser	Bhalesh	Neeli	Kahal Jugser	10	32.93977	75.97004
2)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Bhaderwah	Bagerni	Kellar	Paryote	Paryote-I	8	33.14028	75.52528
3)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Bhaderwah	Brehlla	Kellar	Ghuraka	Sharora-Ist	15	33.05381	75.67617
4)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Bhaderwah	Chinalla	Chinalla	Chinalla-I	Kundi/Goshti	30	33.10394	75.73306
5)	CN/JK/NL/04 - Temperate Conifer Forest	Jammu & Kashmir	Doda	Bhaderwah	Dehran Nalah	Kellar	Paryote	Paeyote-II	10	33.08444	75.54
6)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Bhaderwah	Devli Mandir	Kellar	Paryote	Paryote-I	5	33.12472	75.55444
7)	CN/JK/NL/04 - Temperate Conifer Forest	Jammu & Kashmir	Doda	Bhaderwah	Dhayan (Amral Pura)	Bhalesh	Pingal	Dichal	15	33.08506	75.93033
8)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Doda	Bhaderwah	Dhayan (Amrat pura)	Bhalesh	Pingal	Dichhal	15	33.08506	75.93033
9)	CN/JK/NL/04 - Temperate Conifer Forest	Jammu & Kashmir	Doda	Bhaderwah	Dhossa	Bhalesh	Neeli	Dhossa-III	10	32.997	75.96116
10)	CN/JK/NL/10 - Eradication of Lantana (> 50%)	Jammu & Kashmir	Doda	Bhaderwah	Forest Land	Neeru	Padri	Comptt. 7P/N	5		
11)	CN/JK/NL/10 -	Jammu &	Doda	Bhaderwah	Forest Land	Neeru	Duggi Ist	Co. No	5		

	Eradication of Lantana (> 50%)	Kashmir			(1)			6/neeru			
12)	CN/JK/NL/11 - Control/ Removal of Invasive Species or <50% Lantana	Jammu & Kashmir	Doda	Bhaderwah	Forest Land (2)	Neeru	Puneja-I	Katyara 25/Na	5		
13)	CN/JK/NL/11 - Control/ Removal of Invasive Species or <50% Lantana	Jammu & Kashmir	Doda	Bhaderwah	Forest Land (3)	Neeru	Puneja 2nd	44/N	5		
14)	CN/JK/NL/11 - Control/ Removal of Invasive Species or <50% Lantana	Jammu & Kashmir	Doda	Bhaderwah	Forest Land (4)	Neeru	Puneja II	49/N	5		
15)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Doda	Bhaderwah	Jai Nallah	Chiralla	Jai IInd	Jai(Co.13 to 37/Jai)	20	33.04292	75.77244
16)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Bhaderwah	Jai Nallar I	Chiralla	Jai 2nd	Jai (CO.13 TO 37/Jai)	20		
17)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Doda	Bhaderwah	Jugnalwar	Chinalla	Jugnalwar	Jugnalwar	50	33.66861	75.76977
18)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Doda	Bhaderwah	Kaankai (Banola)	Kellar	Malothi	chilli	10	33.01858	75.59753
19)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Doda	Bhaderwah	Nepali Nallah	kellar	Paryote	Paryote-I	5	33.13389	75.54
20)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Doda	Bhaderwah	Revenue Land	Bhalesh	Pingal	Champal	5	33.06033	75.97181

21)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Doda	Doda	62/bh Dibba Kahal Jugser	Bhalesh	Neeli	Kahal	10	32.93977	75.97004
22)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	85/57 Thatheel Bhagwah	Siraj	Koti	Bhagwah	5		
23)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Bhader Gwadi Com 50/k	Kuntwara	Gundna	Gundna	10	33.226194	75.530606
24)	CN/JK/NL/04 - Temperate Conifer Forest	Jammu & Kashmir	Doda	Doda	Bhathal Nallah Co. 6/Kmt.	Kuntwara	Bharath	Bagla	8	33.23463	75.60837
25)	CN/JK/NL/04 - Temperate Conifer Forest	Jammu & Kashmir	Doda	Doda	Buttbuggi Nallah Co. 55/Kmt	Kuntwara	Bharath	Bagla	10	33.21601	75.59959
26)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Chakla Dhar G 43/SJ	Siraj Range	Dessa Block	Mulan Beat	10	33.25025	75.36676
27)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Chanderbtan G 41/SJ	Siraj	Dessa	Bhata	10	33.30022	75.46694
28)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Co-73/SJ Tapdaak Manjmi Beat	Siraj	Gadi	Manjmi	5	33.26317	75.47013
29)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Deissa G 26/SJ	Siraj Range	Dessa Block	Mulan	8	33.26691	75.43349
30)	CN/JK/NL/09 - Sub- Tropical Dry Deciduous Forest	Jammu & Kashmir	Doda	Doda	Dhossa Co. No: 56/Bh	Bhalesh	Neeli	Dhossa-II	10	33.032216	75.910031
31)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Diesa Malan G 33/34	Siraj Range	Dessa Block	Malan	10	33.26681	75.43357
32)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Draman Co. 53/Kt	Kuntwara	Gundna	Kalihand	8	33.16833	75.6225
33)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Gali G 42/SJ	Siraj	Dessa Block	Bhata Beat	10	33.28343	75.46672

34)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Gangla G 35/SJ	Siraj	Dessa	Bhata	8	33.28356	75.45027
35)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Ghot <i>Nallah</i> co. 56/Kmt	Kuntwara	Bharath	Bagla	8	33.251038	75.512879
36)	CN/JK/NL/04 - Temperate Conifer Fores t	Jammu & Kashmir	Doda	Doda	Girghat <i>Nallah</i>	Kuntwara	Kuntwar a	Dashan	8	33.1047	75.335
37)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Gramri Dessa G 34/SJ	Siraj	Dessa	Mulan	8	33.28348	75.45014
38)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Ikhwan G 35/Sj	Siraj	Dessa	Bhata	10	33.30008	75.46671
39)	CN/JK/NL/04 - Temperate Conifer Fores t	Jammu & Kashmir	Doda	Doda	Khunu <i>nallah</i>	Kuntwara	Bharath	Bagla	8	33.21026	75.59326
40)	CN/JK/NL/04 - Temperate Conifer Fores t	Jammu & Kashmir	Doda	Doda	Kunda G 27/SJ	Siraj Range	Dessa Block	Mulan Beat	6	33.28343	75.43336
41)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Kunda G 33/SJ	Siraj	Dessa	Mulan	10	33.28342	75.43342
42)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	L/Tantna Co. 51/kt	Kuntwara	Gundna	Tashnal	10	33.19778	75.63694
43)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Laloor- Batnallah- Co-16/81	Siraj	Dhandha l	Shainkly	5	33.24291	75.45276
44)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Mothla G 35/SJ	Siraj	Dessa	Bhata	8	33.28357	75.45025
45)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Mothla G 42/SJ	Siraj	Dessa	Bhata	10	33.28348	75.46671
46)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Mulan Dessa Co 34/SJ	Siraj	Dessa Block	Mulan Beat	10	33.28343	75.43353
47)	CN/JK/NL/04 - Temperate Conifer Fores t	Jammu & Kashmir	Doda	Doda	Mulan Dessa G33/ SJ	Siraj Range	Dessa Block	Mulan	8	33.28341	75.43344

48)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Nagni Nallah Co. 57a/Kmt	Kuntwara	Bharath	Bharath	8	33.23568	75.60985
49)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Nelsoo Kulhand	Kuntwara	Kuntwara	Kulhand	8	33.21678	75.56686
50)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Doda	Doda	Panakhhar (malu nala) Co. 48/kmt	Kuntwara	Mohatta	Banshal	12	33.20111	75.66861
51)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Bandwal	Kalidhar	Panjgrain	jud	15	32.81079	74.58847
52)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Bandwal (1)	Kalidhar	Panjgrain	Jud	10	32.81784	74.59651
53)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Bjalta 59 Compartment	Bahu	Bajalta	Bajalta Beat	5		
54)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Bjalta 60 Compartment	Bahu	Bjalta	Bjalta	5	32.77744	74.97897
55)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Garkhal	Kalidhar	Panjgrain	Pargwal	12	32.82655	74.66602
56)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Gorkhal (2)	Kalidhar	Panjgrain	Pargwal	12	32.82655	74.66602
57)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Jammu Tawi River 6 2 Compartment	Bahu	Bajalta	Bajalta	10	32.78289	74.93225
58)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Kanju Peer	Jammu	Nagrota II	Jagti Beat II	5	32.84114	74.9005
59)	CN/JK/NL/09 - Sub-	Jammu &	Jammu	Jammu	Karala	Kalidhar	Chowki	Khoradra	20	33.01156	74.78034

	Tropical Dry Deciduous Forest	Kashmir									
60)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Malla Bella	Kalidhar	Panjarian	Pargwal	15	32.82936	74.64654
61)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Malla Bella	Kalidhar	Panjgran	Pargwal	12	32.82742	74.64236
62)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Jammu	Jammu	Panjgrain (near bridh ashram)	Jammu	Nagrota I	Jagti	5	32.84417	74.92761
63)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Simble laid (Sanerka II)	Jammu	Nagrota I	Jagti	9	32.84064	74.86741
64)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Jammu	Jammu	Simble Laid (Sanerka)	Jammu	Nagrota I	Jagti I	9	32.83756	74.87369
65)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Simble Laid (Sanerka) (1)	Jammu	Nagrota I	Jagti I	9		
66)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Jammu	Thungi Morh	Kalidhar	Chowki	Tanda	20	32.98887	74.77666
67)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Jammu	Udhampur	Dhar Radhnote (c46/P)	Panchari	Damnate	Lalli	20		
68)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Jammu	Urban Forestry	Kangote, 24/N	Lamberi	Kalal	Kangota	18	33.12564	74.23581
69)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwar	Doda	10K Sergori	Thakri	Kisthwar	Kisthwar	20		
70)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwar	Doda	Bagnari	Thakri	Samsul	Samsul	20		

71)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwa r	Doda	Jugna Kuchhan	Thakri	Horna	Kuchhan	5		
72)	CN/JK/NL/07 - Himalayan Chir Pine Fo rest	Jammu & Kashmir	Kishtwa r	Kishtwar	Bhamsheroo	Kisthwar	Nagni	Bhumshe roo	5	33.15661	75.81594
73)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwa r	Kishtwar	Bharoti Saroor	Kisthwar	Saroor	Kalchand a	15	33.19003	75.85311
74)	CN/JK/NL/09 - Sub- Tropical Dry Deciduous Forest	Jammu & Kashmir	Kishtwa r	Kishtwar	Breigsay	Kisthwar	Trigam	Trigam Ist	15		
75)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwa r	Kishtwar	Breigsay	Kisthwar	Trigam	Trigam Ist	15	33.28589	75.79906
76)	CN/JK/NL/08 - Himalayan Mixed Fores t	Jammu & Kashmir	Kishtwa r	Kishtwar	Cheer Mal	Kisthwar	Kisthwar	Comptt 65/K	15	33.34489	75.77714
77)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwa r	Kishtwar	Paura Chandali	Kishtwar	Saroor	Chamdai Ist	15	33.22678	75.88019
78)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwa r	Marwah	Gurinal Chhatroo	Udil Range	Chhatroo Block	Gurinal	15		
79)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwa r	Marwah	Gurinal Chhatroo (1)	Udil Range	Chhatroo Block	Gurinal	15	33.42472	75.61436
80)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwa r	Marwah	Gurinal Chhatroo (2)	Udil Range	Chhatroo Block	Gurinal	10	33.40334	75.62063
81)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Kishtwa r	Marwah	Palmar, Ekhalala	Dachhan	Jkhala	Palmar Co 39b/D	20	33.40622	75.73092
82)	CN/JK/NL/09 - Sub- Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	154/ N Katera	Lamberi	Rajal	Katera	16	33.18348	74.26686
83)	CN/JK/NL/09 - Sub- Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	154/N katera	Lamberi	Rajal Block	Katera	16	33.18348	74.26686
84)	CN/JK/NL/09 - Sub- Tropical Dry	Jammu & Kashmir	Rajouri	Nowshera	Androoth	Nowshera	Androoth	Androoth	8	33.251	74.20425

	Deciduous Forest										
85)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Bravi Nalla	Sunderbani	Dharamsal	Dharamsal 39/D	6	33.11681	74.45703
86)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Brevi Comptt: 27/B (Ballei Nalla)	Sunderbani	Dharamsal	Brevi comptt: 27/D	5	33.13354	74.45026
87)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Brevi Nalla	Sunderbani	Dharamsal	Dharamsal comptt. 29/D	5	33.13358	74.45006
88)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Brevi Nalla	Sunderbani	Dharamsal	Dharamsal comptt. 28/D	5	33.13348	74.45017
89)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Rajouri	Nowshera	Nadyala	Nowshera	Chingus	Chattayatri	20	33.26526	74.22735
90)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Nowshera	Nowshera	Nowshera	Nowshera	5	33.15139	74.20533
91)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Panais (Mangal devi), 28/N	Lamberi	Kalal	Mangle devi	11	33.08875	74.33353
92)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Pothagala (Berss) Comptt: 27/D	Sunderbani	Dharamsal	Bress Comptt. 27/D	7	33.15383	74.49308
93)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Rajouri	Nowshera	Pothagala (Breri) Comptt: 60/D	Sunderbani	Dharmasal	Kallar	5	33.15108	74.48825
94)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Salahari (Lower Hartkal) Co,	Sunderbani	Dharmasal	Salahari (comptt 54/D)	6	33.11699	74.50886

					54/D						
95)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Salaheri Comptt: 53/D	Sunderbani	Dharamsal	Salaheri	6	33.10016	74.50008
96)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Nowshera	Salaheri CoNo/54/D	Sunderbani	Dharamsal	Salaheri comptt 54/D	5	33.049293	74.490661
97)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Rajouri	300 m comptt. 122/K	Kalakote	Kalakote	Tatapani	6	33.25008	74.41668
98)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Rajouri	Bagalyan/Baurani	Kandi	Budhal-A		5	33.40001	74.53348
99)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Rajouri	Bathuni (2)	Rajouri	Bathuni	Bathuni	20	33.31694	74.30004
100)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Rajouri	Rajouri	Chotanr/Dhorimall/Nandom	Kandi	Budhal-B	Kandi-A	50	33.38353	74.50001
101)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Rajouri	Comptt. 120 k 300m	Kalakote	Kalakote	Tatapani	6	33.25009	74.40007
102)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Rajouri	Darkeri (Poundal) Comptt. No. 147/k	Kalakote	Kalakote	Sadda 'B'	8	33.2668	74.45026
103)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Rajouri	Rajouri	Kalaban-co.no. 80/R	Rajouri	Kotli	Kotli-B	8	33.51693	74.26689
104)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Rajouri	Khark Comptt. 115/K (1)	Kalakote	Kalakote	Tatapani	5	33.16667	74.40006
105)	CN/JK/NL/05 -	Jammu &	Rajouri	Rajouri	Khark	Kalakote	Kalakote	Tatapani	6	33.16667	74.40006

	Temperate Mixed Forest	Kashmir			Comptt. No. 115/K						
106)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Rajouri	Kharu comptt. 45/4	Kalakote	Kalakote	Tatapani	6	33.16687	74.4
107)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Rajouri	Lehri Comptt. 99k	Kalakote	Sialsui	Khadadian-B	5	33.21686	74.33352
108)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Rajouri	Rajouri	Palti/ Darman/ Marg	Kandi	Budhal A	Samote-A	50	33.36669	74.55019
109)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Rajouri	Rajouri	Phagla	Kandi	Dhangari	Dhangari	20	33.31668	74.38344
110)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Rajouri	Rajouri	Solki Comptt. 160/k	Kalakote	Dhaleri	Solki	5	33.15013	74.41684
111)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Ramban	Batote	Bastalla Comptt: 576/G	Gandhri	Kanga	Kanga	5	33.25139	75.14167
112)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Ramban	Batote	Bhornd Co. 49/G	Gandhri	Kanga	Gugwarl	5	33.23744	75.21306
113)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Ramban	Batote	Budhi Marri Cimpartment: 1/BHC	Batote	Shivgarh	Chakwa	20	33.13781	75.33081
114)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Ramban	Batote	Dhalwas compartment: 23b/BHC	Batote	Sanasar	Dhalwas	20	33.16646	75.31488
115)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Ramban	Batote	Kanga Comptt: 55/G	Gandhri	Kanga	Kanga	20	33.22389	75.17308
116)	CN/JK/NL/07 -	Jammu &	Ramban	Batote	Kanga	Gandhri	Kanga	Kanga	30		

	Himalayan Chir Pine Forest	Kashmir			Comptt: 56/G (Dharamkund)						
117)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Batote	Kothi/ Belyani Berth. Co. 68/G	Gandhri	Bhatri	Bhatri	25	33.33606	75.16136
118)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Batote	Kurmail Nallah (Co.74/mRT)	Mormat	Bulandpur	Baggar	14	33.13334	75.36683
119)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Batote	Malohri Passi (Co 13a/Marmat)	Marmat	Dedni	Hual Beat	25	33.13334	75.46671
120)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Batote	Masrola 66b/G	Gandhri	Bhatri	Bhatri	25	33.19442	75.18011
121)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Batote	Naghal Nalla	Marmat	Dedni	Hind Beat	30	33.00005	75.45005
122)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Batote	Neeha Nallah (CO. 72/ Mormat)	Mormat	Bulandpur	Baggar	18	33.11673	75.36685
123)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Ramban	Batote	Peerah-I (Compartment:- 28/Batote)	Batote	Sanasar	Sakini	30	33.17658	75.30772
124)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Ramban	Batote	Pernote	Gandhri	Kanga	Pernote	15	33.24344	75.20272
125)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Batote	Rakhjaro Compartment 12/BHC	Batote	Batore	12/BHC	40	33.12568	75.33172
126)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Batote	Soli Co. 75/G and 76/G	Gandhri	Bhatri	Tanger	25	33.18278	75.18583
127)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Ramban	Batote	Tauger (73/G Comptt:)	Gandhri	Kanga/Bhatri	Tanger	30	33.20272	75.16153

	rest										
128)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Batote	Trungal Nallah (CO. 71/ Mormat)	Mormat	Bulandp ur	Baggar	16	33.11688	75.38345
129)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Ary Marg Co. 35/BNL	Banihal	Mohu	Mangit 'a'	5	33.43775	75.09547
130)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Bagroo (Dal) Co. 27/R	Ramban	Bhingara	Paristan - 'B'	5	33.30606	75.30685
131)	CN/JK/NL/07 - Himalayan Chir Pine Fo rest	Jammu & Kashmir	Ramban	Ramban	Balli Co. 47/R	Ramban	Rajgarh	Dhandrat h - A	15	33.21061	75.28061
132)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Bozla Nallah Co. 23/R	Banihal	Mohu	Buzla-'a'	15	33.41681	75.11853
133)	CN/JK/NL/04 - Temperate Conifer Fores t	Jammu & Kashmir	Ramban	Ramban	Chul-Nari Com 38/BNL	Banihal	Mohu	Mangit 'a'	30	33.42675	75.11088
134)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Dad-Dhara, Ekhalha	Dachhan	Ekhalha	Ekhalha, 38 b/D	20	33.43689	75.72947
135)	CN/JK/NL/09 - Sub- Tropical Dry Deciduous Forest	Jammu & Kashmir	Ramban	Ramban	Digdol Co.390/R	Ramban	Ramban	Digdol - A	5	33.29708	75.18128
136)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Dikhal Com. 30/R	Ramban	Bhingara	Bhingara	5	33.31595	75.29858
137)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Ekhalha, Palmar	Dachhan	Jkhalla	Palmar Co. 39/D	15	33.40411	75.71813
138)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Falsel/ Hochak Co. 18/R	Ramban	Pogal	Pogal-B	45	33.239849	75.238919
139)	CN/JK/NL/07 - Himalayan Chir Pine Fo rest	Jammu & Kashmir	Ramban	Ramban	Gangnoo (Ramsoo)	Banihal	Sarbagni	Sarbagni - B	10	33.34731	75.17803
140)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Googli Co. 17/R	Pogal	Pogal A	Pogal A	30	33.58472	75.52033

141)	CN/JK/NL/04 - Temperate Conifer Forest	Jammu & Kashmir	Ramban	Ramban	Guari Com- 31/R	Ramban	Bhingara	Bhingara	5	33.3262	75.27617
142)	CN/JK/NL/06 - Pasture and Grazing Land Development	Jammu & Kashmir	Ramban	Ramban	Hammer Paasi Co. 26/R	Banihal	Bhanghara	Bhanghara 'B'	10	33.30014	75.32774
143)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Kanchil Ukhril Darin Co 33/R	Ramban	Bhanghara	Bhanghara 'B'	5	33.32626	75.26664
144)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Karihal Co. 11/R	Ramban	Neel	Neel-C	20	33.30543	75.30809
145)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Khil Nala Co 34/R	Ramban	Bhangara	Bhangara 'B'	5	33.32316	75.25951
146)	CN/JK/NL/09 - Sub- Tropical Dry Deciduous Forest	Jammu & Kashmir	Ramban	Ramban	Khooni Nallah 38R	Ramban	Ramban	Digdol - A	30	33.31684	75.19147
147)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Khoura	Banihal	Sarbagni	Trigam - A	5	33.34628	75.15653
148)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Kunchi Ukhril Co. 34/R	Banihal	Bhanghara	Bhanghara 'B'	5	33.32615	75.25318
149)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Opposite Chapran (Com. 31/R)	Banihal	Bhingara	Bhingara	5	33.32771	75.27642
150)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Palmar, Ekhalha (1)	Dachhan	Jkhalla	Palmar Co. 39/D	20	33.40622	75.72559
151)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Ramban	Ramban	Panthyal Co. 38/R	Ramban	Ramban	Digdol - A	20	33.32257	75.19734
152)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Ramban	Ramban	Ramsoo	Banihal	Sarbangni	Sarbagni - A	20	33.33547	75.19264

153)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Thanoli Nallah 47/R	Ramban	Rajgarh	Dhandrat h - A	5	33.33169	75.26425
154)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Ramban	Ramban	Thatha (Co. 70/R)	Ramban	Rajgarh	Rajgarh 'B'	5		
155)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Reasi	Mahore	Chillad 104/Ar	Mahore	Kanthan	Mattote	10	33.2228	74.9027
156)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Reasi	Mahore	Chural (Co/33/Ar)	Mahore	Bhudan	Shajrer	30	33.2794	74.8726
157)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Reasi	Mahore	Dada(Co.134 /Ar)	Mahore	Budhan	Shajru	45	33.27687	74.86142
158)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Reasi	Mahore	Dhamsal 92/Ar	Mahore	Kanthan	Judda	30	33.2931	74.8157
159)	CN/JK/NL/09 - Sub- Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Mahore	Drarot (Co. 89/Ar)	Mahore	Kanthan	Surukote	60	33.3057	74.7712
160)	CN/JK/NL/09 - Sub- Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Mahore	Judda Co 93/Ar	Mahore	Kanthan	Judda	20	33.2763	74.8227
161)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Reasi	Mahore	Kouni Compartment 50/GG	Gulbargh	Deval	Manjikote	30		
162)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Reasi	Mahore	Krud Comptt; 2/44	GULABGARH	MAHORE	MAHORE	30	33.29613	74.86703
163)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Reasi	Mahore	Lancha (118/Ar)	Mahore	Budhan	Lancha	30	33.2498	74.9564
164)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Reasi	Mahore	Lancha 116/Ar	Mahore	Budhan	Lancha-I	30	33.2275	74.951
165)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Reasi	Mahore	Malaic comptt.2/GG.	Gulabgarh	Mahore	Mahore	30	33.29567	74.83978

	rest										
166)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Reasi	Mahore	Malla Comptt.5 GG.	Mohore	Gulabgarh	Sarh	30	33.3157	74.90789
167)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Reasi	Mahore	Nambal Compartment 68/GG	Gulabgarh	Shergari	Shergari	40		
168)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Reasi	Mahore	Pir ki gali Compartment 66/GG	Gulabgarh	Shergari	Shergari	40	33.40303	74.70112
169)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Reasi	Mahore	Thuroo (co 109/Ar)	Mahore	Thuroo	Thuroo	30	33.2687	74.8605
170)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Aas, Nallion, Tarmoda Nallah, Aas Node	Reasi	Bhomag	Salal	20	33.13178	74.83
171)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Badawan, Bidda Co. 32/R	Reasi	Reasi	Mari	5	33.11375	74.80711
172)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Bodhi Dhar	Kotra	Bhoga	Bhoga-II	20	33.03861	74.86825
173)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Chinkah	Thakarakote	Thakarakote	Panassa II	20		
174)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Chourakote, Sersunowan, Zero Morh, Sermeghan	Reasi	Reasi	Bakkal	20	33.13708	74.91336
175)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Kanka Dabbad	Katra	Bhaga	Bhabber-Ii	10	33.02253	74.86828

176)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Kans Brahmna	Thakrakote	Talwara	Talwara II	20	33.06328	75.78406
177)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Khankhor, Ghiyala Co. 35/R	Reasi	Reasi	Mari	20	33.07546	74.89019
178)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Kharooni Garat, Goswan. Co. 36/R	Reasi	Reasi	Mari	40	33.08114	74.88423
179)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Kheral	Thakrakote	Talwaraa	Talwara 49 c/th	20	33.06747	75.74978
180)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Lamsera, Beat-Bakkal	Reasi	Bomaghi	Bakkal Beat	20	33.13344	74.91136
181)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Panarsa	Katra	Bhaga	Bhaga-I	10	33.05011	74.80003
182)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Panassa	Jhakrekote	Chinkah	Panassa I	20		
183)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Samakh (Surjandhar) Co 13/R	Reasi	Bhomagha	Nagote	60	33.11993	74.98128
184)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Sarma, Mari co. 34/R	Reasi	Reasi	Mari	20	33.11067	74.85293
185)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Reasi	Reasi	Soldi	Kalra	Bhaga	Bhaga-II	20	33.03236	74.86794
186)	CN/JK/NL/09 - Sub-Tropical Dry	Jammu & Kashmir	Reasi	Reasi	Soosla, Bidda	Reasi	Reasi	Beat-Mori	20	33.11116	74.80563

	Deciduous Forest										
187)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Reasi	Reasi	Surjandhar, Co. 18a/R and 18b/R	Reasi	Bomagh	Nagote	8	33.13991	74.97624
188)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Udhampur	Ramnagar	North Range				80		
189)	CN/JK/NL/06 - Pasture and Grazing Land Development	Jammu & Kashmir	Udhampur	Ramnagar	North Range 2				40		
190)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Udhampur	Ramnagar	North Range 3				30		
191)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Udhampur	Ramnagar	South Range				70		
192)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Udhampur	Ramnagar	South Range 2				50		
193)	CN/JK/NL/11 - Control/Removal of Invasive Species or <50% Lantana	Jammu & Kashmir	Udhampur	Ramnagar	South Range 3				30		
194)	CN/JK/NL/07 - Himalayan Chir Pine Forest	Jammu & Kashmir	Udhampur	Udhampur	Goth Comptt 67/P	Panchari	Chailodhera	Chailodhera	10	33.2258	75.2883
195)	CN/JK/NL/05 - Temperate Mixed Forest	Jammu & Kashmir	Udhampur	Udhampur	Kathala Comptt 66/P	Panchari	Chailodhera	Chailodhera	20	33.1547	75.1885
196)	CN/JK/NL/09 - Sub-Tropical Dry Deciduous Forest	Jammu & Kashmir	Udhampur	Udhampur	Lalli Nahalaco 48/P	Panchari	Damnate	Lalli	5	33.0953	75.0248
197)	CN/JK/NL/08 - Himalayan Mixed Forest	Jammu & Kashmir	Udhampur	Udhampur	Radhnate Nalah	Panchari	Damnate	Lalli	10	33.1266	75.0375

198)	CN/JK/NL/10 - Eradication of Lantana (> 50%)	Jammu & Kashmir	Udhamp ur	Udhampur	Thanthi Nahala Co 50/P	Panchari	Damnore	Sari	5	33.0929	75.0177
199)	CN/JK/NL/07 - Himalayan Chir Pine Fo rest	Jammu & Kashmir	Udhamp ur	Udhampur	Thark Comptt. 68/P	Panchari	Chailodh ra	Chailodh ra	10	33.157	75.1423
200)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Doda	Bhaderwah	Bhadarwah				100	32.983	75.711
201)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Doda	Bhaderwah	Bhadarwah				35	32.983	75.711
202)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Doda	Bhaderwah	Bhadarwah 2				110	33.3116	75.7662
203)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Doda	Bhaderwah	Bhadarwah 3				110	33.3116	75.7662
204)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Doda	Doda	Doda				120	33.1457	75.548
205)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Doda	Doda	Doda				70	33.1457	75.548
206)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Doda	Doda	Doda 2				110	33.1457	75.548
207)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Doda	Doda	Doda 3				100	33.1457	75.548
208)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Jammu	Jammu	Jammu				70	32.7266	74.857
209)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Jammu	Jammu	Jammu 2				80	32.7266	74.857

210)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Jammu	Jammu	Jammu 3				70	32.7266	74.857
211)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Jammu	Jammu	Jammu 1				80	32.7266	74.857
212)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar				140	33.3116	75.7662
213)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar				40	33.3116	75.7662
214)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar 2				130	33.3116	75.7662
215)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar 3				100	33.3116	75.7662
216)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Kishtwar	Marwah	Marwah				100	33.3116	75.7662
217)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Kishtwar	Marwah	Marwah				30	33.3116	75.7662
218)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Kishtwar	Marwah	Marwah 2				90	33.3116	75.7662
219)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Kishtwar	Marwah	Marwah 3				80	33.3116	75.7662
220)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Rajouri	Nowshera	Nowshera				100	20.5937	78.9629
221)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Rajouri	Nowshera	Nowshera				80	20.5937	78.9629

222)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Rajouri	Nowshera	Nowshera 2				70	20.5937	78.9629
223)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Rajouri	Nowshera	Nowshera 3				50	20.5937	78.9629
224)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Rajouri	Rajouri	Rajouri				100	33.3716	74.3152
225)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Rajouri	Rajouri	Rajouri				60	33.3716	74.3152
226)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Rajouri	Rajouri	Rajouri 2				90	33.3716	74.3152
227)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Rajouri	Rajouri	Rajouri 3				80	33.3716	74.3152
228)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Ramban	Batote	Batote				90	33.1216	75.3216
229)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Ramban	Batote	Batote				50	33.1216	75.3216
230)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Ramban	Batote	Batote 2				70	33.1216	75.3216
231)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Ramban	Batote	Batote 3				50	33.1216	75.3216
232)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Ramban	Ramban	Ramban				100	33.2427	75.2392
233)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Ramban	Ramban	Ramban				50	33.2427	75.2392

234)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Ramban	Ramban	Ramban 2				80	33.2427	75.2392
235)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Ramban	Ramban	Ramban 3				70	33.2427	75.2392
236)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Reasi	Mahore	Mahore				45		
237)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Reasi	Mahore	Mahore 1				60		
238)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Reasi	Mahore	Mahore 2				80		
239)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Reasi	Mahore	Mahore 3				70		
240)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Reasi	Reasi	Reasi				120	33.0804	74.8364
241)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Reasi	Reasi	Reasi				50	33.0804	74.8364
242)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Reasi	Reasi	Reasi 2				110	33.0804	74.8364
243)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Reasi	Reasi	Reasi 2				100	33.0804	74.8364
244)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range				80		
245)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range				50		

246)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 2				40		
247)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 3				30		
248)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range				70		
249)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range				50		
250)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range 2				50		
251)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range 3				30		
252)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Udhamp ur	Udhampur	Udhampur				130	32.916	75.1416
253)	CN/JK/NL/13 - Fire Protection Model	Jammu & Kashmir	Udhamp ur	Udhampur	Udhampur				60	32.916	75.1416
254)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Udhamp ur	Udhampur	Udhampur 2				100	32.916	75.1416
255)	CN/JK/NL/12 - Protection Model for Natural Regeneration	Jammu & Kashmir	Udhamp ur	Udhampur	Udhampur 3				80	32.916	75.1416
ii) Agriculture Landscape											
256)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah				12	32.983	75.711

257)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah				3	32.983	75.711
258)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah(2)				10	32.983	75.711
259)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah(2)				2	32.983	75.711
260)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah(3)				8	32.983	75.711
261)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah(3)				1	32.983	75.711
262)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Doda	Doda	Doda				18	33.1457	75.548
263)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Doda	Doda	Doda				4	33.1457	75.548
264)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Doda	Doda	Doda (2)				12	33.1457	75.548
265)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Doda	Doda	Doda (2)				2	33.1457	75.548
266)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Doda	Doda	Doda (3)				10	33.1457	75.548
267)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Doda	Doda	Doda (3)				1	33.1457	75.548
268)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Jammu	Jammu	Jammu				3	32.7266	74.857
269)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Jammu	Jammu	Jammu				12	32.7266	74.857

270)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Jammu	Jammu	Jammu (2)				2	32.7266	74.857
271)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Jammu	Jammu	Jammu (2)				10	32.7266	74.857
272)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Jammu	Jammu	Jammu (3)				1	32.7266	74.857
273)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Jammu	Jammu	Jammu (3)				8	32.7266	74.857
274)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar				4	33.3116	75.7662
275)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar				12	33.3116	75.7662
276)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar (2)				2	33.3116	75.7662
277)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar (2)				10	33.3116	75.7662
278)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar (3)				1	33.3116	75.7662
279)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Kishtwar	Kishtwar	Kishtwar (3)				8	33.3116	75.7662
280)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Kishtwar	Marwah	Marwah				3	33.3116	75.7662
281)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Kishtwar	Marwah	Marwah				12	33.3116	75.7662
282)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Kishtwar	Marwah	Marwah(2)				2	33.3116	75.7662

283)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Kishtwar	Marwah	Marwah(2)				10	33.3116	75.7662
284)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Kishtwar	Marwah	Marwah(3)				1	33.3116	75.7662
285)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Kishtwar	Marwah	Marwah(3)				8	33.3116	75.7662
286)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Rajouri	Nowshera	Nowshera				12	34.1289	74.8032
287)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Rajouri	Nowshera	Nowshera				4	34.1289	74.8032
288)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Rajouri	Nowshera	Nowshera (2)				10	34.1289	74.8032
289)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Rajouri	Nowshera	Nowshera (2)				2	34.1289	74.8032
290)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Rajouri	Nowshera	Nowshera (3)				8	34.1289	74.8032
291)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Rajouri	Nowshera	Nowshera (3)				1	34.1289	74.8032
292)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Rajouri	Rajouri	Rajouri				3	33.3716	74.3152
293)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Rajouri	Rajouri	Rajouri				12	33.3716	74.3152
294)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Rajouri	Rajouri	Rajouri (2)				2	33.3716	74.3152
295)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Rajouri	Rajouri	Rajouri (2)				10	33.3716	74.3152

296)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Rajouri	Rajouri	Rajouri (3)				1	33.3716	74.3152
297)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Rajouri	Rajouri	Rajouri (3)				8	33.3716	74.3152
298)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Ramban	Batote	Batote				12	33.1216	75.3216
299)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Ramban	Batote	Batote				4	33.1216	75.3216
300)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Ramban	Batote	Batote (2)				10	33.1216	75.3216
301)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Ramban	Batote	Batote (2)				2	33.1216	75.3216
302)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Ramban	Batote	Batote (3)				8	33.1216	75.3216
303)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Ramban	Batote	Batote (3)				1	33.1216	75.3216
304)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Ramban	Ramban	Ramban				4	33.2427	75.2392
305)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Ramban	Ramban	Ramban				18	33.2427	75.2392
306)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Ramban	Ramban	Ramban(2)				2	33.2427	75.2392
307)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Ramban	Ramban	Ramban(2)				12	33.2427	75.2392
308)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Ramban	Ramban	Ramban(3)				1	33.2427	75.2392

309)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Ramban	Ramban	Ramban(3)				10	33.2427	75.2392
310)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Reasi	Mahore	Mahore				12	33.3096	74.8595
311)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Reasi	Mahore	Mahore				3	33.3096	74.8595
312)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Reasi	Mahore	Mahore (2)				10	33.3096	74.8595
313)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Reasi	Mahore	Mahore (3)				8	33.3096	74.8595
314)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Reasi	Mahore	Mahore (3)				2	33.3096	74.8595
315)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Reasi	Mahore	Mahore(2)				1	33.3096	74.8595
316)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Reasi	Reasi	Reasi				12	33.0804	74.8365
317)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Reasi	Reasi	Reasi				4	33.0804	74.8365
318)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Reasi	Reasi	Reasi (2)				10	33.0804	74.8365
319)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Reasi	Reasi	Reasi (2)				2	33.0804	74.8365
320)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Reasi	Reasi	Reasi (3)				8	33.0804	74.8365
321)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Reasi	Reasi	Reasi (3)				1	33.0804	74.8365

322)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	North Range				12		
323)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	North Range				3		
324)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	North Range 2				4		
325)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	North Range 2				10		
326)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	North Range 3				12		
327)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	North Range 3				4		
328)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	South Range				12		
329)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	South Range				4		
330)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	South Range 2				4		
331)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	South Range 2				10		
332)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	South Range 3				12		
333)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Udhampur	Ramnagar	South Range 3				3		
334)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Udhampur	Udhampur	Udhampur				3	32.916	75.1416

335)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Udhampur	Udhampur	Udhampur				18	32.916	75.1416
336)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Udhampur	Udhampur	Udhampur (2)				2	32.916	75.1416
337)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Udhampur	Udhampur	Udhampur (2)				12	32.916	75.1416
338)	CN/JK/AL/02 - Block Plantation Model	Jammu & Kashmir	Udhampur	Udhampur	Udhampur (3)				1	32.916	75.1416
339)	CN/JK/AL/01 - Boundary Plantation Model	Jammu & Kashmir	Udhampur	Udhampur	Udhampur (3)				10	32.916	75.1416
iii) Urban Landscape											
340)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah				2	32.983	75.711
341)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah(2)				3	32.983	75.711
342)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah(3)				3	32.983	75.711
343)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah-1				0.5	32.983	75.711
344)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah-2				0.5	32.983	75.711
345)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Doda	Bhaderwah	Neeru, Kalnai				1	32.983	75.711
346)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Doda	Bhaderwah	Premnagar				0.1	32.983	75.711
347)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Doda	Bhaderwah	Thatri				0.3	32.983	75.711
348)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Doda	Doda	Doda				2	33.1457	75.548

349)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Doda	Doda	Doda				0.2	33.1457	75.548
350)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Doda	Doda	Doda				0.1	33.1457	75.548
351)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Doda	Doda	Doda (2)				3	33.1457	75.548
352)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Doda	Doda	Doda (3)				3	33.1457	75.548
353)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Doda	Doda	Lidrari River				1	33.1457	75.548
354)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Jammu	Jammu	Akhnoor				0.5	32.7266	74.857
355)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Jammu	Jammu	Jammu				2	32.7266	74.857
356)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Jammu	Jammu	Jammu				0.3	32.7266	74.857
357)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Jammu	Jammu	Jammu (2)				3	32.7266	74.857
358)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Jammu	Jammu	Jammu (3)				3	32.7266	74.857
359)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Jammu	Jammu	Sidhra				0.2	32.7266	74.857
360)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Jammu	Jammu	Surinsar				0.1	32.7266	74.857
361)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Jammu	Jammu	Tawi river				1	32.7266	74.857
362)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Jammu	Urban Forestry	Jammu Urban				2	32.7266	74.857
363)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Jammu	Urban Forestry	Jammu Urban				1	32.7266	74.857

364)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Jammu	Urban Forestry	Jammu Urban (2)				3	32.7266	74.857
365)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Jammu	Urban Forestry	Jammu Urban (3)				3	32.7266	74.857
366)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Jammu	Urban Forestry	Jammu Urban-1				0.4	32.7266	74.857
367)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Jammu	Urban Forestry	Jammu Urban-2				0.5	32.7266	74.857
368)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Jammu	Urban Forestry	Jammu Urban-3				0.2	32.7266	74.857
369)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Jammu	Urban Forestry	Jammu Urban-4				0.3	32.7266	74.857
370)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Jammu	Urban Forestry	Tawi river 2				1	32.7266	74.857
371)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Kishtwa r	Kishtwar	Bhoot Nallah				1	33.3116	75.7662
372)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Kishtwa r	Kishtwar	Kishtwar				2	33.3116	75.7662
373)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Kishtwa r	Kishtwar	Kishtwar				0.5	33.3116	75.7662
374)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Kishtwa r	Kishtwar	Kishtwar (2)				3	33.3116	75.7662
375)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Kishtwa r	Kishtwar	Kishtwar (3)				3	33.3116	75.7662
376)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Kishtwa r	Kishtwar	Paddar				0.2	33.3116	75.7662
377)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Kishtwa r	Marwah	BhandarKot				0.2	33.3116	75.7662
378)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Kishtwa r	Marwah	Kiar Nalla				1	33.3116	75.7662

379)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Kishtwar	Marwah	Marwah				2	33.3116	75.7662
380)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Kishtwar	Marwah	Marwah				0.2	33.3116	75.7662
381)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Kishtwar	Marwah	Marwah (Yurod)				0.4	33.3116	75.7662
382)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Kishtwar	Marwah	Marwah(2)				3	33.3116	75.7662
383)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Kishtwar	Marwah	Marwah(3)				3	33.3116	75.7662
384)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Rajouri	Nowshera	Nowshera				2	34.1289	74.8032
385)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Rajouri	Nowshera	Nowshera				0.1	34.1289	74.8032
386)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Rajouri	Nowshera	Nowshera				0.4	34.1289	74.8032
387)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Rajouri	Nowshera	Nowshera (2)				3	34.1289	74.8032
388)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Rajouri	Nowshera	Nowshera Tawi				1	34.1289	74.8032
389)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Rajouri	Rajouri	Tawi river 3				1	33.3716	74.3152
390)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Rajouri	Rajouri	Kalakote				0.1	33.3716	74.3152
391)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Rajouri	Rajouri	Rajouri				2	33.3716	74.3152
392)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Rajouri	Rajouri	Rajouri				0.2	33.3716	74.3152
393)	CN/JK/UL/04 - Eco-park Development	Jammu & Kashmir	Rajouri	Rajouri	Rajouri				0.5	33.3716	74.3152

394)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Rajouri	Rajouri	Rajouri (2)				3	33.3716	74.3152
395)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Rajouri	Rajouri	Rajouri (3)				3	33.3716	74.3152
396)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Ramban	Batote	Batote				2	33.1216	75.3216
397)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Ramban	Batote	Batote				0.2	33.1216	75.3216
398)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Ramban	Batote	Batote (2)				3	33.1216	75.3216
399)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Ramban	Batote	Batote (3)				3	33.1216	75.3216
400)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Ramban	Batote	Chanderkote				0.1	33.1216	75.3216
401)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Ramban	Batote	Patnitop				0.1	33.1216	75.3216
402)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Ramban	Batote	Raggi				1	33.1216	75.3216
403)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Ramban	Ramban	Banihal				0.5	33.2427	75.2392
404)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Ramban	Ramban	Bichlari				1	33.2427	75.2392
405)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Ramban	Ramban	Dharmakund				0.3	33.2427	75.2392
406)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Ramban	Ramban	Ramban				2	33.2427	75.2392
407)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Ramban	Ramban	Ramban				0.4	33.2427	75.2392
408)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Ramban	Ramban	Ramban				0.2	33.2427	75.2392

409)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Ramban	Ramban	Ramban(2)				3	33.2427	75.2392
410)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Ramban	Ramban	Ramban(3)				3	33.2427	75.2392
411)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Reasi	Mahore	Ans Nallah				1	33.3096	74.8595
412)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Reasi	Mahore	Arnas				0.1	33.3096	74.8595
413)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Reasi	Mahore	Arnas				0.1	33.3096	74.8595
414)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Reasi	Mahore	Dharmadi				0.2	33.3096	74.8595
415)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Reasi	Mahore	Katra				0.5	33.3096	74.8595
416)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Reasi	Mahore	Mahore				2	33.3096	74.8595
417)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Reasi	Mahore	Mahore				0.2	33.3096	74.8595
418)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Reasi	Mahore	Mahore (2)				3	33.3096	74.8595
419)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Reasi	Mahore	Reasi				0.3	33.3096	74.8595
420)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Reasi	Mahore	Reasi				0.5	33.3096	74.8595
421)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Reasi	Reasi	Banganga				1	33.0804	74.8365
422)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Reasi	Reasi	Reasi				2	33.0804	74.8365
423)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Reasi	Reasi	Reasi (2)				3	33.0804	74.8365

424)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Reasi	Reasi	Reasi (3)				3	33.0804	74.8365
425)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range				2		
426)		Jammu & Kashmir	Udhamp ur	Ramnagar	North Range				0.1		
427)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range				0.1		
428)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range				0.1		
429)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 2				3		
430)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 2				0.2		
431)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 2				0.2		
432)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 3				2		
433)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 3				0.4		
434)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 3				0.4		
435)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 3				0.4		
436)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Udhamp ur	Ramnagar	North Range 3				0.5		
437)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range				2		
438)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range				0.1		
439)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range				0.1		

440)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range 2				3		
441)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range 2				0.2		
442)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range 2				0.3		
443)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range 3				2		
444)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range 3				0.5		
445)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Udhamp ur	Ramnagar	South Range 3				0.5		
446)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Udhamp ur	Udhampur	Chenani				0.1	32.916	75.1416
447)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Udhamp ur	Udhampur	Mansar				0.2	32.916	75.1416
448)	CN/JK/UL/01 - Bioremediation and Bio filtration	Jammu & Kashmir	Udhamp ur	Udhampur	Tawi, Devak				1	32.916	75.1416
449)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Udhampur	Udhampur				2	32.916	75.1416
450)	CN/JK/UL/02 - Riverfront Development	Jammu & Kashmir	Udhamp ur	Udhampur	Udhampur				0.2	32.916	75.1416
451)	CN/JK/UL/04 - Eco- park Development	Jammu & Kashmir	Udhamp ur	Udhampur	Udhampur				0.5	32.916	75.1416
452)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Udhampur	Udhampur (2)				3	32.916	75.1416
453)	CN/JK/UL/03 - Institution Plantation	Jammu & Kashmir	Udhamp ur	Udhampur	Udhampur (3)				3	32.916	75.1416

iv) Conservation Intervention											
S.No.	Model	State/ UT	District	Division	Sitename	Range	Block	Beat	Area (m ³)	Latitude	Longitude
454)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Amar Singh Pura	Bhalesh	Kilhotran	Thaloran	950		
455)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Amar Singh Pura (Jhaloran Top)	Bhalesh	Kilhotran	Thaloran	940	32.98338	75.90894
456)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Bagerni-1st	Kellar	Paryote	Paryote-I	890	33.13944	75.52917
457)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Bani Co. 55/Bh	Bhalesh	Neeli	Dhosa-III	950	33.00274	75.9498
458)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Banshoh(Bey a)	Kellar	Malothi	Chilli	900	33.02614	75.59439
459)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Banshon	Kellar	Malolhi	Chilli	940	33.02622	75.59397
460)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah	Kellar	Malothi	Gajoth	920	33.04028	75.59947
461)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Bhaderwah	Kellar	Malothi	Gajoth	890	33.04028	75.59947
462)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Bhagratha	Kellar	Malothi	Malothi - II	940	33.06742	75.58056
463)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Bhaourwah	Kellar	Malothi	Gajoth	870	33.04078	75.60189
464)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Bhatai Lohar	Kellar	malothi	malothi-II	930	33.06547	75.57628
465)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Bhatai Upper	Kellar	Malothi	Malothi-II	890	33.06631	75.57222
466)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Bhazartha	Kellar	Malothi	Malothi-II	890	33.07083	75.57594
467)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Chakka	Neeru	Dandi	Co. 56/Neeru	940	32.98206	75.7045

468)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Champal	Bhalesh	Pingal	Champal Co. 8/Bh	930	33.06231	75.97933
469)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Chanti	Kellar	Malothi	Gajothi	910	33.03939	75.586
470)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Chanti(Gajot h)	Kellar	Malothi	Gajoth	940	33.0395	75.58703
471)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Chilli	Kellar	Malothi	Chilli	940	33.01153	75.60139
472)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Chilli	Kellar	Malothi	Chilli	970	33.01303	75.60356
473)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Chilly	Kellar	Malothi	Chilli	930	33.01317	75.60303
474)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Chilly	Kellar	Malothi	Chilli	910	33.01364	75.60364
475)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Chururi Chakka	Neeru	Dandi	Co. 56/Neeru	910	33.98039	75.70031
476)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Danda nagru	Kellar	Malothi	Dugli	880	33.04056	75.61233
477)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Dhrr Deri Mata(Waang)	Kellar	Malothi	Gajoth	930	33.04972	75.57503
478)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Diyassa (Chilly)	Kellar	Malothi	Chilli	870	33.00897	75.59853
479)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Diyassa(Chilli)	Kellar	Malothi	Chilli	920	33.01006	75.59969
480)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Drena	Kellar	Ghurakha	Ghurakha -II	880	33.06286	75.62914
481)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Forest Land (5)	Neeru	Puneja II	48/N	910		
482)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Forest Land (6)	Neeru	Dandi II	57/N	960		
483)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Forest Land (8)	Neeru	Puneja II	46/N	960		

484)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Forest Land (9)	Neeru	Puneja II	45/N	890		
485)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Gajoth	Kellar	Malothi	Gajoth	890	33.04094	75.60183
486)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Gajoth Nalah	Kellar	Malothi	Gajoth	940	33.03633	75.59103
487)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Gajoth(Chanti)	kellar	malothi	gajothi	920	33.03931	75.58831
488)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Guwa Naal	Kellar	Malothi	Gajoth	950	33.04556	75.57936
489)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Gyun Nalah	Kellar	Malothi	Dugli	900	33.08917	75.72333
490)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Jara(Gajoth)	Kellar	Malothi	Gajoth	930	33.03958	33.03958
491)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Jara(Gajoth)	Kellar	Malothi	Gajoth	930	33.03589	75.585
492)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Jaxa	Kellar	Malothi	Gajoth	930	33.03144	75.58369
493)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Kainki(Beya)	Kellar	Malothi	Chilli	890	33.02994	75.59336
494)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Kumhari	Kellar	Malothi	Malothi-II	960	33.0725	75.5875
495)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Kumhari	Kellar	Malothi	Malothi-II	890	33.00067	75.58334
496)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Malothi	Kellar	Malothi	Malothi-II	900	33.06539	75.62781
497)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Naik pura Co. 2/bh	Bhalesh	Pingal	Dichhal Co. 2/Bh	920	33.07969	75.93633
498)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Naiylah(Bhatoli)	Kellar	malothi	Dugli	880	33.05172	75.61944
499)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Doda	Bhaderwah	Pat Kut	Kellar	Malothi	Chilli	1100	33.02253	75.58847

500)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Samaie Co. 95/Bh	Bhalesh	Kiliotra	Jhaloram	910	32.97539	75.90628
501)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Doda	Bhaderwah	Site 1 (Bhaderwah)				1160		
502)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Doda	Bhaderwah	Site 2 (Bhaderwah)				1170		
503)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Doda	Bhaderwah	Site 3 (Bhaderwah)				1120		
504)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Slhari water harvesting tank+DRSM	Neeru	Duggi 2nd	Co. no 19 to 22/N Co. No. 20/ neeru	890		
505)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Soti Co. 85/Bh	Bhalesh	Kilhotran	Soti	930	32.97258	75.92475
506)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Talkhan	Khellar	Malothi	Chilli	890	33.04292	75.58939
507)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Talkhan (Beya)	Kellar	Malothi	Chilli	860	33.02728	75.58975
508)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Talkhan(Beya)	Kellar	Malothi	Chilli	850	33.02539	75.591
509)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Tangoran	Kellar	Ghuraka	Sharora-I	890	33.07894	75.67064
510)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Tangoran top.	Kellar	Ghuraka	Sharora-I	870	33.07894	75.67064
511)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Tansar Nallah	Kellar	Paryote	Paryote-II	840	33.09056	75.53139
512)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Tansar Nallah -II	Kellar	Paryote	Paryote-II	840	33.09056	75.53306
513)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Tarnoun Trabi+DRSM works in Co. No 121/N, water	Neeru	Duggi 2nd	Tranoun Trabi co. no 5c.n + DRSM 5 and 6/N	840	0	0

					harvesting tank						
514)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Tatora	Kellar	Malothi	Gajoth	830	33.04667	75.58334
515)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Bhaderwah	Upper Shaiya	Kellar	Paryote	Paryote-I	870	33.10806	75.54389
516)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Doda	84/5J	Siraj	Gadi	Gadi-II	870	33.34667	75.84981
517)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Doda	86/SJ - Bhalwal (Bhagwah Food)	Siraj	Koti	Bhagwah	960	0	0
518)	CN/JK/CI/01,02,04	Jammu & Kashmir	Doda	Doda	Bagori Co 7/Si	Siraj	Dhandhal	Mundhar	970	33.1636	75.41174
519)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Doda	Doda	Site 1 (Doda)				1140		
520)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Doda	Doda	Site 2 (Doda)				1080		
521)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Doda	Doda	Site 3 (Doda)				1130		
522)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Doda	Doda	Site 4 (Doda)				1130		
523)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Bajatta Nalla 59 Compartment	Bahu	Bajalta	Bajalta compartment 60	1750	32.77742	74.97597
524)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Bajatta Nalla 59 Compartment 2	Bahu	Bajalta	Bajalta compartment 60	1750	32.77742	74.97597
525)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Jammu Tawi river 62 compartment	Bahu	Bajalta	Bajalta compartment 60	1780	32.78289	74.93225

526)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Jammu Tawi river 62 compartment 2	Bahu	Bajalta	Bajalta compart ment 60	1780	32.78289	74.93225
527)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Jammu Tawi river Ba nk Boashta Block	Bahu	Bajalta	Bajalta compart ment 60	1810	32.77928	74.97144
528)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Jammu Tawi river Ba nk Boashta Block 2	Bahu	Bajalta	Bajalta compart ment 60	1810	32.77928	74.97144
529)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Jammu Tawi river C omptt. 62 Sardan Nalla	Bahu	Bajalta	Bajalta compart ment 60	1360	32.77542	74.97233
530)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Jammu Tawi river C omptt. 62 Sardan Nalla (2)	Bahu	Bajalta	Bajalta compart ment 60	1360	32.77542	74.97233
531)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Sardan Nalla Private Near 60 Compartment	Bahu	Bajalta	Bajalta compart ment 60	1370	32.7745	74.97306
532)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Simbal laid (Private land of Pushu)	Jammu	Nagrota II	Jagti	1360	32.83866	74.88061
533)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Jammu	Simbal laid (Private land of Pushu) 2	Jammu	Nagrota II	Jagti	1360	32.83866	74.88061
534)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Gujjar Nagar Bridge	MFP Godown	City Block		1300	32.72744	74.87497

535)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Gujjar Nagar Bridge (2)	MFP Godown	City Block		1320	32.71677	74.86675
536)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Gujjar Nagar Bridge (5)	MFP Godown	City Block		1320	32.71677	74.86675
537)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Gujjar Nagar Bridge 3	MFP Godown	City Block		1300	32.72744	74.87497
538)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Gujjar Nagar Bridge 4	MFP Godown	City Block		1300	32.72744	74.87497
539)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Mahamaya City forest	Sujwan	Mahamaya	Bandi	1350	32.72803	74.88033
540)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Mahamaya City Forest 2	Sunjwan	Mahamaya	Bandi	1420	32.74192	74.88033
541)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Mahamaya City forest 3	Sujwan	Mahamaya	Bandi	1350	32.72803	74.88033
542)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Mahamaya City Forest 4	Sunjwan	Mahamaya	Bandi	1420	32.74192	74.88033
543)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Mahamaya City forest 5	Sujwan	Mahamaya	Bandi	1350	32.72803	74.88033
544)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Ware House Jammu 2	MFP Godown	City Block		830	32.72417	74.87333
545)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Ware House Jammu 3	MFP Godown	City Block		830	32.72417	74.87333
546)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Ware House Jammu 4	MFP Godown	City Block		830	32.72417	74.87333
547)	CN/JK/CI/01,02,04	Jammu & Kashmir	Jammu	Urban Forestry	Ware House-Jammu	MFP Godown	City Block		910	32.71667	74.90111
548)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Kishtwar	Site 1 (Kishtwar)				1130		
549)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Kishtwar	Site 2 (Kishtwar)				1120		
550)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Kishtwar	Site 3 (Kishtwar)				1130		

551)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Kishtwar	Site 4 (Kishtwar)				1130		
552)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Kishtwar	Site 5 (Kishtwar)				1120		
553)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Kishtwar	Site 6 (Kishtwar)				1130		
554)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Marwah	Site 1 (Marwa)				1140		
555)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Marwah	Site 2 (Marwa)				1130		
556)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Marwah	Site 3 (Marwa)				1120		
557)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Marwah	Site 4 (Marwah)				1140		
558)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Kishtwar	Marwah	Site 5 (Marwah)				1130		
559)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bhawani	Nowshera	Jhanger	Bhawani	880	33.209244	74.058944
560)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bhawani 'B' Sehar	Nowshera	Jhanger	Bhawani	930	33.217414	74.06261
561)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	(i) Badloon (ii) Bhawani (iii) Kalsian	Nowshera	Jhanger	Jhangar/ Bhawani/ Bhawani	950	33.238023	74.078338
562)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	(i) Lorakha (ii) Kalsian (iii) Bhanwani (iv) Sair	Nowshera	Jhanger	Chowki	950	33.228272	74.11432
563)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	102/k, Narote (Panhar)	Lamberi	Rajal Block	Panhar	930	33.147	74.38807
564)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	102/k, Panhar (Narote)	Lamberi	Rajal Block	Panhar	930	33.1468	74.38855

565)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	103/K Panhar	Lamberi	Rajal	Panhar	1050	33.16405	74.37668
566)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	103/K Panhar (1)	Lamberi	Rajal	Panhar	950	33.16388	74.3759
567)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	142/N Sangpur (Sankar)	Lamberi	Rajal	Sankar	940	33.233846	74.288728
568)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	142/N Sangpur (Sankar)	Lamberi	Rajal	Sankar	960	33.234117	74.28838
569)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kangota (Solki Nala) Co. 25	Lamberi	Rajal Block	Sankar	920	33.12303	74.23277
570)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	149/N, Katrote (papinalla)	Lamberi	Rajal	Papinalla	910	33.20277	74.30697
571)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	149/N, Narian (papinalla)	Lamberi	Rajal	Papinalla	890	33.20547	74.29875
572)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	151/N Kutera Jagir	Lamberi	Rajal Block	Katra Jagir	840	33.19478	74.28363
573)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Allya Comptt: 84/D	Lamberi	Treru	Hari Chuma 'A'	900	33.19478	74.53392
574)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Allya Comptt: 84/D	Lamberi	Kalal	Kangota	960	33.19478	74.53375
575)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Allya Comptt: 84/D (1)	Lamberi	Treru	Hari Chuma 'A'	900	33.18533	74.54674
576)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Allya Comptt: 84/D	Lamberi	Treru	Hari Chuma 'A'	900		

577)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Amlimora (Comptt: 71/D)	Sunder Bani	Devak	Bagla	1470	33.12338	74.52112
578)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Amlimora (Comptt: 71/D) (1)	Sunder Bani	Devak	Bagla	900	33.12985	74.51902
579)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Androth	Nowshera	Androoth	Androoth	900	33.249026	74.168999
580)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bandanoo Co 33/D	Sunder Bani	Dharamsal	Dharamsal	910	33.13828	74.4485
581)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bai Nalla (Keri - Terayth) comptt. No. 81/D	Sunder Bani	Devak	Hathal	890	33.1582	74.53232
582)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bai Nalla (Keri - Terayth) comptt. No. 81/D	Sunder Bani	Devak	Hathal	910	33.1596	74.53232
583)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bai Nalla (Keri - Terayth) comptt. No. 82/D (1)	Sunder Bani	Devak	Hathal	940	33.39583	74.74667
584)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bajabain	Sunder Bani	Kangari	Dhok-Bayed	880	33.0488	74.41593
585)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bakhar	Sunder Bani	Sunder Bani	Thandapani (44/D)	910	33.08838	74.43258
586)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bakhar (2)	Sunder Bani	Sunder Bani	Thandapani (44/D)	850	33.09023	74.4199
587)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bakhar (3)	Sunder Bani	Sunder Bani	Thandapani (44/D)	930	33.07187	74.4348

588)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bakhar (4)	Sunder Bani	Sunder Bani	Thandapani (44/D)	960	33.09462	74.42737
589)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bakhar 43/D	Sunder Bani	Sunder Bani	Thandapani (43/D)	920	33.09332	74.42328
590)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bandhari (Comptt: 110/D)	Sunder Bani	Devak	Makol	880	33.27722	74.8525
591)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bandhari (Comptt: 110/D) (1)	Sunder Bani	Devak	Makol	900	33.21167	74.65167
592)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bandheri (Comptt: 110/D)	Sunder Bani	Devak	Makol	920	33.19972	74.77556
593)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bhajwal	Sunder Bani	Sunder Bani	Sunder Bani	900	33.02818	74.48922
594)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Bhawan 'B' Sehar	Nowshera	Jahnger	Bhawani	870	33.21373	74.065313
595)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Brevi (Thill Nallah)	Sunder Bani	Dharamsal	Dharamsal comptt. 29/D	850	33.14798	74.44218
596)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Brevi Comptt. 23/D (Soki Tawi)	Sunder Bani	Dharamsal	Brevi	920	33.16642	74.45088
597)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Brevi Nallah Co 27/D (Solki Nallah)	Sunder Bani	Dharamsal	Brevi	850	33.14575	74.46287
598)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Brevi Nallah	Sunder Bani	Dharamsal	Dharamsal comptt. 28/D	850	33.14495	74.4596

599)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Brevi Nallah (2)	Sunder Bani	Dharams al	Dharams al comptt. 28/D	900	33.14263	74.46032
600)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Brevi Nallah (4)	Sunder Bani	Dharams al	Dharams al comptt. 28/D	920	33.14255	74.4602
601)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Chabria Khabber Comptt. 70/D	Sunder Bani	Devak	Bagla	880	33.12535	74.51805
602)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Channi (1)	Sunder Bani	Sunder Bani	Channi (41/D)	880	33.11063	74.41132
603)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Channi (2)	Sunder Bani	Sunder Bani	Channi (40/D)	890	33.10848	74.41328
604)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Channi (3)	Sunder Bani	Sunder Bani	Channi (41/D)	900	33.11283	74.40557
605)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Channi Comptt: 40/D	Sunder Bani	Sunder Bani	Channi (40/D)	880	33.10715	74.42473
606)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Channi Comptt: 40/D (1)	Sunder Bani	Sunder Bani	Channi (40/D)	940	33.18103	74.40397
607)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Channi Comptt: 41/D	Sunder Bani	Sunder Bani	Channi (41/D)	880	33.1068	74.41658
608)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Chansergale (Prat) Comptt: 52/D	Sunder Bani	Dharams al	Salahair 52/D	900	33.12438	74.47588
609)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Charathani	Sunder Bani	Sunder Bani	Sunder Bani	880	33.05115	74.46337
610)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Chavria	Sunder Bani	Devak	Bagla (70/D comptt:)	910	33.28722	74.53528

611)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Chorgalla (Brevi) Comptt. 29/D (2)	Sunder Bani	Dharamsal	Dharamsal	870	33.14218	74.441
612)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Chringale (Kote kabu) Comptt. 61/D	Sunder Bani	Dharamsal	Kallar	880	33.15902	74.48205
613)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Chringale (Kote kabu) Comptt. 62/D	Sunder Bani	Dharamsal	Kallar	910	33.18142	74.48668
614)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Comptt - 121/N Garan	Lamberi	Rajal Block	Craran	900	33.1754	74.33755
615)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Comptt - 18/N, Narota	Lamberi	Rajal Block	Craran	1160	33.1344	74.47992
616)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Rajouri	Nowshera	Comptt 18/N, Danghar	Lamberi	Rajal	Caran	910	33.12103	74.39137
617)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Comptt. - 100N, Bagnote	Lamberi	Rajal	Garan	920	33.15048	74.2954
618)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Comptt. - 12/N, Shanshan Ghat (Garan)	Lamberi	Rajal	Garan	940	33.17372	74.43942
619)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Comptt. - 145/N, Khatrota (Papinalla)	Lamberi	Rajal Block	Papi Nallah	960	33.20173	74.30688
620)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Comptt. No-11/N, Tanda Patrari	Lamberi	Rajal	Garan	870	33.18025	74.32918
621)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Comptt: 145/N Khatrota	Lamberi	Rajal	Papi Nallah	920	33.20547	74.29875

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622)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Dehalla - comptt No. 5/N	Lamberi	Rajal Block	Lamberi	930	33.14167	74.35518
623)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Devak (Comptt. No. 107)	Sunder Bani	Devak	Devak	920	33.15028	74.61833
624)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Devak (Comptt. No. 107) (1)	Sunder Bani	Devak	Devak	960	33.18139	74.66833
625)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Devak (Comptt. No. 107) (2)	Sunder Bani	Devak	Devak	920	33.15222	74.80639
626)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Dhok - Baniyarh	Sunder Bani	Kangri	Dhok- Bayed 133/D	940	33.02807	74.40243
627)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Dhok - Baniyarh (Palval)	Sunder Bani	Kangri	Dhok- Bayed 131/D	920	33.03003	74.3977
628)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Dhok - Banyar (1)	Sunder Bani	Kangri	Dhok- Bayed 146/D	900	33.02243	74.40305
629)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Dhok - Bauyaed	Sunder Bani	Kangra	Dhok- Bayed 133/D	870	33.0339	74.38582
630)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Dhokori Comptt. 28/D (Brevi)	Sunder Bani	Dharams al	Dharams al Co, 28/D	910	33.13615	74.45355
631)	CN/JK/CI/01,02,04	<u>Jammu & Kashmir</u>	Rajouri	Nowshera	Dhokori Comptt. 28/D (Brevi)	Sunder Bani	Sunder Bani	Sunder Bani	930	33.13687	74.46108
632)	CN/JK/CI/01,02,04	<u>Jammu & Kashmir</u>	Rajouri	Nowshera	Dhokori Nalla (Brevi)	Sunder Bani	Dharams al	Dharams al Co,	920		

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633)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nadani	Sunder Bani	Sunder Bani	Sunder Bani	900	33.02898	74.48992
634)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Dhroori (prat) comptt: 52/D	Sunder Bani	Dharams al	Salahair 52/D	910	33.12685	74.47118
635)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Brevi Nallah	Sunder Bani	Dharams al	Dharams al	920	33.14575	74.45745
636)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Brevi Nallah	Sunder Bani	Dharams al	Dharams al comptt. 28/D	950	33.1459	74.4571
637)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Dova (Bhajwal)	Sunder Bani	Sunder Bani	Sunder Bani	960	33.03922	74.48333
638)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Firing Line (Bhajwal)	Sunder Bani	Sunder Bani	Sunder Bani	910	33.03752	74.47702
639)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Gabad (Keri-Teryath) (1)	Sunder Bani	Devak	Hathal	960	33.32917	74.62306
640)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Gagrote (Near co. 43/)	Lamberi	Kalal	Gagrote	920	33.09547	74.25657
641)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Ganya	Nowshera	Jhanger	Manpur	950	33.1604	74.160361
642)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Ganya/ Ganya/ Maupur	Nowshera	Jhanger	Maupur	930	33.160195	74.156872
643)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Genera (Prat) Comptt. 51/D	Sunder Bani	Dharams al	Salaheri (51/D)	900	33.1181	74.38298
644)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Genera (Prat) Comptt. 52/D	Sunder Bani	Dharams al	Salheri 52/D	900	33.12935	74.45862
645)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Ghai (Hathal) (Comptt. 77/D)	Sunder Bani	Devak	Hathal	940	33.11747	74.5588

646)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Ghai Hathal (Comptt. 77/D)	Sunder Bani	Devak	Hathal	890	33.11795	74.55635
647)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Ghai Hathal (Comptt. 77/D) (1)	Sunder Bani	Devak	Hathal	850	33.12287	74.22482
648)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Ghai. Co. 25/N (Private Land)	Lamberi	Kalal	Kangote	900		
649)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Guem (Hathal) (Comptt. 77/D)	Sunder Bani	Dwak	Hathal	930	33.11842	74.53015
650)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Guem (Hathal) (Comptt. 77/D) (1)	Sunder Bani	Dwak	Hathal	890	33.11765	74.5489
651)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Guem (Hathal) (Comptt. 77/D) (1)	Sunder Bani	Dwak	Hathal	930	33.11952	74.54897
652)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Gura Charlla	Sunder Bani	Sunder Bani	Langer	880	33.0639	74.5596
653)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Gura Charlla (1)	Sunder Bani	Sunder Bani	Langer	880	33.06468	74.5596
654)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Gura Charlla Co. 118/9/D	Sunder Bani	Sunder Bani	Langer	930	33.06478	74.55958
655)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Hardu-Malara	Sunder Bani	Sunder Bani	Rah-Salyote	1010	33.0397	74.56208
656)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Hardu-Malara (1)	Sunder Bani	Sunder Bani	Rah-Salyote	930	33.03972	74.56208
657)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Hardu-Malara (2)	Sunder Bani	Sunder Bani	Rah-Salyote	1000	33.03687	74.55578

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658)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Hardu-Malara (3)	Sunder Bani	Sunder Bani	Rah-Salyote	930	33.0494	74.55347
659)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Hardu-Malara (Ballayian Mohala)	Sunder Bani	Sunder Bani	Rah-Salyote	950	33.0397	74.56208
660)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Hardu-Malara (Charki gain)	Sunder Bani	Sunder Bani	Rah-Salyote	920	33.03847	74.55958
661)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Hathal-B Campa clousure (73/D)	Sunder Bani	Devak	Bagla	890	33.0977	74.52188
662)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Jhariety Mohre	Nowshera	Chaengus	Chattaeyi	910	33.22621	74.269355
663)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kallar Comptt. 58/D (Ranthal Nalla)	Sunder Bani	Dharamsal	Kallar	880		
664)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kallar Comptt. 58/D	Sunder Bani	Dharamsal	Kallar	910	33.13363	74.48488
665)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kallar) Comptt. 56/D (Solki Tawi)	Sunder Bani	Dharamsal	Kallar	940	33.13275	74.47352
666)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kangote, 24/N	Lamberi	Ralel	Kangota	950	33.12093	74.24957
667)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kanra	Sunder Bani	Kangra	Dhok-Bayed 133/D	880	33.04622	74.35078
668)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Katera 151/N	Lamberi	Rajal Block	Katera	880	33.1948	74.2833

669)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Khawan Comptt. - 9/N	Lamberi	Rajal Block	Garan	900	33.17115	74.31178
670)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Konara - (Meenka)	Sunder Bani	Kangri	Meenka 134/D	930	33.04148	74.35268
671)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Konera	Sunder Bani	Kangri	Meenka 134/D	940	33.04148	74.35268
672)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Konera (Meenka)	Sunder Bani	Kangri	Meenka 134/D	940	33.04653	74.35652
673)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Konera (Meenka) (1)	Sunder Bani	Kangri	Meenka 134/D	940	33.04892	74.36343
674)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Konera (Meenka) (2)	Sunder Bani	Kangri	Meenka 134/D	890	33.04712	74.35688
675)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Konera (Meenka) (3)	Sunder Bani	Kangri	Meenka 134/D	880	33.04343	74.36795
676)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kote kabu Comptt. 58/D	Sunder Bani	Dharams al	Kallar	910	33.1412	74.47955
677)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kote kabu (Mlah) Comptt. 22/D (Sollu Tawi)	Sunder Bani	Dharams al	Brevi Comptt: 22/D	880	33.17632	74.4742
678)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kote kabu (Mlah) Comptt. 22/D (Sollu Tawi)	Sunder Bani	Dharams al	Kellar	890	33.17588	74.47908
679)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kote Kabu <i>Nallah</i> comptt: 23/D (Sloki <i>Nallah</i>)	Sunder Bani	Dharams al	Brevi	960	33.16645	74.4515
680)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kuldabi	Sunder Bani	Kangri	Bhajwal 128/D	970	33.02787	74.42173
681)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kuldabi (1)	Sunder Bani	Kangri	Bhajwal 128/D	950	33.02335	74.41957

682)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kuldabi (2)	Sunder Bani	Kangri	Bhajwal 128/D	960	33.02293	74.4246
683)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Kuldabi (3)	Sunder Bani	Kangri	Bhajwal 128/D	890	33.02432	74.42307
684)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Lamberi Pati - comptt No - 5/N	Lamberi	Rajal	Lamberi	910	33.1404	74.35252
685)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Langer	Sunder Bani	Sunder Bani	Langer	960	33.08785	74.53133
686)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Langer (Tahgala)	Sunder Bani	Sunder Bani	Langer Comptt: 115/B	920	33.07762	74.51898
687)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Lower Hathal	Sunder Bani	Dharamsal	Salehari	890	33.08313	74.51905
688)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Lower Hathal Comptt: 54/D	Sunder Bani	Dharamsal	Salehari 54/D	890	33.1103	74.49207
689)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol	Sunder Bani	Sunder Bani	Langer Comptt: 114/D	930	33.069	74.58335
690)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol (II)	Sunder Bani	Devak	Makal	910	33.08572	74.58572
691)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol (1)	Sunder Bani	Sunder Bani	Langer Comptt: 114/D	870	33.06948	74.58297
692)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol (3)	Sunder Bani	Sunder Bani	Langer Comptt: 114/D	950	33.07958	74.5774
693)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Rajouri	Nowshera	Makol (4)	Sunder Bani	Sunder Bani	Makol	1140	33.07955	74.58358
694)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol (comptt: 113/D) (1)	Sunder Bani	Devak	Makol	890	33.0842	74.58693

695)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol (comptt: 113/D) (2)	Sunder Bani	Devak	Makol	950	33.05273	74.5874
696)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol (comptt: 113/D) (3)	Sunder Bani	Devak	Makol	940	33.0924	74.5955
697)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol (comptt: 113/D) (4)	Sunder Bani	Devak	Makol	880	33.08498	74.5865
698)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol 60	Sunder Bani	Devak	Makol	920	33.0744	74.58858
699)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Makol comptt: 113/D	Sunder Bani	Devak	Makol	940	33.07638	74.59323
700)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Marchala	Sunder Bani	Dharamsal	Salahair 49/D	950	33.08732	74.48152
701)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Marchala	Sunder Bani	Dharamsal	Salheri	900	33.0873	74.48173
702)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Marchala (1)	Sunder Bani	Dharamsal	Salahair 49/D	950	33.08537	74.47835
703)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Marchala (3)	Sunder Bani	Dharamsal	Salahair 49/D	870	33.09375	74.46088
704)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Marchala (3)	Sunder Bani	Dharamsal	Salahair 49/D	950	33.08142	74.4767
705)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Marchala (4)	Sunder Bani	Dharamsal	Salahair 49/D	550	33.0839	74.3974
706)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Marchala (5)	Sunder Bani	Dharamsal	Salahair 49/D	910		
707)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Margala (Langer)	Sunder Bani	Sunder Bani	Langer Comptt: 114/D	910	33.07697	74.5456
708)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Margala (Langer) (1)	Sunder Bani	Sunder Bani	Langer Comptt:	950	33.08003	74.54392

								115/D			
709)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Margala (Langer) Comptt: 114/D	Sunder Bani	Sunder Bani	Langer Comptt: 114/D	940	33.07723	74.54565
710)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Mathani Comptt 13/D	Lamberi	Treru	Gunda	880	33.23855	74.55313
711)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Mathani Comptt: 13/D (1)	Lamberi	Tereni	Gunda	880	33.23473	74.5543
712)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Mawa	Sunder Bani	Sunder Bani	Langer	920	33.05458	74.52837
713)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Mawa (1)	Sunder Bani	Sunder Bani	Langer	1010	33.05672	74.5245
714)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	<u>Meenka (Chita Rat)</u>	Sunder Bani	Kangri	Meenka 135/D	940	33.05477	74.33258
715)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Morha Patiyan	Sunder Bani	Devak	Bagla	910	33.12893	74.50717
716)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Morha-Patiyan	Sunder Bani	Devak	Bagla	880	33.12817	74.50795
717)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Morha-Patiyan (2)	Sunder Bani	Devak	Bagla	930	33.12742	74.50713
718)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nadani	Sunder Bani	Sunder Bani	Sunder Bani	940	33.02372	74.49293
719)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nadani Co. 124/D	Sunder Bani	Sunder Bani	Sunder Bani	880	33.02097	74.49332
720)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nadani Co. 124/D (1)	Sunder Bani	Sunder Bani	Sunder Bani	920	33.03087	74.49012
721)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nadani Bhajwal Co. 123/D	Sunder Bani	Sunder Bani	Sunder Bani	900	33.02457	74.49868
722)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nadani Bhajwal Co.	Sunder Bani	Sunder Bani	Sunder Bani	890	33.02615	74.4872

					124/D						
723)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nadani Co. 124/D	Sunder Bani	Sunder Bani	Sunder Bani	950	33.02407	74.49213
724)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nandani	Sunder Bani	Sunder Bani	Sunder Bani	900	33.0246	74.4973
725)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nandani (1)	Sunder Bani	Sunder Bani	Sunder Bani	930	33.02528	74.48872
726)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nandani (3)	Sunder Bani	Sunder Bani	Sunder Bani	900	33.0269	74.4939
727)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nandani (4)	Sunder Bani	Sunder Bani	Sunder Bani	890	33.02545	74.48757
728)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nandani (5)	Sunder Bani	Sunder Bani	Sunder Bani	940	33.05112	74.49012
729)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nandani (6)	Sunder Bani	Sunder Bani	Sunder Bani	940	33.05112	74.49012
730)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nandani Co. 124/D	Sunder Bani	Sunder Bani	Sunder Bani	910	33.02497	74.48813
731)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nella dub-Bhajwal	Sunder Bani	Kangri	Bhajwal 127/D	930	33.02982	74.45152
732)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nelladub-Bhajwal	Sunder Bani	Kangri	Bhajwal 127/D	930	33.02447	74.4509
733)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nohotti (Comptt: 75/D)	Sunder Bani	Devak	Hathal	920	33.085	74.5637
734)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nohotti (near camp closure) Compttt. 75/D	Sunder Bani	Devak	Hathal	930	33.08782	74.55938
735)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nohotti (near camp closure) Compttt.	Sunder Bani	Devak	Hathal	890	33.09055	74.55672

					75/D (1)						
736)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nohotti (near camp closure) Comptt. 75/D (2)	Sunder Bani	Devak	Hathal	970	33.08782	74.55938
737)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Nohotti (Near encroachment closure) Comptt: 75/D (3)	Sunder Bani	Devak	Hathal	920		
738)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Noorkot	Nowshera	Chingus	Chattaryr i	890	33.264561	74.263853
739)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Pali	Sunder Bani	Devak	Kangri 147/D	930	33.0186	74.4159
740)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Panais Compt No.28/N	Lamberi	Kalal	Manglalo devi	960	33.08108	74.34442
741)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Panghlar Comptt 88/D	Lamberi	Treru	Hari Chuma 'B'	890	33.233742	74.570383
742)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Panglar Comptt No 88/D	Lamberi	Treru	Harichu ma 'B'	930	33.231341	74.596633
743)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Pathi (Chani) comptt. 38/D	Sunder Bani	Dharams al	Dharams al	870	33.11995	74.44342
744)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Pathi (Chani) comptt. 39/D	Sunder Bani	Dharams al	Dharams al	920	33.12422	74.45675
745)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Patrara	Sunder Bani	Sunder Bani	Langer	900	33.06295	74.53058
746)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Patrara (1)	Sunder Bani	Sunder Bani	Langer 117/D	900	33.06248	74.53078
747)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Patrara (2)	Sunder Bani	Sunder Bani	Langer	940	33.05675	74.53135

748)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Peli	Sunder Bani	Devak	Kangri 147/D	970	33.01922	74.4338
749)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Pir Khana	Sunder Bani	Devak	Bagla	920	33.10105	74.51703
750)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Pir Khana (2)	Sunder Bani	Devak	Bagla	900	33.10242	74.52193
751)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Pir Khana Comptt: 73/D	Sunder Bani	Devak	Bagla	980	33.09108	74.52468
752)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	<u>Plassi Hill - comptt. 6/N</u>	Lamberi	Rajal Block	Lamberi	960	33.15003	74.35952
753)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Playkar (Dhar)	Sunder Bani	Devak	Kangri 147/D	900	33.01927	74.4166
754)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Pothagala (Kote Kabu) Comptt: 59/D	Sunder Bani	Dharamsal	Kallar	900	33.14947	74.47292
755)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Pothagale Kasi Comptt. 27/D (Solki)	Sunder Bani	Dharamsal	Brevi	920	33.1459	74.46913
756)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Prat Comptt. 49/D (1)	Sunder Bani	Dharamsal	Salari	930	33.09048	74.47992
757)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Prat Comptt: 49/D Private Land	Sunder Bani	Dharamsal	Salaheria 49/D	940	33.10815	74.46392
758)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Prat Moiden	Sunder Bani	Dharamsal	Salari 49/D	900	33.09055	74.39705
759)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Proot	Sunder Bani	Dharamsal	Salahair 49/D	890	33.09873	74.46635
760)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah	Sunder Bani	Sunder Bani	Rah-Salyote Comptt: 120/D	920	33.04392	74.53298
761)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah (1)	Sunder Bani	Sunder Bani	Rah-Salyote	920	33.04395	74.53347

762)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah (2)	Sunder Bani	Sunder Bani	Rah-Salyote	890	33.04457	74.53093
763)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah (3)	Sunder Bani	Sunder Bani	Rah-Salyote	970	33.04257	74.54852
764)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah (4)	Sunder Bani	Sunder Bani	Rah-Salyote	910	33.04743	74.5433
765)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah (5)	Sunder Bani	Sunder Bani	Rah-Salyote Comptt: 120/D	890	33.03975	74.54235
766)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah Comptt: 120/D	Sunder Bani	Sunder Bani	Rah-Salyote	830	33.04257	74.54852
767)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah. Salyote	Sunder Bani	Sunder Bani	Sunder Bani	900	33.05208	74.51042
768)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah. Salyote (1)	Sunder Bani	Sunder Bani	Sunder Bani	950	33.04853	74.52608
769)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rah. Salyote (2)	Sunder Bani	Sunder Bani	Sunder Bani	960	33.04973	74.52672
770)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rugha (Prat) comptt: 49/D	Sunder Bani	Dharamsal	Salaheri 49/D	940	33.09047	74.5214
771)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rajgarh (Hathal) Comptt. 74/D	Sunder Bani	Devak	Hathal	840	33.1125	74.54267
772)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rajgarh (Sayda)	Sunder Bani	Devak	Hathal	920	33.10408	74.54097
773)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rajgarh (Sayeda) (Comptt. No. 74/D)	Sunder Bani	Devak	Hathal	1000	33.11148	74.54227
774)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rajgarh Sayeda Hathal (Comptt:	Sunder Bani	Devak	Hathal	900	33.10452	74.53353

					77/D)						
775)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Ranthal Comptt: 59/D (Salori <i>Nallah</i>)	Sunder Bani	Dharams al	Kallar	930	33.14285	74.48123
776)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Rugha (Prat)	Sunder Bani	Dharams al	Salahair 49/D	900	33.10568	74.47832
777)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salaheri (2)	Sunder Bani	Dharams al	Salehari 53/D	930	33.0979	74.50927
778)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Saleheri Comptt: 49/D (1)	Sunder Bani	Dharams al	Salheri comptt. 49/D	970	33.09788	74.50498
779)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Saleri (Lower Hathcl) Co.1 49/D	Sunder Bani	Dharams al	Salahair 49/D	930	33.10762	74.50055
780)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri	Sunder Bani	Dharams al	Salehari 53/D	940	33.09802	74.50888
781)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri (10)	Sunder Bani	Devak	Bagla	880	33.10313	74.51722
782)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri (11)	Sunder Bani	Devak	Bagla	950	33.10273	74.51785
783)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri (12)	Sunder Bani	Devak	Bagla	960	33.10367	74.52103
784)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri (12)	Sunder Bani	Devak	Bagla	950	33.10842	74.51458
785)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri (5)	Sunder Bani	Dharams al	Salehari 53/D	950	33.09652	74.50518
786)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri (6)	Sunder Bani	Devak	Bagla	910	33.10358	74.52135
787)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri (7)	Sunder Bani	Devak	Bagla	890	33.1014	74.51512
788)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri (8)	Sunder Bani	Devak	Bagla	940	33.1008	74.50445

789)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri (Lower Hathal)	Sunder Bani	Dharamsal	Salehari 54/D	900	33.09753	74.50508
790)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri Comptt. 53/D (2)	Sunder Bani	Dharamsal	Salehari 54/D	920	33.08885	74.49798
791)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri Comptt. 73/D	Sunder Bani	Devak	Bagla	970	33.10168	74.51365
792)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Salheri Comptt. 73/D (2)	Sunder Bani	Devak	Bagla	920	33.10048	74.51662
793)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sanchal Galli Co. 147/k	Kalakote	Kalakote	Sadda 'B'	960		
794)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sangar - 97/D	Lamberi	Treru	Rausoo - comptt. 97/D	920	33.16818	74.64752
795)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sangar - 97/D (2)	Lamberi	Treru	Rausoo - comptt. 97/D	950	33.16882	74.64667
796)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Rajouri	Nowshera	Sangar Bambliya Comptt 98/D	Lamberi	Treru	Lanso comptt 98/D	1130	33.16725	74.64328
797)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sangar Comptt: 97/D	Lamberi	Treru	Rausoo - comptt. 97/D	950	33.1591	74.6307
798)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sangpur Comptt No. 142/N	Lamberi	Rajal Block	Samkar	910	33.235059	74.289783
799)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sarohti (Khabber) (Comptt. No. 78/D)	Sunder Bani	Devak	Hathal	910	33.12833	74.54263

800)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sarohti (Khabber) (Comptt. No. 78/D) (2)	Sunder Bani	Devak	Hathal	850	33.13052	74.54253
801)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sarohti (Khabber) (Comptt. No. 78/D)	Sunder Bani	Devak	Hathal	480	33.11765	74.55428
802)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Saya (Compartmen t 111/D) (1)	Sunder Bani	Devak	Makol	860	33.10452	74.6036
803)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Saya (Compartmen t 113/D)	Sunder Bani	Devak	Makol	860	33.09527	74.62288
804)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Saya (Comptt: 113/D) (1)	Sunder Bani	Devak	Makol	910	33.09227	74.59638
805)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Serya (Comptt: 112/D)	Sunder Bani	Devak	Makol	880	33.09488	74.6259
806)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Seyia (Comptt. - 107/D)	Sunder Bani	Devak	Devak	910	33.09838	74.59133
807)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Simble ghai (Brevi) Comptt. 30/D (2)	Sunder Bani	Dharams al	Dharams al	860	33.1435	74.43055
808)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Siot	Sunder Bani	Sunder Bani	Thandapa ni - 43/D	880	33.09952	74.38478
809)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Siot (43/D) (1)	Sunder Bani	Sunder Bani	Thandapa ni - 43/D	910	33.10912	74.39335
810)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Siot 43/D	Sunder Bani	Sunder Bani	Thandapa ni - 43/D	910	33.10023	74.38312

811)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sulla (Bandhari) (1)	Sunder Bani	Devak	Makol	870	33.11913	74.60785
812)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sulla (Bandhari) (Comptt:/09/D)	Sunder Bani	Devak	Makol	890	33.11917	74.60842
813)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sulla (Comptt: 112/D)	Sunder Bani	Devak	Makol	920		
814)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Sulla Bandhari	Sunder Bani	Devak	Makol	990	33.11777	74.60855
815)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Tanda-Thichka	Sunder Bani	Kangri	Meenka 134/D	850		
816)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Tanha Hathal (Compartmen t No. 76/ D)	Sunder Bani	Devak	Hathal	850	33.10548	74.5567
817)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Tanua (Hathal) (Comptt. 76/D) (1)	Sunder Bani	Dwak	Hathal	830	33.10688	74.55182
818)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Tanua (Hathal) (Comptt. 77/D)	Sunder Bani	Dwak	Hathal	880	33.10568	74.55877
819)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Tanua Hathal (Comptt: No. 76/D)	Sunder Bani	Dwak	Hathal	830	33.10688	74.55182
820)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Tanua Hathal (Comptt: No. 76/D) (1)	Sunder Bani	Devak	Hathal	830	33.10287	74.5565
821)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Thanda Pani (47/D)	Sunder Bani	Sunder Bani	Thandapani (47/D)	930	33.105	74.34583

822)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Thandapani	Sunder Bani	Sunder Bani	Thandapani (47/D)	870	33.0616	74.48182
823)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Thandapani Comptt. 59/D (Ranthal Nalla)	Sunder Bani	Dharamsal	Kallar	870	33.15452	74.4773
824)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Thandapani (3)	Sunder Bani	Sunder Bani	Thandapani (43/D)	910	33.06303	74.5011
825)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Thandapani (47/D)	Sunder Bani	Sunder Bani	Thandapani (47/D)	840	33.0704	74.48235
826)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Thandi Kassi (Comptt: 72/D)	Sunder Bani	Devak	Bagla	870	33.11135	74.51597
827)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Thandi Kassi (Comptt: 72/D) (1)	Sunder Bani	Devak	Bagla	890	33.12027	74.51397
828)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Thangriote	Lamberi	Treru	Rausoo - comptt. 97/D	850	33.14777	74.5702
829)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Thilh (chani) Comptt. 35/D	Sunder Bani	Dharamsal	Dharamsal	840	33.1259	74.47285
830)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Treru (Sangore) comptt: 16/D	Lamberi	Treru	Treru	850	33.23617	74.52445
831)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Treru 15/D	Lamberi	Treru	Treru	870	33.2275	74.5486
832)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Treru Comptt: 16/D	Lamberi	Treru	Treru	870	33.23227	74.53355
833)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Treru (Parriah) comptt. 151D	Lamberi	Treru	Treru	870	33.23483	74.52523
834)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Trimbli (133/D)	Sunder Bani	Kangra	Dhok-Bayed	840	33.04323	74.36052

					Comptt)			133/D			
835)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Upper Kangri	Sunder Bani	Kangra	Dhok-Bayed 133/D	850	33.04153	74.36827
836)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Nowshera	Upper Kangri comptt: 133/D	Sunder Bani	Kangra	Dhok-Bayed 133/D	860	33.04428	74.36263
837)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Aarangh	Kandi	Budhal-A	Kandi-A	890	33.40007	74.51684
838)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Amlimora (Comptt: 71/D)	Sunder Bani	Devak	Bagla	900	33.12353	74.52098
839)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Bathuni	Rajouri	Bathuni	Bathuni - B	950	33.33336	74.32306
840)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Bindi	Kandi	Kalalkas s	Lankaban -B	900	33.15019	74.35025
841)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Bindi (2)	Kandi	Kalalkas s	Lankaban -B	890	33.40006	74.50021
842)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	<u>Dangle Kass (Surota Fores t) co. 55/k</u>	Kandi	Bakoal	Kangota	910	33.35001	74.61097
843)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Jamola	Kandi	Kalalkas s	Jamola-B	950	33.31683	74.43345
844)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Jamola (1)	Kandi	Kalalkas s	Jamola-B	930	33.31684	74.45013
845)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Kalakass	Kandi	Kalalkas s	Kalalkass -A	920	33.33351	74.36694
846)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Kalakass (2)	Kandi	Kalalkas s	Kalalkass -A	910	33.35014	74.38336
847)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Kalalkass	Kandi	Kalalkas s	Kalalkass -B	910	33.33352	74.3834
848)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Khark Comptt. No.	Kalakote	Kalakote	Tatapani	970	33.16687	74.4

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849)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Ladote	Kandi	Kalalkas s	Kalalkass -B	930	33.35019	74.41678
850)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Ladote (1)	Kandi	Kalalkas s	Kalalkass -B	910	33.35022	74.41674
851)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Ladote (2)	Kandi	Kalalkas s	Lankaban -A	940	33.3169	74.40012
852)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Ladote (3)	Kandi	Kalalkas s	Lankaban -A	920	33.31684	74.40025
853)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Lamman	Sunder Bani	Sunder Bani	Sunder Bani	900	33.0309	74.47965
854)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Leyal (Comptt: 73/D) (1)	Sunder Bani	Devak	Bagla	900	33.08357	74.5168
855)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Noorkot	Rajouri	Bathuni	Sowani 'A'	910	33.26674	74.26693
856)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Mangrote Comptt. 132/k	Kalakote	Kalakote	Kanthol	890		
857)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Morcha Pahyan	Sunder Bani	Devak	Bagla	920	33.11689	74.50014
858)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Rah Salyote, Co. 122/D	Sunder Bani	Sunder Bani	Sunder Bani	890	33.05238	74.51043
859)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Sail Sui (Kukad-deh) Comptt. 99/K	Kalakote	Sial sui	Khadadia n-B	960	33.43083	74.49
860)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Sail Sui-99/K	Kalakote	Sial sui	Khadadia n-B	940	33.43083	74.49
861)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Saliote	Kandi	Dhangari	Dhangari	940	33.2334	74.43337
862)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Sawari (3)	Kandi	Kalalkas s	Nagoon	890	33.35004	74.46681

863)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Sawari-A	Kandi	Kalalkas s	Sawari-A	980	33.35015	74.41686
864)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Sawari-A (1)	Kandi	Kalalkas s	Sawari-A	890	33.35016	74.41688
865)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Sawari-A (2)	Kandi	Kalalkas s	Nagoon	920	33.35007	74.46678
866)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Solki (2)	Kalakote	Dhaleri	Solki	950	33.15013	74.41681
867)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Solki Comptt.	Kalakote	Dhaleri	Solki	910	33.15013	74.41684
868)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Solki comptt. 160/k (1)	Kalakote	Dhaleri	Solki	930	33.15013	74.41685
869)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Thangrote (Comptt. No. : 104/ D)	Sunder Bani	Devak	Devak	840	33.13933	74.56763
870)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Thangrote (Comptt. No. : 104/ D) (2)	Sunder Bani	Devak	Devak	850	33.13933	74.56763
871)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Thangrote (Comptt. No. : 104/ D) (3)	Sunder Bani	Devak	Devak	840	33.14555	74.57425
872)	CN/JK/CI/01,02,04	Jammu & Kashmir	Rajouri	Rajouri	Thangrote (Comptt. No. : 104/ D)(1)	Sunder Bani	Devak	Devak	870	33.14685	74.57047
873)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Ramban	Batote	Site 1 (Batote)				1250		
874)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Ramban	Batote	Site 2 (Batote)				1220		
875)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Ramban	Batote	Site 3 (Batote)				1290		
876)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Ramban	Batote	Site 4 (Batote)				1290		

877)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Ramban	Batote	Site 5 (Batote)				1220		
878)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Ahama Com. 35/R	Ramban	Bhingara	Bhingara 'B'	950	33.32029	75.22145
879)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Arjun Kote Co. 23/ Rbn	Ramban	Bhingara 'A'	Paristan 'A'	940	33.32082	75.36986
880)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Bagroo (Dal) Co. 27/R	Ramban	Bhingara	Paristan - 'B'	950	33.30606	75.30685
881)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Dadan Naala Co. 20/R	Ramban	Bhingara	Paristan-A	910	33.32029	75.22145
882)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Dardahi Co. 35/R	Ramban	Bhinghar a	Bhinghar a 'B'	900	33.31481	75.22883
883)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Darpat (Bordhar) Co.11/R	Ramban	Neel	Neel-C	910	33.35709	75.21628
884)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Dnari Galli (Co. 66/R)	Ramban	Rajgarh	Rajgarh 'A'	960	33.22758	75.34575
885)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Drubla - (Co. 67/R)	Ramban	Rajgarh	Rajgarh 'A'	940	33.23314	75.20428
886)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Dugga (Co. 65/R)	Ramban	Rajgarh	Rajgarh 'B'	880	33.17587	75.36869
887)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Nag Mandir Thamhal (Co. 69/ R)	Ramban	Rajgarh	Rajgarh 'B'	940	33.22371	75.39228
888)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Neva Bajkot (Co. 63/R)	Ramban	Rajgarh	Dundrath 'B'	910	33.22837	75.34357
889)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Opposite Chivli Co. 25/R	Ramban	Bhingara 'A'	Paristan 'A'	950	33.30437	75.34983
890)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Paristan Naala Co. 20/R	Ramban	Bhinghar a	Paristan-A	960	33.32914	75.33318

891)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Sarbagni	Banihal	Sarbagni	Sarbagni - A	930	33.32519	75.16678
892)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Sarvadhar Co. 25/R	Ramban	Bhingara	Paristan 'B'	890	33.29011	75.35144
893)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Sati Nag Mandir (Zangaldhar/. Co - 65/R)	Ramban	Rajgarh	Rajgarh 'B'	860	33.17312	75.36838
894)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Sherigalli Co. 45R	Ramban	Ramban	Ramban 'A'	950	33.24528	75.2453
895)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Ramban	Ramban	Site 1 (Ramban)				1140		
896)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Ramban	Ramban	Site 2 (Ramban)				1150		
897)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Ramban	Ramban	Site 3 (Ramban)				1140		
898)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Thamal Mandir (Nag Mandir) Co. 69/R	Ramban	Ramban	Rajgarh 'B'	850	33.22371	75.37562
899)	CN/JK/CI/01,02,04	Jammu & Kashmir	Ramban	Ramban	Uthba (Battoo) Co.10/R	Ramban	Neel	Neel-'C'	880	33.36299	75.24176
900)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Reasi	Mahore	Site 1 (Mahore)				1130		
901)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Reasi	Mahore	Site 2 (Mahore)				1130		
902)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Reasi	Mahore	Site 3 (Mahore)				1130		
903)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Reasi	Mahore	Site 4 (Mahore)				1130		
904)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Reasi	Mahore	Site 5 (Mahore)				1130		

905)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Aghar Jitto	Katra	Bhaga	Buttan	940	33.00425	74.88625
906)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Aghar Jitto (2)	Katra	Bhaga	Buttan	930	33.007	74.89569
907)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Aghar Jitto (3)	Katra	Bhaga	Buttan	950	33.00878	74.89897
908)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Aghar Nalla Co. 33/R	Reasi	Reasi	Mari	980	33.10549	74.83227
909)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Anji Nallah near Sula Peak	Katra	Bhaga	Bhaga-I	970	33.06674	74.83337
910)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Bagdhar, Co.10/R	Reasi	Bhonag	Nagote	950	33.14016	75.00568
911)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Balni	Katra	Bhaga	Bultan	920	32.99597	74.92567
912)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Barote Kote, Co. 15/R	Reasi	Reasi	Mari	910	33.14774	74.96801
913)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Bhabber Raaryala	Katra	Bhaga	Bhaga-I	940	33.05009	74.80001
914)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Bhabber Raaryala 77/k Co.	Katra	Bhaga	Bhaga-I	960	33.05013	74.80002
915)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Bhaga	Katra	Bhaga	Bhaga-II	950	33.04122	74.86372
916)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Bhaga Saldi	Katra	Bhaga	Bhaga-II	910	33.04186	74.86203
917)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Bhangal	Katra	Bhaga	Buttan	900	33.01742	74.89375
918)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Bhum (Surjandhar) Co.17/R	Reasi	Bhomag h	Nagote	880	33.12676	74.95318
919)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Bidda Galli, co.32/R	Reasi	Reasi	Mari	860	33.10519	74.82789

920)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Chatiya	Katra	Bhaga	Buttan	940	33.00956	74.86614
921)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Chatiya (Aghar Jitto)	Katra	Bhaga	Buttan	890	33.00364	74.87475
922)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Chumbia	Katra	Bhaga	Babber-I	890	33.01872	74.81247
923)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Dabbad, Near Narib Chand House	Katra	Bhaga	Bhabber-B	940	33.02314	74.86808
924)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Dhanwa	Thakrakote	Talwara	Talwara I	960	33.06767	74.77998
925)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Dogalla, Aghar Ballian Co. 33/R	Reasi	Reasi	Mari	950	33.10896	74.82832
926)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Drawna Nalla, Mari, Co. 34/R	Reasi	Reasi	Mari	940	33.10933	74.87281
927)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Gwswan Bonekhad Nalla Co. 36/R	Reasi	Reasi	Mari	920	33.09742	74.88219
928)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Jerri	Thakrakote	Talwara	Talwara I	890	33.03658	74.79456
929)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Jerri (3)	Thakrakote	Talwara	Talwara I	910	33.039	74.78892
930)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Julla	Katra	Bhaga	Bhabber-B	920	33.01869	74.85583
931)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Julla (2)	Katra	Bhaga	Bhabber-B	930	33.02314	74.8575
932)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Julla, Mana ka Drad	Katra	Bhaga	Bhabber-B	910	33.02392	74.85828

933)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Julia, Near Chuni Lal Lamberdars House	Katra	Bhaga	Bhabber-B	920	33.01769	74.85742
934)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Julia, Near Ramesh Chander House	Katra	Bhaga	Bhabber-B	930	33.02022	74.85731
935)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Jyotipuran-Aghar nalla (Below Bidda Jyotipuram Road Co. 33/R)	Reasi	Reasi	Mari	910	33.10442	74.83976
936)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kai Khad (Forest) Chatiya	Katra	Bhaga	Buttan	940	33.01192	74.85016
937)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kalara	Katra	Bhaga	Bhaga-II	920	33.04422	74.88714
938)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kalara, Near Satsung Ghar Kalara	Katra	Bhaga	Bhaga-II	950	33.04422	74.88714
939)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kanka, Near M.S Kanka	Katra	Bhaga	Bhabber-B	950	33.02106	74.87233
940)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kanka, Near Puran Chand House	Katra	Bhaga	Bhabber-B	940	33.01856	74.87406
941)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kanka, Roadside and Alongside Pai river	Katra	Bhaga	Bhabber-B	920	33.01592	74.87797
942)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kans Brahmna	Thakrakote	Talwara	Talwara I	950	33.06278	74.78258

943)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Karla Khad (Chatiya)	Katra	Bhaga	Buttan	910	33.00961	74.86533
944)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Karun Kote, Co. 14/R	Reasi	Bhonag	Nagote	980	33.14774	74.96801
945)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Karwa	Katra	Bhaga	Bhabber - B	960	33.03069	74.88142
946)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Karwa Dansar Baba	Katra	Bhaga	Bhabber-B	930	33.02758	74.87056
947)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Karwa Pai	Katra	Bhaga	Bhaga-II	940	33.02761	74.86897
948)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Karwa, Near Raj Kumar House	Katra	Bhaga	Bhabber-B	900	33.02494	74.87953
949)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Karwa, Near Shiv Mandir	Katra	Bhaga	Bhabber-B	920	33.02528	74.87675
950)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kheral	Thakrakote	Talwara	Talwara I	950	33.07108	74.77164
951)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kund (Bultan)	Katra	Bhaga	Buttan	940	32.98497	74.88894
952)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Kundra Pai	Katra	Bhaga	Bhabber-B	900	33.02908	74.84061
953)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Mand Nallah, Near Police Chowki	Katra	Bhaga	Babber-I	960	33.01936	74.8474
954)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Mansoo	Katra	Bhaga	Babber-I	980	33.01314	74.84244
955)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Nai Devi, NH Reasi-Katra road	Katra	Bhaga	Bhabber-B	910	33.02242	74.88842
956)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Pai	Katra	Bhaga	Bhaga-II	950	33.02642	74.84844
957)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Pai (2)	Katra	Bhaga	Bhaga-II	900	33.02828	74.84696

958)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Reasi	Reasi	Pathi	Katra	Bhaga	Kanjoli	1110	32.99039	74.84636
959)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Pathi (2)	Katra	Bhaga	Kanjoli	940	32.98647	74.83353
960)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Patta	Thakrakote	Talwara	Talwara I	900	33.03658	74.79456
961)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Saldi	Katra	Bhaga	Bhaga-II	950	33.03769	74.86297
962)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Saldi (1)	Katra	Bhaga	Bhaga-II	910	33.04181	74.86364
963)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Saldi (2)	Katra	Bhaga	Bhaga-II	960	33.02106	74.86788
964)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Saldi Pai	Katra	Bhaga	Bhaga-II	930	33.02947	74.86581
965)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Sarad Co. 11/R	Reasi	Bhonag	Nagote	940	33.14159	74.98906
966)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Sarad Co. 11/R	Reasi	Bhonag	Nagote	940	33.14159	74.98906
967)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Sarli Talab-Jyotipuran Nalha, Co. 32/R	Reasi	Reasi	Mari	950	33.11529	74.84754
968)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Sarma Nalla (Mari) Co. 34/R	Reasi	Reasi	Mari	900	33.11659	74.86009
969)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Saroon	Katra	Bhaga	Buttan	900	32.98467	74.89897
970)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Saroon (1)	Katra	Bhaga	Buttan	860	32.98339	74.89586
971)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Satoi-Galli, co. 120/R and co. 12b/R	Reasi	Bhonag	Nagote	900	33.13205	74.99424

972)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Seela Panasa	Katra	Bhaga	Bhaga-I	900	33.05014	74.78359
973)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Seela Panasa (Paili)	Katra	Bhaga	Bhaga-I	940	33.05022	74.78355
974)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Seela Panasa War	Katra	Bhaga	Bhaga-I	900	33.0502	74.78355
975)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Simbal Choa	Katra	Bhaga	Bhaga-II	920	33.03358	74.85075
976)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Talwara	Thakrakote	Talwara	Talwara I	940	33.06792	74.77106
977)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Talwara (1)	Thakrakote	Talwara	Talwara I	870	33.08653	74.79028
978)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Tand, Sia Nallah	Katra	Bhaga	Bhabber-B	870	33.00003	74.85575
979)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Tanda	Katra	Bhaga	Bhabber-B	870	33.00133	74.84836
980)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Tanda	Katra	Bhaga	Bhabber-B	910	33.01172	74.84783
981)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Tanda Mansoo	Katra	Bhaga	Babber-I	910	33.01397	74.84325
982)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Tanda Near M.S Tanda	Katra	Bhaga	Bhabber-B	890	33.00603	74.8485
983)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Tanda Sari	Katra	Bhaga	Babber-1	830	33.00033	74.91722
984)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Tanda, Near M.S Tanda	Katra	Bhaga	Babber-I	830	33.00633	74.84775
985)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Tanda, Near Pritam Singh House	Katra	Bhaga	Bhabber-B	840	32.99878	74.84867
986)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Tanda, Sia Nallah	Katra	Bhaga	Bhabber-B	920	32.99522	74.85275
987)	CN/JK/CI/01,02,04	Jammu & Kashmir	Reasi	Reasi	Thata-Basti Nalha Co.	Reasi	Reasi	Mari	930	33.10094	74.86994

					34/R						
988)	CN/JK/CI/01,02,04	Jammu & Kashmir	Udhampur	Ramnagar	North Range				1420		
989)	CN/JK/CI/01,02,04	Jammu & Kashmir	Udhampur	Ramnagar	North Range 2				890		
990)	CN/JK/CI/01,02,04	Jammu & Kashmir	Udhampur	Ramnagar	North Range 3				870		
991)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Udhampur	Ramnagar	North Range 4				1140		
992)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Udhampur	Ramnagar	North Range 5				1130		
993)	CN/JK/CI/01,02,04	Jammu & Kashmir	Udhampur	Ramnagar	South Range				940		
994)	CN/JK/CI/01,02,04	Jammu & Kashmir	Udhampur	Ramnagar	South Range 2				920		
995)	CN/JK/CI/01,02,04	Jammu & Kashmir	Udhampur	Ramnagar	South Range 3				930		
996)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Udhampur	Ramnagar	South Range 4				1110		
997)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Udhampur	Ramnagar	South Range 5				1140		
998)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Udhampur	Udhampur	Site 1 (Udhampur)				1120		
999)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Udhampur	Udhampur	Site 2 (Udhampur)				1120		
1000)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Udhampur	Udhampur	Site 3 (Udhampur)				1080		
1001)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Udhampur	Udhampur	Site 4 (Udhampur)				1120		
1002)	CN/JK/CI/01,02,03,05	Jammu & Kashmir	Udhampur	Udhampur	Site 5 (Udhampur)				1120		

v) Other Intervention											
S.No.	Model	State/ UT	District	Division	Sitename	Range	Block	Beat	Area (Ha)	Latitude	Longitude
1003)	CN/JK /CI/06	Jammu & Kashmir	Jammu	Jammu WD	Bahu(2)				32	32.7266	74.857
1004)	CN/JK /CI/06	Jammu & Kashmir	Jammu	Jammu WD	Gharana				5		
1005)	CN/JK /CI/06	Jammu & Kashmir	Jammu	Jammu WD	Kukarian 3				10	32.7266	74.857
1006)	CN/JK /CI/06	Jammu & Kashmir	Jammu	Jammu WD	Nandini Wildlife Sanctuary(2)				10	32.7266	74.857
1007)	CN/JK /CI/06	Jammu & Kashmir	Jammu	Jammu WD	Pargwal(2)				10	32.7266	74.857
1008)	CN/JK /CI/06	Jammu & Kashmir	Jammu	Jammu WD	Sangral- Asa Chak				10	32.7266	74.857
1009)	CN/JK /CI/06	Jammu & Kashmir	Jammu	Jammu WD	Sheshara CR				5		
1010)	CN/JK /CI/06	Jammu & Kashmir	Kishtwar	Chenab WD	Kishtwar National Park				30	33.3116	75.7662
1011)	CN/JK /CI/06	Jammu & Kashmir	Kishtwar	Chenab WD	Kishtwar National Park (2)				20	33.3116	75.7662
1012)	CN/JK /CI/06	Jammu & Kashmir	Ramban	Chenab WD	Jawahar Tunnel(3)				10	33.2427	75.2392
1013)	CN/JK /CI/06	Jammu & Kashmir	Samba	Jammu WD	Nanga				10	32.553	75.1108
1014)	CN/JK /CI/07	Jammu & Kashmir	Udhampur	Jammu WD	Mansar (Ramsar Site)				10	32.916	75.1416
1015)	CN/JK /CI/06	Jammu & Kashmir	Udhampur	Jammu WD	Mansar Surinsar Wildlife Sanctuary(3)				10	32.916	75.1416

1016)	CN/JK /CI/06	Jammu & Kashmir	Udhampur	Jammu WD	Ramnagar Wildlife Sanctuary				10	32.916	75.1416
1017)	CN/JK /CI/06	Jammu & Kashmir	Udhampur	Jammu WD	Sudhmahadev				10	32.916	75.1416
1018)	CN/JK /CI/07	Jammu & Kashmir	Udhampur	Jammu WD	Surinsar (Ramsar Site)(2)				8	32.916	75.1416

**Annexure - 9 Letter from PCCF and HoFF Himachal Pradesh Forest Department
Regarding Availibility of Land for Carrying out Forestry interventions
Himachal in Chenab Riverscape**



**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

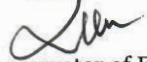
Request to provide information on availability of land for forestry interventions and certificate of verification of plantation and cost.

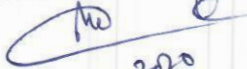
Sir,

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

**Annexure - 10-Letter from PCCF and HoFF Jammu and Kashmir UT Forest
Department Regarding Availability of Land for Carrying out Forestry
Interventions in Chenab Riverscape**

<u>Office Address</u> May to October: Forest Complex, Shiekh Bagh, Lal Chowk, Sgr-190001 Nov. to April: Van Bhawan, Below Gamat, Jammu-180001	Phone: 0194-2483937, Fax: 0194-2455027 Phone: 0191-2560585, Fax: 0191-2547276	 सत्यमेव जयते	URL Address: www.jkforest.gov.in E-mail: pccfikforest@gmail.com
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Government of Jammu & Kashmir
Office of the Pr. Chief Conservator of Forests & HoFF
Jammu & Kashmir Forest Department



Director General of Forest
& Special Secretary, Government of India,
MoEFCC, New Delhi.

No: PCCF/Plg/208/1405-07 **Dated: 26-11-2020**

Reference No.: D.O. No. 12-4/2017-B-III (P) dated 17.11.2020

**Subject: DPR on Forestry Interventions for Chenab, Jhelum
& Ravi for Jammu & Kashmir.**

Sir,

The J&K Forest Department is providing all necessary assistance to Himalayan Forest Research Institute for the preparation of DPR on Forestry Interventions for rejuvenation of Jhelum, Chenab & Ravi rivers in Jammu & Kashmir. The Director, Himalayan Forest Research Institute has shared certain information and has sought inputs with regard to the availability of land in various forest divisions in the riverscapes of aforementioned rivers for the proposed forestry interventions. After getting the inputs from the concerned DFOs, the necessary information have also been sent to DG ICFRE vide this office No. PCCF/Plg/Himalaya/208/1320-23 dated 12.11.2020.

It is once again reiterated that J&K Forest Department will continue to provide the necessary assistance for implementation of the projects as per the approved DPRs.

Yours faithfully,


(Dr. Mohit Gera) IFS
Pr. Chief Conservator of Forests (HoFF), J&K

Copy for information to:

- 1) DG ICFRE, P.O. New Forest, Dehradun-248006
- 2) Director HFRI, Panthaghati, Shimla.